Berryville Town Council

MEETING AGENDA

Berryville-Clarke County Government Center
101 Chalmers Court, Second Floor
Main Meeting Room
Regular Session

December 9, 2025

7:00 PM

A RESOLUTION OF THE COUNCIL OF THE TOWN OF BERRYVILLE HONORING

Christina Kraybill

WHEREAS, Christina Kraybill, inspired by faith and service to others, recognized the unique business community that is the heart of Berryville's downtown district; and

WHEREAS, she focused on building relationships and fostering engagement during the time she served on the Clarke County Economic Development Advisory Committee and as President and board member of Berryville Main Street; and

WHEREAS, Christina built a fair-trade farmers market stand into a home business and then to a brick-and-mortar mainstay of the downtown, all while volunteering as a chaplain and giving back to the community; and

WHEREAS, she partnered with Town of Berryville and Virginia Main Street to revitalize Hogan's Alley to enhance access from the Town parking lots to the downtown business district, cooperated with the Town to remodel the Berryville Main Street office at 23 E. Main Street to provide a public meeting space, encouraged beautification efforts through the downtown planter sponsorship program; and

WHEREAS, Christina helped downtown be a destination, drawing visitors and residents alike to shop, dine, and enjoy the small-town charm of Berryville, encouraging communication and collaboration between local business owners, organizing events such as the Big Flea, Music in the Park, Summer's End Cruise-In, Christmas events, and themed downtown shopping events; and

WHEREAS, her dedication and persistence established and refined organization and systems that will benefit Berryville Main Street for many years to come.

NOW, THEREFORE, BE IT RESOLVED, that the Council of the Town of Berryville honors Christina Kraybll for her tireless volunteerism, kindness, and generosity of spirit.

By order of the Town Council this 9th day of December, 2025.

_____ _____

Harry Lee Arnold Jr., Mayor **Erecka L. Gibson, Vice Mayor**

Town Council Agenda Item Report Summary

December 9, 2025

Item Title
Arbor Day Proclamation

Prepared By
Terry Russsell

Background/History/General Information

The Town of Berryville became a designated Tree City USA community by the Arbor Day Foundation in 2019 and was notified of its continued status for 2024. This year, the Town of Berryville Tree Board again celebrated Arbor Day at the opening day of the Clarke County Farmers' Market on Saturday, May 3, 20245. The Tree Board was joined by a Bartlett Tree Experts representative who offered advice and distributed free saplings.

Findings/Current Activity

In order to retain the Tree City USA status, an application must be submitted annually. The application process includes an annual proclamation in which Council acknowledges Arbor Day and the benefits of trees in the community.

Financial Considerations

N/A

Schedule/Deadlines

The next annual application is due on December 31, 2025.

Other Considerations

N/A

Recommendation

Adopt the proclamation as presented.

Sample Motion

I move that the Council of the Town of Berryville adopt the attached proclamation for Arbor Day 2025.

Attachment:

- Official Proclamation

TREE CITY USA®
An Arbor Day Foundation Program

Official Proclamation

Whereas, In 1872, J. Sterling Morton proposed to the Nebraska Board of Agriculture that a special day be set aside for the planting of trees; and

Whereas, this holiday, called Arbor Day, was first observed with the planting of more than a million trees in Nebraska; and

Whereas, Arbor Day is now observed throughout the nation and the world; and

Whereas, trees can reduce the erosion of our precious topsoil by wind and water, cut heating and cooling costs, moderate the temperature, clean the air, produce life-giving oxygen, and provide habitat for wildlife; and

Whereas, trees are a renewable resource giving us paper, wood for our homes, fuel for our fires, and countless other wood products; and

Whereas, trees in our town increase property values, enhance the economic vitality of business areas, and beautify our community; and

Whereas trees, wherever they are planted, are a source of joy and spiritual renewal.

Now, therefore be it resolved that the Council of the Town of Berryville does hereby proclaim May 3, 2025 as Arbor Day in the Town of Berryville.

Town Council urges all citizens to celebrate Arbor Day and to support efforts to protect our trees and woodlands and urge all citizens to plant trees to promote the well-being of this and future generations.

By order of the Town Council this 9th day of December, 2025.

Harry Lee Arnold, Jr., Mayor

Erecka L. Gibson, Vice Mayor

Town Council Report
9 December 2025

Item Title
Construction Standards and Specifications Manual Revision

Prepared By
Jean Petti

Background/History/General Information
Under the terms of a 2024 franchise agreement, Shenandoah Cable Television (SHENTEL) is expanding of Glo Fiber service to the Berryville market.

Findings/Current Activity
SHENTEL requests that the Town apply a relaxed asphalt restoration standard developed by the county of Frederick, Maryland. As this amendment requires a public hearing to amend Berryville's *Construction Standards Manual and Specifications*, staff undertook a review of the document as a whole. In addition to adding potential language for a relaxed asphalt restoration standard, references were updated as necessary, revisions were made to bring erosion and sediment control language into line with the newly adopted (2025) *Virginia Stormwater Management Handbook,* and provisions for submersible grinder pumps were added to *Chapter 14- Minimum Standards for Wastewater Pumping Stations.*

Attachments
1. Draft of revision to *Construction Standards and Specifications Manual.*

Draft Motion
I move that the Council of the Town of Berryville repeal the existing and readopt the revised Construction Standards and Specifications Manual, Materials Specifications Manual, and Standard Details.

Section 1

General Information

I. Purpose and Authority

A. This document, entitled *Town of Berryville Construction Standards and Specifications*, establishes standards for design and construction of public facilities being built for dedication to the Town of Berryville. All regulations, standards, and established best practices as determined by Town Engineer and Director of Public Works must be applied. This document shall be an administrative document that is approved by the Town Council.

II. Interpretation and Revision

A. These standards and guidelines are intended to supplement the provisions of applicable Federal and State regulations. Nothing herein shall be deemed to waive or modify other requirements of existing codes. Except as expressly provided otherwise in this document, the Director of Community Development is the designated official charged with the administration of the standards and requirements contained in this manual. The Director of Community Development may allow for variations of given standards where the effect of such variations is in keeping with established engineering practices and procedures and shall make the final decision on all questions regarding interpretation of this document, after reviewing recommendations from the designated departments, authorities, boards, and committees. For any areas where this document or the reference documents provide conflicting requirements, the Town of Berryville exceptions shall be followed. For other conflicts between requirements, the stricter of the two requirements shall be followed.

B. Qualified professionals are encouraged to seek innovative solutions to technical problems. However, to promote orderly development and to expedite plan processing and subsequent construction, standardized procedures and the use of minimum design standards must be employed. Familiarity with, and use of the standards set forth herein by designers, contractors, and inspection personnel, will result in more timely and economical project review, approval, and completion.

C. New information on design criteria and changes in pertinent Federal and State laws, regulations, and standards will be reflected in periodic reviews and subsequent changes to the document. Appropriate notice will be given for public input and comment during the updating process. Any record plats, final site plans, or construction plans and profiles submitted prior to the approval of any revisions shall comply with the standards in effect at the time of formal application.

D. Where standards of organizations such as the American Society for Testing and Materials (ASTM), the American Waterworks Association (AWWA), the American National Standards Institute (ANSI), the Commonwealth of Virginia, or Virginia Department of Transportation (VDOT), the Occupational Safety and Health Administration (OSHA), the Federal Highway

Administration (FHWA), the American Association of State Highway and Transportation Officials (AASHTO) are referenced, the most current edition of the standard shall apply.

III. Severability

A. Should any section or provision of the document be decided by the courts to be unconstitutional or invalid, such decision shall not affect the validity of the document as a whole, or any section thereof, other than the section or part thereof so held to be unconstitutional or invalid.

IV. Materials Specification Manual

A. The *Materials Specifications Manual* shall be approved by the Director of Public Works. These materials have been specified because they most suit the specific design criteria, maintenance needs, and cost requirements for the Town of Berryville. No substitutions beyond those listed in this book will be allowed. The *Manual* will be updated regularly so care should be taken to ensure that contractors are using the latest version when preparing bids.

V. Noise

A. All contractors and deliveries must comply with Town of Berryville Code Chapter 11 Noise.

VI. Hours of Work

A. Work requiring inspections must be scheduled Monday-Friday between 8:00 a.m. and 3:00 p.m., excluding Town observed holidays. If Contractor seeks to work outside these hours, a Town approved inspector must be present and their compensation paid by Contractor.
B. Hours of construction and deliveries as regulated in the Code of the Town of Berryville Section 11-4(e) must be posted at each vehicular access point of the site under construction.

VII. Dust Control

A. All contractors shall be responsible for minimizing dust and preventing erosion while performing work associated with any approved permit or job award. The contractor, at the discretion of the Director of Public Works, may be required to water down job sites. The contractor shall keep all road surfaces clean and free of debris in accordance with the current version of the *Virginia Stormwater Management Handbook*

VIII. Acceptance of Improvements by Town

A. Notwithstanding other requirements herein, improvements are eligible for acceptance by the Town of Berryville after inspection determines that all improvements meet standards and conform to plans, regulations, and best practices. A maintenance bond may be required. Such acceptance is evidenced by written notice from Director of Public Works.

Section 2

General Design Standards

I. *Provision for Future Growth*

A. The Town may require the modification of certain proposed public improvements to provide adequate capacity for the logical extension of said improvements. Proposed facilities would include, but not be limited to, water lines, booster stations, manholes, water pressure control valves, sewer lines, sewer pump stations, streets, and stormwater management facilities. Costs for the provision of additional capacity or modifications as required above may be reimbursed by the Town or through agreements with other owners/developers.

B. Plans and specifications shall be prepared and certified by a professional engineer registered in the Commonwealth of Virginia, in accordance with *Title 54.1, Chapter 3 of the Code of Virginia*, as amended. All regulations, standards, and established best practices as determined by Town Engineer and Director of Public Works must be applied.

II. Phased Construction

A. Delineation

If development is to be constructed in phases, plans shall clearly indicate by phase lines and notes which facilities are to be constructed under each phase. Plans shall indicate locations of contour tie-ins for each phase and specific measures for phased termination of all water, sewer, storm drainage, streets, and other public improvements. Construction plans for public improvements and utilities shall be designed so as to be fully functional at the completion of each phase and allow for construction of the next phase with a minimal impact to existing improvements. A temporary marker identifying the location of the utility termination shall be provided.

B. Bonding

Bonding of public improvements and erosion and sediment control measures as required by Town Ordinance shall be provided independently for each proposed phase.

III. Drainage

A. General

1. An evaluation shall be performed for all proposed drainage systems to ensure adequate hydraulic capacity for conveyance of the minimum ten-year event including, but not limited to, channels, storm water management facilities, and conduits.

2. Hydraulic capacity must be verified with engineering calculations in accordance with the procedures outlined in the *Virginia Stormwater Management Handbook*, the *Virginia Department of Transportation Drainage Manual*, *Town of Berryville Stormwater Management Ordinance*, and this manual. Submit an electronic and a printed copy of drainage calculations with construction plans.

   Calculations shall include a copy of the site grading and drainage plan, at the plan scale, upon which the boundaries, acreages, time of concentration paths, and C-factors of the interior drainage areas shall be shown. Calculations shall also include a map at an appropriate scale delineating the boundaries, acreages, time of concentration paths, and C-factors of the drainage areas upstream of the development which would contribute storm water to the development.

3. Due consideration must be given to infrequent events (100-year) resulting in runoff quantities greater than minor system design capacity. The design for the major drainage system shall provide for overland relief of the 100-year event without flooding or damaging buildings and structures and without reliance upon the minor drainage system. The limits of the area affected by the 100-year event shall be represented on construction plans.

4. The drainage system shall be designed to honor all natural drainage divides and create no adverse impact on downstream properties. It shall account for all off-site storm water and convey discharge surface waters to the flow line of a natural watercourse or an existing underground or above-ground adequate conveyance system.

5. The owner or developer may not create a new discharge or concentrated storm water from a pipe, culvert, channel, or other drainage structure onto or through lands of another, without first obtaining a permanent storm drainage easement and constructing improvements to guarantee continuity of an outfall from the point of discharge to the nearest natural or man-made watercourse.

6. If off-site downstream construction and easements are required to construct an adequate channel outfall, no plans shall be approved until such storm drainage easements, extending to the nearest natural or man-made watercourse, have been obtained and recorded. It will be the responsibility of the developer to obtain all off-site easements.

7. Energy dissipation devices and/or friction channel lining shall be used at and downstream of outfalls when discharge velocities exceed the maximum permissible as defined by the *Virginia Stormwater Management Handbook.*

8. Plans shall be prepared to preclude adverse impacts because of higher flow rates that may occur during construction.

9. Construction plans shall show the location, size, flow line elevations, profiles, and details of all drainage facilities and structures, existing or proposed, including, but not limited to, swales, ditches, culverts under public streets and private drives, drop inlets, storm sewers, and detention/retention ponds and pond outlet structures. Typical cross sections of all swales and ditches shall be shown.

10. Profiles of streets shall show profiles of storm sewers and cross sections of culverts together with point of intersection. Profiles shall show clearance of such drainage facilities with water mains and sanitary sewer.

B. Storm Sewer Systems

1. General

A. The following minimum requirements are considered acceptable to the Town of Berryville for the collection and detention of stormwater runoff. Deviation from these may be allowed if: a) the deviation is in accordance with sound engineering standards; b) the deviation will not increase the likelihood of a system failure; and c) the deviation will not adversely impact the environment or others.

B. As a general guideline, standards shall be those set forth in the latest editions of the *Virginia Stormwater Management Handbook* and the *Virginia Department of Transportation Drainage Manual*. If the standards set forth in this manual conflict for a particular application, the Director of Public Works and the Town Engineer shall determine which standard is to be applied.

C. When the Town of Berryville standards differ from state and/or federal requirements, the most stringent requirement shall apply.

D. All drawings, specifications, and engineer's reports submitted for approval shall be prepared by or under the supervision of a registered professional engineer with a current registration in the Commonwealth of Virginia in accordance with *Title 54.1, Chapter 3 of the Code of Virginia*, as amended. Where applicable, design may be performed under the direction of a certified Land Surveyor B, in accordance with § 54.1-408 of the above-cited code. The front cover of each set of drawings, of each copy of the engineer's report, and of each copy of the specifications submitted for review shall bear the signed imprint of the seal of the above licensed professional who prepared or supervised the preparation, and shall be signed with an original signature and date.

E. The engineer shall be responsible for obtaining the review and necessary approvals of all drawings and specifications by applicable Town, County, State, and Federal agencies having jurisdiction. Copies of such approvals

shall be submitted to the Director of Public Works and Director of Community Development at the time of final approval.

2. Stormwater Report

   A. All drainage calculations shall be incorporated into a stormwater report, which shall present the following information as applicable. If the necessary calculations are minimal, they can be included on the plan sheets.

      1. A description of the computer software used and references to charts and tables used. Computer spreadsheets or programs created "in-house," used in lieu of standard forms or standard manual calculations, shall be substantiated, at least initially, with manual calculations showing equivalent results. Acceptance of "in-house" spreadsheets and programs will be the decision of the Town Engineer and the Director of Public Works.

      2. The following computations shall be shown for both pre-developed and post-developed conditions:
         a. Grading plan with the boundaries, acreages, and C-factors or CN values for all drainage areas contributing storm water to the site.
         b. Flow paths and calculations of times of concentration.
         c. Runoff computations.

3. Stormwater Design

   A. General

      1. An evaluation using verifiable engineering calculations shall be performed for all proposed drainage systems including, but not limited to, channels, inlets, and conduits. At a minimum, this evaluation shall show adequate hydraulic capacity for conveyance of the ten (10) year storm event.

      2. Due consideration must be given to less frequent storms, up to and including the 100-year storm event. The design of drainage systems shall generally provide for overland relief of the 100-year storm event without flooding or damaging buildings and structures.

      3. The drainage system shall be designed to closely maintain existing drainage divides and must not create adverse impacts on upstream or downstream properties.

      4. Drainage designs must account for any off-site drainage that will be collected by the drainage system or that will flow through any part of the site. Ultimate developed condition of currently undeveloped areas within

a watershed shall be based upon the current or anticipated zoning of those areas.

5. All systems shall be designed to convey runoff to the flow line of a natural watercourse or to an adequate conveyance system.

6. The owner or developer may continue to discharge stormwater as sheet flow (non-concentrated) onto an adjoining property if, at the same location:
   a. The post-development peak runoff rate based on documentation and calculations does not exceed the pre-development peak rates, and
   b. The duration of the flow does not increase under post-development conditions.

7. The owner or developer may not create a new discharge of concentrated storm water from a pipe, culvert, channel, or other drainage structure onto or through lands of others without first obtaining a permanent storm drainage easement and ensuring that adequate conveyance exists downstream between the point of discharge and the nearest natural or man-made waterway.

8. If off-site downstream construction and easements are required to construct an adequate channel outfall, no plans shall be approved until such storm drainage easement, extending to the nearest natural or man-made watercourse, has been obtained and recorded. It will be the responsibility of the developer to obtain all off-site easements.

B. Storm Sewer Systems

1. All publicly owned storm inlets and manholes shall include inlet/invert shaping per VDOT standard IS-1.

2. No concentrated flow greater than one cubic foot per second, based on the ten (10) year storm, shall cross a sidewalk or curb.

3. Culverts and storm sewers shall be of adequate size to transport runoff from the ten (10) year storm for the ultimate developed condition of the subject property. Contributions of off-site flow from permanently developed properties shall be based upon existing conditions. Contributions of off-site flow from undeveloped properties shall be calculated based upon the two-year fully developed flow (undetained) from such properties. Plans shall account for overland relief resulting from less frequent events.

4. The hydraulic grade line of storm sewers for the post-developed ten (10) year storm shall be lower than the gutter line or grate inlet top elevation at all points.

5. All publicly-owned storm sewer pipes within street rights-of-way shall be reinforced concrete pipe with a minimum diameter of five (5) inches or equivalent elliptical size, unless otherwise approved by the Town's Engineer and the Director of Public Works. Publicly-owned storm sewer pipe in non-traffic bearing areas may be either reinforced concrete pipe or corrugated HDPE pipe, with a minimum diameter of fifteen (15) inches.

6. All pipes shall terminate with flared end sections or concrete headwalls. Box culverts shall include concrete headwalls and end walls, which shall be located a minimum of 25 feet from the edge of pavement if the culvert is subject to vehicular traffic.

7. The outfall conditions of pipes and culverts shall be designed to withstand the velocities produced during the two (2) year storm event without erosion.

8. Pipe shall not deflect between storm structures. Pipe on slopes greater than 20% shall be anchored.

9. Minimum cover for storm sewer pipe within the right-of-way shall be according to the *Town of Berryville Standard Details*. Outside the right-of-way, the minimum cover, from finished grade to the outside crown of pipe, shall be the greater of twelve (12) inches or half the pipe diameter.

10. In parallel installations, under normal conditions, storm sewer pipes shall be laid at least ten (10) feet horizontally from water lines and sanitary sewer lines. The distance shall be measured from outside edge to outside edge.

11. In general crossing situations, storm sewer pipes shall maintain a minimum vertical distance of eighteen (18) inches from water mains and twelve (12) inches from sanitary sewer lines. In cases where this separation is impossible to achieve, the water or sanitary sewer line shall be protected in accordance with the appropriate Town of Berryville utility standard. In cases where the water or sanitary sewer line is not owned by the Town of Berryville, the crossing shall be governed by the regulations of the authority which owns the utility in question.

12. Test pits will be required and shall be shown on the plans for all crossings which involve gas lines, water mains twelve (12) inches in diameter and larger, sanitary sewer crossings that have minimum clearance, and all fiber

optic telephone service lines. Test pits shall be dug and clearances verified prior to installing any portion of the storm sewer system.

C. Easements

1. An "easement" shall mean any area to which the Town has unlimited access for maintaining adequate drainage.

2. Permanent easements shall be a minimum width of 20 feet. Wider easements may be required where more than one facility may occupy an easement or in consideration of structure size, depth, or access requirements. The extent of drainage easements shall be dependent on upstream and downstream conditions and the scope of maintenance needed to maintain adequate drainage.

3. Easements shall be recorded and the Deed Book and Page Numbers of the recordation provided to the Community Development Department before approval of the as-built plans and release of the construction bonds.
   a. No building or other structure, including but not limited to fences and decks, shall be erected over permanent easements.
   b. Small and medium shrubs, groundcovers, or grasses may be planted within an easement. Their suitability shall be determined by their likelihood to create or entrap debris or to obstruct natural flow.
   c. Any plantings installed within an easement may be damaged or destroyed during the course of servicing. The Town is not liable for damage to any improvements or plantings within an easement. The Town will re-seed as necessary any bare or disturbed soil for erosion control purposes.

D. Storm Inlet Design

1. Drop inlets shall be sized and spaced such that a minimum of one half of the travel way in each direction shall be free from flooding at the inlet design flow.
2. To properly drain sag vertical curves, it is required on roads classified as minor arterial or higher to place three (3) inlets on each side of the road; one (1) inlet at the low point and one (1) flanking inlet on each side of the low point. The flanking inlets shall be placed so that they will limit the spread in the low gradient (flatter) approaches to the sag point and will act in relief of the sag inlet should it become clogged.

3. Drainage flowing in street gutters shall be intercepted 100%, at design flow, prior to entering an intersection with another public street.

4. Inlets which have bypass flows shall be clearly marked on the plans and bypass flow must be included in the total gutter flow contributing to the next downstream inlet.

5. Downstream flow for drop inlets in streets and parking areas shall be computed using the rational method and applying a rainfall intensity of four (4) inches per hour. Design flow for grate inlets located near structures that could be damaged by flooding shall be computed using the 100-year storm and assuming 50% blockage of the grate. Design flow for all other grate inlets shall be the same as street inlets but must assume 50% blockage.

E. Stormwater Conveyance Channels

1. Channel adequacy, hydraulic capacity, maximum velocities, channel linings, and other related design variables shall be determined by the procedures outlined in the *Virginia Stormwater Management Handbook*, or by approved computer software.

2. All open channels shall be designed to contain the ten (10) year storm with six (6) inches of freeboard below the banks of the channel. Contributions of off-site flow from permanently developed properties shall be calculated based upon the two (2) year fully developed flow (undetained) from such properties. Plans shall account for overland relief resulting from less frequent events.

3. Unless otherwise approved, the need, type, and dimensions of lining for erosion control shall be based on the velocity and depth of flow associated with the ten (10) year event.

4. Maximum side slope for grass lined conveyance channels shall be three-to-one (3:1) (H:V) with a minimum longitudinal slope of 2%.

F. Stormwater Quantity

1. To protect downstream properties and receiving waterways from flooding, the ten (10) year post-development peak rate and velocity of runoff from the land development shall not exceed the two (2) year pre-development peak rate of runoff.

2. To protect downstream properties and receiving waterways from channel erosion, the two (2) year post-development peak rate and velocity of runoff from the land development shall not exceed the two (2) year pre-development peak rate and velocity of runoff.

3. If the land development is in a watershed for which a hydrologic and/or hydraulic study has been conducted or a stormwater model developed, the Town Engineer and Director of Public Works may modify the requirements of items one (1) and two (2) above so that runoff from the land development is controlled in accordance with the findings in the study or model or to prevent adverse watershed storm flow timing, channel degradation, and/or localized flooding problems.

4. The Town Engineer and Director of Public Works may also require that the plan include additional measures to address damaging conditions to downstream properties and receiving waterways caused by the land development.

5. Pre-development and post-development runoff rates shall be verified by calculations that are consistent with accepted engineering practices as determined by the Town Engineer.

G. Stormwater Quality

1. Best management practices shall be designed and sited to capture runoff from the entire land development project area and, in particular, areas of impervious cover within the land development, to the maximum extent practicable.

2. Best management practices as identified in *the Virginia Storm Water Management Handbook* shall be designed to remove the difference between post-development and pre-development total phosphorus loads in cases where post-develop loads exceed pre-development loads.

4. Materials

A. Concrete Pipe

1. Circular reinforced concrete culvert and storm sewer pipe shall be in accordance with ASTM C76 and be Class III minimum.

2. Elliptical reinforced concrete culvert and storm sewer pipe shall be in accordance with ASTM C507.

3. Gasketed joints shall be bell and spigot with rubber gasket seal in accordance with ASTM C443. Tongue and groove joints shall be sealed with mortar or pre-formed flexible sealant per ASTM C990, or other suitable sealant.

B. Corrugated Plastic Pipe

1. Pipe shall be in accordance with AASHTO M294 or ASTM 2306.

2. Pipe shall be joined using a bell and spigot joint meeting AASHTO M252, AASHTO M294, or ASTM F2306. The joint shall be soil-tight and gaskets, when applicable, shall meet the requirements of ASTM F477. Gaskets shall be installed by the pipe manufacturer and covered with a removable wrap to ensure the gasket is free from debris. A joint lubricant supplied by the manufacturer shall be used on the gasket and bell during assembly.

3. Fittings shall conform to AASHTO M252, AASHTO M294 or ASTM F2306. Bell and spigot connections shall utilize a spun-on or welded bell and valley or saddle gasket meeting the soil-tight joint performance requirements of AASHTO M252, AASHTO M294, or ASTM F2306.

4. All installation of corrugated plastic pipe shall be per manufacturer's specifications.

C. Drop Inlets

1. Standard drop inlets shall be per VDOT specifications.

2. For drop inlets in shallow conditions, structures shall be consistent with *Standard Details* or shall be a precast or cast-in-place concrete box with a top consistent with *Standard Details*.

3. For drop inlets requiring a manhole frame and cover for access, the manhole frame and cover shall be as manufactured by Neenah Foundry per *Standard Details*. Frames and covers shall be manufactured in the United States.

D. Manholes

1. Storm manholes shall be per VDOT specifications.

2. Frames and covers shall be as manufactured by Neenah Foundry per *Standard Details* or approved equivalent.

5. Inspection and Testing

A. Concrete Pipe

1. Concrete pipe shall be inspected visually during installation by the Director of Public Works or designee.

3. After installation and backfill, all sand, dirt, and debris from the lines shall be flushed prior to inspection.

4. All lines and manholes shall be visually inspected by the Town of Berryville from every manhole by use of video cameras. The cost shall be the responsibility of the Contractor and invoiced as identified on the *Town of Berryville Planning and Zoning Fee Schedule.*

5. The lines shall exhibit a fully circular pattern when viewed from one manhole to the next.

6. Lines which do not exhibit a true and correct line and grade or have obstruction or structural defects shall be corrected to meet these specifications and the barrel left clean for its entire length.

B. Corrugated Plastic Pipe

1. Corrugated plastic pipe shall be inspected visually during installation by the Director of Public Works or designee.

2. Following installation, the contractor shall perform cleaning and video inspection of the installed plastic pipe. The processes listed below shall be followed:
   a. The video camera inspection must be completed per this manual and by an impartial, qualified and reputable inspector in the presence of a Town inspector. The Town reserves the right to reject an inspector.
   b. The Contractor shall provide 48 hours' notice to the Town prior to televising any pipe to allow an inspector to be on site.
   c. A written inspection report accompanied by visual recording shall be provided to the Town. Visual recording shall be digital mp4 format. The written report shall be in both list form and plan view.
   d. It will be the Contractor's responsibility to demonstrate acceptable joint spacing.
   e. Deflection visible on the video will be assumed to be greater than 5%. The Contractor has the right to challenge this decision by direct measurement or by the use of a GO-NO-GO Mandrel. The pipe will be rechecked for damage after use of the Mandrel.
   f. The Contractor must repair all defects found during inspection. A follow-up video camera inspection shall be performed by the Contractor to assure the repairs have been completed satisfactorily.

IV. Water & Sewer

A. General. A Preliminary Design Report shall be submitted to the Town which shall describe the additions to the water distribution and sewerage collection systems, and at a minimum shall include:

1. Number of units, with the estimates for water usage and wastewater production, and

2. Hydraulic calculations for the proposed water system and existing water system to insure that adequate pressure and volume can be sustained to the new development without reducing pressure or volume in other areas of the existing system, and

3. Hydraulic calculations for the proposed sewerage collection system and all existing lines or pump stations that may be impacted.

B. Design Practices

1. Scope
   a. This section is included for the clarification, information, and benefit of the engineering design community to act as a guide to the practices of the Town. This section is a compilation of a variety of typical practices to be followed in the layout and design of water distribution and wastewater collection systems of the Town. The information contained in this section must be applied in conjunction with the regulations of the Commonwealth of Virginia Department of Environmental Quality, *Virginia Department of Health Waterworks Regulations* and the other sections of this manual.
   b. Many criteria listed are minimums. Additional separations and clearances are to be furnished as practical to optimize each design. Attention shall be given to locating utilities so as to facilitate their re-excavation. The Town will consider factors such as depth and magnitude of facility in determining the adequacy of each design, and may relax or increase dimensional requirements accordingly. In general, a design is to be sought which minimizes length of piping and number of appurtenances while providing a system which minimizes maintenance costs.
   c. Because of the wide variety of situations that arise, it is impossible to address all scenarios. The Town reserves the right to exercise engineering judgement and will have the final decision on the acceptability of design.

2. Water Distribution Design Flows
   a. Whenever practicable, distribution systems shall be designed to avoid main dead ends. When dead ends are unavoidable, the main size serving that area may be evaluated to determine if the main diameter may be reduced and still meet fire flow and domestic needs. However, at no time may the main be smaller than six (6) inches in diameter.
   b. Fire Flows. The water distribution system piping and any extensions thereof shall have adequate capacity to supply the normal (average) and peak hour demands of all customers – domestic, public, commercial and industrial – while maintaining a pressure of not less than 30 pounds per square inch (psi) at all points of delivery. In addition, the piping system shall be capable of delivering on the day of maximum customer demand, flows required for fire protection to at least one (1) point within 300 feet

of each building being served or proposed to be served by such system and extension, while maintaining a residual pressure of not less than 20 psi at the point of service. Flows required for fire protection shall be a minimum of 750 gallons-per-minute (gpm) for Single Family Detached Dwelling developments, 1,500 gpm for Attached Residential or Apartment of three stories or less, and 2,000 gpm for Commercial and Industrial developments.

c. Daily Demands. The following criteria will be used in estimating demands for water and accomplishing hydraulic design of the system.
   i. Average day, maximum day, and peak hour demands to be used in system hydraulic design will be estimated using the following parameters:
   ii. Residential Population
   = N = number of dwelling units x 2.75
   iii. Average daily water demand of residential population in gallons per day (g.p.d.)
   = R = Nx100
   iv. Average daily commercial and industrial water demand in g.p.d.
   = C = number of commercial and industrial employees x100*
   *NOTE: Appropriate additional water demand allowance shall be made for commercial and/or industrial establishments of types having water demands in excess of 100 g.p.d. per employee.
   v. Average daily school water demand in g.p.d.
   = S = number of staff employees and students x 20
   vi. Average daily water demand in g.p.d.
   = A = R + C + S
   vii. Maximum daily water demand in g.p.d.
   = M = A x 2
   viii. Peak hour demand in g.p.m. is calculated using the formula provided in the Waterworks Regulations 12 VAC 5-590-690
   $=Q = 11.4 \times N^{0.544}$

d. Distribution piping design will be based upon providing flows and service pressures in accordance with these standards from the supply design gradient (HGL) furnished by the Town. Hydraulic design of distribution piping will be based on pipe carrying capacities consistent with head losses determined in accordance with the following:

Pipe Diameter	Hazen-Williams Coefficient "C"
6"	100
8"	110
10"	115
12" or greater	120

3. Wastewater Collection Design Flows
   a. Tributary Population
      i. Sewer systems, which provide for a complete watershed, shall be designed and sized assuming the entire watershed to be completely developed according to present or planned land use designation, whichever requires the greater capacity.
      ii. Sewer systems initially developed for only a part of a complete watershed shall be sized to provide for the entire watershed. Otherwise, if acceptable to the Town, physical provision shall be made for future increased capacity. Proper modification to allow for the characteristics (i.e. domestic, commercial and industrial wastes, and ground water infiltration) of the area under consideration shall be made.
   b. Capacities
      i. In determining the required capacities of sanitary sewers, the following factors shall be considered:
         (1) Maximum hourly quantity of domestic sewage.
         (2) Additional maximum sewage or waste from industrial plants and commercial areas.
      ii. New sewer systems shall be designed on the basis of an average per capita flow of sewage from the equivalent population served of not less than 100 gallons per capita per day. Lateral and submain sewers shall be designed for a minimum of 400% of the average flow, main and trunk sewers shall be designed for a minimum of 250% of the average flow, and interceptors shall be designed for a minimum of 200% of the average flow.
      iii. Computations shall use a roughness coefficient (n) in the *Mannings Formula* of 0.014. However, other values may be used for situations where sufficient engineering justification can be demonstrated.
      iv. The 100 gallons per capita per day figure is assumed to cover normal infiltration, but an additional allowance shall be made where conditions are especially unfavorable.
      v. The minimum allowance for flow from single-family detached residences shall be based on 3.5 people per home. For single-family attached residences or dwelling units in multifamily structures, a basis of three (3) people per unit may be used.
      vi. Unless evidence is presented to prove a different flow from industry at ultimate development, the minimum allowance for industrial flow shall be determined by providing an equivalent population of 40 persons per acre or one (1) equivalent population per employee, whichever is the greater, in the industrial area. "Area" shall include the entire area zoned for industry, except public road, street, and highway rights-of-way, flood plains on which construction is prohibited, and "green

zones" separating industrial from residential areas, on which construction is prohibited.

vii. The minimum allowance for flows from commercial areas shall be determined by providing an equivalent population of 30 persons per acre, or one-half (1/2) equivalent population per employee, whichever is the greater, in the commercial area. "Area" shall include entire area zoned for commercial development, including off-street parking and landscaped areas, but excluding the rights-of-way of public roads, streets and highways, flood plains of streams on which construction is prohibited and "green zones" on which construction is prohibited.

viii. Sewer size shall not be less than eight (8) inches in diameter, except under the following condition: Laterals serving six (6) connections or fewer on cul-de-sacs or as sidewalk collector lines may be six (6) inches in diameter.

ix. Minimum Gravity Sewer Slopes

Sewer Size	Minimum Slope in Feet per 100 Feet
	Nonsettled Sewage
3 inch	Not Allowed
4 inch	Not Allowed
6 inch	0.49
8 inch	0.40
10 inch	0.28
12 inch	0.22
14 inch	0.17
15 inch	0.15
16 inch	0.14
18 inch	0.12
21 inch	0.10
24 inch	0.08
27 inch	0.067
30 inch	0.058
36 inch	0.046

All sewer shall be nonsettled unless pre-approved by the Town

x. Minimum flow velocities of 1.3 fps and 2 fps are required for settled and non-settled sewage, respectively.

xi. Special provisions must be made to protect against internal erosion when flow velocities exceed 15 fps.

xii. Sewer shall be buried 24" to protect against freezing.

xiii. In cases where the above criteria are not applicable, an alternate design procedure may be submitted to the Town Engineer and Director of Public Works for approval. A description of the procedure used and justification for the modifications for sewer design proposed shall be included with the Design Analyses and plans submitted for approval.

V. Easements

Where the Town of Berryville permits the construction of water, sewer, or storm water improvements (Town utilities) outside of the public right-of-way, the following shall apply:

A. Easement must be conveyed to the Town of Berryville. Such easement shall include language and conditions as required by the Town and will be approved by the Town prior to recordation.

B. Easements shall be located so as to provide access to all parts of the utility without interference from abutting buildings, fences, and other private improvements.

C. Easements shall not be centered on property lines but shall run parallel to boundary lines to the greatest degree practical. Easements may straddle boundaries, provided that the associated channel or pipeline is offset from the boundary.

D. Easements must remain clear of buildings, trees, fences, and other improvements, and underground structures other than the designated utility. Fence sections may be erected across an easement section so long as the section contained within the easement is a gate through which personnel and equipment may enter the property.

E. Landscaping and/or improvements erected within a utility easement that are damaged or destroyed in the course of utility inspection, maintenance, or reconstruction will not be replaced or paid for by the Town of Berryville. The impacted area will be returned to grade and reseeded by the Town.

F. Easements shall be a minimum of 20 feet in width, however, the Town reserves the right to require wider easements as deemed necessary.

G. Town utility easements are exclusive. Other utilities may only cross the town's easement, and such crossings must be at or near a 90-degree angle.

VI. Submission of Calculation Data in Digital Format

A. Engineering calculations used in the design of public improvements shall be submitted to the Town in digital format for review.

B. Submissions for water system design shall be on a master development plan that includes the locations of the water mains. The plan(s) shall be paper drawings or provided in an AutoCad compatible format. In addition, the plans shall be scale accurate drawings referenced to the North American Datum of 1983.

C. Submissions for sanitary sewer system design should be provided in Microsoft Excel format or Heastead input/output files.

D. Submissions for storm drain system and storm water management design should be provided in Microsoft Excel format, or Heastead input/output files, or Soil Conservation Service TRT –20 or 55 format.

VII. Transferring of Pump Station Ownership

A Transfer of ownership of a pump station to the Town of Berryville will occur only after final acceptance in writing of a completed project. A project is considered complete for the purpose of transferal when 95% of the structures in the project area have a Certificate to Occupy. See *Section 14 of the Town of Berryville Construction Standards and Specifications* for additional information on transferal/acceptance requirements.

B. The developer will be responsible for any maintenance as a result of construction defects of said facilities for one year from the date of final acceptance. A maintenance bond may be required.

VIII. Streets and Related Improvements in the Public Right-of-Way

A. All activity performed in the public right-of-way requires an approved permit from VDOT and the Town of Berryville. VDOT maintains public primary roadways (Business Route 7 and US Route 340). The Town of Berryville maintains public secondary roadways.

B. All work performed under a permit issued by the Town of Berryville must be performed in accordance with the following as applicable:

1. *Berryville Town Ordinances*
2. *Berryville Construction Standards and Specifications*
3. *VDOT Road and Bridge Standards*, current edition
4. *VDOT Road and Bridge Specifications,* current edition
5. *Manual on Uniform Traffic Control Devices (MUTCD), including the VDOT supplement*, current edition
6. *VDOT Manual on Planting and Irrigation in the Right-of-Way,* current edition
7. *VDOT Land Use Permit Manual*, current edition
8. *Virginia Stormwater Management Handbook*, current edition

C. Right-of-way dedication and acceptance of public streets not maintained by VDOT shall be evidenced by authorized signatures on the deed of dedication or other instrument deemed acceptable by the Town of Berryville.

D. In order to obtain guarantee of performance to assure timely completion and competent construction of physical improvements, the applicant is required to post a bond or other acceptable surety as identified in Article VII. *Performance*

Surety, of the *Town of Berryville Subdivision Ordinance* and Article III. Section 314.8 *Construction and Bonding* of the *Town of Berryville Zoning Ordinance*.

E. Performance bonds shall be submitted to the Town of Berryville for review and approval for those streets in the Town's system (secondaries).

F. Dedication and acceptance of public streets shall be in compliance with VDOT *Guide to Highway System Changes, 2023*, current edition.

G. The following chart identifies requirements for right-of-way widths:

ROW WIDTH	ADT	Design Speed	Road Width (Parking 2 sides)	Curb & Gutter	Buffer Strip	Sidewalk Width
55'	Up to 2,000	25 mph	30'	CG-6	5'	5'
65'	2,001 to 4,000	25 mph	36'	CG-6	7'	5'

H. Street Lighting
All outdoor lighting fixtures shall be shielded to prevent glare on adjacent properties or rights-of-way. No lighting fixtures shall exceed twenty-five (25) feet above the ground in height.

1. The placement of Residential street lights shall follow the guidelines below:
    a. At intersections:
        i. In order to provide lighting within the intersection area of two local streets, a light ball shall be installed on one corner of any intersection or opposite the intersection in the case of a T-intersection.
    b. Within cul-de-sac bulbs:
        i. A light pole will be installed within the cul-de-sac bulb when the cul-de-sac street is longer than 200 feet measured from the intersection of the intersection local streets to the center of the cul-de-sac bulb.
    c. Mid-block streetlights:
        i. A minimum number of mid-block streetlights shall be installed in order to achieve a desired pole spacing of approximately 250 feet. The maximum spacing between lights should not exceed 300 feet and the minimum spacing between lights should not be less than 200 feet unless otherwise approved by the Town Engineer and the Director of Public Works. Lights should desirably be located on or near property lines and not in front of structures when possible.

2. Street lights on collector streets with rights-of-way of 60 feet or more with average daily traffic of 2,001 vehicles or more shall maintain separation based on

the guidelines established above. Cobra head fixtures may be installed on these roadways.

3. Commercial street lighting will be reviewed as part of the site plan review and based on guidelines established above.

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Section 3

Water Mains and Appurtenances

I. General

A. This section includes construction of distribution system mains, service laterals, and other associated appurtenances as well as testing and disinfection requirements. All regulations, standards, and established best practices as determined by Town Engineer and Director of Public Works must be applied.

B. All mains shall be cement mortar lined ductile iron with a minimum diameter of six (6) inches. The pipe shall have rubber gasket push-on joints and all fittings shall be mechanical joint except as approved by the Town. Where special fabrication of ductile iron pipe is required to fit water mains within vaults, structures, and buildings, the Contractor shall submit fully dimensioned drawings showing the piping in full detail with exact locations, dimensions, and schedules of all pipe, fittings, hangers, supports, and appurtenances before starting fabrication of the pipe and/or fittings. Where special fittings are required, they shall be shown in detail with all necessary dimensions. The design of such installations shall provide adequate space within the housing and around the fittings to allow easy disassembly of pipe sections or other appurtenances.

C. Water mains shall be located a minimum of three (3) feet from the gutter of the streets with curb and gutter, or three (3) feet within the pavement edge of streets without curb and gutter. Whenever practical, sewer mains shall be located in the center of the street.

D. A minimum ten (10) foot horizontal separation (outside to outside), or six (6) feet horizontal separation with at least eighteen (18) inches' vertical separation from bottom of water to top of sewer, shall be provided between all water lines and sanitary sewer lines. Should conditions require the water and sewer lines to be installed in the same trench, the water line must rest on a shelf of undisturbed earth to one side of the sewer with at least eighteen (18) inches of vertical separation between the top of the sewer line and bottom of the water line. Approval from the Town Engineer and Director of Public Works must be acquired before same trench installation is permitted.

E. Typical minimum cover of four (4) feet is to be provided for water mains. For short distances, reduced cover of as little as three (3) feet may be approved so as to preclude locating water below a crossing utility.

II. Mains

A. Ductile Iron Pipe

1. Ductile iron pipe shall be manufactured in accordance with ANSI A21.51/ AWWA C151. All pipe shall have a minimum Class 52 thickness.

2. End designs shall conform to the ANSI/AWWA C 111/ A21.11 – "Rubber Gasket Joints Ductile Iron and Gray Iron Pressure Pipe and Fittings". Push-on joints shall be "Tyton," "Super Bell Tite" or "Fast-Tite" joint, or approved equal.

3. The inside of the pipe shall be cement lined in accordance with ANSI/AWWA C 104/ A21.

4. Flanged connections shall only be permitted where indicated on construction plans and pre-approved by the Town, and shall conform to ANSI/AWWA C115/A21.15.

B. Backfill and Bedding

1. Select Backfill
    a. There shall be 24 inches of select backfill above the stone aggregate which shall be compacted in eight-inch lifts. The maximum particle size of the material shall be no greater than one (1) inch and shall be compacted to 95% of maximum density.
    b. Above the select backfill, material shall be deposited in lifts not to exceed two (2) feet, and have a compaction to 95% of maximum density.
    c. A six (6) inch wide magnetized locating ribbon labeled "WATER LINE BURIED BELOW" shall be placed above the select fill.
    d. No rock shall be used in the select backfill. Any rock used *above* the select backfill shall be no larger than six (6) inches in diameter.
    e. A #12-gauge wire shall be placed next to the PVC (C909) line during installation of the main. This wire must maintain positive continuity at all times.

2. Stone Bedding

    1. For excavation in dirt or clay, there must be six (6) inches of stone under and over the pipe.

    2. For excavation through rock, there shall be twelve (12) inches of stone under and over pipe in rock trenches.

C. Fittings

1. All fittings shall be cast of ductile iron, and shall conform to ANSI/AWWA C153/A21.53. Fittings shall be made with mechanical joint ends in accordance with ANSI/AWWA C 111/A21.11.

2. A sufficient number of bolts, nuts, glands, and gaskets shall be provided for each fitting. These accessories shall be of the proper dimensions for the size pipe. The bolts shall be made of high strength low alloy steel in accordance with ANSI/AWWA C 111/ A21.11.

3. The cement lining shall conform to ANSI/AWWA C 104/A21.4.

II. Handling Ductile Iron Pipe and Fittings

A. It shall be the responsibility of the pipe manufacturer to thoroughly inspect each length of pipe according to the applicable ANSI and AWWA standards and other requirements as set forth in these specifications.

B. Ductile iron pipe, fittings, valves, and accessories shall be handled in strict accordance with the provisions of ANSI/AWWA C 600, so as to ensure that these items are sound, undamaged, and entirely suitable in all aspects to the specified requirements of each particular fitting, pipe, and accessory. Particular care shall be taken not to injure either the coating, the pipe, or threads. Equipment, tools, and methods used in loading, reloading, unloading, hauling, and laying pipe and fittings shall be such that no damage is done to the pipe, fittings, or coatings. Where hooks are used for lifting, they shall have broad, well-padded contact surfaces. Repair of defective or damaged coatings or linings shall be made under the direct supervision of a representative of the pipe manufacturer. No field repair work may be done on any damaged pipe coating or lining without the prior approval of the Director of Public Works and Town Engineer. Any bituminous pipe coating that is damaged by shipment or by the Contractor shall be repaired prior to installation or placing of any backfill or hanging within hangers. Repairs shall be made by removing all damaged coating, then wire brushing to expose the metal and applying two coats of coal tar coating material of a type and quality equal to that used originally for the bituminous coating of the pipe.

C. The cutting of pipe for closure pieces or for other reasons shall be done in a neat and workmanlike manner by a method that will not damage the pipe or its lining. Sections shall be thoroughly swabbed or cleaned of all foreign matter before being installed into the system and shall be kept clean during and after installation. Before installation of any pipe or fitting, each piece shall be inspected for defects. All defective, damaged, or unsound pipe or fittings shall be rejected.

III. Installation

A. Pipe laying shall be conducted in strict accordance with the provisions of ANSI/AWWA C 600. The lay shall proceed with the bell end of the pipe pointing in the direction of the next pipe joint to be laid. Each pipe shall be laid true to line and grade and in such manner as to form a close concentric joint with the adjoining pipe and to prevent sudden offsets of the flow line. Proper precautions shall be taken to keep the interior of the pipe free of all dirt and superfluous materials of every description as the work progresses.

B. Trenches shall be kept free from water until the pipe jointing is complete. At all times when work is not in progress, open ends of pipe and fittings shall be securely closed to the satisfaction of the Town so that no trench water, earth, or other substance will enter the pipe or fittings. Adequate backfill shall be deposited on the pipe to prevent floating. Any pipe which has floated shall be removed from the trench and be re-laid.

C. All tees, bends, and dead ends shall be restrained by means of concrete blocking and be installed with Megalug™ retainer gland or approved equal.

D. ScotchMark Electronic Marker System (EMS 1257) or approved equal shall be included with the installation of all water mains. The markers shall respond to a frequency of 145.7 kHz, with placement as follows:

1. 50-foot intervals on mains, and
2. Each bend, and
3. The end on each joint that is deflected and each "T", and
4. Any additional location directed by the Town of Berryville.

E. A six (6) inch wide magnetized location ribbon labeled "WATER LINE BURIED BELOW" shall be installed above the select backfill.

F. A #12 gauge wire shall be placed next to all main lines and service laterals. The wire shall maintain continuity at all times.

V. Separation of Water Lines and Sewers

A. General – The following factors shall be considered in providing adequate separation:

1. Materials and types of joints for water and sewer pipes.
2. Service branch connections into the water line and sewer lines.

3. Space for repairs and alterations of water and sewer pipes.

4. Avoiding offset of pipes around manholes.

B. A minimum ten (10) foot horizontal separation (outside to outside), or six (6) feet horizontal separation with at least eighteen (18) inches' vertical separation from bottom of water to top of sewer, shall be provided between all water lines and sanitary sewer lines. Should conditions require the water and sewer lines to be installed in the same trench, the water line must rest on a shelf of undisturbed earth to one side of the sewer with at least eighteen (18) inches of vertical separation between the top of the sewer line and bottom of the water line. Approval from the Town Engineer and Director of Public Works must be acquired before same trench installation is permitted.

C. Parallel Installation

1. Normal Conditions – Water lines shall be laid at least ten (10) feet horizontally from a sewer or sewer manhole wherever possible. The distance shall be measured edge-to-edge.

2. Unusual Conditions – When local conditions prevent a horizontal separation of ten (10) feet, the water line may be laid closer to a sewer or sewer manhole provided that:
   a. The bottom (invert) of the water main shall be at least eighteen (18) inches above the top (crown) of the sewer. Should conditions require the water and sewer lines to be installed in the same trench, the water line must rest on a shelf of undisturbed earth to one side of the sewer with at least eighteen (18) inches of vertical separation between the top of the sewer line and bottom of the water line. Approval from the Town Engineer and Director of Public Works must be acquired before same trench installation is permitted.
   b. The sewer manhole shall be of watertight construction and tested in place.
   c. Where vertical separation of at least eighteen (18) inches cannot be maintained between the bottom of the waterline and the top of the sewer, the sewer line shall be constructed of water pipe conforming to AWWA C 900 and shall be pressure tested in place, as specified in AWWA standard C 600, with a minimum test pressure of 30 pounds per square inch (psi). Leakage is not permitted during the AWWA C600 pressure testing.
   d. When sanitary sewers cross over water lines, the sewer joints must also be centered at the point of crossing so that joints are equidistant and as far as possible from the water line.
   e. Sewer Manholes and Drainage Structures —A minimum of ten (10) feet of separation shall be provided between water pipes and sanitary sewer manholes. Where this distance cannot be maintained, the manhole shall be of watertight construction and tested in place. A minimum of six (6)

feet of separation shall be maintained between sewer manholes and drainage structures.

D. Crossings

1. Normal Conditions – Water lines crossing sanitary and storm sewers shall be laid to provide a separation of at least eighteen (18) inches between the bottom of the water line and the top of the sewer.

2. Unusual Conditions – When local conditions prevent a vertical separation as described, or where waterline must cross below sanitary sewers, the sewer line shall be constructed of water pipe conforming to AWWA C 900 and shall be pressure tested in place, as specified in AWWA standard C 600, with a minimum test pressure of 30 psi. Water lines passing under sewers shall, in addition, be protected by providing:
   a. A vertical separation of at least 24 inches between the bottom of the sanitary sewer and the top of the water line.
   b. Adequate structural support for the sewer to prevent excessive deflection of the joints and the settling on and breaking of the water line.
   c. The length of the water line be centered at the point of the crossing so that joints shall be equidistant and as far as possible from the sewer.
   d. When conditions do not allow for water lines to pass over storm sewers, a minimum of eighteen (18) inches clearance shall be maintained from top of water line to bottom of storm sewer.
   e. If conditions do not allow for separation during installation around existing structures, bridging or other methods of protecting water quality and pipe integrity may be submitted and considered for approval by the Town Engineer and Director of Public Works. New construction must maintain required separations.

3. Stream crossing and highway crossings shall be installed as shown in the *Standard Details* unless otherwise specified. The crossing shall be made in such a manner to minimize erosion and blockage of the stream flow. Backfill under rip-rap shall be compacted to 90% density.

VI. Testing and Disinfection of Water Lines

A. General

The Contractor will supply the water used for flushing, disinfection, and testing. Town water may be available on a case-by-case basis with prior approval from the Director of Utilities and Director of Public Works. If Town water is used, the water shall be metered and the contractor shall pay the Town for its cost. Filling of water lines may not be performed until permission has been obtained from the Director of Public Works and Director of Utilities. The contractor is not permitted to operate valves on any existing water line.

B. Testing

1. All new water mains and hydrant connections shall be subject to a hydrostatic pressure test after thrust restraints have been installed, the line has been backfilled, all water house connections have been installed (lateral from main to meter box), and at least three (3) days after the last concrete reaction anchor has been poured. Testing shall be in accordance with AWWA C-600. Water mains shall be filled with clean water at a velocity of approximately one (1) foot per second (fps) while necessary measures are taken to eliminate all air. A hydrostatic pressure of not less than 150 psi or 150% of normal operating pressure, whichever is greater, shall be maintained for two (2) hours. Lines of different sizes shall be tested separately. Hydrants shall be in the closed position. All high points in the portion of the system under test shall be vented and air shall be expelled from the system prior to beginning the test.

2. At the conclusion of the pressure test, the volume of the makeup water required to refill the pipeline shall be determined by measurement with a displacement meter or by pumping from a vessel of known volume.

3. All visible leakage must be eliminated by the contractor, regardless of the amount. Should test results show displacement, damage, or leakage in excess of the allowable amount (see table below for representative values), the contractor shall repair the displacement and damage to eliminate the leakage. The contractor shall retest until the specified conditions are met to the satisfaction of the Director of Public Works and Town Engineer.

Allowable Leakage per 1,000 feet of Pipeline – gph
Nominal Pipe Diameter – in

Psi	4	6	8	10	12	16
250	0.47	0.71	0.95	1.19	1.42	1.90
225	0.45	0.68	0.90	1.13	1.35	1.80
200	0.43	0.64	0.85	1.06	1.28	1.70
175	0.40	0.59	0.80	0.99	1.19	1.59
150	0.37	0.55	0.74	0.92	1.10	1.47

The above table is presented for convenience only. Please refer to AWWA C600 for complete up-to-date table.

C. Disinfection

1. After leakage testing, and before final inspection of the completed systems, water mains shall be flushed and then disinfected in accordance with ANSI/AWWA C-651 standards. All disinfection procedures and final testing

shall be carried out under the observation of a utility inspector approved by the Town. Either the tablet method or continuous feed method shall be used.

a) The tablet method can only be used if the pipes and appurtenances are kept clean and dry during construction. The mains should be filled at the rate of one (1) fps or less. Water must remain in the main for a minimum of 24 hours when the water temperature is 41° Fahrenheit (5° Celsius) or more. If the water temperature drops below this then the water must remain a minimum of 48 hours. A detectable chlorine residual should be found at each sampling point after the prescribed contact time.

b) If the continuous feed method is to be used, pre-flushing shall be accomplished at a flow velocity of not less than 2.5 fps. All valves, hydrants, and water house connection shall be operated during this procedure. Clean water shall be flushed throughout the system until there is no trace of cuttings, oil, dirt, or other foreign matter flowing out of the pipe. The water shall be chlorinated so that after the 24 hour contact time, a free chlorine residual of not less than ten (10) parts-per-million (ppm) is maintained.

2. Final flushing will occur as soon as practically possible after the required contact time to prevent damage to the pipe lining or to prevent damage. When the chlorine residual has been reduced to within the range of 0.2 and 2.0 ppm, bacteriological samples can be collected.

3. Water samples for bacteriological analysis shall be taken by the contractor at regular intervals not exceeding 2,000 feet, as approved by the Town Engineer and Director of Public Works, witnessed by the utility inspector, and analyzed by a certified laboratory. Two satisfactory bacteriological samples, collected 24 hours apart, must be obtained prior to placing the lines in service. Satisfactory samples are those that indicate no presence of coliform bacteria. If contamination is found in one or both sets of samples, the entire disinfection and bacteriological sampling procedure must be repeated.

4. Water flushed from the mains will have to be dechlorinated with a neutralizing chemical to prevent environmental damage. The recommended neutralizing chemicals and procedural guidelines for dechlorination are explained in ANSI/AWWA C-651 standards. The contractor shall be responsible for the proper application of the neutralizing chemicals to reduce the chlorine residual to a non-detectable level. The contractor shall assume full responsibility for the discharge of all water used during any flushing, and shall be responsible for any damage to public or private property or environmental damage including, but not limited to, vegetation, trees, streams, ponds, and lakes.

VII. Service Laterals

A. General

1. All material used shall meet or exceed ANSI/AWWA C800 standards.

2. All taps made on ductile iron mains shall be made direct, without a saddle, unless otherwise specified or approved by the Town Engineer and Director of Public Works.

3. Where applicable, and when tapping PVC mains, a Ford Style FS202 or approved equal shall be used.

4. All water services shall be installed as shown in Specification Detail section.

5. Service lines shall be type 200 psi HDPE copper tubing sized piping conforming to ANSI/ASTM standard specifications. The line shall be one continuous piece from corporation stop to meter setter and the line will be equal to the size of the corporation stop. Line must be accompanied by a twelve-gauge copper tracer wire.

6. Meter boxes will be set on the street side at the property line, unless otherwise approved by the Town Director of Public Works.

B. ¾-Inch Water Service

1. Corporation stop shall be ¾ inch ball style and conforming to the requirements of the AWWA Standards. Connection at the corporation stop shall be compression type.

2. The meter box shall be eighteen (18) inches in diameter, and 30 inches in depth, with an eighteen (18) inch diameter frame and eleven and a half (11½) inch diameter lid. The frame and lid shall be made of cast iron and lid shall include the FP cast iron plug where applicable.

3. The meter setter shall consist of a copper setter, inlet angle valve, and outlet angle ASSE approved top loading dual check valve.

C. One (1) Inch Water Service

1. Corporation stop shall be one (1) inch ball style and conform to the requirements of ANSI/AWWA Standards. Connection at the corporation stop shall be compression type.

2. The meter box shall be eighteen (18) inches in diameter and 30 inches in depth, with an eighteen (18) inch diameter frame and eleven and a half (11½) inch diameter lid. The frame and lid shall be made of cast iron and lid shall include the FP cast iron plug where applicable.

3. The meter setter shall consist of a copper setter, inlet angle valve, and outlet angle ASSE approved top loading dual check valves

D. 1½ and Two (2) Inch Water Services

1. Service shall be taken off the main by means of a wet tap or an anchoring tee, with a six (6) inch branch and a six (6) inch branch valve. A tapped mechanical joint plug shall be used in the downstream side of this valve, with a male IPT to compression adapter. Connection at the corporation stop shall be compression type.

2. The meter shall be set in a custom box with a custom meter setter consisting of a flanged angle valve on the inlet and an ASSE approved dual check valve on the outlet. The setter shall include a bypass with ball valve and locking cap.

3. Meter vault shall conform to the dimensions shown in the Standard Details, or as approved by the Town Director of Public Works.

VIII. Backflow Prevention Assemblies

A. Each metered service connection must have an ASSE approved backflow prevention device installed for service line protection. The Town Director of Public Works and Director of Utilities must approve the type of device submitted based on the degree of hazard of the planned use.

1. Metered service lines with a low degree of hazard must be provided with a double-check valve backflow prevention assembly that is tagged, stamped, or embossed to indicate it meets ASSE Standard No. 1015.

2. Metered service lines with a high degree of hazard must be provided with a reduced pressure zone device that is tagged, stamped, or embossed to indicate it does meet ASSE Standard No. 1013.

3. Backflow prevention devises that require yearly inspection must be installed above grade and/or in a location not subject to flooding. The location of a backflow prevention devise in to be approved by the Town's Director of Utilities.

B. Each fire line service connection must have an ASSE approved backflow prevention device with leak detector installed for fire service line protection. The Town Director of Public Works and Director of Utilities must approve the type of device submitted based on degree of hazard of the planned fire service.

1. Fire lines with a low degree of hazard (no additives or antifreeze) must be provided with a detector double check backflow prevention assembly with ASSE Standard No. 1048 identification made part of the device.

2. Fire lines with a high degree of hazard (additives or antifreeze) must be provided with a reduced pressure assembly with ASSE Standard No. 1047 identification made part of the device.

C. All detector (metered) assemblies are required to have a meter that is compatible with the Town's meter reading device.

D. All backflow prevention devices must be inspected annually by the owner and a report submitted to the Town's Director of Utilities for review. Residential premises without secondary uses, exclusive of multifamily that present a low degree of hazard (no additives or anti-freeze), are not required to submit annual reports.

IX. Acceptance of Improvements

A. A written request to the Director of Public Works is required for necessary inspections for acceptance of improvements. The request shall include as-built drawings, easements, and other pertinent information as deemed necessary by the Department of Public Works and the Town's Engineer. A response from the Department of Public Works and Community Development Director after review will be forwarded to the applicant outlining deficiencies or for approval of the project.

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Section 4

Valves and Hydrants

I. General

A. All regulations, standards, and established best practices as determined by Town Engineer and Director of Public Works must be applied.

B. Valve or hydrant manufacturer shall be regularly engaged in the design, manufacture, and maintenance of valves or hydrants of the type specified, and shall have furnished valves or hydrants of the same general design, type, and comparable size specified herein, which have been used and proved satisfactory under similar test, service, and operating conditions for at least five years. The manufacturer shall furnish satisfactory evidence of adequate facilities for furnishing parts for repairs and for maintenance of the hydrants or valves furnished. Unless otherwise indicated, valves shall be designed to provide tight shut-off at the following pressure differential: 250 pounds per square inch (psi) upstream and zero psi downstream in either direction. Design flows shall be a minimum fifteen (15) feet per second (fps) for opening and closing.

B. All valves furnished through twelve (12) inches shall be resilient wedge-valves with non-rising stems. Valves larger than twelve (12) inches shall be butterfly type unless otherwise required by the Town Engineer and Director of Public Works.

C. A valve box shall be provided for each buried valve. Boxes shall be screw type. Telescoping type are prohibited. Extension stems shall be provided for valves where the operating nut is greater than four feet (4'-0") below grade. The stem shall extend to a minimum of two feet (2'-0") below finished grade.

D. Unless otherwise specified herein, four (4) inch and larger valves and all hydrants shall have mechanical joint ends.

II. Gate Valves

A. General

1. Gate Valves shall be manufactured to meet or exceed all the requirements of ANSI/AWWA C509-01 or ANSI/AWWA C515 Standard for resilient wedge ductile iron gate valves.

2. The manufacturer must provide a ten (10) year warranty against defective material and workmanship.

III. Specifications

A. Valves shall meet the following minimum design criteria:

1. Valve body shall be manufactured of ductile iron and have a working pressure of 250 psi.

2. All ferrous components shall be ductile iron: body, wrench nut, stuffing box, and valve wedge.

3. The marking "DI" or "ductile iron" shall be cast into the valve body along with "250W" or "250 psi".

4. The valve wedge shall be ductile iron encapsulated with nitrite rubber. The wedge shall be symmetrical and seal equally well with flow in either direction.

5. Valves shall have a fusion-bonded epoxy coating complying with ANSI/AWWA C550 Standard applied electrostatically prior to assembly, inside and out, for maximum corrosion resistance.

6. The valve shall have a smooth full diameter waterway with no recesses to trap debris or obstruct flow.

7. Valve stem shall be high strength corrosion resistant bronze. Stem shall be sealed by three O-rings. The top two O-rings shall be replaceable with valve fully open and while subject to full rated working pressure. O-rings set in a cartridge shall not be allowed.

8. Sealing gaskets shall be pressure energized O-rings.

9. Torque minimizing thrust washers must be installed with one (1) above and one (1) below the thrust collar to assure trouble free operation of the valve.

10. Valves shall conform to UL Solutions and Factory Mutual Research Corporation standards.

11. Bolting materials shall develop the physical strength requirements of ASTM A307 Standard, and may have either regular square or hexagonal heads with dimensions conforming to ANSI B18.2.1 Standard. Metric size socket head cap screws are not allowed. Bolts and nuts securing valve bonnets, stems, and operating nuts shall be stainless steel.

12. Operating nut shall have four flats at stem connection to assure even input torque to the stem.

13. Flanged valves shall be OS&Y 125-pound flanges. The manufacturer shall be able to furnish 250-pound flanges upon request.

B. Installation

1. Valves shall be carefully erected in their respective positions and free from all distortion and strain with stems vertical. The valve box shall be set over the operating nut and shall have its top flush with the final surface. The valve box top section shall overlap the lower section by at least six (6) inches.

2. Restraint of valves shall be performed by the Contractor in accordance with the Standard Details or as specified by the Director of Public Works and the Town Engineer.

3. Where valves occur on the end of the pipeline, a mechanical joint plug shall be placed and secured in the exposed bell before backfilling the trench.

4. The contractor shall backfill and compact under and around valve boxes to ensure no vertical loads are transmitted to the valve operators.

5. All valves shall be installed with Megalug™ retainer gland or approved equal.

IV. Tapping Sleeves

A. Mechanical joint tapping sleeves meet the following design criteria:

1. Sleeves shall be the split type mechanical joint with side and end gaskets, manufactured of ductile iron.

2. Sleeves shall conform to all applicable requirements of ANSI/AWWA C110 A21.10, ANSI/AWWA C111 A21.11, and ANSI B16.11 Class 125 flange.

3. When sleeves are to be installed on pipe that is larger than twelve (12) inches, field verification by the contractor of the existing pipes outside diameter shall be required before ordering said sleeve.

4. Stainless steel tapping sleeves will be considered where the existing main is PVC pipe or cast iron of irregular outside diameter.

V. Fire Hydrants

A. General

1. Fire hydrants shall be the dry-barrel type manufactured to meet or exceed all the requirements of ANSI/AWWA C502 Standard.

2. Drainage capability must be provided for fire hydrant weep holes. If areas of high water table are encountered, the contractor shall contact the Director of Public Works or the Town Engineer to relocate the hydrant to prevent possible cross contamination.

3. Fire hydrants shall be painted in accordance with *Standard Details*.

4. The manufacturer must provide a ten (10) year warranty against defective material and workmanship.

5. Fire hydrants shall be located as follows:
   a. At street intersections and at intermediate locations where deemed necessary by the Town Engineer and the Director of Public Works and/or the State Fire Marshall's Office after consultation with the Fire Chief.
   b. At the end of all cul-de-sacs in a location determined by the Town If a hydrant is determined to be unnecessary by the Director of Public Works and the Town Engineer, a "blow-off" shall be installed.
   c. No closer than 50 feet and no further away than 100 feet of any standpipe or sprinkler system fire department connections.
   d. As required by the following schedule according to use group. The distance shall be measured along an unobstructed path around the structure to the most remote part of the structure that the hydrant will serve.

Industrial Buildings	250 feet
School Buildings	300 feet
Commercial, Church and Office Buildings	350 feet
Apartments, Multifamily, and Town Houses	250 feet
Single-Family Detached and Two-Family Attached Dwellings	400 feet

   e. All hydrants shall be a minimum of 50 feet away from any buildings other than single-family detached and two-family attached dwellings unless deemed appropriate by the Town Superintendent.
   f. In no case shall the distance between fire hydrants, measured along the centerline of accessible streets, be greater than 600 feet.

6. No landscaping shall be permitted within five (5) feet of a fire hydrant, with the "no landscape" area indicated on the plat.

7. Fiberglass hydrant marker flags shall be installed by the developer and approved by the Director of Public Works.

B. Specifications

Hydrants shall meet the following minimum design criteria:

1. Hydrant shall have a rated working pressure of 200 psi with a test pressure of 400 psi.

2. The main valve closure shall be of the compression type, opening against the pressure and closing with the pressure.

3. Traffic feature to be designed so that the nozzle section of the hydrant can be rotated (by degree) to a full 360° circle during field installations, if necessary.

4. The main valve opening shall not be less than 5 ¼" and be designed so that seat, drain valve mechanism, internal rod, and all working parts can be removed through the top of the hydrant without disturbing the ground line joint or the nozzle section of the hydrant.

5. The bronze seat shall be threaded into mating threads of bronze for easy field removal.

6. The draining system of the hydrant shall be bronze and activated by the main stem without the use of auxiliary rods, toggles, pins, etc. The drain mechanism shall be completely closed after no more than three turns of the operating nut, allowing throttling of the hydrant as needed. A minimum of two inside ports and four drain port outlets must be provided to ensure positive drainage when closed. Drain shut-offs shall be by direct compression closure.

7. The operating nut, main stem, coupling, and main valve assembly shall be capable of withstanding input torque of 200 ft/lbs in opening or closing directions.

8. There shall be an internal top housing with triple O-rings to seal operating threads from the waterway and accommodate an antifriction washer.

9. Nozzle sections of the hydrant shall be designed to permit field replacement of damaged threads without special tools, excavation, or disturbing the ground line joint. Bronze nozzles are to be locked into the hydrant barrel with locking lugs and be sealed by heavy duty O-rings. The operating nut size, as well as hose and pumper threads, shall conform to National Standard Specifications.

10. Hydrants shall conform to UL Solutions UL 246 standards and Factory Mutual Research Corporation standards.

11. The maximum friction loss through the hydrant shall not exceed 2.8 psi at 1000 gallons per minutes (gpm) through the pumper nozzle. The flow test and certification of this feature shall be conducted by an independent testing laboratory, and be in accordance with ANSI/AWWA C502-94 standard. The records of all tests performed shall be made available to the Town upon request.

12. The standard depth of bury shall be a minimum of four (4) feet to a maximum of seven (7) feet without the use of extensions. When the water main is deeper than the standard depth, the use of quarter and eighth bends between the tee at the main and the fire hydrant will be required to bring it to the proper grade.

C. Installation

1. Fire hydrants shall be installed in accordance with the Standard Details, where indicated on the plans, set plumb, and with bury line at finished grade. The pumper outlet shall face the street.

2. Bollards shall be installed as shown on plans or as directed by the Town.

3. Every effort shall be made to avoid the use of barrel extensions, and such extensions shall only be used when approved on a case-by-case basis by the Director of Public Works and the Town Engineer.

4. A six (6) inch valve shall be provided in the lead of each hydrant. This valve shall be restrained to the main by an anchoring tee or anchoring coupling. Where a hydrant is used to terminate the main, restraint of this valve shall be by means of a dead-end anchor cast around the main.

5. All privately owned hydrants shall have stenciled on the hydrant the word "PRIVATE" to identify the unit as a privately owned hydrant. The stenciling shall be sized and placed to be easily seen from the direction of hydrant access.

6. Hydrants shall be located no more than ten (10) feet from the face of curb and at least ten (10) feet from any entrance or driveway.

7. Prior to acceptance, hydrants shall be flow tested under Town supervision to assure compliance with the *Town of Berryville Construction Standards Manual*. The flow report shall be submitted to the Town Engineer and the Director of Public Works for review and approval.

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Section 5

Sanitary Sewer

I. General

A. This section includes requirements for construction and testing of all sanitary sewer piping. The installation of sanitary sewers will be in accordance with this section of the specifications and applicable standard details. All regulations, standards, and established best practices as determined by Town Engineer and Director of Public Works must be applied.

B. Whenever practical, sewer mains shall be located in the center of the street. Water mains shall be located a minimum of three (3) feet from the gutter of the streets with curb and gutter, or three (3) feet within the pavement edge of streets without curb and gutter. A minimum ten (10) foot horizontal separation (outside to outside), or six (6) feet horizontal separation with at least eighteen (18) inches' vertical separation from bottom of water to top of sewer shall be provided between all water lines and sanitary sewer lines. The water line must rest on a shelf of undisturbed earth to one side of the sewer.

   Manholes shall be placed at the intersection of all mains, at all changes in horizontal or vertical alignment, at a maximum of 300 foot intervals, where pipe size changes occur, and at any other locations as directed by the Town Engineer and the Director of Public Works. Where a temporary or permanent termination of the main is proposed, a manhole shall be provided.

C. A minimum separation of 50 feet must be maintained between sanitary sewer and any well producing potable water.

D. A minimum separation of fifteen (15) feet must be maintained between sanitary sewer and all existing or proposed buildings.

E. Sewers shall be extended to beyond the limits of all proposed improvements prior to final grading and/or street construction.

F. If a manhole is constructed, a channel may be required to provide for future growth.

II. Materials

A. All pipe shall be of the same material and shall be furnished by the same manufacturer. Each pipe length and all fittings shall be clearly marked at intervals of five (5) feet or less with the manufacturer's name or trademark and pipe type.

B. PVC Sewer Pipe

1. The pipe and fittings shall be manufactured in accordance with ANSI/AWWA C900/C905 for Polyvinyl Chloride (PVC) pressure pipe and fittings, utilizing a rubber gasketed joint to provide for expansion and contraction. The pipe shall have a minimum DR ratio of 25 with cast-iron-pipe-equivalent Outside Diameters (ODs).

2. The pipe shall be joined with an integral bell-and-spigot type rubber gasketed joint. Each integral bell joint shall consist of a formed bell complete with a single rubber gasket. Gaskets shall conform to ASTM F-477. All fittings shall utilize gasketed joints.

3. Pipe and fittings shall be homogeneous throughout and free from cracks, holes, foreign inclusions, or other injurious defects. The pipe shall be as uniform as commercially practicable in color, opacity, density, and other physical properties.

4. Manhole connections shall be accomplished by means of an elastomeric gasket to provide flexibility and adequate joint tightness.

5. Manholes shall be placed at the intersection of all mains, at all changes in horizontal direction, at a maximum of three-hundred (300) foot intervals on straight sections, where pipe size changes occur, and at any other location as so determined by the Director of Public Works and the Town Engineer.

III. Installation

A. Only proper and suitable tools and appliances for the safe and convenient handling and laying of pipes and fittings shall be used. Pipes and fittings shall be carefully handled and lowered into the trench. Under no circumstances shall any pipe or fitting be dumped or rolled into the trench or be allowed to drop against the pipe or fitting already in the trench. Before being lowered and while suspended, the pipe shall be inspected for defects. Defective, damaged, or unsound pipe will be rejected.

B. The interior of the pipe shall be thoroughly cleaned of all foreign matter before being lowered into the trench and shall be kept clean during laying operations by means of plugs or other approved methods. The pipe shall not be laid in water or when the trench or weather conditions are unsuitable for such work. When work is not in progress, open ends of pipe and fittings shall be closed securely so that no trench water, earth, or other substances will enter the pipe or fittings.

C. All pipe being installed shall have no less than six (6) inches of bedding under and over the pipe as per *Standard Details*. The stone to be used for bedding shall be VDOT #68 type. The full length of each section of underground pipe shall rest solidly upon the pipe bedding and any defects due to settlement shall be made good by the contractor at their own expense. The ends of pipe shall abut each other in such a manner that there shall be no shoulder or unevenness on the inside of the main. Bell holes shall be dug sufficiently large to ensure installation of proper joints. Special precautions shall be exercised to prevent any pipe from resting on rock.

D. Any pipe that has the grade or joint disturbed after laying shall be taken up and re-laid. Any pipe, pipe fittings, or appurtenance found defective after installation shall be replaced.

E. Except where otherwise necessary in making connections or closures, or as authorized by the Director of Public Works and the Town Engineer, bell-and-spigot pipe shall be laid with bells facing in the direction of laying.

F. Where pipe cutting is necessary, it shall be done in a neat and workmanlike manner without damage to the pipe. Unless otherwise authorized, cutting shall be done by means of an approved type of mechanical cutter that will leave a smooth end at right angles to the axis of the pipe and not otherwise damage the pipe.

G. Joints on PVC pipe and fittings shall be made in accordance with the recommendations of the joint manufacturer and as approved by the Town Engineer and the Director of Public Works.

H. All transition joints in sewers between similar or dissimilar materials of equal or unequal size shall be made water and gas tight by means of an approved connector or adapter of the compression or mechanical seal type. Please see *Materials Specifications* section of this document for approved materials. Couplings of the mechanical seal type shall have tightening clamps or devices made of 304 stainless steel. The compression joint connector or adapter and flexible coupling shall be installed as recommended and specified by the manufacturer and each connector shall bear the manufacturer's name clearly visible when installed.

I. Pipe excavation shall be kept free from water and no joint shall be made under water. The Contractor shall be careful during backfilling to prevent damage to or disturbing of joints and to protect the watertight integrity of the pipes at all times. There shall be no walking on or working over pipe until backfill is over the pipe. Backfilling shall be in accordance with the standard details and *Section 8* of the *Construction Standards*. The maximum depth of burial shall be no greater than 20 feet unless approved in writing by the Town of Berryville.

J. Sheeting, shoring, and bracing shall be in accordance with safety standards and regulations established by the Occupational Health and Safety Administration (OSHA) and construction methods established in the Associated General Contractors of America Safety Code. The Contractor shall follow applicable regulation and best practices in determining whether or not sheeting and shoring is required, as well as for installation, maintenance, and removal of same.

K. Stream crossings and highway crossings shall be installed as in *the Standard Details* unless otherwise specified. The crossing shall be made in such a manner to minimize erosion and blockage of the stream flow. Backfill under the rip-rap shall be compacted to 90% density. Sanitary sewer entering or crossing a stream must be constructed of watertight pipe and exhibit 0% infiltration when tested in place.

L. Slope anchors as described in *Construction Specifications* shall be provided on sewers with slopes exceeding 20%. Minimum anchorage shall be as follows:

1. Not over 36 feet center-to-center on grades 20% and up to 35%.

2. Not over 24 feet center-to-center on grades 35% and up to 50%.

3. Not over 16 feet center-to-center on grades 50% and over.

M. ScotchMark Electronic Marker System EMS 1258 or approved equal shall be included with the installation of all sewer force mains. The markers shall respond to a frequency of 122.5 kHz, with placement as follows:

1. 50-foot intervals on force mains, and

2. All laterals (pegs placed where lateral leaves right-of-way or easement and enters private property), and

3. Any additional location directed by the Town of Berryville.

N. A six (6) inch wide magnetized locating ribbon labeled "SEWER LINE BURIED BELOW" shall be installed above the select backfill.

O. A #12 gauge wire shall be placed next to all sewer mains, force mains and laterals. This wire must maintain positive continuity at all times.

IV. Final Inspection and Testing

A. All sewer construction shall be subject to testing and final inspection, including internal video camera inspection prior to acceptance.

B. The Contractor shall furnish weirs, stand pipes, pipe plugs, pressure gauges, stop watches, air compressors, hose, and such materials and assistance as required to perform these tests. All acceptance tests shall be conducted by the Contractor in the presence of a utility inspector approved by the Town. The Contractor shall schedule all acceptance tests with an approved utility inspector and provide the Town Director of Public Works at least 48 hours notice of the test.

C. Prior to the final inspection by the Town, the Contractor shall locate and adjust all manholes, valve boxes, etc. to final grade and clean all gravity lines and manholes.

D. All gravity sewer lines, to include building sewers, shall be tested after backfill using a low-pressure air test in accordance with applicable ASTM specifications. The air test shall be conducted as follows: provide test plugs at each manhole and securely brace. Provide suitable means of determining depth of groundwater level above the inverts immediately before testing. The testing pressure will be increased accordingly but the total pressure including the increased amount of groundwater backpressure at the spring line of the pipe shall not exceed 5.5 pounds per square inch (psi). Add air slowly to the test section until the internal air pressure, as indicated on the gauge, stabilizes at four (4) psi or at the increased pressure determined for the correction of the groundwater backpressure. Do not allow personnel in manholes while the test is being performed or when test section is under air pressure. If leakage is indicated at the test plugs, relieve pressure before taking steps to eliminate the leak. When the air pressure is stabilized, disconnect the hose and compressor and allow the pressure to decrease to 3.5 psi, plus correction for groundwater backpressure. Record the time period for the pressure to drop 1/2 psi. Pipes failing to maintain minimum holding times set forth in the table below will not be accepted.

AIR TEST TABLE

Pipe Size – Diameter

Length	6"	8"	10"	12"	15"	18"	21"	24"	27"
25'	2:50	3:47	4:43	5:40	7:05	8:30	9:55	11:24	14:25
50'	2:50	3:47	4:43	5:40	7:05	8:30	9:55	11:24	14:25
75'	2:50	3:47	4:43	5:40	7:05	8:30	9:55	11:24	14:25
100'	2:50	3:47	4:43	5:40	7:05	8:30	9:55	11:24	14:25
125'	2:50	3:47	4:43	5:40	7:05	8:30	10:54	14:15	18:02
150'	2:50	3:47	4:43	5:40	7:47	11:13	15:16	19:56	25:14
200'	2:50	3:47	4:43	5:42	8:54	12:49	17:27	22:48	28:51
225'	2:50	3:47	4:43	6:25	10:01	14:25	19:38	25:38	32:37
250'	2:50	3:47	4:57	7:08	11:08	16:01	21:49	28:30	36:04
275'	2:50	3:47	5:26	7:50	12:15	17:37	24:00	31:20	39:40
300'	2:50	3:48	5:56	8:33	13:21	19:41	26:11	34:11	43:16
325'	2:50	4:07	6:26	9:15	14:28	20:50	28:21	37:02	46:52
350'	2:50	4:26	6:55	9:58	15:35	22:26	30:32	39:53	50:30
375'	2:50	4:45	7:25	10:41	16:42	24:02	32:43	42:44	54:05
400'	2:50	5:04	7:54	11:24	17:48	25:38	34:54	45:35	57:42

Minimum holding time in minutes and seconds by size and length of pipe.
Pressure drop from 4.0 psi to 3.5 psi (test pressure shall be increased by amount of groundwater backpressure at springline of pipe, but shall not exceed 5.5 psi).

E. Should the test show displacement, damage, or leakage in excess of the allowable amount, the Contractor shall repair the displacement and damage and eliminate the leakage. Contractor shall retest until the specified conditions are met to the satisfaction of the Town Engineer and Director of Public Works.

F. All gravity sewer lines (not including building sewer) shall be internally inspected by video camera prior to acceptance, and all deficiencies noted during the inspection shall be corrected. Such inspection shall be made after sewer trench has been fully backfilled and associated roadway sub-grade construction is completed. The cost of this inspection will be borne by the project's owner. Requests for such inspection shall only be made after the system is fully cleaned. Inspections will be scheduled within ten (10) business days of receipt of a valid request. Should the Town Director of Public Works or Town Engineer be unable to perform the inspection within this period, then an approved third party may be contracted by the project's owner to conduct the work. A follow-up inspection will be made eleven (11) months following the initial inspection. Any required repairs shall be made at project developer's expense and prior to release of any maintenance bond. An additional twelve (12) month maintenance bond may be required at the discretion of the Director of Public Works, the Town Engineer, and the Director of Community Development.

G. Building sewers shall provide a standard cleanout within five (5) feet of building exit to allow for internal camera inspection prior to being given a *Certificate of Occupancy*. Any required repair shall be performed by project owner prior to being granted a *Certificate of Occupancy*. 48 hours' notice is required for the inspection. Line must be cleaned by project owner prior to inspection. The cost of the inspection and any reinspection, if required, will be due from the project owner.

H. All manholes shall be tested for water tightness by vacuum testing after the manhole rim has been installed to final grade and prior to final acceptance.

I. Vacuum tests shall be conducted in accordance with ASTM C1244. Stubouts, manhole boots, and pipe plugs shall be secured to prevent movement while the vacuum is drawn. Vacuum equipment shall be approved by the Town prior to its use. A measured vacuum of ten (10) inches of mercury shall be established in the manhole. The time for the vacuum to drop to nine (9) inches of mercury shall be recorded. The following are the minimum allowable test times for manhole acceptance at the specified vacuum drop:

Depth of Manhole (feet)	Time (seconds) Manhole Diameter (inches)								
	30	33	36	42	48	54	60	66	72
8	11	12	14	17	20	23	25	29	33
10	14	15	18	21	25	29	33	36	41
12	17	18	21	25	30	35	39	43	49
14	20	21	25	30	35	41	48	51	57
16	22	24	29	34	40	45	52	58	67
18	25	27	32	38	45	52	59	65	73
20	28	30	35	42	50	53	65	72	81
22*	31	33	39	48	55	64	72	79	89
24*	33	38	42	51	59	64	78	87	97
26*	36	39	46	55	64	75	85	94	105
28*	39	42	49	59	69	81	91	101	113
30*	42	45	53	63	74	87	98	108	121

*requires written approval by the Town of Berryville

J. If a manhole joint mastic is completely pulled out during the vacuum test, the manhole shall be disassembled and the mastic repaired.

K. Manholes that fail the vacuum test shall be repaired and the test and repairs shall be repeated until the manhole passes the test.

V. Gravity Sewer Laterals

A. In new construction, wyes shall be used to connect to lateral main.

B. When connecting to existing lines, an approved saddle and stainless bands shall be used.

C. Connections to existing manholes must be made by core drilling. The connection between pipe and manhole will be with an approved watertight boot.

D. In addition to requirements for sewer laterals as required by applicable Plumbing Code, a cleanout shall be installed within a foot of the Right of Way (ROW) on the interior side of, and immediately adjacent to, the property line. Installation shall be in accordance with *Standard Details* and the slab shall abut the sidewalk where applicable.

E. Pipe shall be DR25 as listed on the materials listing sheet.

F. Refer to *Standard Detail #1* for bedding requirements.

G. Location markers must be installed at the end of each lateral.

H. Connection at main must be inspected prior to back-filling.

I. Lateral connections greater than half the diameter of the main will require approval from the Director of Public Works or the Town Engineer. Installation of a manhole may be required for laterals larger than half the main line diameter.

J. No gravity connection will be made to a force main.

Section 6

Sanitary Sewer Manholes

I. General

A. All regulations, standards, and established best practices as determined by Town Engineer and Director of Public Works must be applied.

B. All manholes shall be precast concrete unless otherwise noted on the plans and approved by the Town. Any manhole being installed within ,1000 feet of the discharge from a pressure sewer main or existing manhole having a pressure sewer main installed from a pump station designed for more than one hundred 100 gallons per minute (gpm) shall be lined with a high density Poly Ethylene (HDPE) sheets to protect the concrete from sewer gasses. Where pressure sewer is being connected to existing gravity collection system, manholes within 1,000 feet of the connection shall be protected by lining with a high alumina cement mortar (Strong Seal™ or approved equal).

C. Applicable Standards
1. American Society for Testing Materials ASTM) C478, D1752
2. ASTM A48/A48 M for Grey Iron Castings
3. Corps of Engineers CRD-588

II. Precast Base

A. Precast base sections shall be installed on a firm stabilized foundation prepared similarly to that required for the proper installation of the adjacent pipeline. Precast base sections may be supplied by the manufacturer with precast inverts or the Contractor may cast the inverts in the field. Inverts shall be smooth and accurately shaped to a semicircular bottom conforming to the inside of the adjacent sewer sections. Changes in direction of the sewer and entering branches shall have a circular curve of as large a radius as the manhole will permit, as shown in the Standard Details. The invert channel's depth is to be at least seven tenths (0.7) times the diameter of the pipe. Manhole base shall be integrally cast with walls.

III. Precast Sections

A. Precast manhole sections shall be manufactured in accordance with current ASTM Standard C478. Joints of the manhole sections shall be formed entirely of concrete, employing a round rubber gasket, and when assembled, shall be self-centering and make uniform watertight joints. Except for those surfaces within the gasket groove, all inside surfaces of the bell or outside surfaces of the spigot, orboth, on which the rubber gasket may bear during the closure of the joint and at

any degree of partial closure shall be parallel within one (1) degree and have an angle of not more than two (2) degrees with the longitudinal axis of the pipe. In joints formed entirely of concrete, the distance from either side of the gasket to the end of the bell or spigot shall be not less than three-quarters (3/4) inch. The gasket spaces between the bell and spigot shall be so shaped as to provide either grooves or shoulders that will prevent the gasket from disengaging from its compression surface or being blown out by hydrostatic pressures. The gasket shall be the sole element utilized in sealing the joint from either internal or external hydrostatic pressure.

IV. Invert Channels

A. Invert channels shall be smooth and semicircular in shape, conforming to the inside of the adjacent sewer section. Changes in direction of flow shall be made with a smooth curve of as large a radius as the size of the manhole will permit.

B. Changes in size, direction, and grade of the channels shall be made gradually and evenly. The invert channels may be precast, or may be built up with Portland cement grout and mortar (1 part cement to 2 parts sand), or may be formed with sewer pipe laid through the manhole and breaking out the top half after the surrounding concrete has hardened. The bench of the manhole outside the channels shall be smooth and shall slope toward the channels at 1 inch per foot minimum. The invert channel is to be at least seven tenths (0.7) times the diameter of the pipe depth.

V. Drop Connections

A. Designs shall minimize the use of drop connections, favoring increased slope and covers on main where practical. Drop connections may be approved where influent main is to be at least four (4) feet above effluent main. Outside drop connections are typically employed. Inside drop connections may be approved by Director of Public Works and Town Engineer on a case-by-case basis. Where inside drop connections are approved, particular care must be taken to ensure adequate foundation for influent line.

VI. Gradient Across Manholes

A. At a manhole, design shall provide two tenths (0.2) foot, to a maximum of one half (0.5) foot, of difference between invert elevations of influent and effluent mains of like diameters. A minimum difference of one tenth (0.1) foot will be permitted where two tenths (0.2) foot cannot be practically attained. Where a service or smaller main flows into a manhole, its crown shall be no lower than that of the effluent main.

VII. Watertight Work Required

A. Manholes shall be completely watertight. All leaks shall be repaired immediately with a non-shrink material or the entire work shall be removed and rebuilt. Groundwater must be kept below all parts of the masonry or concrete foundations and walls until the mortar and concrete has obtained an adequate set.

VIII. Frames, Covers, and Steps

A. Manhole frames and covers shall be manufactured true to pattern. Component parts shall fit together in a satisfactory manner. Castings shall be smooth and well cleaned by shotblasting. They shall be free from cracks, holes, and cold shuts and conform to ASTM-A-48 Class 35B gray iron. For consistency, the Town has adopted standard dimensions, which are shown in the *Standard Details*.

B. Covers shall have the words "SANITARY SEWER" cast in them.

C. Watertight manhole covers shall be required when the manhole top is below the elevation of the 100-year flood.

D. All manholes, except those outfitted with watertight covers, shall be fitted with plastic inserts to eliminate the entrance of surface water.

E. Manhole steps shall be made of plastic- or rubber-covered steel and shall conform to the requirements of ASTM C478.

X. Connecting to Existing Manholes

A. When sewer line construction starts at an existing manhole, the sewer line shall be securely plugged watertight in a manner satisfactory to the inspector as soon as the pipeline stub has been installed in the manhole. The sewer shall be plugged in such a manner that the plug can be removed for pressure testing of the sewer. When the pressure tests have been completed, the plug shall be replaced and maintained as set forth above until the new sewer line is placed in service. This plug shall be maintained in a watertight condition throughout the construction of the new sewer system until the system has been completed and the Contractor has been instructed by the Town to place the system in operation.

XI. Appurtenances

A. Flexible gaskets for pipe connection to manholes shall be PSX™ or Press-Boot™ by Press-Seal Gasket Corporation, or KOR-N-SEAL by Trelleborg Seals and Profiles or approved equal.

B. Jointing mastic shall be an elastic, water-resistant formulation of plastic bituminous materials and inert fillers so combined that, when applied to a vertical metal surface and heated to 120 degrees Fahrenheit, the jointing mastic will neither slump nor lose plasticity. When applied directly from the container without further fixing, the jointing mastic shall provide even, adherent coating within the temperature range of 20 degrees to 100 degrees Fahrenheit.

C. Asphalt-based waterproof coating for exteriors of manholes shall be mineral-filled, solvent type meeting all applicable standards and best practices.

D. Quick-setting, non-shrink grout shall conform to all requirements of Corps of Engineers CRD-588 (Octocrete, Speed Crete, or equal).

E. Sanitary sewer vents shall be provided where continuous watertight sections are greater than 1,000 feet in length.

XII. Protective Ring of Asphalt

A. If the final coat of asphalt is not to be applied at the time base pavement is laid on a street, a ring of asphalt must be placed around each sanitary sewer manhole to avoid damaging vehicles and snowplows. This protective ring of asphalt must be ramped around the manhole to permit a snowplow to travel over it without removing the manhole frame and cover from the structure. In the event that settlement occurs in any base pavement around manholes, remedial measures shall be taken to restore the pavement prior to final acceptance of the sanitary sewer and the street.

Section 7

Erosion and Sedimentation Control

I. General

A. The work in this section shall include, but is not limited to, construction and maintenance of berms and dikes, temporary diversion barriers, sediment traps, siltation ponds, temporary vegetation covers, and other measures to prevent and control erosion and sedimentation. All regulations, standards, and established best practices as determined by Town Engineer, Director of Public Works, and Community Development Director must be applied.

B. All work performed in the Berryville Area shall conform with the provisions of the Town of Berryville *Erosion and Sedimentation Control Ordinance*, the current version of the Commonwealth of Virginia *Stormwater Management Handbook*, and approved plans.

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Excavation and Backfill

I. General

All regulations, standards, and established best practices as determined by Town Engineer and Director of Public Works must be applied.

II. Excavation

A. The trench excavation shall be of sufficient size to permit the work to be properly performed in the manner specified. All work shall meet Occupational Safety and Health Administration (OSHA) regulations. The width of trenches shall be such as to provide adequate space for workers to place and join the pipe properly and in accordance with these specifications, but shall be kept to a minimum. Unless otherwise approved by the Town Engineer and the Director of Public Works, the clear width of the trench at the level of the top of the pipe shall be related to the inside diameter (I.D.) of the pipe barrel as follows:

Pipe Size Inches	Trench Width Inches
less than 4"	24
4"- 12"	I.D. + 18"
Larger than 12"	I.D. + 24"

B. Earth Trench Excavation

1. The term "earth" as used herein shall include all material not requiring blasting, barring, or wedging for its removal from its original beds and specifically excludes all ledge or bedrock, boulders, or masonry larger than one (1) cubic yard in volume.

2. Material in the bottom of the trench deemed unsuitable by the Town Engineer or the Director of Public Works shall be removed and replaced with material as hereinafter specified. Depth and width of removal shall be as directed by the Director of Public Works or the Town Engineer. Excavation shall be performed in the vicinity of adjacent and contiguous facilities by means that will not damage the facilities. Damage caused to existing facilities by the Contractor's operations shall be repaired by Contractor at Contractor's expense.

3. The bottom of all pipe trenches shall be carefully graded and aligned so that the barrel of the pipe will have bearing for its full length. Where the nature of the soil is such that this cannot be readily accomplished, granular material shall be placed in the bottom of the trench and shaped to provide a continuous, firm bearing for the pipe barrel.

4. Trench excavation shall proceed no more than 75 feet in advance of the placing of backfill unless otherwise authorized by the Director of Public Works and the Town Engineer. The Director of Public Works and the Town Engineer may require backfilling and subsequent re-excavation on trenches left open an unreasonable amount of time in advance of laying of pipe, at no expense to the Town. Trenches left open overnight, or during periods when the Contractor's forces are not present, shall be so protected or enclosed and marked as to cause no danger to the public or others.

5. Sides of trenches in improved public right-of-ways and adjacent to other structures shall be practically plumb. Where permitted by the Town, sides of trenches in other areas may be sloped from a point one (1) foot above the top of the pipe to grade. Slopes shall be such as will not allow displacement of material or danger to personnel.

6. Work performed on highways and streets shall be in accordance with *Section 10* of these *Specifications*, as shown or specified herein, and as directed by VDOT or designee.

C. Rock Excavation

1. The term "rock" as used herein shall include all material requiring blasting, barring, or wedging for its removal from its original bed.

2. Rock shall be excavated within the boundary lines and grades shown on the plans, or given by the project Engineer, and shall be removed and disposed of in accordance with the plan and with the approval of the Town Engineer and Director of Public Works.

3. For excavations in which pipe will be laid, the rock shall be excavated to a depth of twelve (12) inches below the lower outside surface of the pipe barrel or bell and filled in to the proper grade with selected fill material properly graded and compacted to provide uniform support for the barrel of the pipe.

4. For structures, the rock shall be excavated only to the bottom of the structure.

5. For pre-cast structures, a minimum of twelve (12) inch bedding is required.

6. Best practices and other applicable requirements of this section shall be followed.

D. Blasting

1. Blasting shall be performed by qualified personnel holding the required license issued by the Commonwealth of Virginia Fire Marshal's Office.

2. A pre-blast survey shall be made available at no cost to all property owners whose structures are within 300 feet of the blast zone.

3. Additional buffer distance may be required for blasting due to site conditions and type of pipe in ground. Inspection by the Public Works Director and Director of Public Utilities is required to determine blasting setbacks

4. Blasting shall not be permitted within 25 feet of pipes or structures where sewers, gas, water, steam, or other utility ducts or lines, basin connections, or other structures have been exposed during excavation. Any such structure shall be adequately protected from damage before proceeding with the blasting.

5. Any structure, pipeline, or conduit damaged by blasting shall be promptly repaired at Contractor's expense.

6. All notice is the responsibility of Contractor. 48 hours' notice shall be provided to the Director of Community Development, the Director of Public Works, the Director of Utilities, and all property owners whose structures are within 300 feet of the blasting zone.

7. Equipment used for drilling or holes shall have a positive means of dust control, subject to the Director of Public Work's approval.

8. Blasting shall be discontinued whenever the Town Engineer, Director of Public Works, Director of Utilities, or Community Development Director determines the further blasting may injure or damage adjacent rock, masonry, or other structures. In such case, the remaining rock shall be excavated by boring, wedging, or other approved method.

9. Explosives
   a. Explosives shall be stored, handled, and used in conformity with all state and local laws, ordinances, and regulations governing the storage and use of explosives. A permit and bond may be required.
   b. In the event of loss or misplacement of blasting materials, the Contractor shall immediately notify the local authorities having jurisdiction in such matters.

E. Unsuitable Material

1. In case the materials encountered at the elevations specified are not suitable, or in case it is found desirable or necessary to go to an additional depth, the excavation shall be carried to such additional depth as the Director of Public Works and the Town Engineer may direct in writing. The Contractor shall refill such excavated space with either Class B concrete or sand, gravel, or other selected fill material.

F. Unauthorized Excavation

1. Wherever the excavation is carried beyond or below the lines and grades given by the Engineer, except as specified herein, all such excavated space shall be refilled with such material and in such manner as may be directed by the Director of Public Works and the Town Engineer in order to ensure the stability of the various structures.

G. Disposal of Material

1. Topsoil suitable for final grading shall be stored in accordance with applicable site plant, erosion and sediment control measures, and separately from other excavated material. Excavated material in excess of that required for backfilling around structures and in trenches and for constructing fills and embankments as shown on the plans shall be removed by the Contractor.

H. Shoring, Sheeting, and Bracing

1. Sheeting, shoring, and bracing shall be in accordance with safety standards and regulations established by OSHA and construction methods established in the Associated General Contractors of America Safety Code (ASC). The Contractor shall follow applicable regulation and best practices in determining whether or not sheeting and shoring is required, as well as for installation, maintenance, and removal of same.

2. Sheeting, shoring, and bracing shall be placed so as not to interfere with the construction work and shall be entirely independent of all footings and structures. If at any point the Engineer or Director of Public Works is of the opinion that the sheeting or supports furnished are inadequate or unsuited for the purpose, they may order additional sheeting and supports to be installed.

3. In general, sheeting, shoring, and bracing shall be removed as the excavation is refilled in such a manner as to avoid the caving-in of the bank or disturbance to adjacent areas or structures.

4. Contractor bears responsibility for injury to structures, property, or persons due to inadequate, inappropriate, or premature removal of shoring, sheeting, and bracing.

5. The method of making excavation below groundwater level shall be submitted, in detail, to the Director of Public Works, Director of Community Development, and the Town Engineer, and must be accepted/approved before the work is started.

I. Sheeting Left in Place

1. The Engineer may recommend and the Director of Public Works may approve, in writing, any or all sheeting or bracing to be left in place for the purpose of preventing injury to structures, property, or persons, whether such sheeting or bracing was shown on the plans. If left in place, such sheeting shall be cut off at the elevation ordered, but in general, such cutoffs shall be at least eighteen (18) inches below the final ground surface. Bracing remaining in place shall be "snug tight".

J. Removal of Water

1. All excavated areas shall be kept dry. No water shall be allowed to rise over or to come in contact with masonry placed during construction until the concrete and mortar has attained a set satisfactory to the Director of Public Works and the Town Engineer or inspector and, in any event, no sooner than twelve (12) hours after placing the masonry. Water pumped, drained, or otherwise removed from the work hereunder shall be disposed of in a suitable manner without damage to adjacent properties, to other work under construction, or to the street pavement. Water shall not be discharged onto streets without adequate protection of the surface at the point of discharge. No water shall be discharged into sanitary sewers and no water containing settleable solids shall be discharged into storm sewers.

2. Any and all damage caused by dewatering the work shall be promptly repaired by the Contractor at their expense.

II. Backfilling

A. General

1. All excavations shall be backfilled to the original surface of the ground or to such other grades as may be shown or directed. Before depositing fills, the Contractor shall remove all vegetative matter, mud, muck, and unsuitable soils from the surfaces upon which fill materials are to be placed and fill irregularities and cavities.

2. Backfilling and tamping specifications shall assure, at a minimum, that:
   a. Trenches are carefully backfilled with excavated materials approved for backfilling, which are free from large clods of earth or stones larger than one (1) inch in diameter, deposited in six (6) inch layers, and thoroughly and carefully tamped until the pipe has a cover of not less than twelve (12) inches.
   b. The remainder of the backfill is placed in the trench in layers not exceeding one (1) foot and thoroughly tamped. No stone or rock larger than five (5) inches in its greatest dimension shall be used in backfilling.

c. Trenches in public roadways shall be excavated, backfilled, and compacted in accordance with the requirements of the current version of Virginia Department of Highways and Transportation's *Road and Bridge Specifications* or other criteria approved by VDOT.

B. Backfilling Around Structures, Pipes, and Conduits

1. Backfilling around structures, pipes, and conduits shall be carefully done by hand and tamped, with suitable tools of approved weight, to the top of such structures and conduits. This material shall be approximately six (6) inches thick, tamped and compacted in place.

2. After the backfill has been made around the structures, conduits, and pipes as specified above, the remainder of the trench may be backfilled by machine, but the work shall be done in such a way as to prevent dropping of material directly on top of the structure, conduit, or pipe. Material shall be deposited in horizontal layers.

3. The methods used in backfilling and bedding ductile iron pipe shall be in strict conformance to applicable regulation, the details shown in the *Standard Details*, and plans. The selection of the backfilling method shall be predicated upon the actual trench conditions encountered and shall be determined by the Town Engineer or Director of Public Works.

4. Where structures such as pipelines, sidewalks, railroad tracks, and roadways are to be constructed or replaced later on backfilled areas, the Director of Public Works and the Town Engineer may order the entire backfill in such areas placed in layers, rolled, rammed, or otherwise thoroughly compacted to a minimum of 95% density compaction to prevent after-settlement.

C. Selected Fill Material

1. Selected fill material shall consist of bank-run sand and gravel or similar material that is approved by the Director of Public Works and the Town Engineer as suitable for the purpose intended. Selected fill shall be placed in the manner specified under "Backfilling" or as ordered by the Director of Public Works and the Town Engineer.

2. In a rock trench, at least six (6) inches of selected fill material shall be placed for pipe bedding.

3. All excavation done in roadways and along shoulders shall be backfilled with 21B stone and compacted in accordance with the current version of Virginia Department of Highways and Transportation's *Road and Bridge Specifications*.

Section 9

Topsoiling and Seeding

I. General

A. All regulations, standards, and established best practices as determined by Town Engineer and Director of Public Works must be applied. Topsoiling and seeding shall be performed in accordance with the Virginia Department of Transportation (VDOT) requirements and *Virginia Stormwater Management Handbook*, Sections C-ENV-15 and C-SSM-02 through C-SSM-10.

B. The work covered by this section consists of furnishing all labor, material, and equipment and the performing of all operations necessary or required to placed topsoil, final grade, fertilize, lime, seed, and mulch all graded and cleared areas, including those areas disturbed in the course of construction, in accordance with the specifications.

II. Products

A. Topsoil

1. Shall be furnished from the on-site stockpile or from other approved source.

2. Shall be natural, friable, agricultural soil, possessing characteristics representative of soils in the vicinity that will sustain vigorous plant growth, free from stones larger than two (2) inches in diameter, roots, toxic substances, and other foreign matter which might be detrimental to plant growth.

B. Lime

1. Shall conform to the standards of the Association of Official Analytical Chemists.

2. Ground agricultural limestone shall contain not less than 55% of total carbonates and shall be ground to such a fineness that at least 90% will pass a No. 10 mesh screen and at least 50% will pass a No. 100 mesh screen. Coarser material will be accepted provided that the specified rates of application are increased proportionately on the basis of quantities passing the No. 100 mesh screen.

C. Fertilizer

1. Shall be a commercial type 10-10-10 (nitrogen-phosphorous-potassium), fully labeled, uniform in composition, and conforming to all applicable regulations.

D. Seed

1. Shall be labeled or marked per accepted horticulture practice, comply with all current State and Federal regulations, and furnished in sealed standard containers. Seed which has become wet, moldy, or otherwise damaged in transit or storage will not be acceptable.

2. Seed and mixes shall be furnished with a certification from the seed company stating type of seed and percentages of mixture purity, germination, and weed seed.

E. Mulch

1. Straw and hay shall be free from noxious weeds, grain seeds, mold or other objectionable material and shall be in an air-dry condition and suitable for placing with mulch blower equipment.

2. Binders shall conform to C-SSM-11.

3. Wood cellulose shall be natural wood mulch, without toxic substances and foreign matter, packaged in air-dry containers capable of application with power spray equipment, and shall have a maximum pH of 9.0 in distilled water.

4. All other mulch material and installation shall meet requirements of the current edition of the *Virginia Stormwater Management Handbook*, approved plan, or as directed by Town Engineer, Director of Public Works, and Director of Community Development.

III. Execution

A. Preparation

1. The ground surface shall be cleared of stones, roots, cable, wire, grade stakes and any other material that might hinder proper grading and tillage, be harmful to plant growth, or hinder subsequent mowing and other maintenance operations. Sub-grades shall be loosened by dicing to a depth of not less than three (3) inches so that the loosened surface will readily bond with the topsoil.

2. Areas to be planted shall be graded as shown on the drawings and all surfaces shall be left in an even and properly compacted condition to prevent the formation of depressions where water will stand.

B. Application

1. Topsoil, Lime, and Fertilizer
   a. Topsoil shall be spread to a compacted depth of four (4) inches for areas to be seeded, raked to a smooth uniform surface, and compacted with a lawn roller weighting not less than 90 pounds per foot of roller width. Any bumps or depressions which develop shall be leveled or filled, as required, and rolled until a satisfactory grade is obtained.
   b. Lime and fertilizer shall be as specified, applied at the rate of 50 pounds per 1,000 square feet of lime, and 20 pounds per 1,000 square feet for fertilizer. Not more than two (2) days afterward, the area shall be raked or harrowed in such a manner as to well work well the lime and fertilizer into the top two (2) inches of soil, and then be thoroughly wetted.

2. Seeding and Mulching
   a. All seeding shall be accomplished by Hydroseeding methods. Hydroseeding shall be done by a three-step method using the application rates previously specified. The three steps shall be as follows:
   Step 1 – Apply lime and fertilizer.
   Step 2 – Apply seed mixture.
   Step 3 – Apply hydro mulch.
   b. All mulching shall be accomplished by means of hydromulching except where slopes are steep and require tied down mulch. However, under no circumstances shall straw or hay mulch be applied to the berms forming the detention ponds or the aeration lagoons. After slopes have stabilized, the contractor shall gather and removed from the site all straw and/or hay mulch.
   c. Straw or hay mulching shall be spread uniformly over seeded areas at the rate of 115 pounds per 1,000 square feet. It shall be anchored by the specified asphalt binder as follows:
      i. Binder applied as separate operation at 8 gallons per 1,000 square feet on slopes flatter than 3 to 1; 16 gallons per 1,000 square feet on slopes 3 to 1 and steeper.
      ii. Binder applied simultaneously with straw or hay at 1.5 gallons per square yard as directed.
   d. The Contractor shall take all necessary precautions to prevent asphalt binder from marking or defecting structures, pavements, utilities, or plant growth. Any disfigurement shall be repaired at the Contractor's expense.
   e. Wood cellulose mulch, as specified, shall be applied evenly at the rate of 50 pounds per 1,000 square feet.
   f. Matting in place of or as part of mulching shall adhere to standards of the current edition of the *Virginia Stormwater Management Handbook.*

C. Seeding and Sodding
1. Seeding and sodding, whether temporary or permanent, shall be in accordance with the current edition of the *Virginia Stormwater Management Handbook.*

D. Seed Establishment Period

1. The Contractor shall protect and maintain the seeded areas for at least 90 days after seeding is complete.

2. The Contractor shall repair any damage to seeded areas without additional compensation and shall provide a uniform acceptable stand of grass.

3. The Contractor shall seed as soon as a unit or portion of the project is satisfactorily completed.

4. Maintenance shall consist of repair and replacement of eroded areas, watering, re-fertilizing, re-liming, re-seeding, and re-mulching as necessary to provide an even fixed growth of grass.

5. The Contractor will provide protection against traffic and shall erect the necessary barricades and warning signs immediately after planting is completed.

6. All such signage, barricades, etc. shall be removed once site is stable and grass is uniform and mature according to the standards of the current edition of the *Virginia Stormwater Management Handbook,* or at the direction of the Director of Public Works and Community Development Director.

Section 10

Work on Highways and Streets

I. General

A. All regulations, standards, and established best practices as determined by Town Engineer and Director of Public Works must be applied.

B. The Virginia Department of Transportation (VDOT) maintains primary roadways (Business Route 7 and US Route 340) within the Town of Berryville Corporate Limits.

C. The Contractor shall assume all responsibility for fulfilling any and all requirements specified herein and under the permit(s) obtained from the VDOT for work to be performed on state highways. A copy of the VDOT permit(s) must be provided to the Town.

D. All applicable provisions as established in the current version of VDOT's *Land Use Permit Regulations* apply to this work, including provisions for revocation of permit.

E. All work done within the road right-of-way shall, in all respects including location, alignment, elevation and grade, manner of performing the work, highway crossings, restoration and conditions, etc., shall be done to the satisfaction of the Town of Berryville and VDOT.

Work on Town Maintained Roadways

II. General

A. The Town of Berryville maintains public secondary streets within the Corporate Limits. Proposed secondary streets located within approved annexation areas will also comply with regulations established by these standards and specifications once development occurs.

B. The Contractor shall assume all responsibility for fulfilling any and all requirements specified herein and under the permit(s) obtained from the Town of Berryville for work to be performed on Town streets.

C. All applicable provisions as established by the current version of VDOT's *Land Use Permit Regulations* shall apply to this work unless otherwise herein provided, including provisions for revocation of permit.

D. All work done under this permit within the street right-of-way shall, in all respects including location, alignment, elevation, grade, manner of performing the work, highway crossings, restoration, installation of street name signs, etc., be subject to Town of Berryville Department of Public Works direction and shall be done to the satisfaction of the Department.

E. "Test pits", excavated to allow visual inspection of utility crossings, may be eligible for relaxation from VDOT's *Land Use Permit Regulations* on a case-by-case basis at the discretion of the Director of Public Works with the approval of the Town Manager. All such test pit restoration shall meet the *Standard Details*, and the following:

1. No relaxation of asphalt restoration standards may be made on the following streets:
    a. Church Street between Liberty and South Buckmarsh Streets
    b. Fairfax Street
    c. First Street between Fairfax and Main Streets
    d. Hermitage Boulevard
    e. Jack Enders Boulevard
    f. Jackson Drive
    g. Liberty Street
    h. Mosby Boulevard

2. No relaxation of asphalt restoration standards will be granted on streets that have been paved less than 60 months prior to the request.

3. The relaxed test pit restoration standard may be applied if:
    a. The street in question is not included in *Sec. 10 Work on Highways and Streets, II- General, E, 1* or *Sec. 10 Work on Highways and Streets, II- General, E, 2,* and
    b. Application for "Test Pit Restoration" is approved in writing by the Director of Public Works (Director) prior to test pit excavation, and
    c. The Director determines that the test pit is not in the typical wheel path on the street and will not be detrimental to the Town's interest, and
    d. The applicant provides a 60 month warranty on workmanship and materials. The Director may require a bond be provided to the Town to provide surety for the 60 month warranty.

F. Pavement and curb markings
1. Newly constructed streets and curbing shall be lined and marked in accordance with the approved street marking plan. In the absence of such a plan, the following marking shall be installed unless waived in writing by the Director of Public Works:
    a. Stop lines- 16' long by 24" wide white Type B, Class 2 thermoplastic stop lines shall be installed in conjunction with all stop signs at unsignalized intersections.

b. Fire Hydrant no parking area- curb adjacent to a fire hydrant shall be painted with bright yellow striping paint. The no parking area shall measure 30 feet in length and be centered on the fire hydrant.

III. Street Name Sign Specifications

A. General

1. All signage, mounting, colors, fonts, and accessories shall comply with this *Manual* and guidelines established by the current edition of the *Manual of Uniform Traffic Control Devices* (MUTCD) and associated manuals or papers referenced within the MUTCD. These documents will be reviewed on a routine basis to ensure this standard and specifications are aligned.

B. Panel / Plaque Standards

1. The standard street name sign shall be the MUTCD D3-1 series with a green background, rounded corners, white border, and white lettering. The shade of green for the background shall be reflective 3M green or an approved equivalent. The private street name sign shall be the MUTCD D3-1 series with a brown background, rounded corners, a white border, and white lettering. The shade of brown for the background shall be reflective 3M 3430EGP3430 brown or an approved equivalent.

2. All signs will be constructed from flat aluminum sheet material with a thickness of eight tenths of an inch (0.8") and will comply with retroreflective standards established in the MUTCD (sec. 2A.07).

3. The standard post mounted street name sign shall measure 6" vertically. Street name signs mounted overhead shall measure 24" vertically.

4. The reflectivity requirements for these signs shall be ASTM D4956 Type XI in accordance with section 701 of the Virginia Department of Transportation *2020 Road and Bridge Supplemental Specifications,* as amended.

C. Lettering

1. Signs shall be lettering utilizing Series D 2000 as illustrated in the *Standard Alphabets for Traffic Control Devices* as published by the Federal Highway Administration (FHWA).

2. For the standard post mounted sign, uppercase letters will be four (4) inches in height with lower case letters being three (3) inches in height. Overhead mounted signs will utilize uppercase letters twelve (12) inches in height and lowercase letters nine (9) inches in height.

3. Street name lettering will begin with an uppercase letter followed by lower case.

4. All directional prefixes will be a single uppercase letter with no punctuation. As an example, E Main St would represent East Main Street.

5. All roadway suffix designations will be standard abbreviations with the first letter capitalized followed by lower case letters with no punctuation.

6. Letter spacing requirements will follow the *Series D 2000 Standard Alphabets Spacing Chart.*

D. Mounting

1. Post mounted signs, other than stop, enforcement, and warning signs, shall utilize a two (2) inch square gray sign post made of fourteen (14) gauge aluminum with a FHWA approved breakaway support system conforming to American Association of State Highway and Transportation Officials (ASSHTO) standards and specifications for highway signs.

2. Overhead mounted signs shall comply with standards established by ASSHTO in *Specifications for Structural Supports of Highway Signs, Luminaires, and Traffic Signals.*

3. For signs located in areas where pedestrian movements are likely to occur or where on-street parking is permitted, the height of the lowest portion of the sign panel to the finished surface shall have a minimum clearance of seven (7) feet and maximum clearance of eight (8) feet. The Town Engineer and the Director of Public Works may approve a modification to the maximum clearance height.

4. Unless otherwise approved by the Director of Public Works and the Town Engineer, the lateral clearance to the sign shall be a minimum of two (2) inches from the face of curb or four (4) feet from face of barrier, if present.

5. Post mounted signs will be attached to the top of the post using a 5.6 inch sign slot bracket, 5.6 inch sign T slot bracket, and set screws. Additional information concerning the hardware specifications can be found in the *Materials Specifications* section of this document.

IV. Other Street Signage Specifications

A. All other required highway signs will follow the standards and requirements established within the MUTCD.

B. The Director of Public Works may require DEAD END or NO OUTLET signs.

C. Mounting

1. Mounting materials shall be the same as defined in MUTCD Sec. 10.III.C, with the following exceptions:

   a. Enforcement and warning signs will utilize a post yellow in color.

   b. Stop signs will utilize the yellow post and additional red retroreflective tape attached to the post in accordance with the MUTCD.

2. No post will extend vertically over the posted sign or plaque greater than six (6) inches. All square posts will be capped with a pyramid style rain cap in a color matching the post.

Section 11

As-Built Drawings

I. General

A. All regulations, standards, and established best practices as determined by Town Engineer and Director of Public Works must be applied.

B. A complete set of as-built drawings and corrected key sheets shall be submitted by the developer or owner responsible for the construction upon completion of construction and at least one week prior to the anticipated occupancy of any building within the project. As-built drawings must be determined by actual field survey and sealed and certified by a professional engineer registered in the Commonwealth of Virginia. The following statement, signed by the responsible surveyor or engineer, shall be on each sheet: "I hereby state, to the best of my knowledge and personal belief, that the work shown on these plans was constructed to the direction and grades shown and are either installed within the Public right-of-way or properly recorded easements dedicated to the Town of Berryville". The as-built drawings shall show all revisions, substitutions, variations, omissions, and discrepancies made or discovered during construction concerning location and depth of utilities, piping, manholes, pumps, and other facilities. Revisions shall be made and shown on all drawing views with actual dimensions established to permanent points. The contractor shall keep daily as-built work plans at the construction site and shall furnish them to the design engineer for as-built drawing. In addition to the set of paper drawings, the developer or owner responsible for the construction must also submit a digital file of the as-built drawings that are in an AutoCad format.

C. When the as-built drawing information differs from the approved construction plans, a design analysis for the existing conditions may be required. After the record drawings are approved in writing by the Department of Public Works and the Town Engineer, a set of three drawings and an electronic copy of all drawings in pdf format shall be submitted. Projects which include water and/or sewer facilities which are located within a Virginia Department of Transportation (VDOT) right-of-way will require four (4) additional sets of drawings for the remain-in-place permit.

II. Elements of As-Built Drawings

A. Water Line Construction

1. Scale accurate location plans of the line and all installed valves and fittings, such as elbows, tees, crosses, reducers, cradle encasements, or special construction, and

2. Exact measurements to show positive locations shall be taken from at least two reasonably adjacent and available permanently fixed objects, such as fire hydrants, centers of sanitary or storm sewer manhole casting covers, or corners, and

3. Type and sizes of all pipes.

B. *Sewer Line Construction*

1. Scale accurate location of manhole inverts and top casting elevations and numerical notations of the exact elevations of same as determined by field survey after construction. Elevations shall be in North American Datum of 1983, and

2. Scale accurate indication of lengths and grades and direction of lines between manholes and numerical notations of the exact length and grades, as determined after construction, and

3. Scale accurate location of concrete cradles, encasements, or special construction, and

4. Location of house services by measurement from the manhole immediately downgrade, and

5. Type and sizes of all pipes.

C. *Wastewater treatment facilities and pumping stations, water pumping stations, all other comparable construction and building structures*

1. As-built plans and specifications shall accurately indicate all approved deviations from or changes in locations or type of equipment installed and material used, and

2. Accurate listings of the name of the manufacturer of all operating equipment installed, together with model or style numbers, ratings, capacities, and other pertinent information, and

3. Physical and digital complete copies of operation and maintenance manuals for all operating equipment and all certificates of inspections, warranties and guarantees of equipment, materials and the installation thereof.

D. *Storm Sewer Construction*

1. Scale accurate location of structures, providing all invert elevations, distances between structures, elevation of structure tops, and diameter of pipes.

E. *Stormwater Management Facilities*

1. Acceptable as-built drawings for stormwater management facilities utilizing an embankment shall contain:
   a. A profile of the top of the dam, and
   b. A cross-section of the emergency spillway at the control section, and
   c. A profile along the centerline of the emergency spillway, and
   d. A profile along the centerline of the principal spillway, extending at least 100 feet downstream of the fill, and
   e. The elevation of the principal spillway crest, and
   f. The elevation of the principal spillway conduit invert (inlet and outlet), and
   g. The diameter, length, and type of material for the riser, and
   h. The diameter, length, and type of material for the conduit, and
   i. The size and type of anti-vortex and trash rack devices and their elevations in relation to the principal spillway crest, and
   j. The number, size, and location of the anti-seep collars, and
   k. The diameter and size of any low-stage orifices or drain pipes, and
   l. The length, width, depth or contours of the pool area so that design volume can be verified, and
   m. A certification statement and seal by a Professional Engineer licensed in the Commonwealth of Virginia, that the as-built is accurate and complete and that the stormwater facility, as constructed, meets applicable regulations, standards, and established best practices.

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Project Name and Location:_____

	Water	Sewer
Developer		
Provide 5 physical copies and one digital copy of preliminary plans to the Community Development Department	_____	_____
Pay appropriate fees	_____	_____
Community Development Department		
Circulate preliminary plans to:		
Town Engineer	_____	_____
Director of Public Works	_____	_____
Director of Public Utilities	_____	_____
Other_____	_____	_____
Public Works Department		
Review Plans	_____	_____
Forward review comments to Community Development Department	_____	_____
Town Engineer		
Review Plans	_____	_____
Forward review comments to Community Development Department	_____	_____
Community Development Department		
Forward comments to Developer	_____	_____
Developer		
Submit revised plans	_____	_____
Submit executed agreement	_____	_____
Community Development Department		
Submit revised plans to:		
Town Engineer	_____	_____
Public Works Department	_____	_____
Director of Public Utilities	_____	_____
Approving authority	_____	_____
Submit plan to following as necessary:		
Virginia Department of Health	_____	_____
Department of Environmental Quality	_____	_____

Community Development Department

Upon submission of plans that meet all applicable requirements and address comments received from reviewing authorities:

Submit plans to approving body	_____	_____
APPROVE FINAL PLANS	_____	_____

Developer

Post off-site performance surety	_____	_____
Post on-site performance surety	_____	_____
Provide agreement recordation fees	_____	_____
Submit construction permit request	_____	_____
Schedule preconstruction conference	_____	_____
Submit off-site easement deeds	_____	_____
Record deeds of easement	_____	_____

Public Works and Community Development Departments

Conduct preconstruction conference	_____	_____
ISSUE CONSTRUCTION PERMIT	_____	_____
Record agreement	_____	_____

Developer

Record off-site easement deeds	_____	_____
Bring roads and ditches to final grade	_____	_____
Disinfect completed system, flush, and submit bacteriological samples	_____	_____
Submit capital cost data and request tentative acceptance in writing	_____	_____

Public Works

Review inspections for tentative acceptance	_____	_____
Require or conduct additional inspections (charged to Developer)	_____	_____

Developer

Correct operational deficiencies	_____	_____

Public Works

GRANT TENTATIVE ACCEPTANCE	_____	_____

Developer

Camera inspection of sewer lines; submit copy to Town	_____	_____
Correct deficiencies	_____	_____

Public Works/Community Development Department

Reduce performance bond	_____	_____

Developer

Pave roads, adjust valves and manholes	_____	_____
Correct remaining deficiencies	_____	_____
Submit construction completion certificate to VDH	_____	_____
Provide paper and digital record drawings and paper shop drawings	_____	_____
Request final acceptance in writing	_____	_____
Submit letter stating system is paid for in full	_____	_____
Post 10% defect bond + cost of final camera inspection	_____	_____
Pay any inspection fees	_____	_____

Public Works/Community Development Department

GRANT FINAL ACCEPTANCE	_____	_____
Release performance bond	_____	_____
Inspect for defects (9 months)	_____	_____

Developer

Correct defects	_____	_____

Public Works

Release performance bond and close record	_____	_____
Inspect for defects by camera (9 months)	_____	_____
Release defect bond and close record	_____	_____

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Section 13

Utility Inspectors

All regulations, standards, and established best practices as determined by Town Engineer and Director of Public Works must be applied.

The Director of Public Works shall maintain a listing of approved utility inspectors. Inspectors may be contractors or Town of Berryville employees.

The Town Engineer and the Director of Public Works shall approve the utility inspector for each project.

Only inspectors approved by the Director of Public Works may inspect work in the Town of Berryville or its growth areas.

Approved utility inspectors shall perform inspections and submit reports as required by the *Construction Standards and Specifications Manual* and/or the Town Engineer and the Director of Public Works.

All costs incurred by the Town for utility inspection shall be billed to and paid by the landowner, developer, or Contractor. Occupancy of any building within the project will be delayed until the required payments of these costs have been made.

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Section 14

Minimum Standards for Wastewater Pumping Stations

I. Design Criteria

A. General

1. The purpose of this document is to establish minimum technical and design standards for developers and engineers for the design and acceptance of wastewater pumping stations within the service area of the Town of Berryville. The standards are intended to ensure uniformity and quality of construction for wastewater pumping stations throughout the Town. Any deviation from the standards contained herein shall be subject to the approval of the Town Engineer and the directors of Public Works and Utilities. Plans and specifications shall be prepared and certified by a professional engineer registered in the Commonwealth of Virginia. All such designs must conform to the requirements of this document and regulations promulgated by the agencies of the Commonwealth of Virginia. All regulations, standards, and established best practices as determined by Town Engineer and Director of Public Works must be applied.

2. Certain equipment manufacturers have been noted herein to establish standards for the level of quality for materials and workmanship, reliability, ease of maintenance, and minimization of spare parts inventory. Other equipment may be used, but must be pre-approved by the Town Engineer and the directors of Public Works and Utilities. The pumping station and all appurtenant equipment and materials shall be new and unused.

3. If the property to be served by a pump station is located within the same drainage area as other undeveloped or underdeveloped land situated within the limits of the Berryville Area, the Town may require an increase or modification in sizing or design of the building, wet well, pumps, mains, and/or other associated improvements to accommodate the expected flow from the entire drainage area.

4. After the construction plans and specifications for pumping stations have been completed by the design engineer and have received approval by the Town, the design engineer shall submit the plans to the Virginia Department of Environmental Quality (DEQ), Valley Regional Office along with a stamped and signed application for a *Certificate to Construct* certifying that the pump station design is in accordance with the *Sewage Collection and Treatment Regulations* and complies with the reliability requirements as calculated by the DEQ *Reliability Classification Worksheet*. A copy of DEQ's approval and

issuance of the *Certificate to Construct* must be provided to the Town prior to final approval by the Town of Berryville.

5. The Town of Berryville shall have access to the pump station site and any associated building upon connection of the first structure to the sanitary sewer served by the respective pump station. Maintenance of the pump station shall be provided by the contractor following the maintenance guidelines of the equipment manufacturers. A log of maintenance activities shall be maintained on site and be available for review by Town staff. Should maintenance not be in accordance with equipment manufacturer's recommendations, the Town of Berryville shall have the right to maintain the facility and use bond funds to cover such maintenance.

6. Upon completion of the construction of the pumping station, the design engineer shall inspect the station, review reports by the equipment manufacturer's field representatives, and request written documentation from the Town that the station is acceptable. The design engineer shall then submit to DEQ a stamped and signed application for a *Certificate to Operate* (CTO). A CTO for each pump station must be issued by DEQ and delivered to the Town of Berryville with record drawings prior to its acceptance by the Town of Berryville.

7. A sufficiently sized generator shall be installed inside the pump building or separately inside a sound attenuating enclosure. When calculating the capacity of a generator, the design engineer will determine the power required to satisfy surge demand and operate all components of the station and then add a safety margin of 20%.

8. Pump stations shall be equipped with the necessary equipment to interface with the Town Supervisory Control and Data Acquisition (SCADA) system as determined by the Director of Utilities. Such systems shall provide the following minimum alarm conditions: high water alarm, pump fail to start, high pump temperature, power failure, engine overcrank, battery failure, and high engine temperature. A separate float switch shall be wired directly to the SCADA to serve as an independent high-water alarm.

B. Design Data

1. The pump station design shall comply with all Virginia Department of Environmental Quality regulations and this *Manual*.

2. Pumps shall be capable of handling the maximum peak hourly flow with one unit out of service. A minimum peak factor of 2.5 is required.

II. Site Requirements

A. The pump station site shall be protected by a six (6) feet high chain link fence. One three (3) feet walk-through gate and one ten (10) feet drive-through gate shall be provided.

B. The grounds within the fenced area shall be covered with a weed barrier, four (4) inches of compacted stone (21B), and shall contain no slopes exceeding fifteen 15%.

C. Access to the station shall be via a dedicated asphalt or concrete paved twelve (12) foot wide access road terminating at the drive-through gate or at the building entrance. Curbs and gutters may be required by the Town Engineer, Director of Public Works, and Community Development Director. In no case shall the profile grade exceed 15%.

D. All grounds outside the containment fence are to be landscaped or seeded with grass. Slopes requiring mowing shall not exceed 15%.

E. For pump stations without an enclosed pump station building, a storage shed of at least 40 square feet (8' x 5' x 8' high or larger) with a lockable double door shall be provided. The shed shall be plastic *Lifetime* or approved equivalent; see Materials Specifications for details. This shed shall be no closer than five (5) feet from any property line and ten (10) feet from any station improvement. It shall be located on a four (4) inch thick concrete slab which extends at least one (1) foot beyond shed on all sides. Shed shall be affixed to slab as required by Director of Public Works.

F. No pump station component may be inundated during a 100-year storm event. The pumping station shall be designed to remain fully operational and accessible during a 100-year flood event.

G. Sufficient lighting shall be provided both inside and outside structures. All-hours security lighting shall have separate controls from lighting intended to illuminate work areas. Work area lighting shall provide a minimum of four (4) watts of illumination per square foot of work area and staging area.

H. A metered water service shall be provided with a Town-approved ¾-inch x 5/8-inch meter, setter, and crock. If there is no pump building, appurtenances shall include one frost-free hydrant, equipped with backflow protection and located at least ten (10) feet away from the wet well.

I. The pumping station shall be located within a dedicated easement or fee-simple lot dedicated to the Town of Berryville. Easement limits or property boundaries shall be a minimum of twenty (20) feet from all site improvements. Dedications and/or easements shall be reviewed by the Town

Manager. No such dedication or easement will be accepted by the Town until it is approved by the Town Manager and Town Attorney, as applicable.

J. All pump station sites shall be fully screened with a landscape buffer outside the chain link fence and in any other areas as required by the Community Development Director and Director of Public Works. The landscape buffer shall be a minimum of fifteen (15) feet wide, with six (6) feet high Town-approved evergreen species of trees and/or tall shrubs planted ten (10) feet on center along the centerline of the landscape buffer. The surface of the landscape buffer must be covered with landscaping fabric weed barrier and mulch.

K. The street address must be posted on the property and visible from the right-of-way.

L. Signage indicating "AUTHORIZED PERSONNEL ONLY" shall be posted on the fence at the entrance gate.

III. Wet Well

A. All wet wells must be below grade and penetrations through the slab to the wet well shall be sealed to prevent sewer gas leakage.

B. An aluminum door provided for access to the wet well shall be sized to provide a minimum 30"x30" clear opening. The door shall have a 300 pounds per square foot load rating with automatic hold open arm.

C. The bottom of the wet well shall be sloped 1:1 toward the pump suction inlet to minimize solids settling. Slope shall begin below pump off elevation.

D. The wet well shall have a ductile iron four (4) inch vent pipe with a 180° turn-down outside of the building. The vent pipe must be screened with stainless steel screen.

E. A ladder or manhole rungs of corrosion-resistant materials shall be provided to provide access to the bottom of the wet well.

F. For three (3) inch self-priming pumps or submersibles passing 2.5-inch solids, a strainer basket to remove rags shall be required. The strainer basket bars shall be two (2) inches on center with the basket mounted on guide tracks, removable without entering the wet-well. The basket and guide tracks shall be constructed of welded aluminum and anchored with stainless steel nuts and bolts.

G. Unless otherwise directed by the Town Engineer and Director of Public Works, provide a portable hoist and winch assembly suitable for lifting the pumps. Hoist socket shall be permanently installed on station slab

H. The wet-well volume shall be of sufficient capacity to accommodate average and peak flow rates while ensuring that the time between pump run cycles is within the requirements of the electric motor manufacturer.

1. For duplex pumping stations with alternating pumps, the wet-well cycle time between pump on and pump off levels shall be a minimum of ten (10) minutes for motor sizes less than fifteen (15) horsepower or fifteen (15) minutes for motor sizes greater than fifteen (15) horsepower when the inflow to the wet well is one-half of the pump rated capacity.

I. Provide adequate distance between the pump off level and the pump suction intake pipe to prevent vortexing.

J. To prevent concrete deterioration from sewer gases, the wet well shall be coated with Sherwin Williams Cor-Cote FRE Sewer-Cote or an approved equivalent.

K. A wire reinforced concrete slab with minimum dimensions of six (6) feet wide, six (6) feet length, and six (6) inches thick shall be placed immediately adjacent to the wet well/building with vehicular accessibility via an asphalt driveway. The top of the slab should be two inches above the final grade.

IV. Pumps & Associated Controls

A. All pumps shall be suction lift type with pumps, motors, valves, and controls located above grade inside a weatherproof pump building, unless performance conditions prohibit their use. In the event that design engineer, Town Engineer, and Director of Public Works determine that a suction lift pump will not operate effectively and efficiently, or the sewerage flow from the drainage areas that will be served by the pump station will not exceed an average daily flow of 10,000 gallons per day, a submersible triplex grinder pump may be approved for use. Flow calculations must reflect proposed development and future development within the drainage area and approved growth area. In either event, all applicable pump and site standards apply. All station design must be approved by the Virginia Department of Environmental Quality.

B. Suction lift pumps shall be *Super T-Series (or T-Series)* with an *Eradicator Solids Management System* as manufactured by the *Gorman Rupp Company* of Mansfield, Ohio or a Town of Berryville approved equivalent. Discharge piping and controls shall be furnished by *Gorman-Rupp* or a Town of Berryville approved equivalent.

C. Unless waived in writing by the Director of Public Works, basic details of submersible triplex grinder pumps shall meet all applicable requirements of suction lift pumps and shall be specifically designed for submersible duty in a sewage environment. Pumps shall be manufactured by *Liberty Pumps* or approved equivalent. All valves, gauges, and controls shall be supplied by the

pump manufacturer and shall be located above ground in a weatherproof fiberglass enclosure. Enclosure shall be heated in accordance with manufacturer's recommendations and be positively sealed from wet well.

D. Each pump shall be equipped with the following:

1. An Eradicator™ solids management system or approved equivalent.
2. Cover plate opening large enough to allow for unclogging and removal of the impeller.
3. Spring-assisted discharge check valve.
4. Discharge plug valve.
5. Automatic, spring assisted air release valve.
6. Glycerin-filled 3-1/2" diameter suction and discharge gauges.
7. Drain valve with quick connect piping.
8. High pump motor winding temperature thermostat and motor housing moisture detector.
9. Pump controls shall be manufactured by the pump manufacturer and employ an electronic pressure switch air bubbler wet well level controller with digital readout of wet well level. The pump controller shall be equipped with high wet well level alarm capability.
10. All pumps shall be equipped with fixed speed ODP enclosure motors equipped with OSHA-compliant V-belt drive for setting the design pump rpm. Pumps shall be of non-clogging design capable of passing a minimum 2.5-inch sphere for three (3) inch pumps and a minimum three (3) inch sphere for larger pumps through all openings within the pump.
11. For any design flow, a minimum of (2) two fixed speed pumps shall be provided- each capable of pumping in excess of the peak hourly flow.
12. All valves shall have ports designed to pass three (3) inch spherical solids.
13. Pumps shall be designed to create a low-pressure area within the pump housing to initiate priming. No vacuum-assisted priming systems will be acceptable.
14. The station shall be equipped with an emergency bypass connection with both suction and discharge connections. Connections shall be a

minimum four (4) inch aluminum cam and groove connector with a cover plate and required valving to isolate pumps and connectors. The bypass connection shall terminate outside the station enclosure.

15. The pump station controls must provide pump alternation and protection from short circuits, overloads, and low voltages on all phases.

16. All pumps shall be equipped with a fixed-speed motor with water-proof enclosure.

17. Motors shall conform to NEMA standards, and shall be capable of operating in liquids with a maximum temperature of 40° Celsius. Motors and power cables shall be supplied as an assembly, and all components shall be water-tight such that the assembly is capable of operating at a continuous submergence of 65 feet without loss of water-tight integrity.

18. For any design flow, a minimum of two fixed speed pumps shall be provided- each capable of pumping in excess of the peak hourly flow. A spare grinder pump must be provided to the Town within 30 days of the issuance of the Certificate to Operate and prior to any release of construction bond.

19. Pumps, valves, motors, piping and controls shall be tested as a unit at the pump manufacturer's facility prior to shipment. Provide Town Engineer with a copy of the certified test data. Suction lift pumps must include certified reprime performance tests.

20. Provide stainless steel guide rails, sized in accordance with the pump manufacturer's recommendations, for each pump.

21. If directed by Town Engineer, provide a portable hoist and winch assembly suitable for lifting the pumps. Hoist socket shall be permanently installed on station slab and bear the manufacturer's name, hoist model number, and hoist capacity.

22. Provide the following spare parts for each pump:
    a. Mechanical seal
    b. Wear plate
    c. Cover Plate O-ring
    d. Shaft sleeve
    e. Suction flap valve
    f. Sufficient volume of seal lubricant to perform one lubricant change in all pumps with a minimum volume of two (2) quarts.
    g. Impeller

V. Pumping Station Building

A. The building shall be precast concrete with a finish provided by the developer and approved by the Town of Berryville, no windows, and the interior walls and ceiling must be primed and painted with an alkali resistant primer and white 100% acrylic industrial enamel finish coat (Primer: PPG 6-603, Finish PPG 90-374 or approved equivalent.

B. A minimum eight (8) foot clear ceiling height, twelve (12) foot overall width and 20-foot overall length is required. The size may be increased at the discretion of the Town Engineer or Director of Utilities to provide adequate clearance for equipment operation and maintenance.

C. A minimum three (3) feet of unobstructed floor space shall be provided in all directions around the pumping equipment or as otherwise accepted by the Town Engineer and the Director of Public Works.

D. The building shall have one 6'-0" x 6'-8" fiberglass or aluminum insulated double door with key lock and stainless-steel hardware. Key locksets to the Town of Berryville's existing master-key system. Deliver four (4) master keys to the Town only. Alternatively, a mechanical code lock with key override may be installed.

E. A ventilator shall be provided using forced air as opposed to exhaust. Ventilation requirements are twelve (12) air changes per hour for continuous duty or 30 air changes per hour for intermittent duty. A ventilation louver shall be provided on the wall opposite to the ventilation fan.

F. No manholes or wet well entrances shall be located inside the pumping station building.

G. A metered water service shall be provided with a Town-approved ¾-inch x $^{5}/_{8}$-inch meter, setter, and crock. Appurtenances shall include one ¾-inch hose bib and sink located inside the building and one exterior frost-free hose bib located on the building adjacent to the wet well and opposite the concrete slab. This service must have a reduced pressure zone device as its backflow protection.

H. Sufficient electric heat shall be provided so as to prevent freezing inside the building at negative 10°Fahrenheit (negative 23°C) ambient temperature. A redundant heater shall be installed on a separate circuit with a separate thermostat.

I. Interior lighting shall be comprised of LED fixtures that are controlled by a switch located inside of the building near the entrance. This lighting shall provide a minimum of four (4) watts of illumination per square foot of interior space.

J. Exterior lighting shall be comprised of at least two downcast LED wall packs with a minimum output of 5,000 lumens each. One light shall be located outside

of the entrance door and a second light shall be located over the wet well. Exterior lights shall be controlled by switches located inside the building near the entrance.

K. A minimum of two 110-volt receptacles shall be provided with ground fault protection and waterproof covers. Outlets should be a minimum of ten (10) feet apart and three (3) feet off the floor. Outlets shall be located in the natural walking areas and not obstructed by equipment or piping.

L. The building type and architecture should match and compliment adjacent buildings and properties and meet all applicable building codes. The roof shall be shingled with thirty-year asphalt shingles and have a minimum 5/12 pitch. The roof pitch shall conform to other structures in the area

VI. Electrical

A. Electrical service shall be three phase, 60 HZ, 460 volt. Phase conversion equipment to convert single phase power to three phase power shall not be acceptable.

B. The electrical breaker panel shall be provided with two (2) spare 110-volt 20-amp and one (1) spare three phase 480-volt 30-amp breakers.

C. A 110-volt, 20-amp circuit shall be provided and installed on the outside of the building in a weather resistant enclosure and shall be located near the center of the concrete slab beside the wet well. If no pumping station building exists, the outlet shall be installed on an electrical backboard.

D. Control voltage shall be 110 volt.

E. Electrical components shall be as manufactured by Rockwell Automation's Allen-Bradley, General Electric, or Furnas. Circuit breakers shall have through the door operating mechanisms to prevent the door from opening when the breakers are in the "on" position. Motor starters, relays and selector switches shall be NEMA rated. Enclosure shall be stainless steel.

F. The pump control panel shall be manufactured by the pump manufacturer. Each panel shall be built by a UL Solutions panel builder and the assembly shall bear a serialized UL Solutions label for *Enclosed Industrial Control Panels*. All wiring, workmanship, and schematic wiring diagrams shall be in compliance with the National Electric Code (NEC).

G. All equipment shall be wired for automatic restart capability after restoration of power.

H. Elapsed time meters shall be provided for each pump on the motor control panel.

I. The pump station controls must provide pump alternation and protection from short circuits, overloads, and low voltages on all phases.

VII. Fuel and Generator

A. Pump stations shall be equipped with an emergency generator and automatic load transfer switch. If the generator is installed outside the main station building, it shall be located inside a sound attenuating enclosure with fencing and screening as provided in this section.

B. Units shall be powered by natural gas or Liquefied Petroleum (propane) gas. Fuel storage tank is to be sized to allow for five (5) days of continuous operation.

C. Provide a 115-volt battery charger to maintain the charge on the 12-volt DC battery supplied with the engine.

D. LP Fuel tanks shall be installed underground according to ASME standards, NFPA 58 standards, and all applicable building codes. If underground storage is not possible and a waiver is granted by the Town's Director of Utilities or the Town Engineer, above ground installation following the NFPA 58 standards is permissible. Screening shall be provided by contractor as required in this section.

VIII. Force Main

A. Force main and fittings of diameters four (4) inches and larger shall be Polyvinyl Chloride (PVC) manufactured in accordance with ANSI/AWWA C900.

B. All PVC SDR Series pipe shall be manufactured from a Type I, Grade I Polyvinyl Chloride (PVC) compound with a Cell Classification of 12454 per ASTM D1784. The pipe shall be manufactured in strict compliance to ASTM D2241, consistently meeting and/or exceeding the Quality Assurance test requirements of this standard with regard to pressure rating, material, workmanship, burst pressure, flattening, impact resistance, and extrusion quality.

C. All force mains shall be pressure tested in accordance with procedures in ANSI/AWWA C 600.

D. Depth of cover shall be a minimum of four (4) feet.

E. A by-pass connection with a quick connect coupling and shut-off plug valve shall be installed inside the pump station building on the discharge header to allow for bypass pumping into the force main.

F. Force main shall be designed to operate at velocities between two (2) and five (5) feet per second.

G. Minimum force main pipe diameter is four (4) inch, unless otherwise approved by the Town Engineer, and unless a grinder pump is to be utilized. Force main sizing must be coordinated with pump design for optimum performance.

IX. Start-Up

A. Start-up and equipment check operations shall be performed by an authorized service technician from the original equipment manufacturer.

B. The Town Engineer and Director of Public Works shall be notified 48 hours prior to start-up and a Town representative shall be present during the period of start-up.

C. A copy of the technician's start up report showing all field data control, set points, and equipment condition shall be furnished to the Town Engineer.

D. Sufficient water for start-up and equipment check shall be the responsibility of the developer.

X. Submittals

A. Prior to beginning work on the station the following data shall be submitted to the Town Engineer for approval:

1. A completed application form.

2. All calculations and assumptions for the system head curve, total dynamic head, flow quantification, wet-well volume, pump duty cycle at average and peak daily flow, force main line velocity, and any other design calculations.

3. Site plan showing subject pumping station relative to area under development and the existing sewer system.

4. Building blueprints for the pumping station.

5. All pump curves.

B. Prior to acceptance of the pumping station, the following shall be submitted to the Town Engineer:

1. Three copies, including a digital copy, of the equipment submittal drawings.
2. Three copies, including a digital copy, of the manufacturer's O/M manuals for all mechanical and electrical equipment.

3. Recommended spare parts list from the equipment manufacturer.

4. One physical and one digital copy of manufacturer's certified test data including reprime performance tests.

II. Summary of Design Criteria

DESIGN PARAMETER	DESIGN VALUE
1. FLOW DEVELOPMENT	
a. Single family dwellings, GPD/capita	100
b. Others	per accepted text or manuals
2. RATIO OF PEAK HOURLY FLOW/DESIGN AVERAGE FLOW	2.5
3. SITE	
a. Fence	chain link (6')
b. Roadway	asphalt or concrete, single lane, less than 15% grade
c. Maximum landscaped slope, %	15
d. Flood protection, flood event	100 Yr.
4. BUILDING (unless alternate is approved)	
a. Minimum clear ceiling height, ft.	8
b. Unobstructed floor space around pumps, ft.	3
c. Ventilation requirements, air changes/hr	12 continuous, 30 intermittent
d. Potable water service line, in	3/4
e. Interior lighting, 2 bulb, 40W fixtures	2 watts/SF minimum
f. Interior electrical receptacles, 110 volt	2
5. WET-WELL	
a. Minimum wet-well bottom slope	1:1
b. Detention time between pump run cycles, min.	15
6. PUMPS	
a. Maximum pumping rate	2x designed peak pump station influent
b. Minimum number of pumps	2
c. Pump type	suction lift, constant speed unless conditions prohibit
7. ELECTRICAL	
a. Incoming service, volt/phase	460, 3 phase
b. Control voltage, volts	110
8. FORCE MAIN	
a. Pipe material of construction	C 900 PVC
b. Depth of cover, ft.	4
c. Line velocities, fps	2.0-5.0

APPLICATION FORM FOR WASTEWATER PUMPING STATION

All construction plans and specifications for pumping stations must be submitted to the Virginia Department of Environmental Quality, Valley Regional Office, for review and approval. A copy of the DEQ's approval must be provided to the Town, prior to final approval by the Town of Berryville.

A. General Information

1. Name of project served _____
2. Total area served, acres _____
3. Estimated start of construction _____
4. Estimated completion date _____

B. Applicant

I, the undersigned, am fully aware that the statements made in this application for approval of a wastewater pumping station are true, correct and complete to the best of my knowledge.

_____ _____
Mailing Address Signature of Applicant

_____

_____ _____
Telephone No. Name and Title

_____ _____
Date Representing

C. Engineer

This is to certify that this application has been prepared under my direction and the plans and specifications for this wastewater pumping station have been designed by me and are in conformance with sound engineering practices.

_____
Mailing Address Signature of Engineer

_____ _____
Company Name Name

_____ _____
Telephone Number Registration No.

_____
Date

APPLICATION FORM FOR WASTEWATER PUMPING STATION PAGE 2

D. Critical Elevations

1. 100 year flood _____
2. Top of pumping station structure _____
3. Influent line in wet-well _____
4. Bottom of wet-well _____
5. Pump on _____
6. Pump off _____

E. Quantification of Design Flow

	UNITS	@	GAL/UNIT	GPD
1. Single Family Dwellings	_____	@	_____	_____
2. Condominiums, Apartments	_____	@	_____	_____
3. Swimming Pools	_____	@	_____	_____
4. Motels	_____	@	_____	_____
5. School	_____	@	_____	_____
6. Commercial	_____	@	_____	_____
7. Industrial	_____	@	_____	_____
8. Other	_____	@	_____	_____

Average Daily Flow _____ GPD
Minimum Daily Flow _____ GPD
Peak Hourly Flow _____ GPD
Peaking Factor _____

F. Design Information

1. Head
   a. Static head, ft _____
   b. Total dynamic head, ft _____

2. Wet-Well
   a. Volume, CF _____
   b. Detention time at peak hourly flow, min. _____
   c. Time between pump starts _____
   d. Ventilation present _____
   e. Strainer basket present _____

3. Pumps
   a. Pump manufacturer/Model No. _____
   b. Number of pumps _____
   c. Type of pumps _____

APPLICATION FORM FOR WASTEWATER PUMPING STATION PAGE 3

d. Pump capacity
No. 1 _____ GPM @ _____ TDH; _____ HP
No. 2 _____ GPM @ _____ TDH; _____ HP
e. Pump controller
Manufacturer/Model No. _____

4. Force Main
a. Pipe material of construction _____
b. Pipe diameter, inches _____
c. Line velocity _____
d. Depth of cover, ft. _____

5. Electrical
a. Electrical service manufacturer _____
b. Voltage, Phase _____
c. Automatic restart capability _____
d. Alarm manufacturer/Model No. _____
e. Emergency generator, standby engine or portable engine driven pump _____

6. Building
a. Interior 3/4" hose bib present _____
b. Minimum unobstructed distance around equipment, ft. _____
c. Overhead support beam present _____
d. Ventilator present _____
e. Number of 110 volt electrical receptacles _____
f. Area of building, SF _____

7. Submittals attached with this application
a. Calculations _____
b. Site plan _____
c. Building blueprints _____
d. Pump curves _____

WATER DISTRIBUTION SYSTEM * December 2025 (Listed in order of preference)

Items for Water Distribution	Manufacturer	Model #	ANSI/AWWA spec.* or other Requirement
Water lines	Griffin Atlantic States JM Eagle		C151/A121.5 AWWA C151 C0909
Fire Hydrants	American Flow Control Mueller Centurion	Super Centurion 200 B62B 4' D.O.B.	AWWA C502
Gate Valves R.S. Ductile Iron	American Flow Control Mueller	A2361 AFC 2500	AWWA C502
Swing Check Valves	American Flow Control Mueller	A 2600-6 AFC 2100	AWWA C508
Combination Air Release & Air Vacuum Valves	Valmatic Apco	VM 201 C & VM 202 C 143C & 145C	ASTM A126 Class B
Valves Boxes	Tyler Union Pipe Bingham and Taylor	564S BT 22	AWWA C110 ASTM A438-62
Valve Box Adapter	Adapter, Inc.	Valve Box Adapter II (VBAII)	N/A
Bolts and Gasket Kits	Stewart Carson	S-FBK-FF-1/8 C-FBK-FF-1/8	
Mechanical Joint Fittings	Tyler Union Pipe Star	Compact	AWWA C153
Mech. Joint Restraints Mega Lug Glands	EBAA Iron Mega Lugs Ford Meter Box Co.	1100 Series 1400 Series	ASTM A536-80
Wall pipe/Sleeve/Flg Spools – Ductile Iron Pipe and Flanges	Higgins Eng. Davis K Clow		AWWA C115
Service Line Fittings	Ford Meter Box Co. Mueller	C44 Series 110 Series	compression AWWA C800
Service Tubing	Mueller Howell	HDPE	CTS 200 PSI
Threaded Fittings	Trenton Lee Brass	Red Brass Red Brass	ANSI B16.15

(Continued)

*Must meet the requirements of the ANSI/AWWA and/or ASTM standards as described.

WATER DISTRIBUTION SYSTEM * December 2025 (Listed in order of preference)

Items for Water Distribution	Manufacturer	Model #	ANSI/AWWA spec.* or other Requirement
Service Saddles	Ford Meter Box Co. Mueller	FS 202 H10500	Double Strap Stainless Steel Bands
Ball Corporation Stops	Ford Meter Box Co. Mueller	FB 1000 Series 300 Series	AWWA C800
Coppersetters			
Single Service $1^1/_2$"	Ford Meter Box Co.	VBHH76-15C11-66NL	AWWA C800
Single Service $^5/_8$"	Ford Meter Box Co.	VBHC172-12WW443NL	W/ dual bypass
Single Service 1"	Ford Meter Box Co.	VBHC174-15W444NL	check valve
Double Service $^5/_8$"	Ford Meter Box Co.	VBHC172-12W1433NL	
Single Service 2"	Ford Meter Box Co.	VBHH77-15BHC 11-77NL	
Dual Cartridge Style Check	Ford Meter Box Co.	HHC Series	AWWA C800
Meter Box			
Single Service $^5/_8$"	Bingham & Taylor	18" x 30"	High density plastic
Single Service 1"	Bingham & Taylor	24" x 30"	High density plastic
Meter Box Frame and Cover			
$^5/_8$" to 2"	Ford Meter Box Co.	Style M32C PW REC MC36 or M36	Cast Iron
Single service $^5/_8$"	AY McDonald	Style 74M32CRG	Cast Iron
Single service $^5/_8$"	Bingham & Taylor	Style #180-18-C	Cast Iron
Meter Box Cover	Ford Meter Box Co.	NO#1	Extensions
Extension Rings	MBC	NO 18-24	Cast Iron
Cold Water Meters	Neptune	T-10	AWWA C700
Blow-off Hydrants	Kupferle Foundary	#77	
Sampling Stations	Kupferle Foundary	NO88-WC (Eclipse)	
Mechanical Joint Connections	Infact Corporation	Foster Adaptor	
Backflow Assemblies Low Hazard	Ames Watts	3000 SS 709 DCA	ASSE 1048
Backflow Assemblies High Hazard	Ames Watts	5000 SS 909 RPDA	ASSE 1047

*Must meet the requirements of the ANSI/AWWA and/or ASTM standards as described

SEWER COLLECTION SYSTEM * December 2025 (Listed in order of preference)

Items for Sewer Collection	Manufacturer	Model #	ANSI/AWWA spec.* or other Requirement
Gravity Sewer Mains PVC	J.M. Eagle	C909/905	AWWA C909 ASTM F1483
Gravity Sewer laterals 4" through 6"	National NAPCO	DR25 PVC	ASTM D3139
Force Main (PVC) 6" through 12"	J.M. Eagle	C909	AWWA C909
Force Main PVC Pressure Pipe $1^1/_2$" through 4"	J.M. Eagle	C900	AWWA C900
Sewer Main Fittings Gravity	HARCO	C900 Fittings	PVC ASTM D 1784
Mechanical Joint Fittings 3" through 12"	Tyler Union Pipe Star	Compact	AWWA C153
Ball Curb Stops 2"	Ford Meter Box, Inc. Mueller	B11 Series	AWWA C800
Manhole Frames And Cover 24" diameter	Neenah	Watertight R1916-F Standard R1642	ASTM-A-48 Class 35B Gray Iron

(Continued)

*Must meet the requirements of the ANSI/AWWA and/or ASTM standards as described.

SEWER COLLECTION SYSTEM * December 2025 (Listed in order of preference)

Items for Sewer Collection	Manufacturer	Model #	ANSI/AWWA spec.* or other
Hour Meters	Cramer		
Flow Meters	Polysonics		
Suction Lift Pumps	Gorman-Rupp		
Submersible Grinder Pumps	Liberty		
Ball Valve Extension Stems	Geneco Trumble	EST ST-3.0	ASTM A-36 84A
Gate Valves R5 Ductile Iron	AFC 2500 Mueller A 2361	250 PSI R. S. Ductile Iron	AWWA C515
Air Release and Air Vacuum Valve	Valmatic APCO	801 BW, 802 BW	ASTM A126 Class B
Valve Boxes	Tyler Union Bingham & Taylor	24" x 36" 36" x 48"	Cast Iron
Gate Valve Extension Stems	Geneco Trumble	EST ST-3.0	ASTM A-36-84A
Clean Out Adapters and Plug	Jones Manufacturing	C.I. Clean Out Adapter	Cast Iron
Clean Out Wye Fabricated	HARCO	SDR 21 Long Sweed T-Wye	ASTMD-1784
Clean Out Frame and Cover	Capital Foundaries	Lamp Pole Frame and Cover	Cast Iron
Manhole Internal And External Chimney Seals	N.P.C., Inc. Cretex Wrapid		

*Must meet the requirements of the ANSI/AWWA and/or ASTM standards as described.

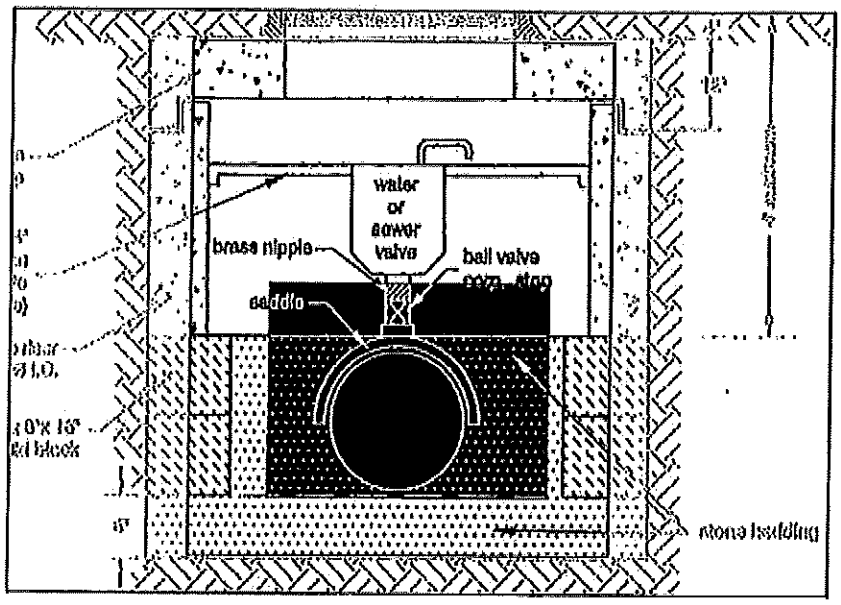
STREET SIGNAGE * December 2025

Items for Street Signage	Manufacturer	Model #	Specifications
Standard public street name sign	N/A	N/A	MUTCD D3-1 3M Green background, white letters white rounded corners
Standard private street name sign	N/A	N/A	MUTCD D3-1 3M3430EGP3430 brown background, white letters white rounded corners
Perforated traffic post	Trinity Highway	SQR-LOC	2" square 14 gauge Aluminum, FHWA approved breakaway support
Enforcement and warning sign posts	N/A	N/A	2" square 14 gauge galvanized yellow post
Sign slot hardware	N/A	N/A	Standard sign 5.6" sign slot
Sign T slot hardware	N/A	N/A	5.6" t slot

OTHER * December 2025

Items	Manufacturer	Model #	Specifications
Storage Shed	Lifetime		8' x 5' HDPE Double Doors with padlock loop

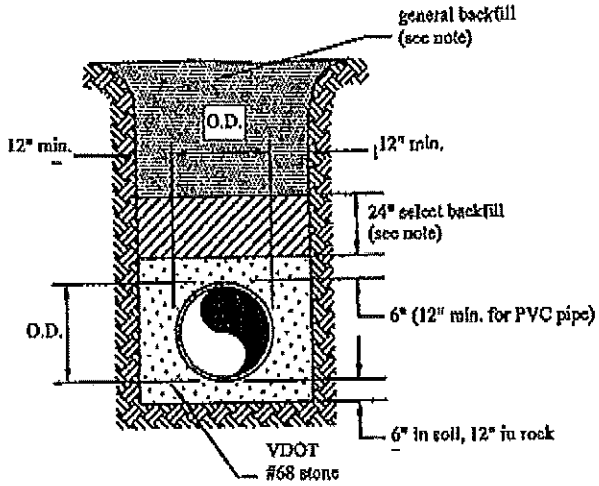
Town of Berryville



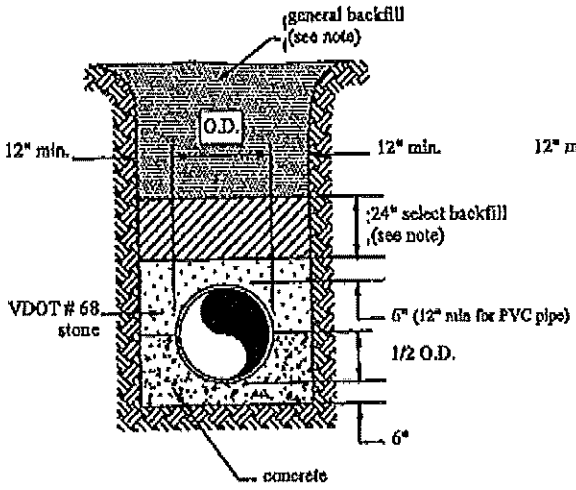
Standard Details

Revised December 2025

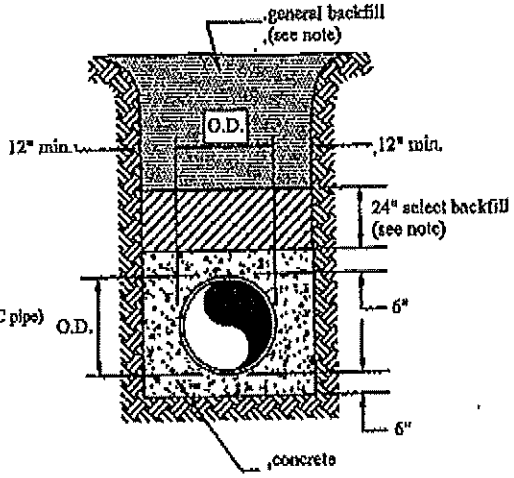
Catalogue of Figures



STANDARD



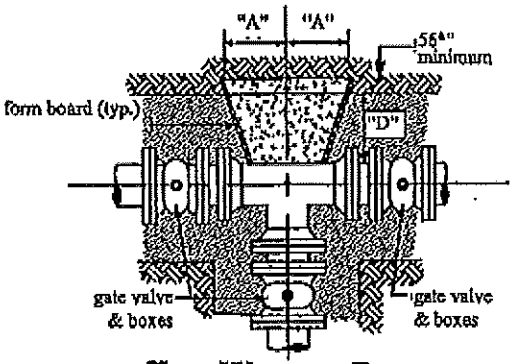
CONCRETE CRADLE



Concrete Encasement

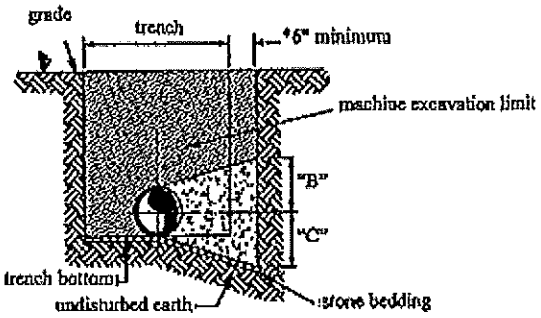
TRENCH & BEDDING

Figure 1



TEE, WYE, OR PLUG

In lieu of wood forming, the fitting may be wrapped with polyethylene and the concrete poured to completely surround the fitting against undisturbed soil. The bearing dimensions against undisturbed soil shall remain as shown.

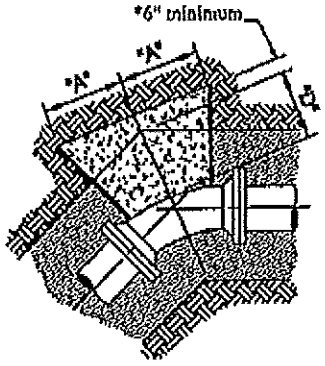


TYPICAL SECTION

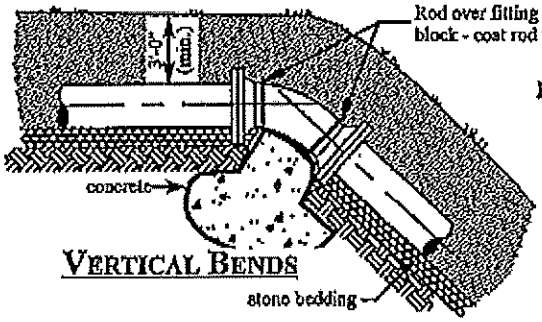
* denotes hand excavation
"D" = 12" min. for 10" and smaller pipe
"D" = 18" min. for 12" thru 20" pipe
see chart below for A, B, C dimensions

CONCRETE DIMENSIONS FOR HORIZONTAL THRUST BLOCKS

PIPE DIA.	PLUGS, WYES & TEES			11¼° AND 22½° BENDS			45° AND 90° BENDS		
-	A	B	C	A	B	C	A	B	C
6"	1'-0"	0'-9"	1'-0"	0'-9"	0'-9"	0'-9"	1'-3"	0'-9"	1'-9"
8"	1'-3"	0'-9"	1'-3"	0'-9"	0'-9"	0'-9"	1'-6"	0'-9"	2'-3"
10"	1'-6"	0'-9"	1'-3"	1'-0"	0'-9"	1'-3"	1'-9"	0'-9"	2'-6"
12"	1'-9"	1'-0"	2'-6"	1'-3"	1'-0"	1'-6"	2'-0"	1'-0"	3'-0"
14"	2'-0"	1'-0"	3'-0"	1'-3"	1'-0"	1'-6"	2'-6"	1'-0"	4'-0"
16"	2'-3"	1'-0"	3'-6"	1'-6"	1'-0"	2'-0"	2'-9"	1'-0"	4'-6"
18"	2'-6"	1'-3"	3'-9"	1'-6"	1'-3"	2'-0"	3'-0"	1'-3"	4'-9"
20"	2'-9"	1'-6"	4'-0"	1'-9"	1'-6"	2'-0"	3'-3"	1'-6"	5'-0"



11¼° THRU 90° BENDS



VERTICAL BENDS

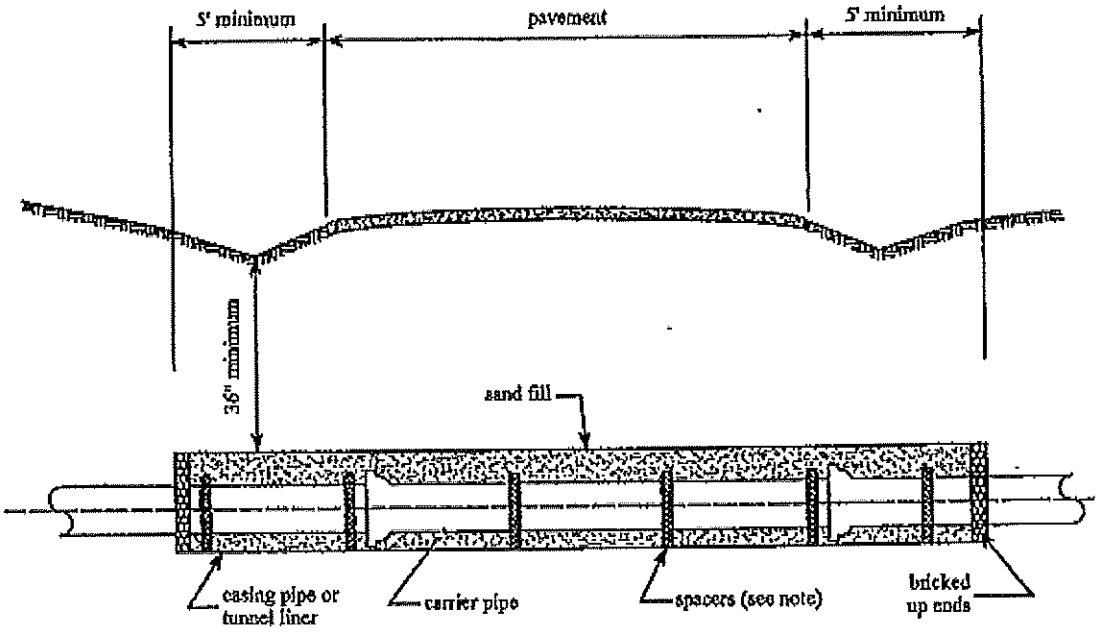
THRUST BLOCKS FOR VERTICAL UP BENDS SHALL BE THE SAME AS FOR HORIZONTAL BENDS.

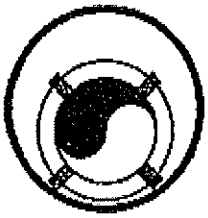
FITTING SIZE	ROD SIZE	NO. RODS	EMBEDMENT
12" & Less	6	2	30"
14" - 20"	8	2	36"

FITTING SIZE	VOLUME OF THRUST BLOCK PER CUBIC YARD			
	11¼°	22½°	45°	90°
6"	-	-	-	1.3
8"	-	-	1.1	2.3
10"	-	-	1.8	3.7
12"	-	1.2	2.8	5.5
14"	0.5	1.7	3.9	7.6
16"	0.9	2.3	5.1	-
18"	1.4	3.2	6.3	-
20"	2.2	4.5	7.8	-

CONCRETE THRUST BLOCKING

Figure 2





SECTION

NOTE:
1. Separation of carrier pipe shall be by manufactured casing spacers with plastic runners.
2. Spacers shall be placed on spigot end within 6 inches of connection to bell; then 2 spacers evenly placed on length of pipe.

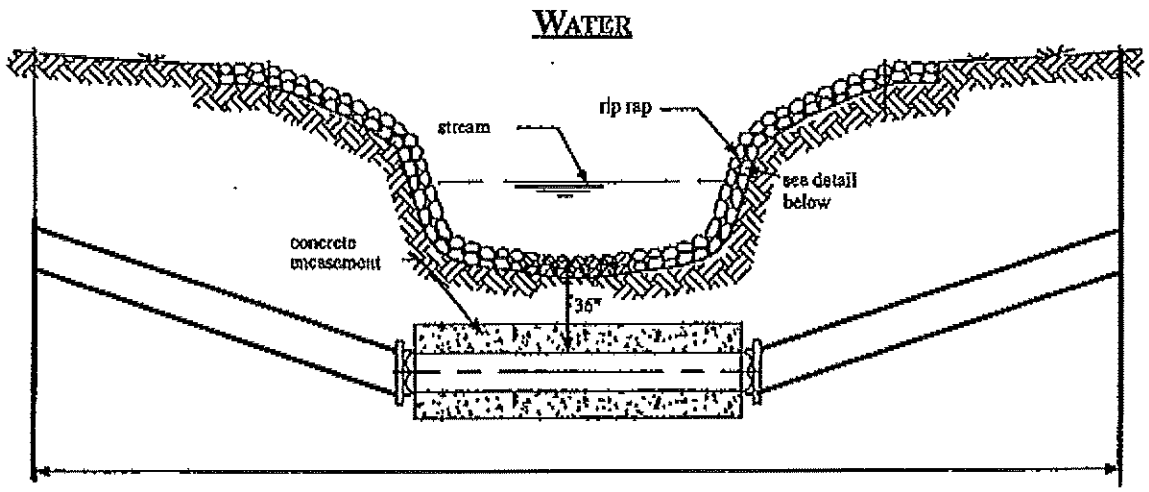
SIZES REQUIRED

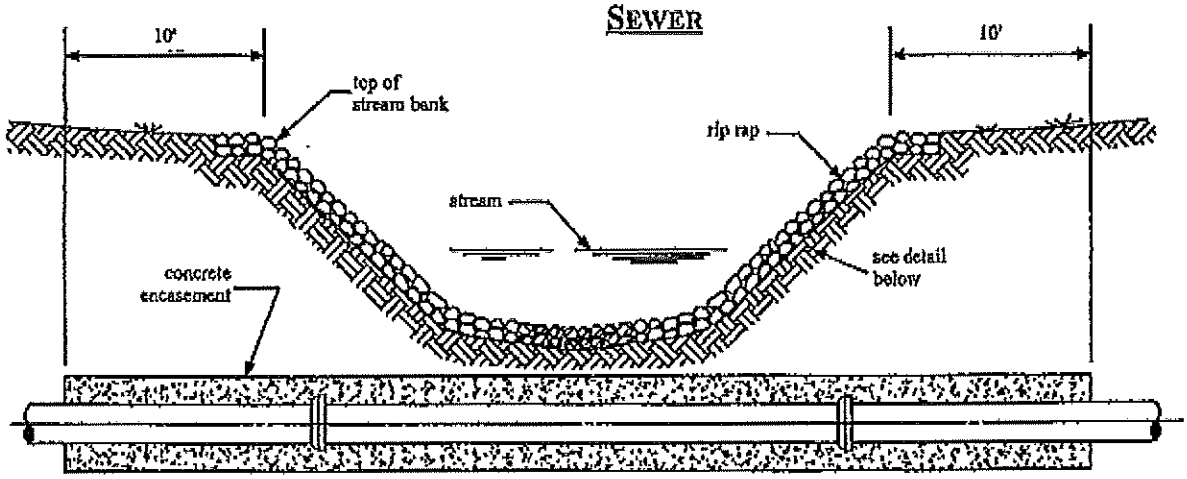
Carrier Pipe Dia. (")	Casing Pipe Dia. (")	Wall Thickness (")
4 or less	12	.250
6	16	.250
8	18	.375
10	20	.375
12	24	.375
14	24	.375
15	24	.375
16	30	.500
18	30	.500
20	36	.500
21	36	.500
24	36	.500

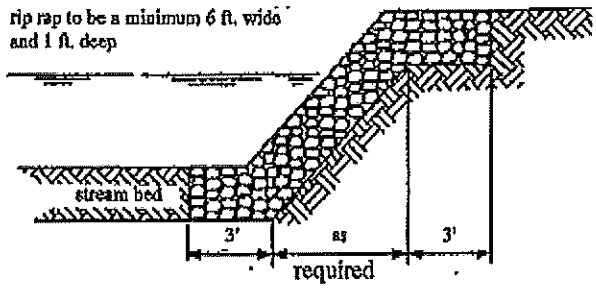
(for larger pipe use tunnel liner)

Water Service Laterals
a) Casing pipe shall be SCH 40 PVC or SDR 21
b) 3" diameter pipe for 1" service lines
c) 6" diameter pipe for 2" service lines
d) No spacers or sand fill to be installed

HIGHWAY CROSSING
Figure 3





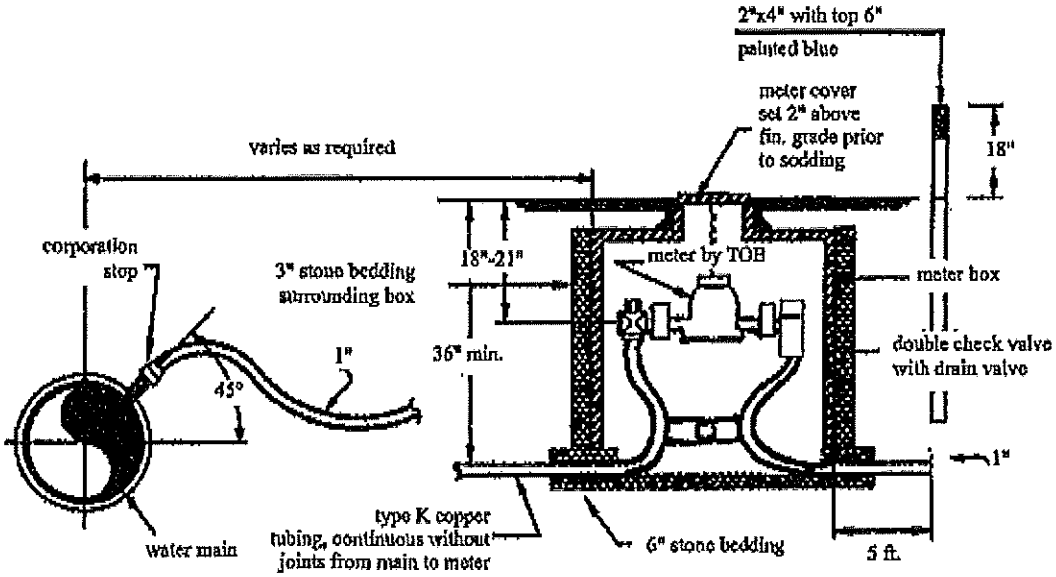


STREAM CROSSING

Figure 4

METER BOX & COVER

Meter Size	Meter Box		Meter Box Cover
5/8"x3/4" or 3/4"	18 in Dia.	Non-Traffic	M32C-PW + FP cast iron plug
		Traffic	A32HH-T
1"	24 in Dia.	Non Traffic	MC-24 (Frame) WITH RML-1-T (Top Lid)
		Traffic	MC-24 (Frame) WITH RML-12-T (Top Lid)

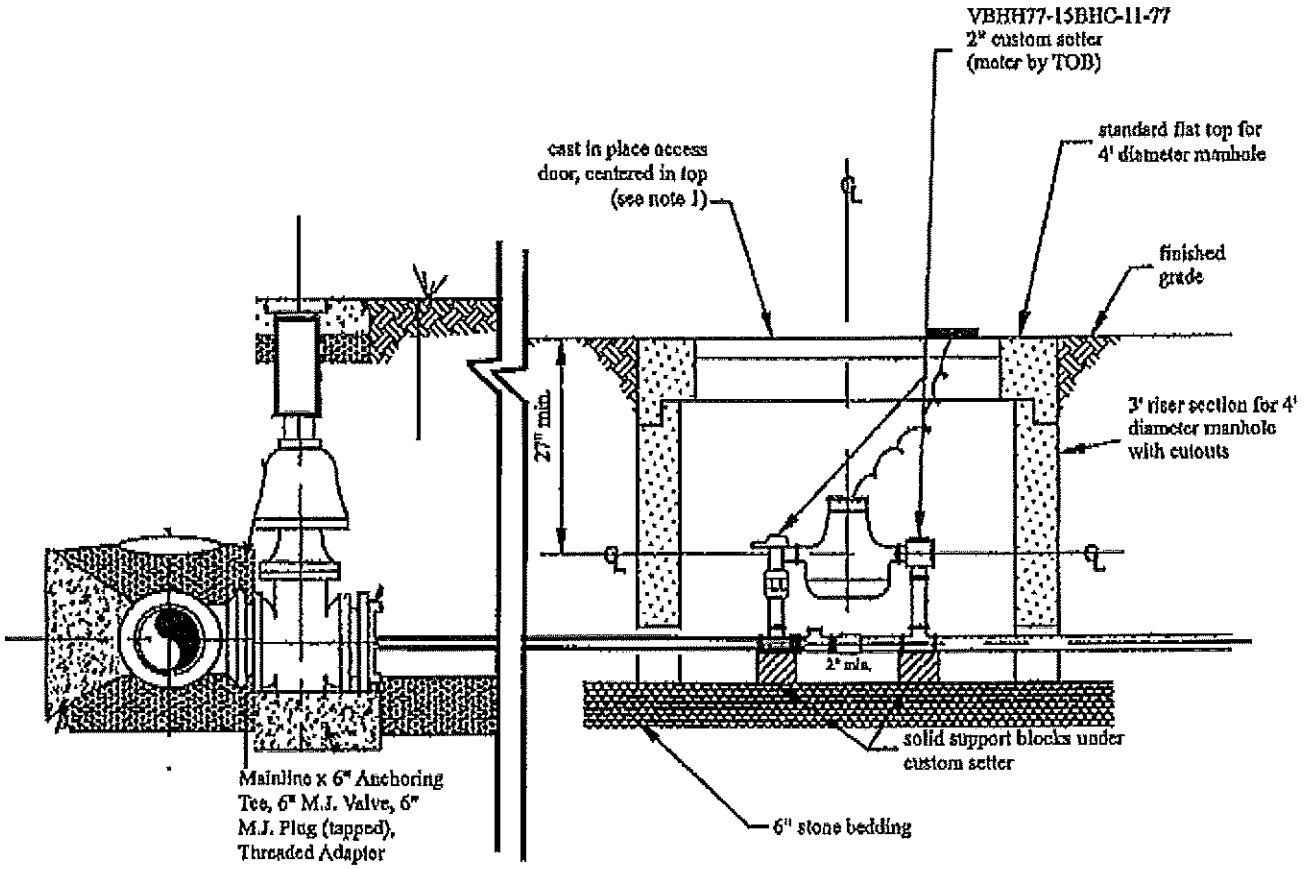


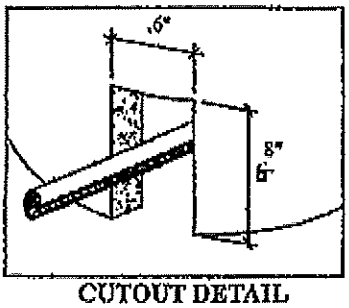
METER SETTING PARTS		
SERVICE PIPING DIA.	METER SIZE	FORD METER SETTER
3/4"	5/8x3/4" (20 gpm)	VBHC 72 12W 4433
1"	5/8"x3/4" (20 gpm)	VBHC 72 15W 44-44B4
1"	3/4" (30 gpm)	VBHC 72 15W 44-44B4
1"	1" (50 gpm)	VBHC 74 15W 4444

NOTE: Equivalent meter setters by other manufacturers may be installed with prior approval of the Director of Public Works.

INSTALLATION NOTES:
1. Exact location of meter box assembly to be approved prior to installation.

5/8" x 3/4", 3/4", & 1" METER INSTALLATION
Figure 5





CUTOUT DETAIL
(typical)

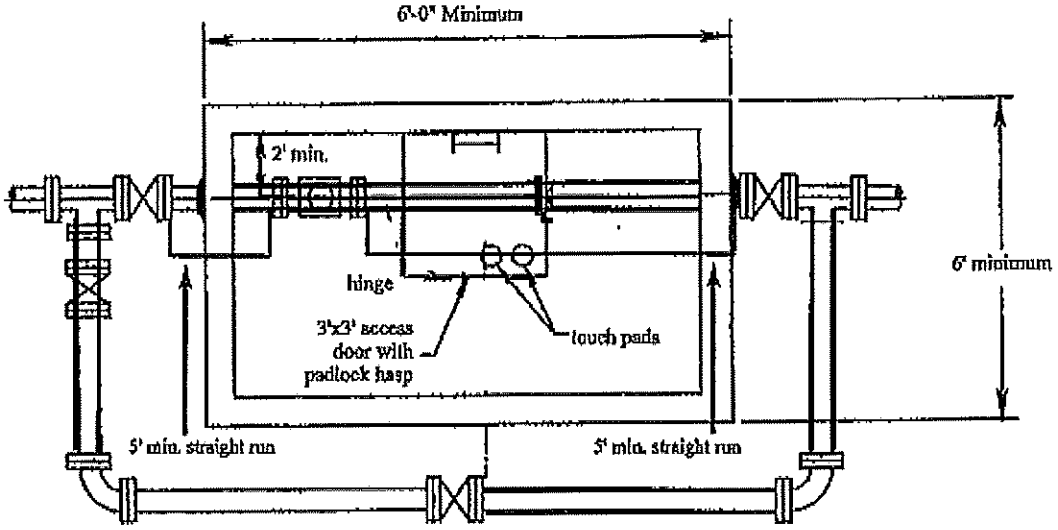
NOTES:

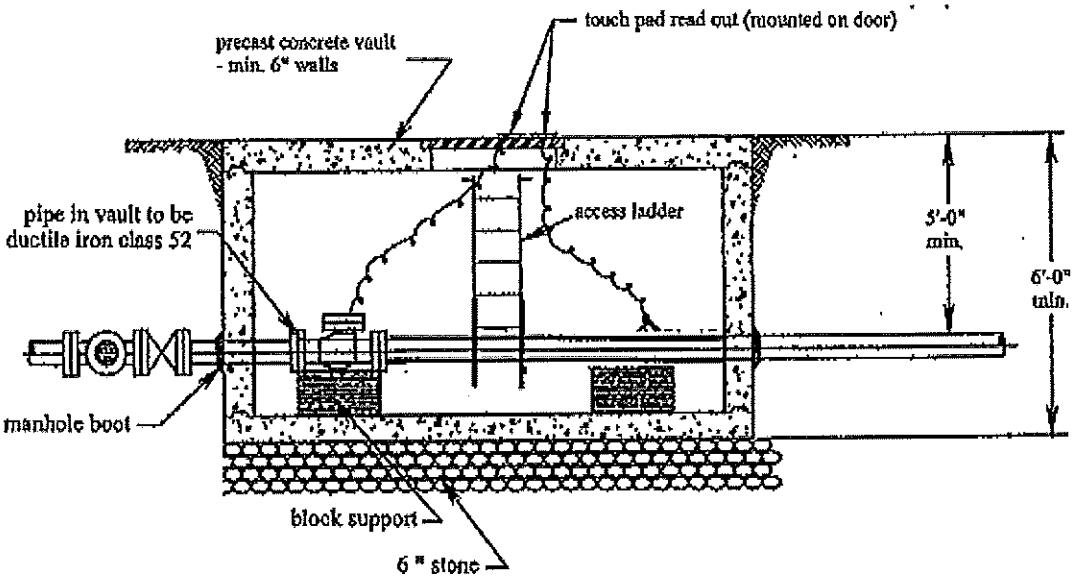
1. Access door shall be by Halliday Products or our approved equal:
   a) in non-traffic area - model no. S1R3030
   b) in traffic area - model no. H1R2424

2. Water service crossing street shall be encased in 6" diameter SCH40 PVC or SDR21 piping. The piping shall run from one foot beyond sidewalk, across the street, to one foot beyond sidewalk.

1 ½" AND 2" METER INSTALLATION

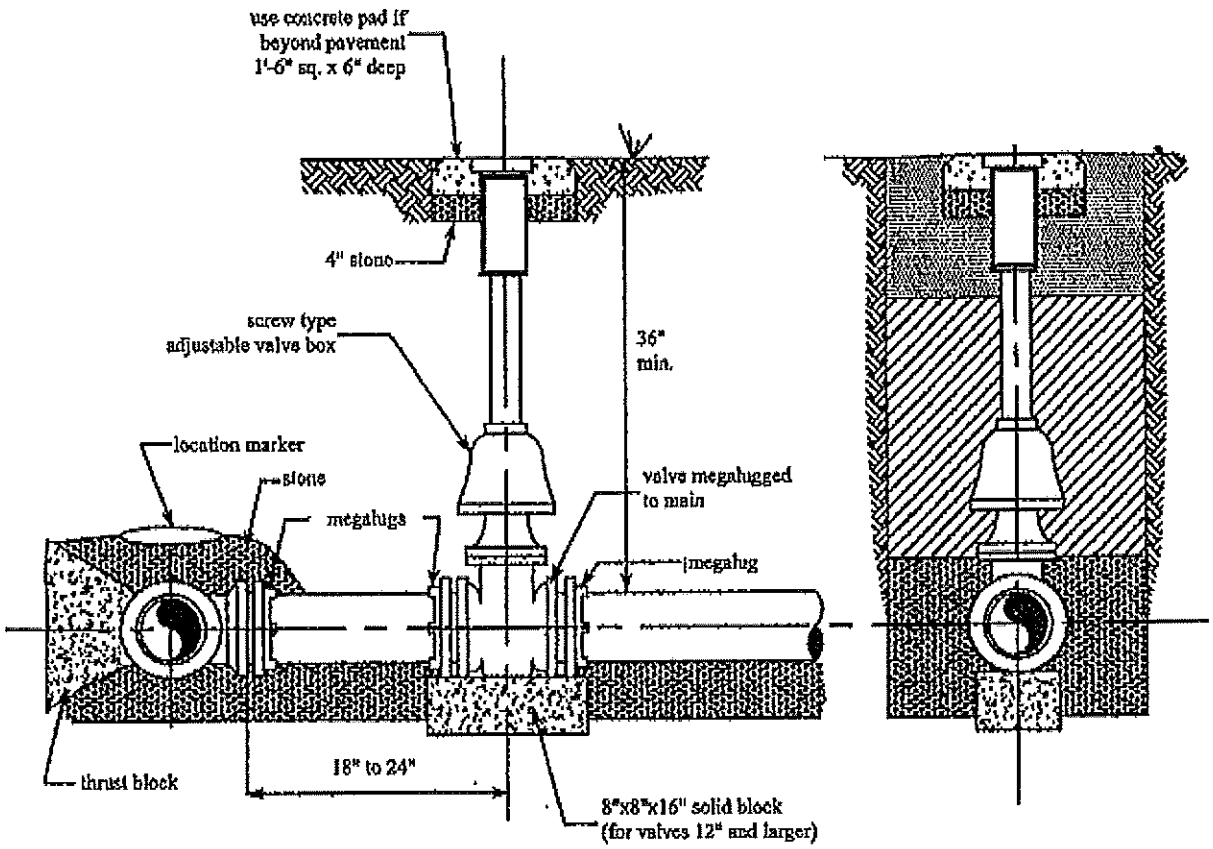
Figure 6





3" to 8" METER INSTALLATION

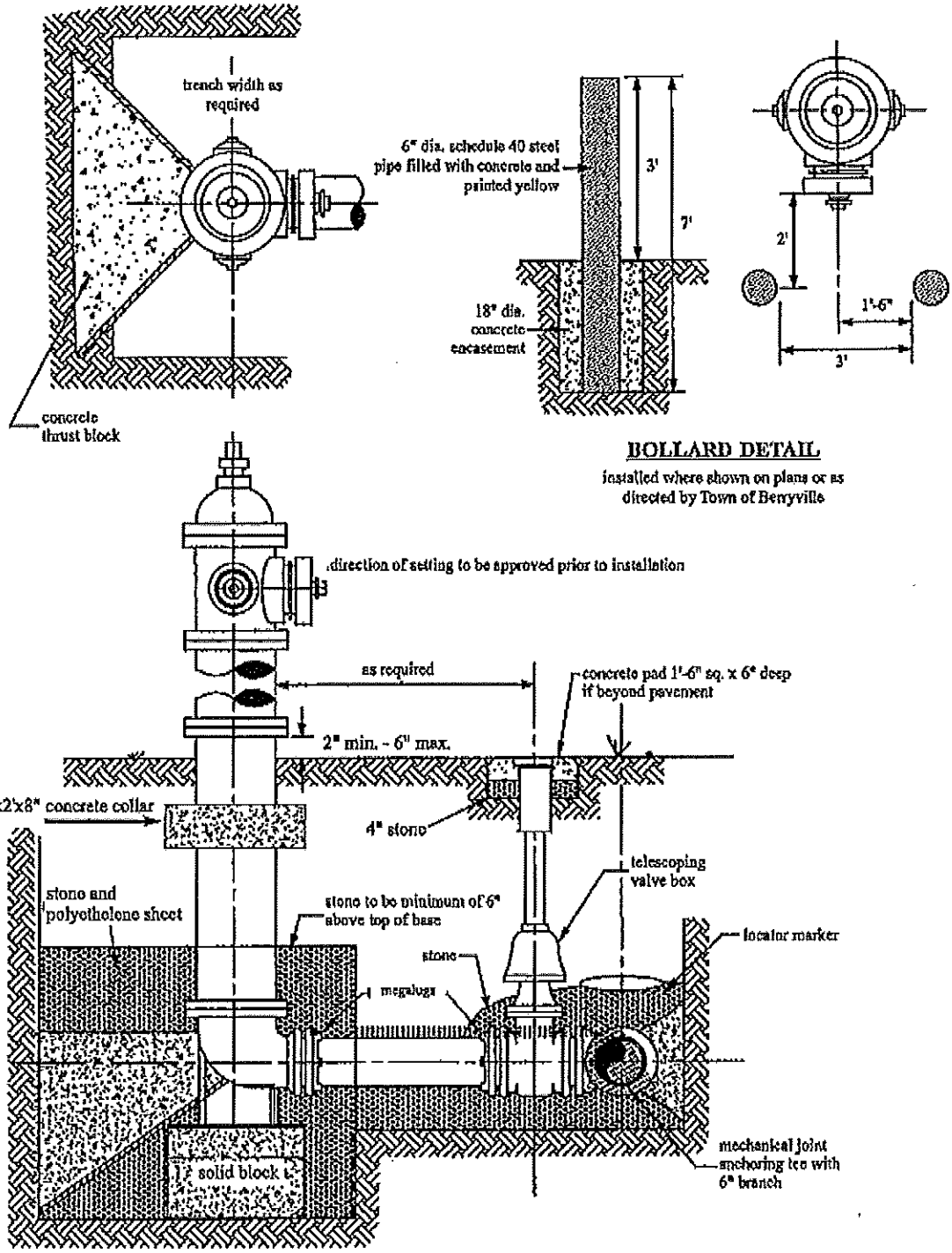
Figure 7



NOTE: this detail is also used for butterfly valves

GATE VALVE

Figure 8



FIRE HYDRANT ASSEMBLY

Figure 9

HYDRANT FLOW COLOR CODES

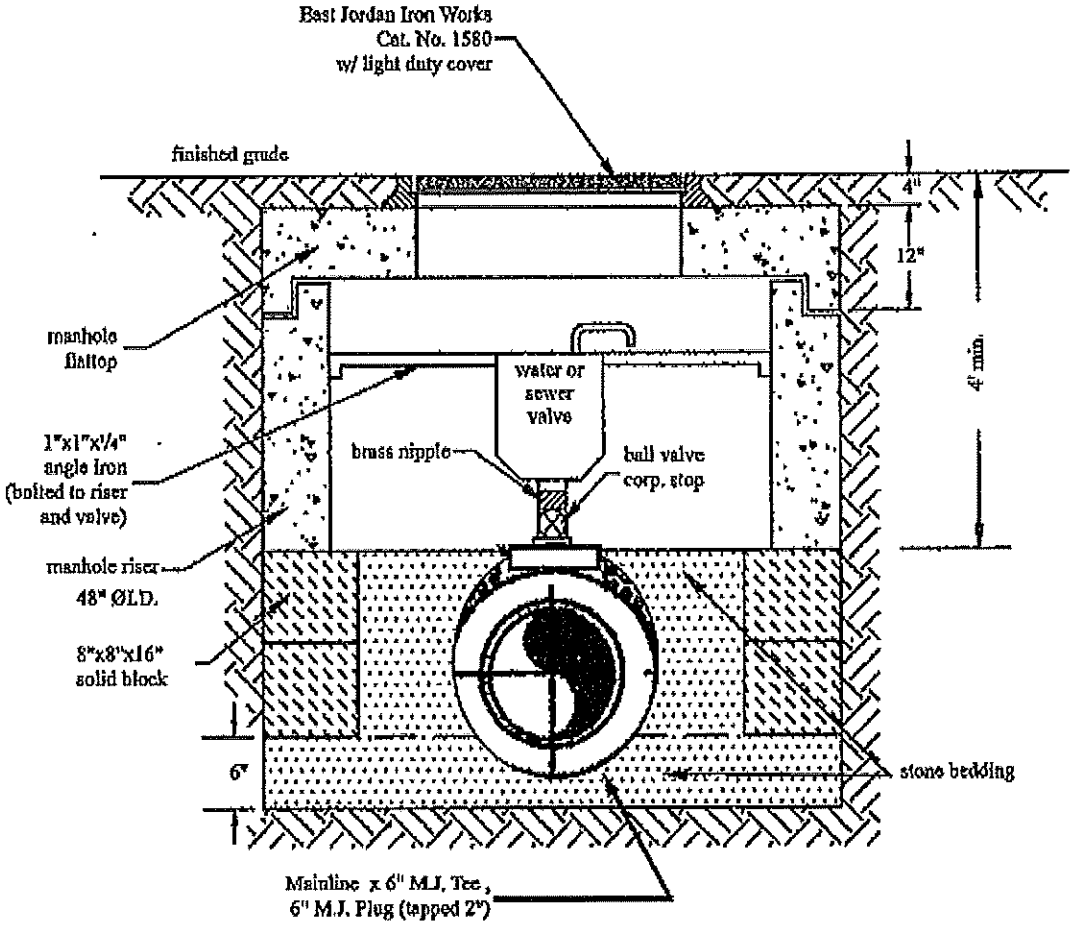
Hydrant Class	Color	Flow
 Class AA	Light Blue	1,500 gpm (5 680 L/min) or greater
 Class A	Green	1,000-1,499 gpm (3 785 L/min to 5 675 L/min
 Class B	Orange	500-999 gpm (1 900 L/min to 3 780 L/min)
 Class C	Red	Less than 500 gpm (1 900 L/min)

Public Hydrant Barrels shall be silver

Private Hydrants shall be red and marked "PRIVATE"

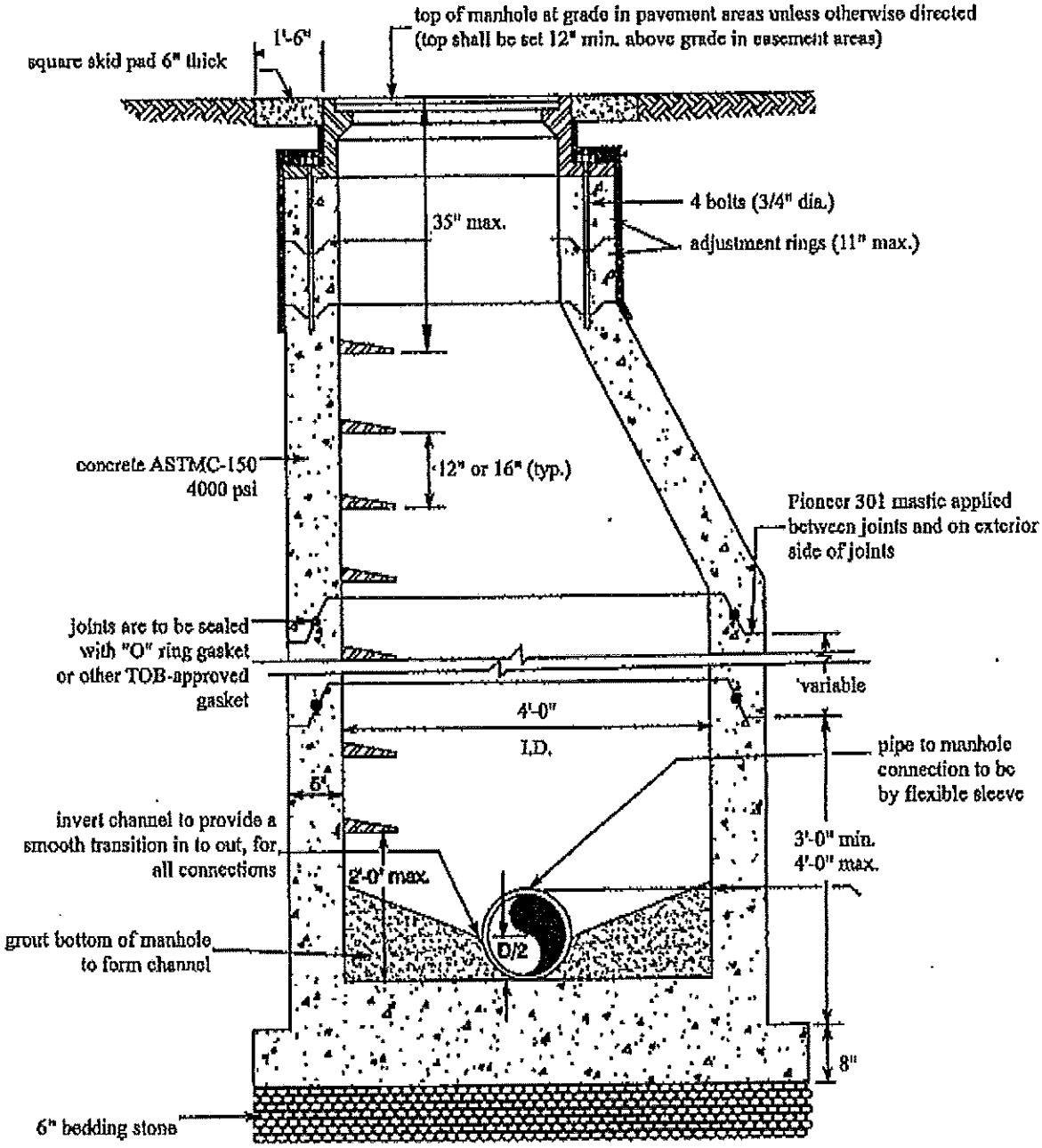
FIRE HYDRANT COLORS

Figure 10



COMBINATION AIR RELEASE AND AIR VACUUM VALVE

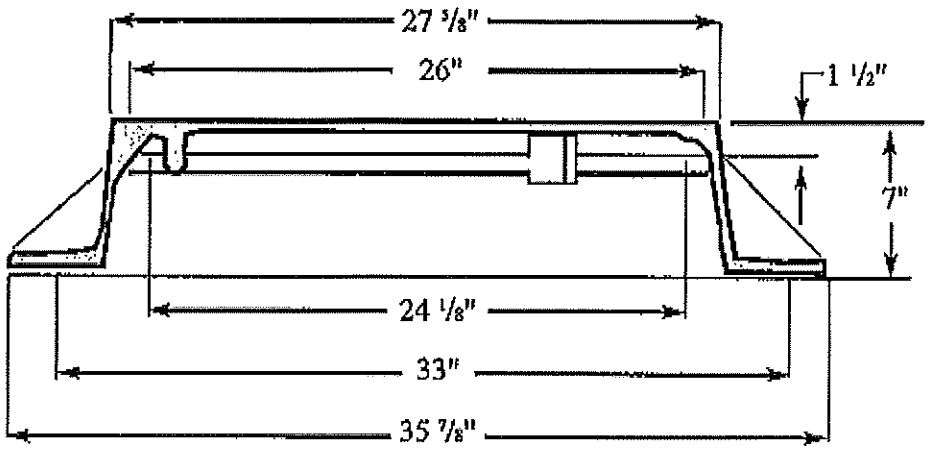
Figure 11



NOTES:
1. Manhole sections shall have an external coating of approved bitumastic water proofing prior to installation.
2. If adjustment elevation exceeds two inches use concrete adjustment rings with a exterior coating of bitumastic water proofing.
3. Final slope adjustment of manhole frame may be by shims and non-shrink grout.
4. Skid pad to be placed around manholes located in shoulders of roads.
5. Flat top casting shall be used on shallow manhole (6 ft. or less) installations.
6. Slope bench at 1";1' toward channel.

STANDARD MANHOLE

Figure 12

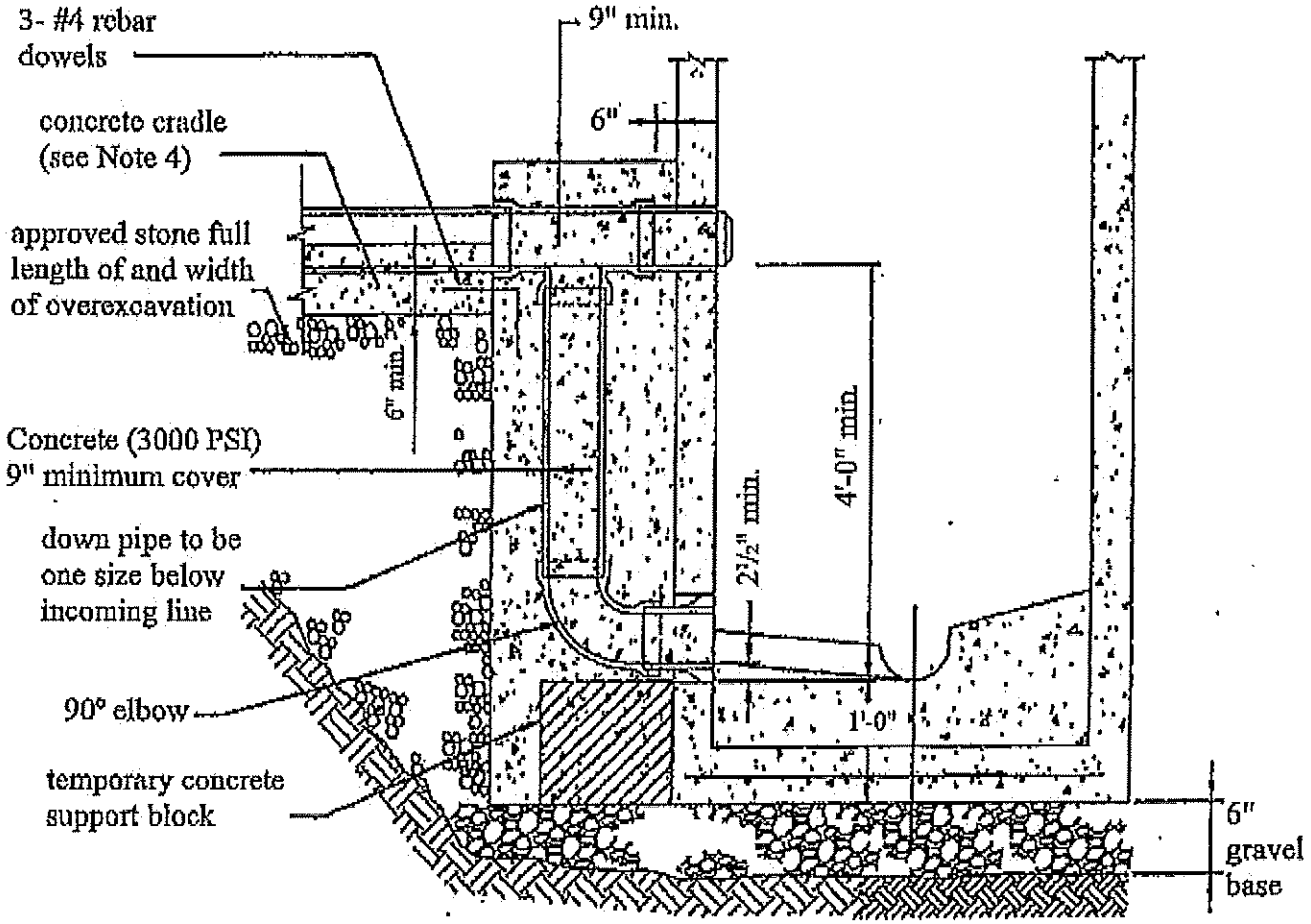


NOTE:

1. Castings shall be manufactured true to pattern. Component parts shall fit together in a satisfactory manner. Castings shall be smooth and well cleaned by shotblasting.
2. Metal shall be ASTM-A-48 Class 35B gray iron minimum, or ASTM-A-536 Grade 80-55-06 for ductile iron.
3. Castings shall have a minimum tensile strength of 35,000 P.S.I,., H20 loading.
4. Watertight castings shall be furnished with a bolt down lid and gasket.
5. Standard castings shall be furnished with a compression sealing gasket.

MANHOLE COVER & FRAME

Figure 13

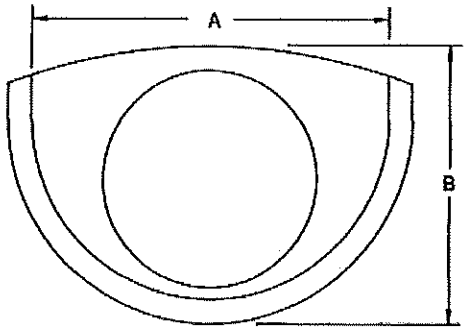


Notes:

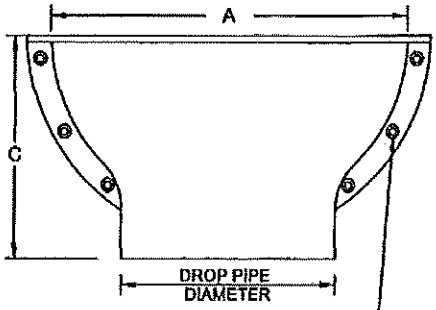
1. **Incoming line to have 2.0% slope maximum**
2. **Manhole penetrations to be with core and watertight connector. Core is to be at lease 1'-0" clear of horizontal manhole joint**
3. **Extend concrete cradle onto undisturbed trench bottom to a minimum of 4 feet**
4. **The elbow at the bottom of the stack may be either a 45- or 90-degree angle turned in the direction of flow. Channel must conform to the manhole bench.**

OUTSIDE DROP MANHOLE

Figure 14

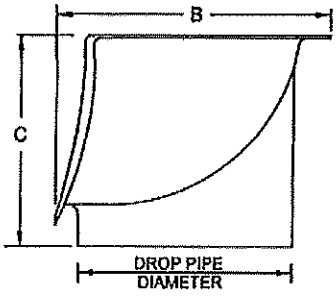


DROP BOWL TOP VIEW

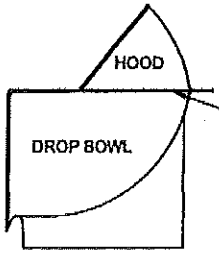


DROP BOWL FRONT VIEW

DROP BOWL MOUNTS TO WALL WITH RELINER STAINLESS STEEL ANCHOR BOLT ASSEMBLIES



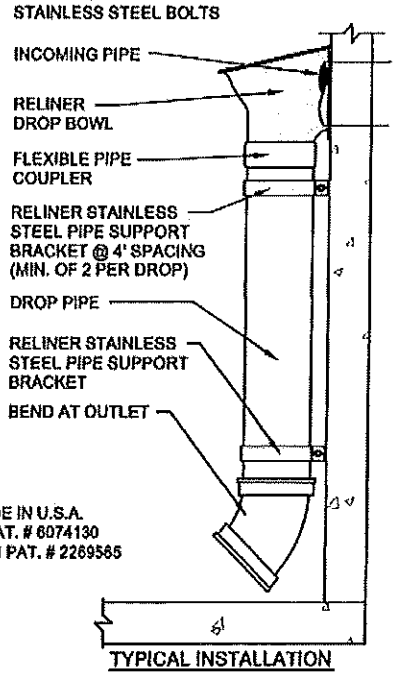
DROP BOWL SIDE VIEW



AVAILABLE FOR ALL SIZE DROP BOWLS

OPTIONAL FORCE LINE HOOD

HOOD BOLTS TO DROP BOWL WITH INCLUDED STAINLESS STEEL BOLTS



TYPICAL INSTALLATION

DROP BOWL SELECTION CHART

DROP PIPE DIAMETER	MANHOLE DIAMETER					
	FLAT WALL	4' DIA	5' DIA	6' DIA	7-8' DIA	9-12' DIA
4"	A4FDB	A4DB	A4DB	A4R96	A4R96	
6"	A6FDB	A6DB	A6DB	A6R96	A6R96	
8"	B8FDB	B8DB	B8DB	B8DBR84	B8DBR84	B8R144
10"	B10FDB	B10DB	B10DB	B10R96	B10R96	B10R144
12"	24/12FDB	24/12R60	24/12R60	24/12R60	24/12R96	24/12R144
15"	24/15FDB	24/15R60	24/15R60	24/15R60	24/15R96	24/15R144
18"	30/18FDB		30/18R60	30/18R60	30/18R96	30/18R144
21"	36/21FDB		36/21R60			36/21R144
24"	48/24FDB			48/24R72	48/24R96	48/24R144

DROP BOWL DIMENSIONS

SERIES	DROP PIPE DIAMETER	WIDTH "A"	DEPTH "B"	HEIGHT "C"	ANCHOR BOLT QUANTITY & TYPE
A4	4"	12"	9.5"	8.9"	4 - 1" TAMP-IN
A6	6"	12"	11.1"	8.8"	4 - 1" TAMP-IN
B8	8"	18"	13.0"	11.5"	4 - 1" TAMP-IN
B10	10"	18"	13.5"	11.5"	4 - 1" TAMP-IN
24/12	12"	24"	16.5"	15.0"	6 - 1" TAMP-IN
24/15	15"	24"	19.3"	16.8"	6 - 1" TAMP-IN
30/18	18"	30"	23.5"	18.6"	6 - 1" TAMP-IN
36/21	21"	36"	31.6"	23.0"	8 - 3" WEDGE
48/24	24"	48"	30.5"	30.0"	10 - 3" WEDGE

MADE IN U.S.A.
U.S. PAT. # 6074130
CANADIAN PAT. # 2269565

RELINER INSIDE DROP BOWLS ARE FABRICATED IN MARINE GRADE FIBERGLASS AND FINISHED IN BRIGHT WHITE GEL COAT.

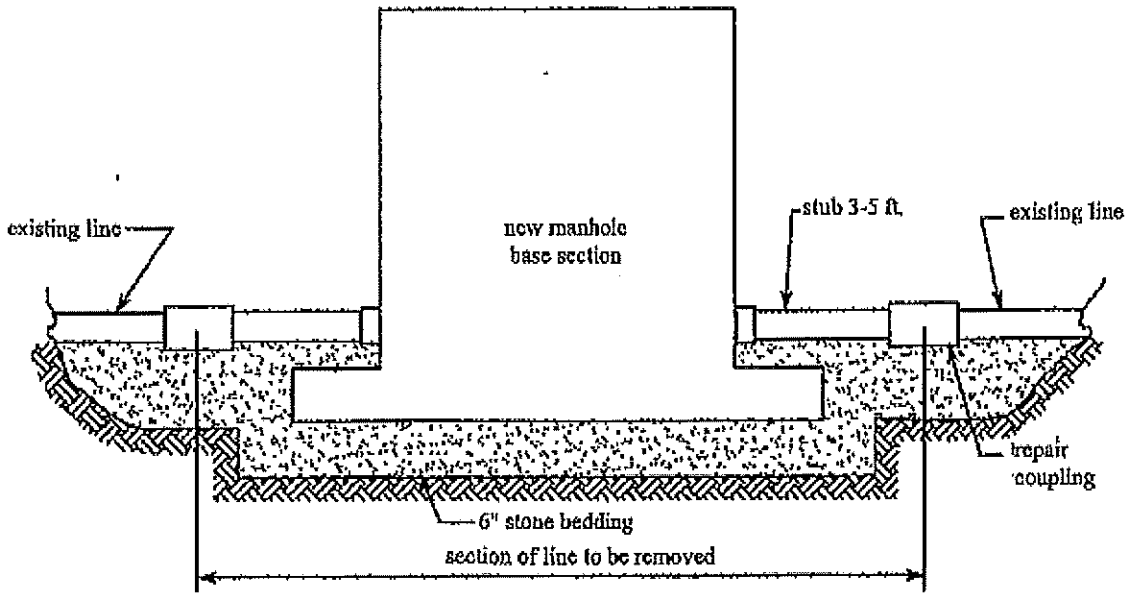
USE RELINER STAINLESS STEEL PIPE BRACKETS TO SUPPORT DROP PIPE. EXTERNAL PIPE COUPLER REQUIRED. PROVIDE SWEEP AT DROP PIPE OUTLET.

RELINER / DURAN, INC.
9 MATTHEWS DRIVE, UNIT A1/A2
EAST HADDAM, CT 06423
(800) 508-6001 FAX: (877)434-3197
WWW.RELINER.COM

DESCRIPTION	DATE	SCALE
SANITARY MANHOLE INSIDE DROP BOWL	2/22/21	NONE
	DRAWING NUMBER	
	DB-1	

INSIDE DROP MANHOLE

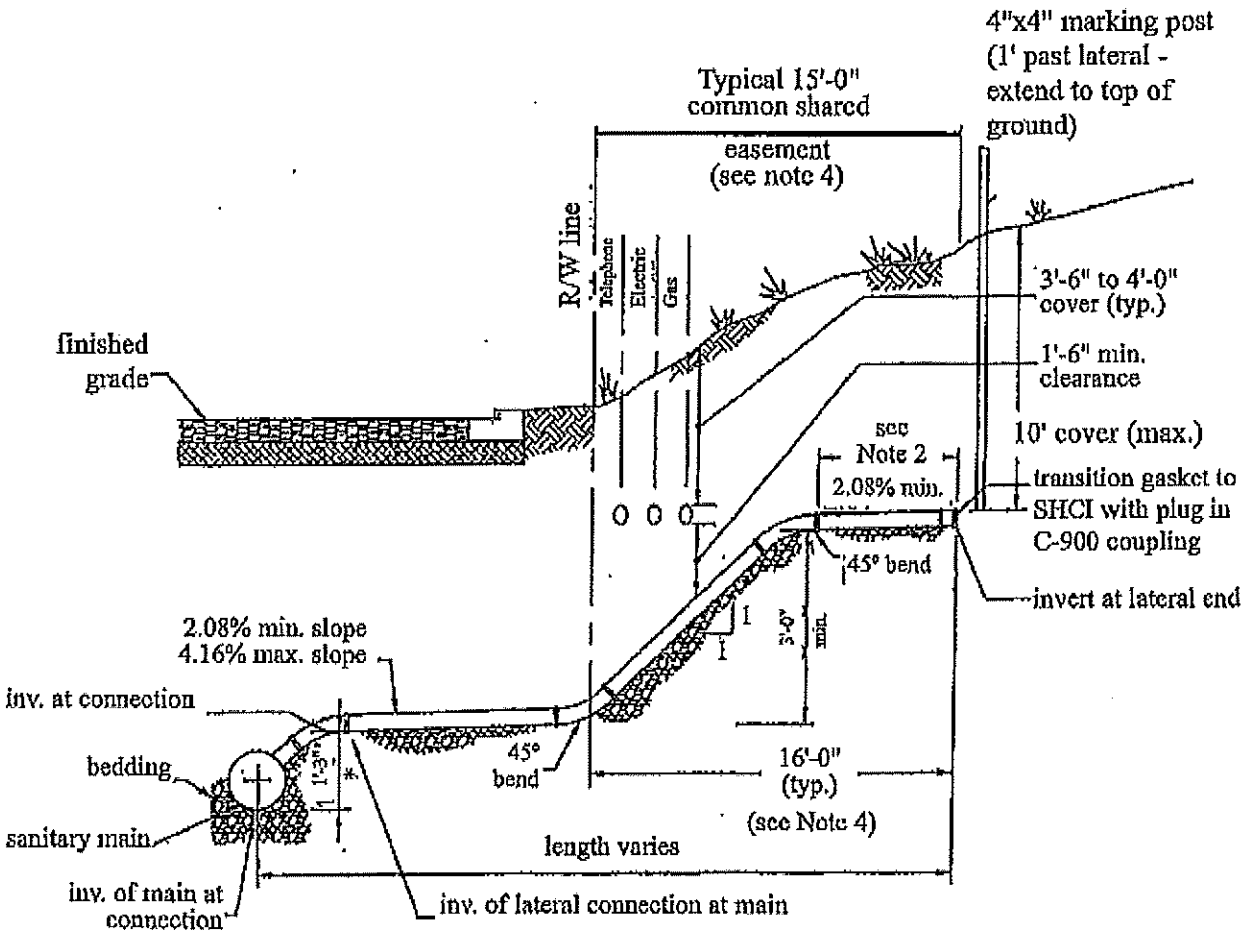
Figure 15



CUT IN

NEW MANHOLE ON EXISTING LINE

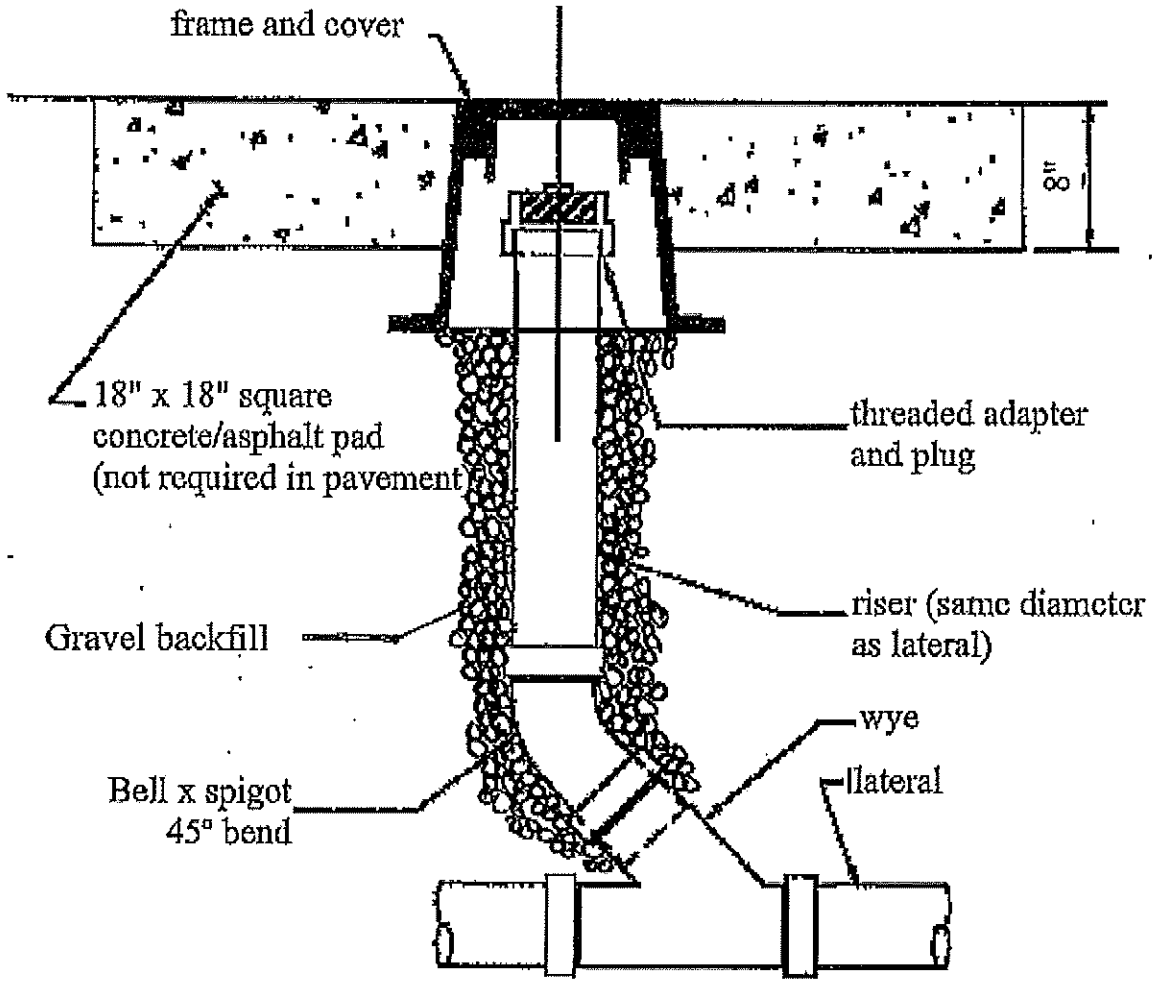
Figure 16



NOTES:
1. *Dimension based on 8" diameter sanitary sewer pipe.
2. Coupling/transition gasket to be minimum of 5' from last pipe joint.
3. Dimensions apply in public rights-of-ways.
4. Refer to approved products list for additional requirements.

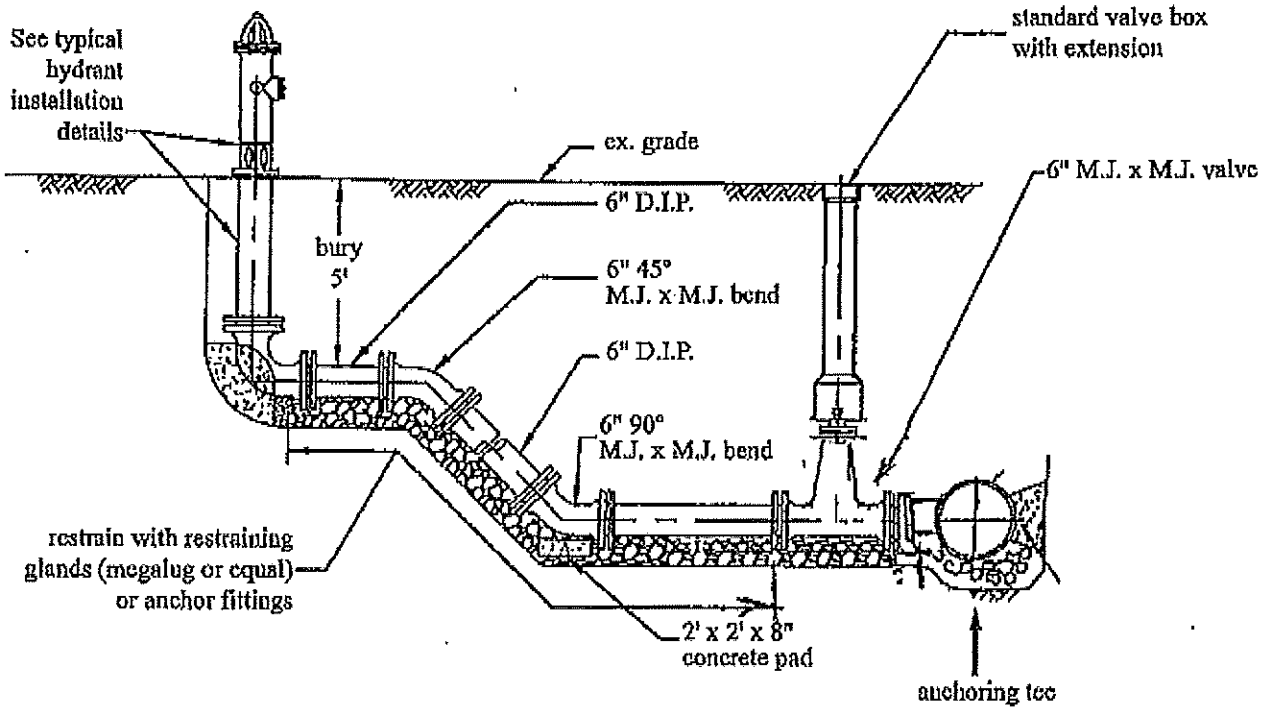
GRAVITY SEWER SERVICE LATERAL

Figure 17



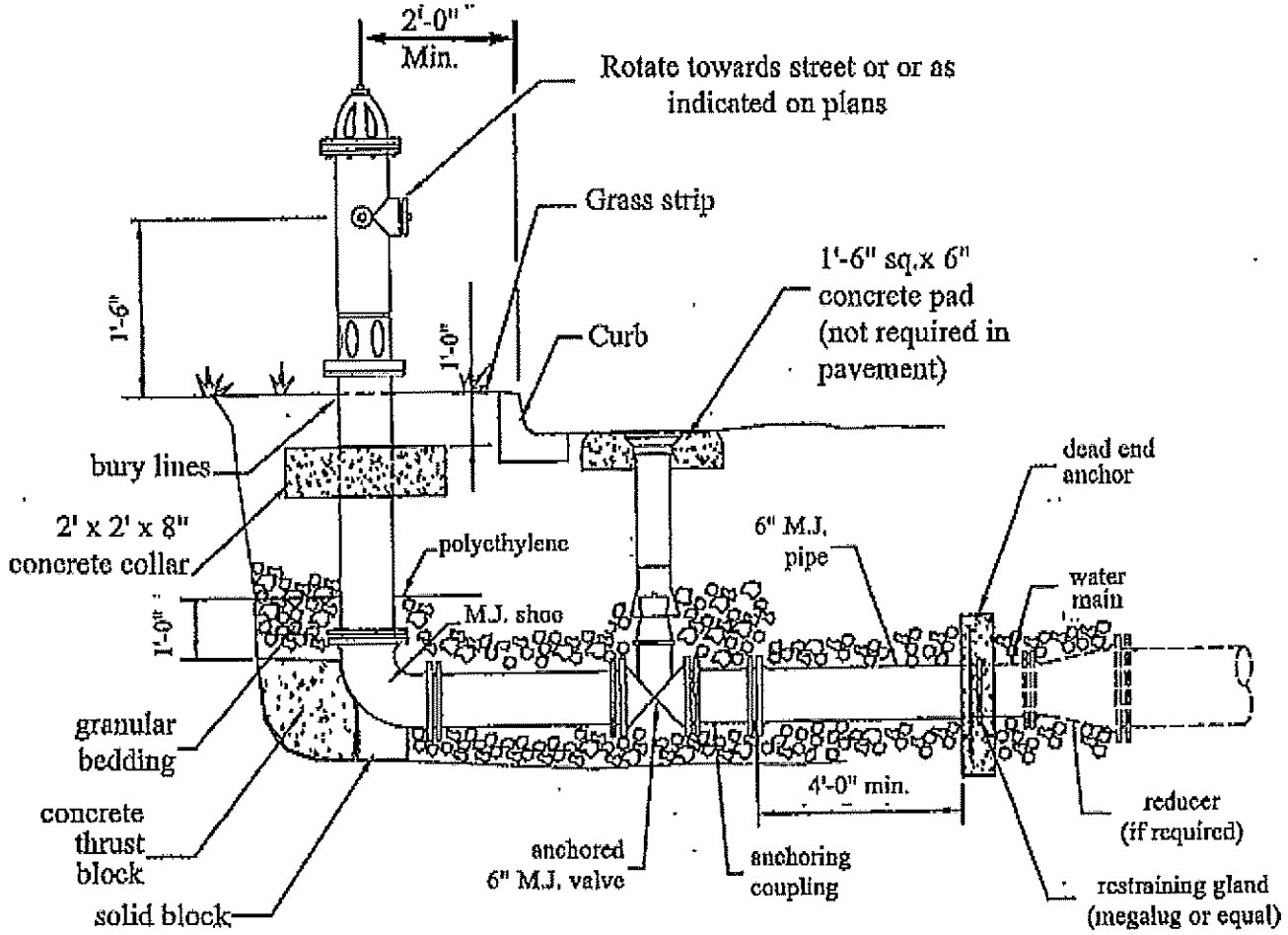
SEWER CLEANOUT

Figure 18



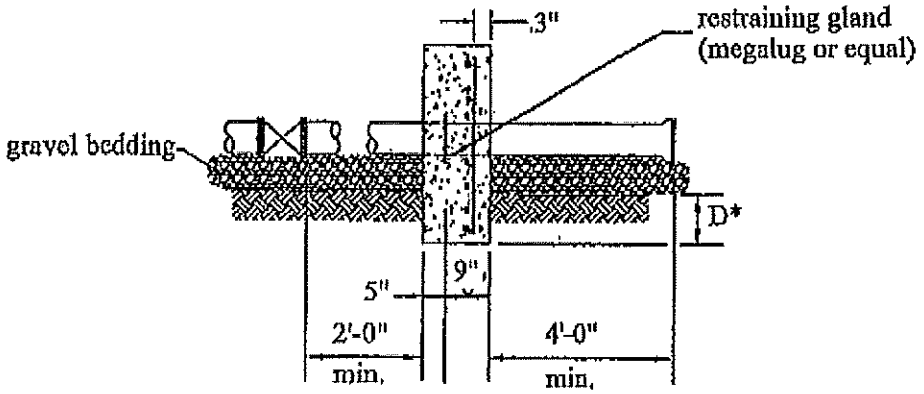
NOTES:
1. Restrain piping from dead end anchor to hydrant barrel.
2. Refer to approved products list for additional requirements.
3. Offset bends to be used where applicable.

DEEP HYDRANT
Perpendicular to Main
Figure 19

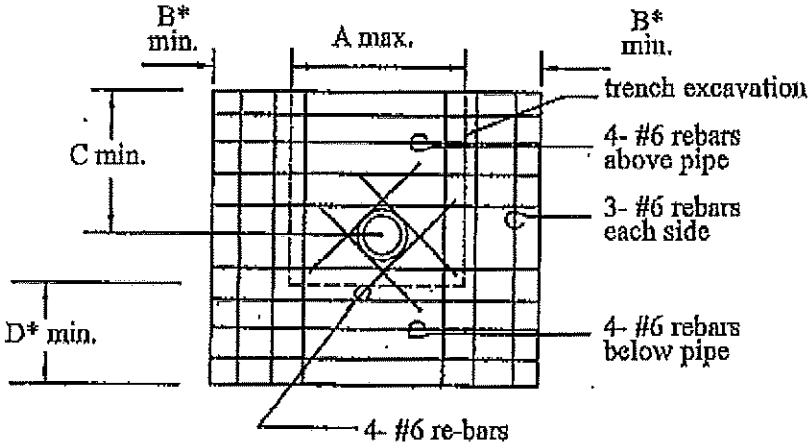


DEAD END HYDRANT ASSEMBLY

Figure 20



SIDE ELEVATION



FRONT ELEVATION

NOTES:

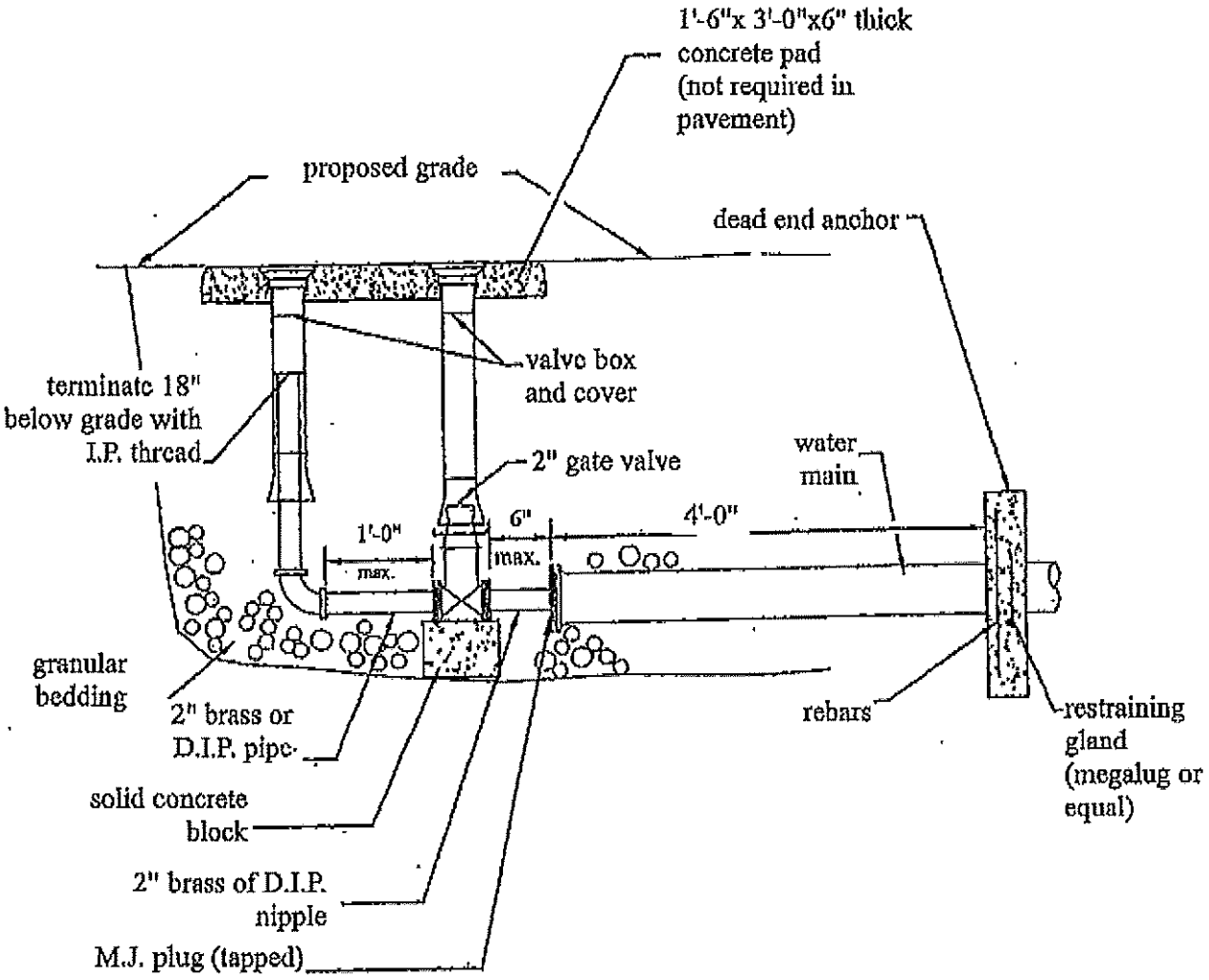
1. Bearing area is based on 200 PSI test pressure and a soil bearing pressure of 2000 pounds per square foot. Increase block dimensions as required for higher test pressures and in soils with lower bearing values.
2. *Dimensions "B" and "D" are minimum values for bearing in undisturbed earth.
3. Refer to approved products list for additional requirements.
4. Concrete strength shall be 3000 PSI.

DEAD END ANCHOR SCHEDULE

LINE SIZE	A	B*	C	D*
6"	2'-0"	1'-0"	1'-6"	1'-0"
8"	2'-0"	1'-3"	1'-8"	1'-0"
10"	2'-3"	1'-6"	1'-8"	1'-6"
12"	2'-6"	2'-0"	1'-6"	1'-8"

DEAD END ANCHOR

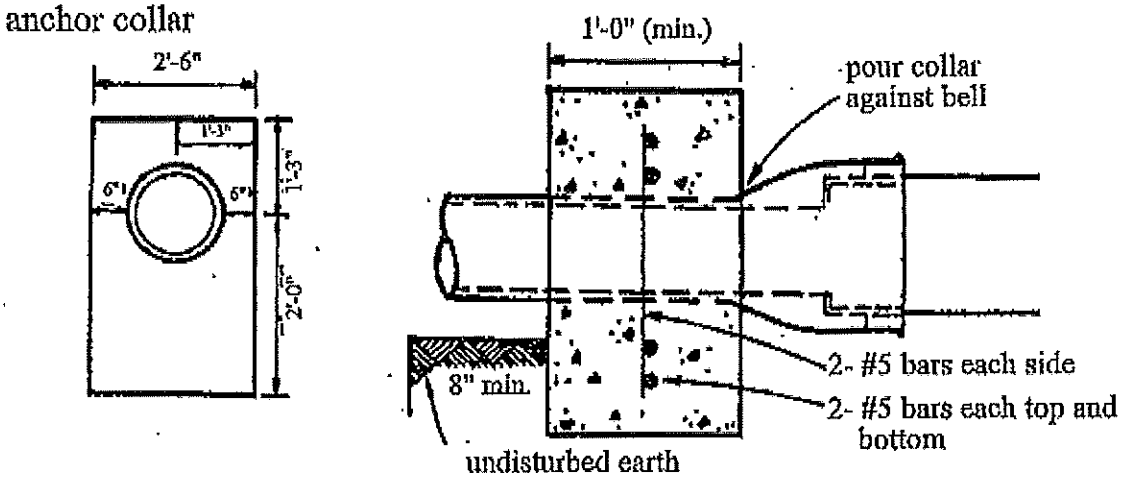
Figure 21



NOTES:
1. All 2" pipe to join with I.P. thread

TEMPORARY BLOW OFF

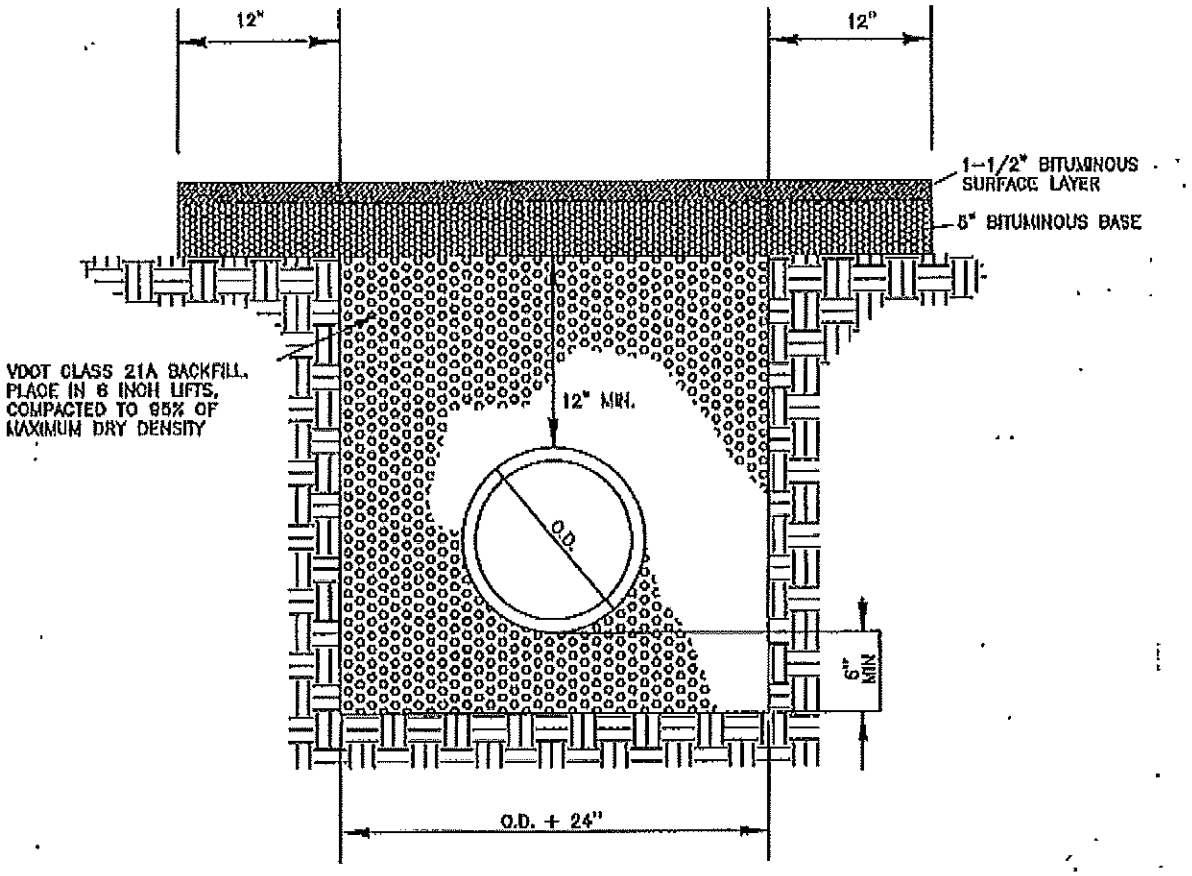
Figure 22



Concrete
Fc=3000 PSI at 28 days

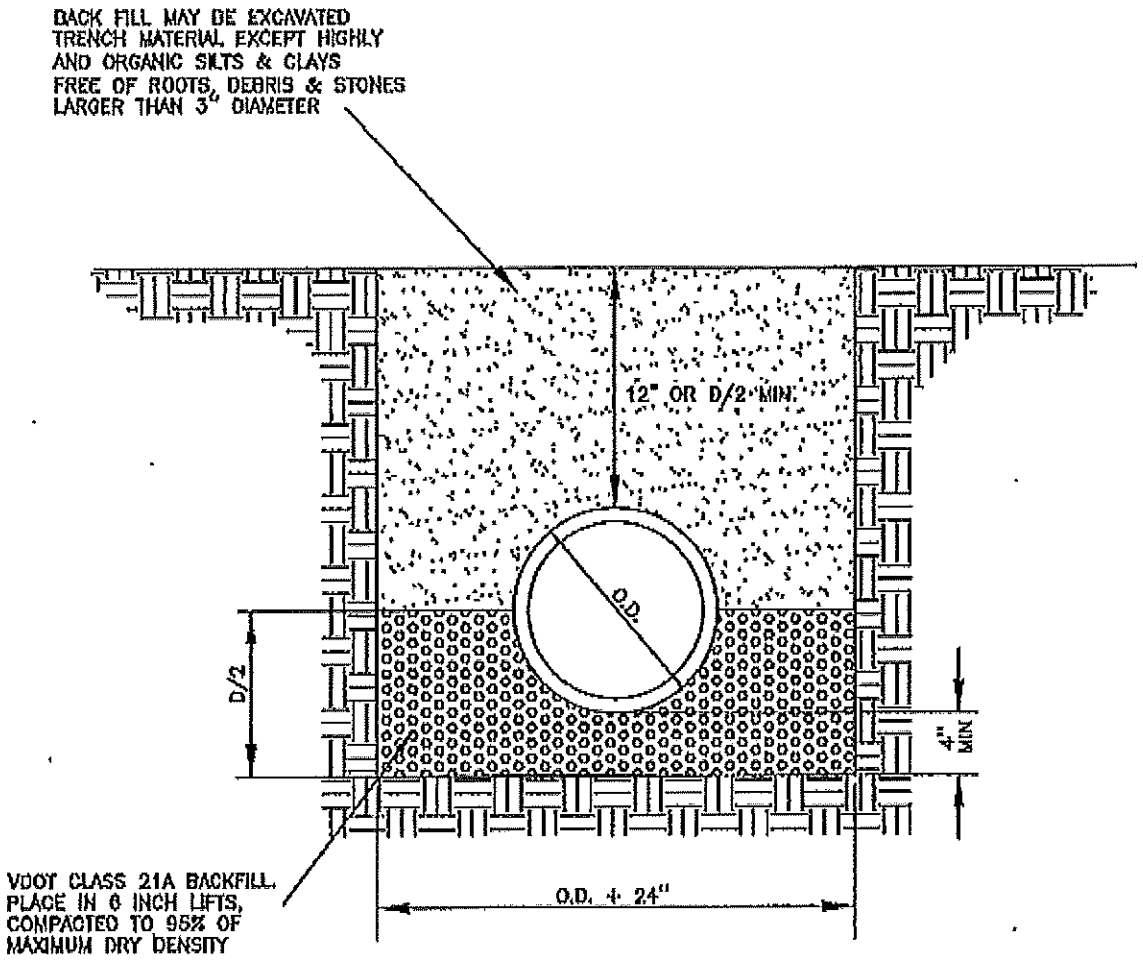
SLOPE ANCHOR

Figure 23



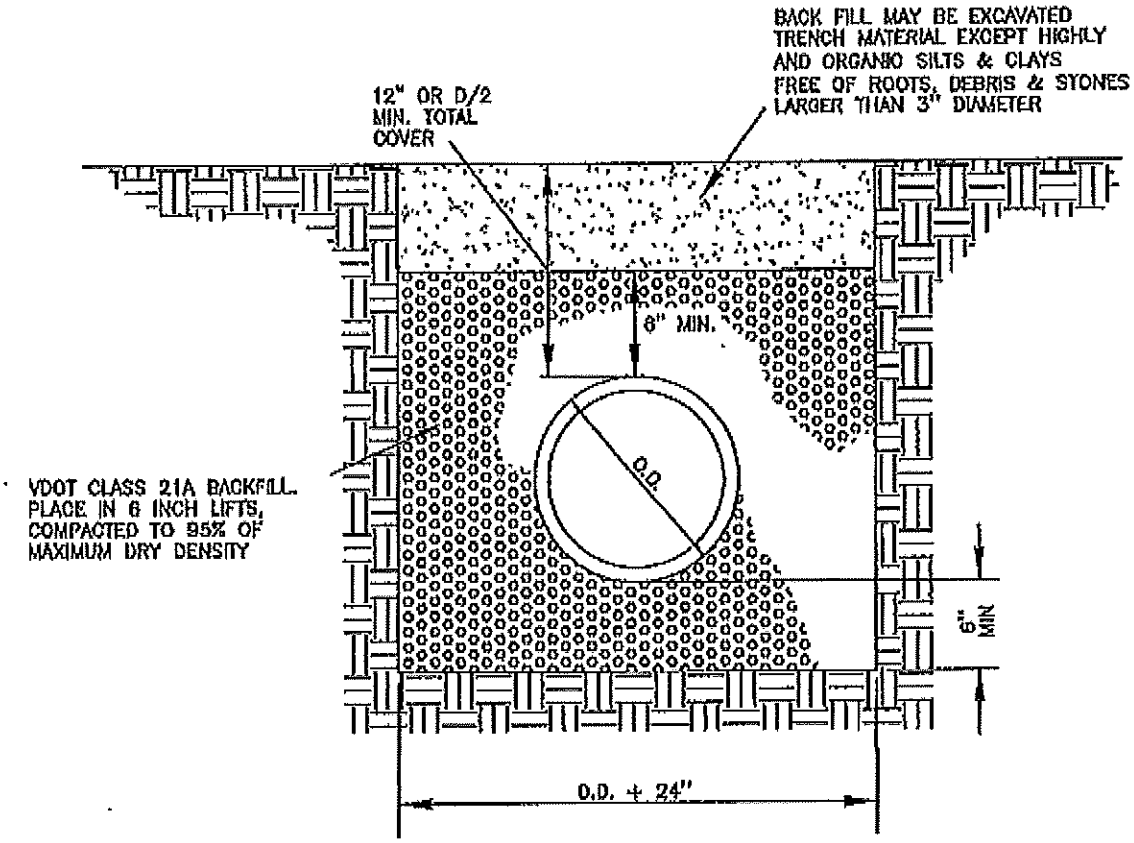
CONCRETE STORM DRAIN BEDDING WITHIN TRAFFIC AREAS

Figure 24



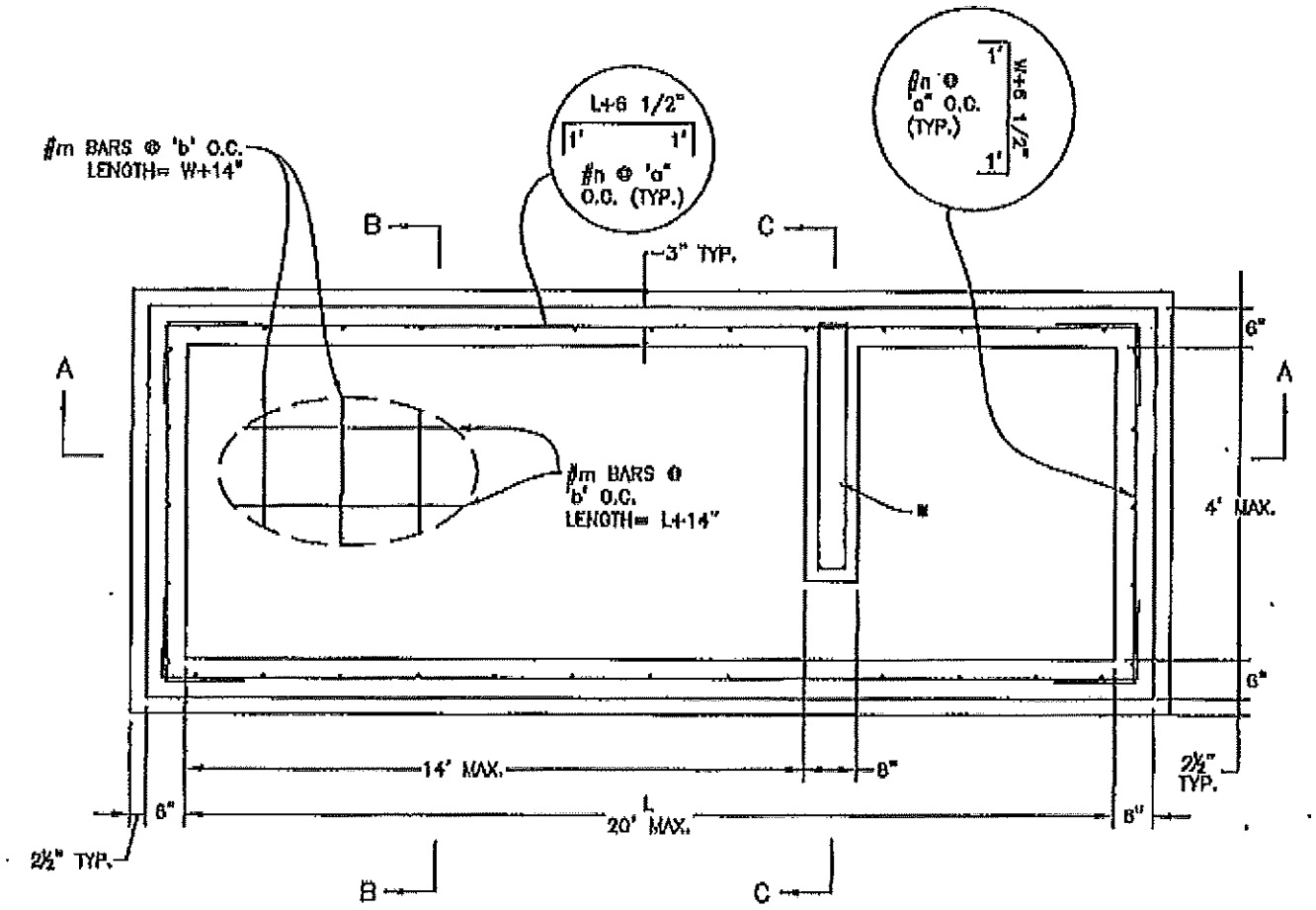
CONCRETE STORM DRAIN BEDDING OUTSIDE TRAFFIC AREAS

Figure 25



CONCRETE STORM DRAIN BEDDING WITHIN EASEMENT OR NONTRAFFIC AREAS

Figure 26



PLAN VIEW
TOP SLAB REMOVED

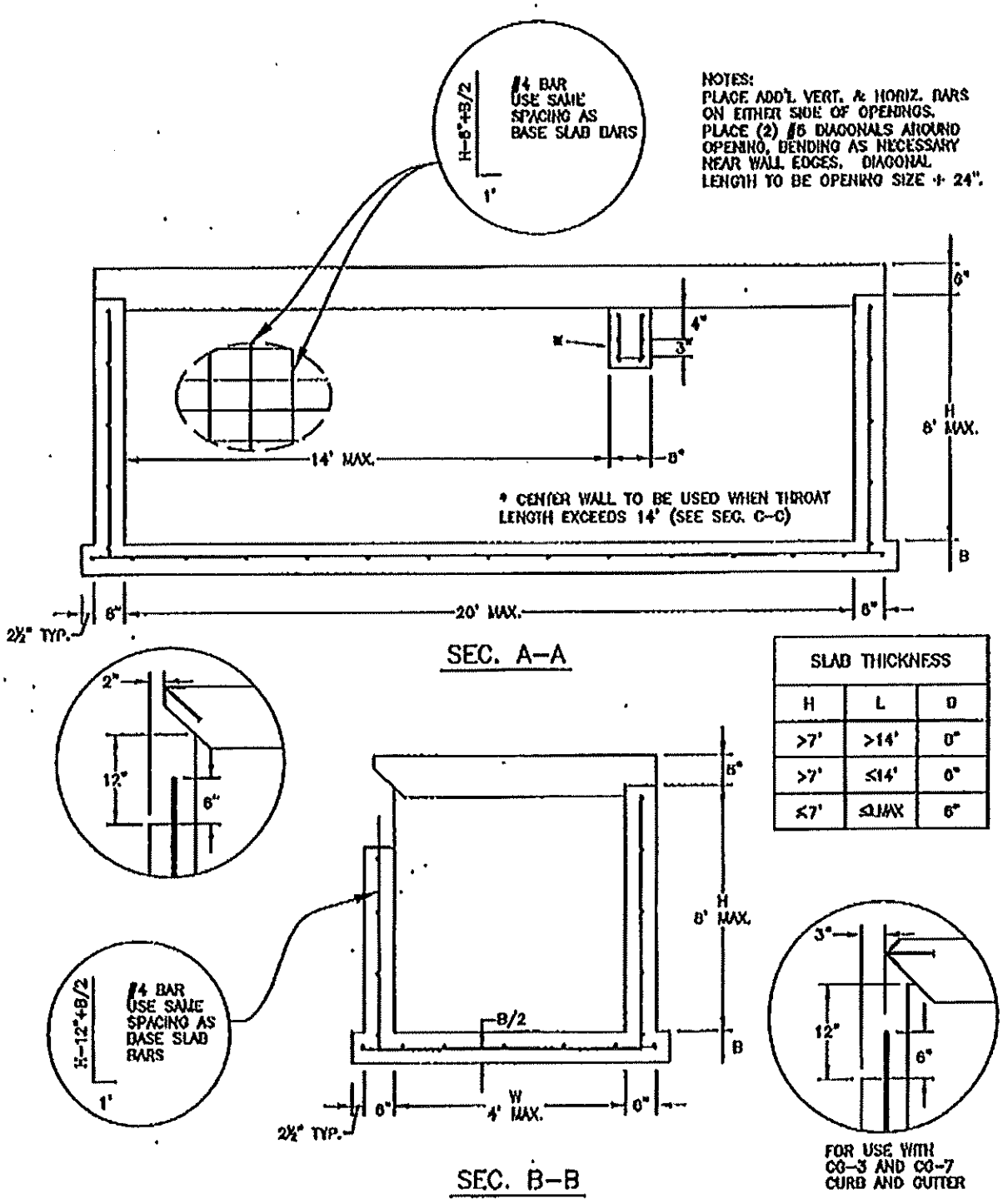
* CENTER WALL TO BE USED WHEN THROAT LENGTH EXCEEDS 14' (SEE SEC. C-C)

NOTES:
1. CONCRETE TO BE 4,000 PSI MIN.
2. STEEL TO BE GRADE 60
3. DOWEL HOLES PROVIDED TO PREVENT SETTLEMENT OF ADJACENT CONCRETE
4. WEEP HOLES PROVIDED
5. STEPS PROVIDED WHEN HEIGHT IS 4' OR GREATER
6. GUTTER PAN/THROAT FACE TO BE POURED IN FIELD

BAR SPACING				
L	HORIZ.		BASE	
–	n	a	m	b
>16'	5	6"	4	12"
>12'	5	9"	4	12"
>8'	4	9"	4	16"
≤8'	4	14"	4	16"

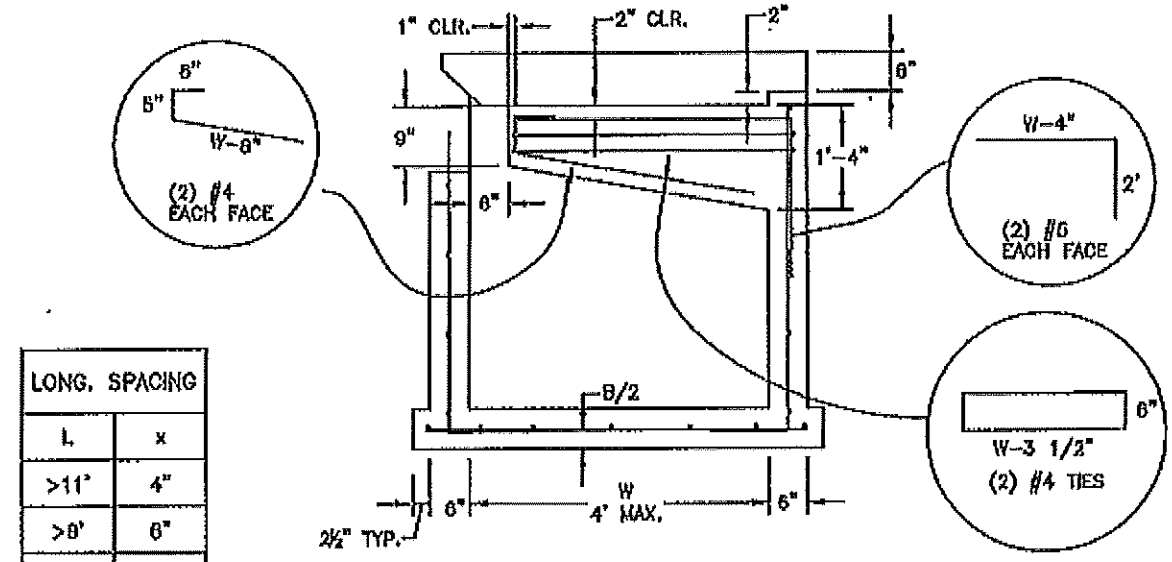
DI-3A, 3B, 3C (SHALLOW)

Figure 27A



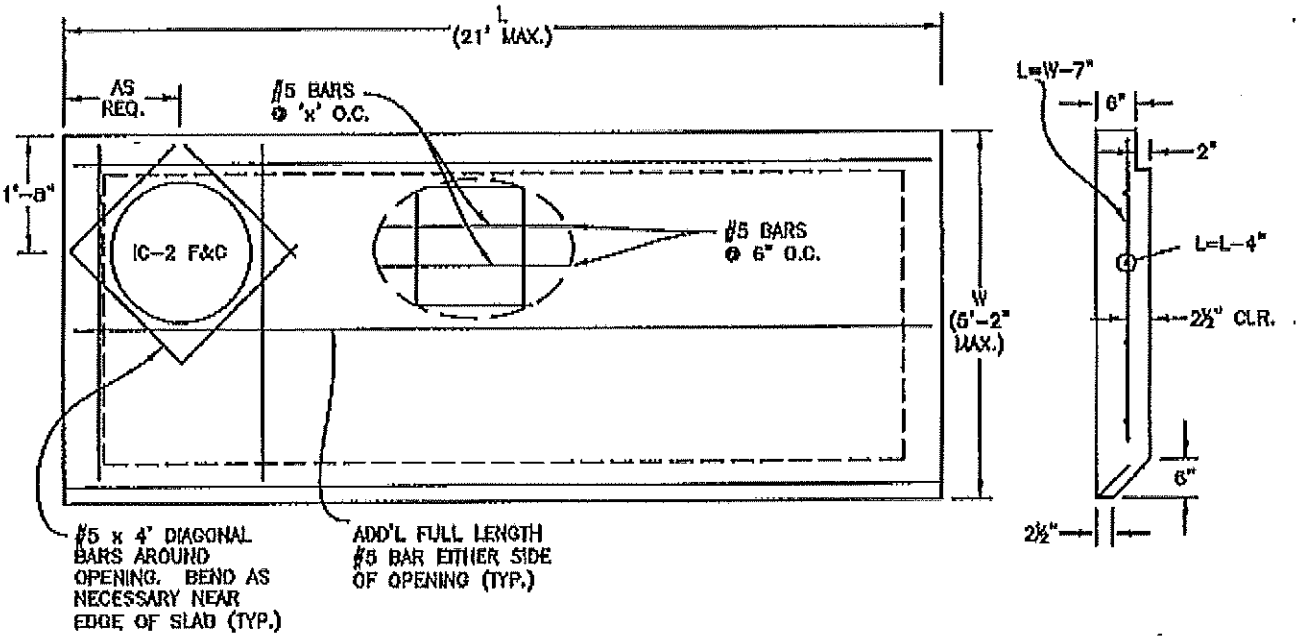
DI-3A, 3B, 3C (SHALLOW)

Figure 27B



LONG. SPACING	
L	x
>11'	4"
>9'	6"
>7'	8"
≤7'	10"

SEC. C–C

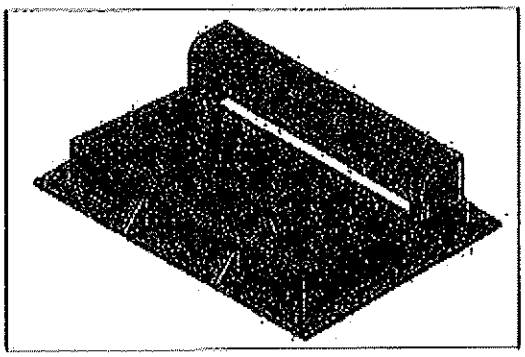


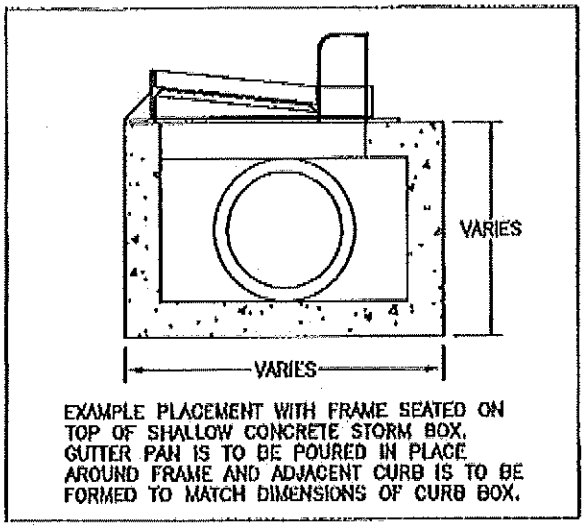
TOP SLAB

DI-3A, 3B, 3C (SHALLOW)

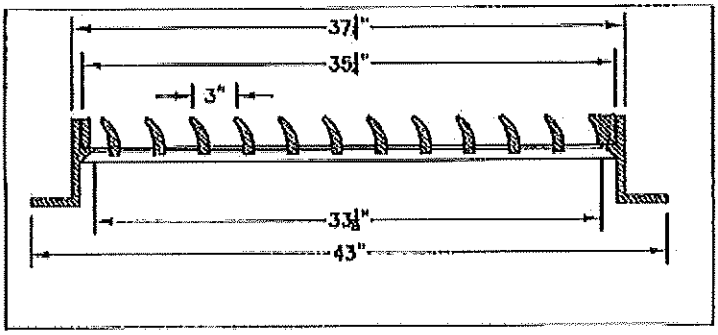
Figure 27C

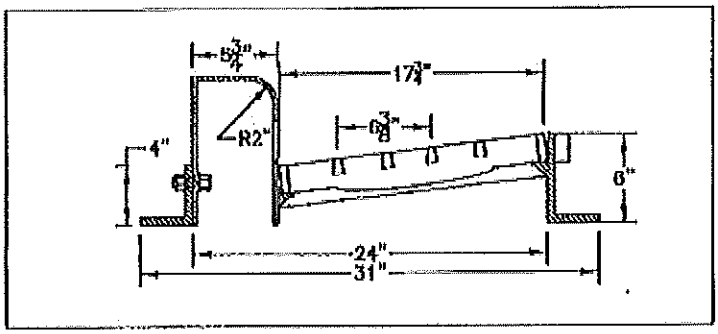
COMBINATION INLET FRAME, GRATE, AND CURB BOX MFG. BY NEENAH FOUNDARY MODEL NUMBER R-3295 TYPE "L" GRATES

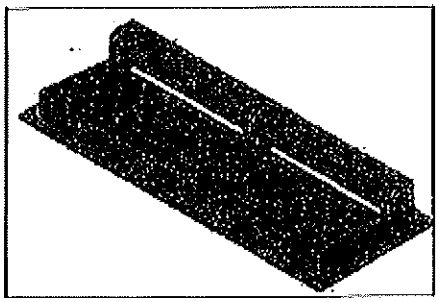




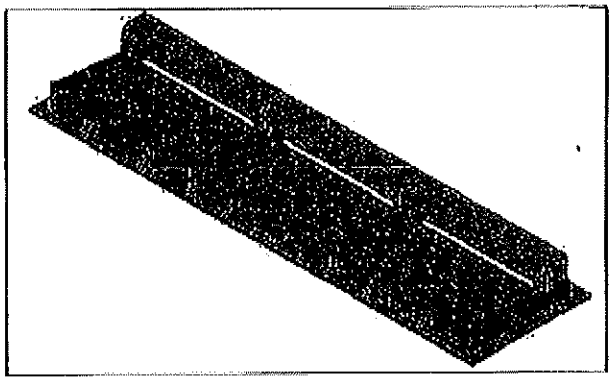
EXAMPLE PLACEMENT WITH FRAME SEATED ON TOP OF SHALLOW CONCRETE STORM BOX. GUTTER PAN IS TO BE POURED IN PLACE AROUND FRAME AND ADJACENT CURB IS TO BE FORMED TO MATCH DIMENSIONS OF CURB BOX.







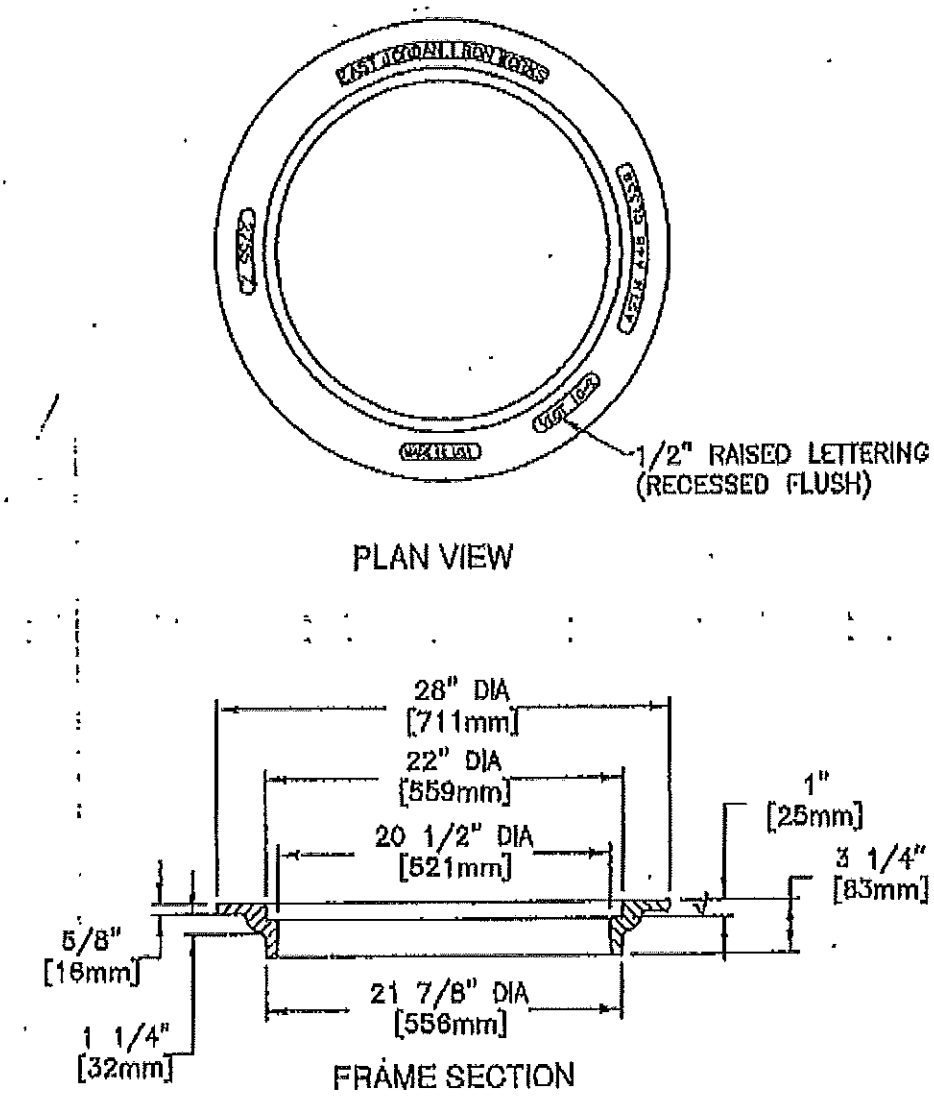
MODEL NUMBER R-3295-2 FOR DUAL INLET SITUATIONS



MODEL NUMBER R-3295-3 FOR THREE INLET SITUATIONS. ADD'L MIDDLE UNITS CAN BE ADDED FOR INCREASED LENGTH

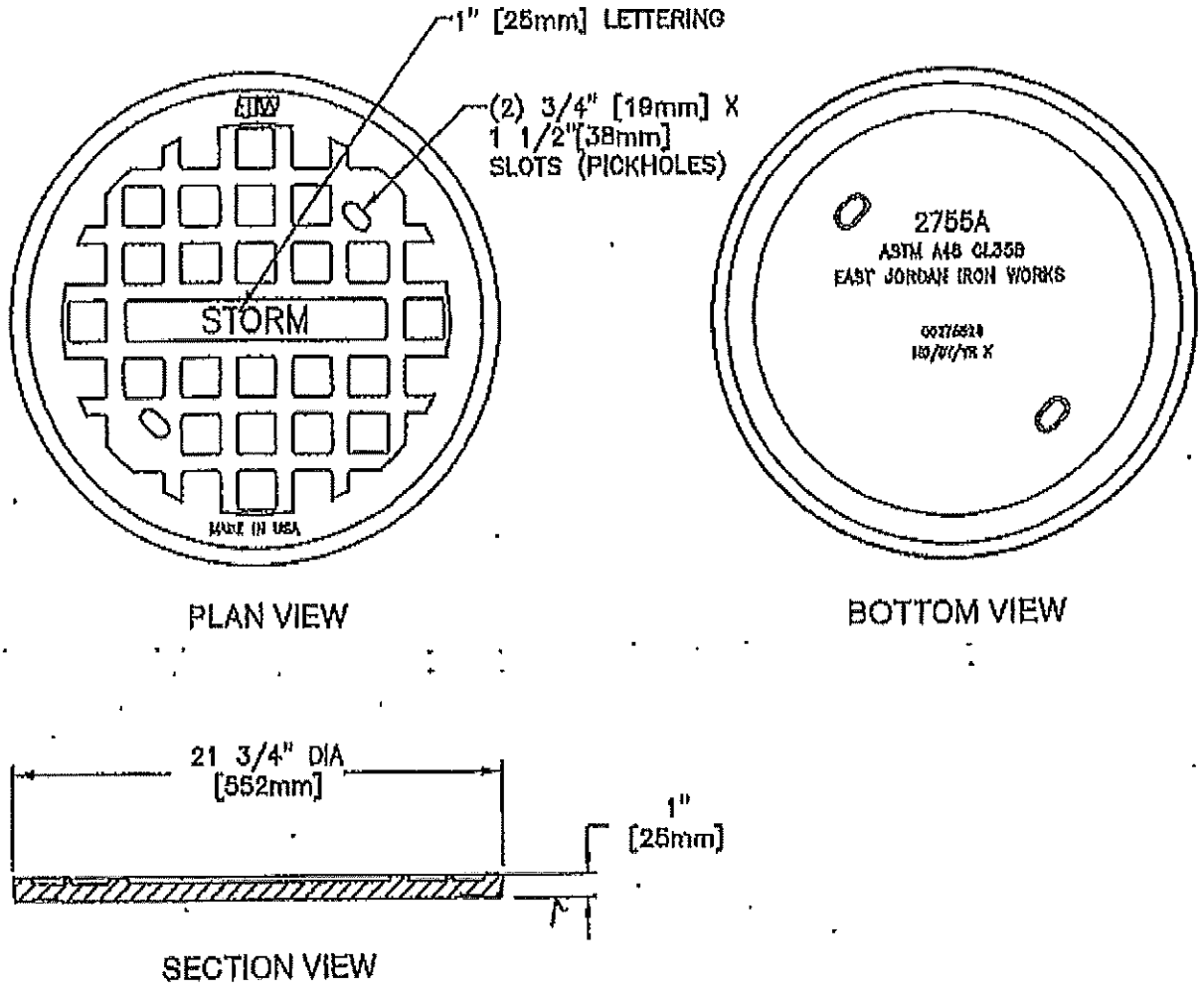
MODIFIED DI-1 (SHALLOW)

Figure 28



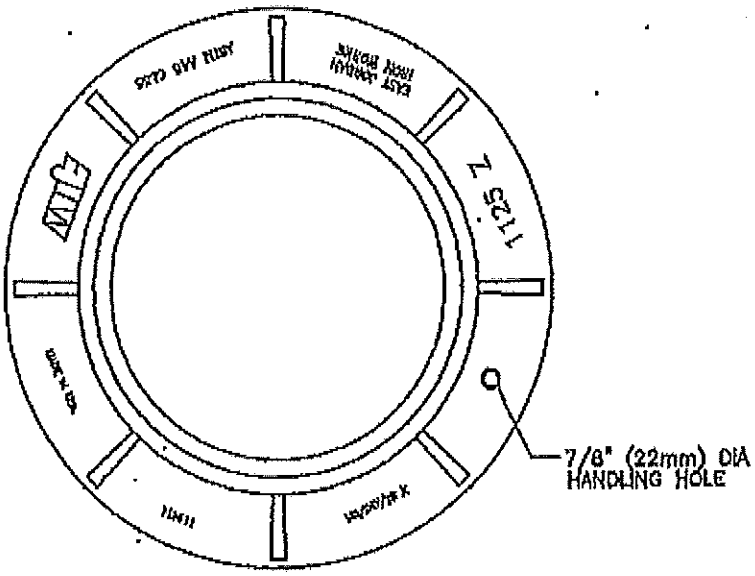
28" MANHOLE FRAME
HEAVY DUTY RATING

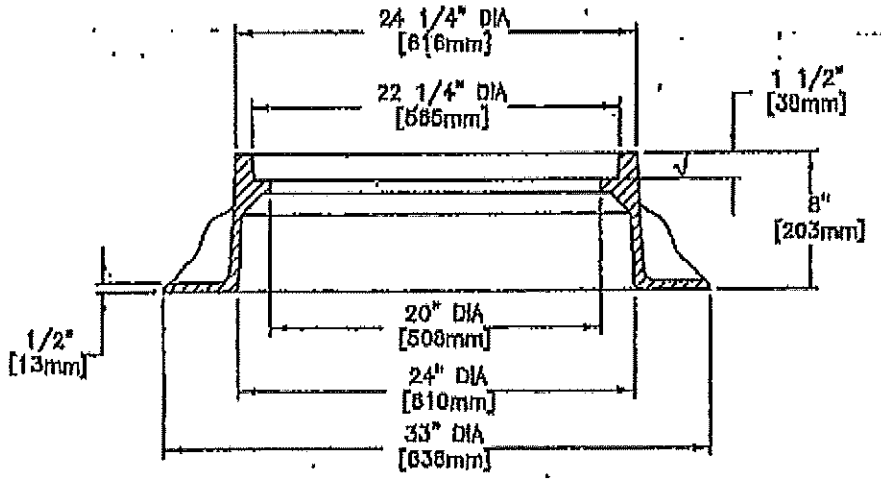
Figure 29A



21 ¾" SPECIAL LETTERED COVER
HEAVY DUTY RATING

Figure 29B

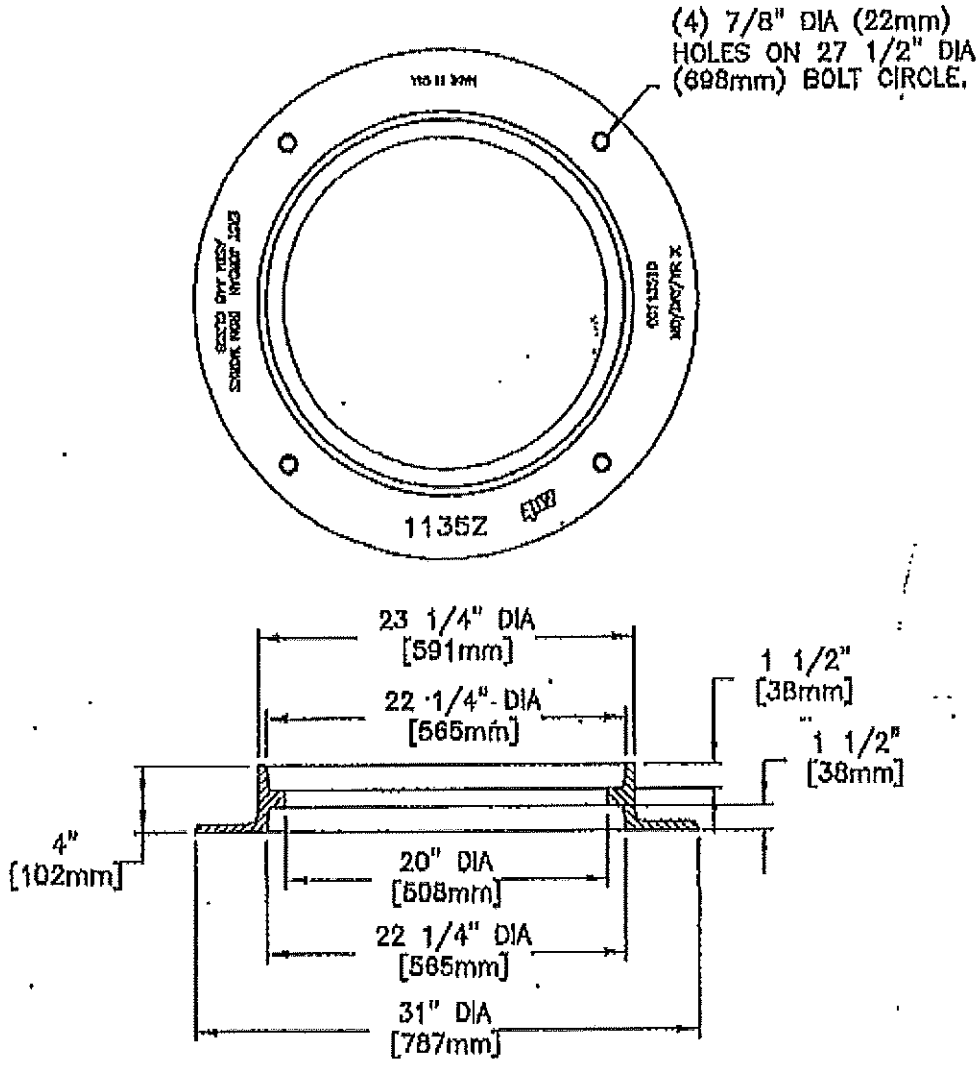




FRAME SECTION

24 ¼" MANHOLE FRAME
HEAVY DUTY RATING

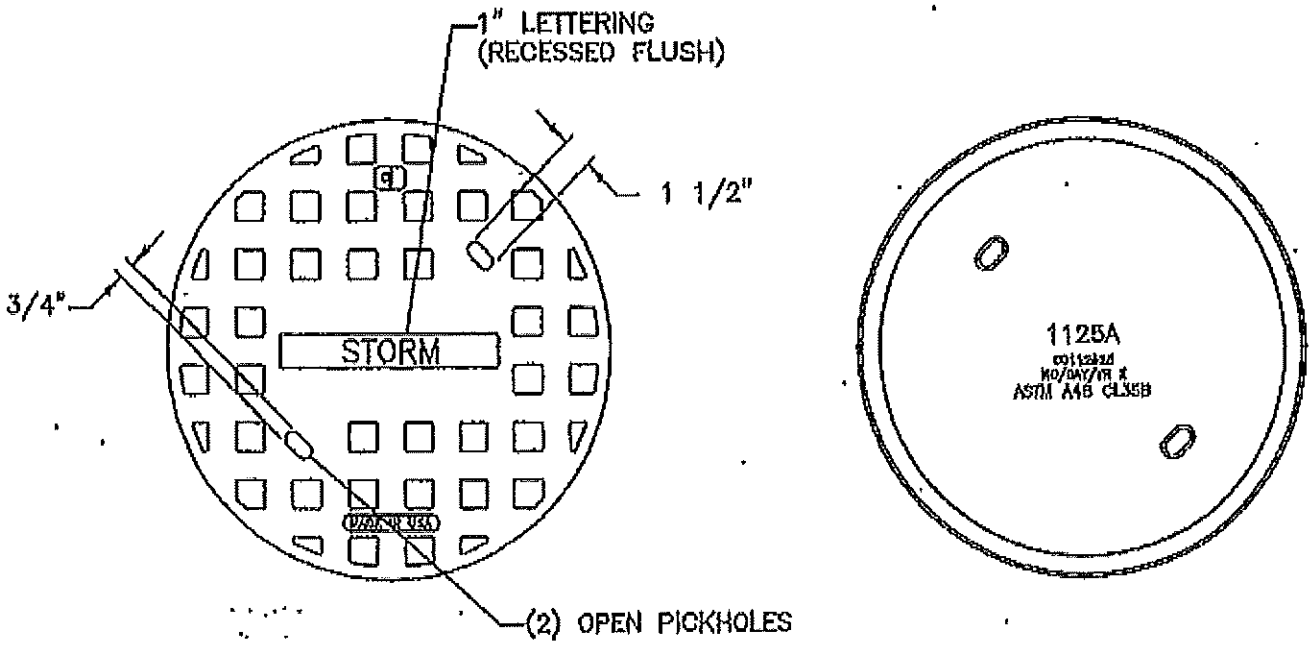
Figure 30

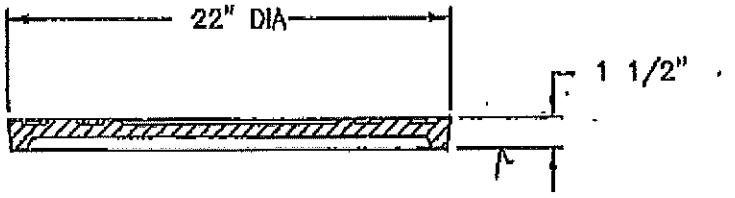


FRAME SECTION

23 ¼" MANHOLE FRAME
HEAVY DUTY RATING

Figure 31

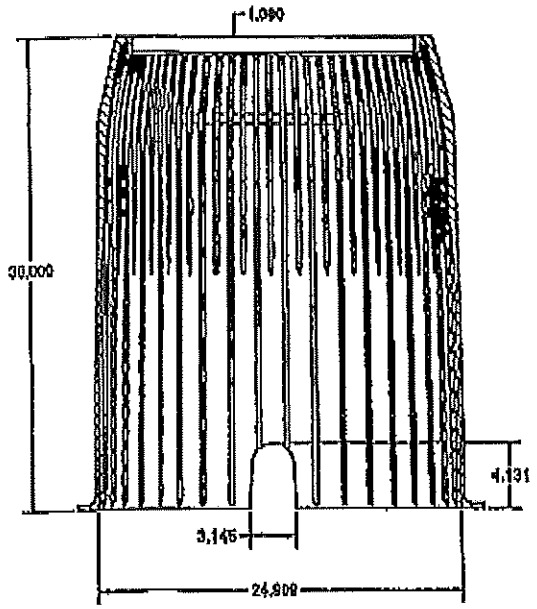


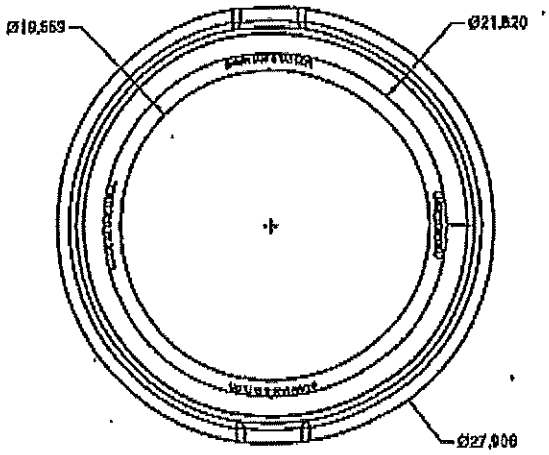


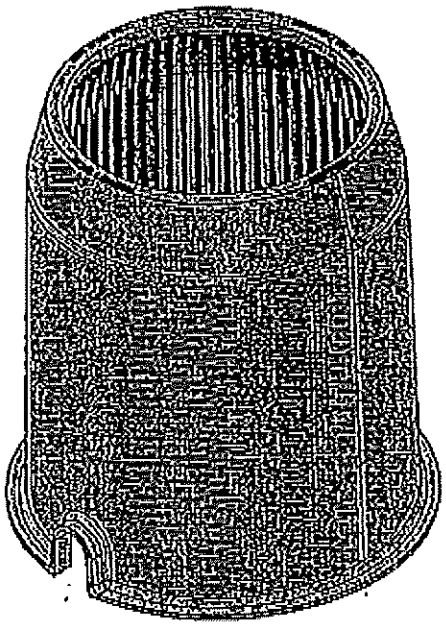
COVER SECTION

1125A STORM MANHOLE COVER
FITS
4" & 8" FRAMES
HEAVY DUTY RATING

Figure 32







NOTES- ALL EDGES HAVE A 1/16 RADIUS
TOLERANCE ± .0625

REV.	DATE	COMMENT
A		RELEASED

Bingham & Taylor

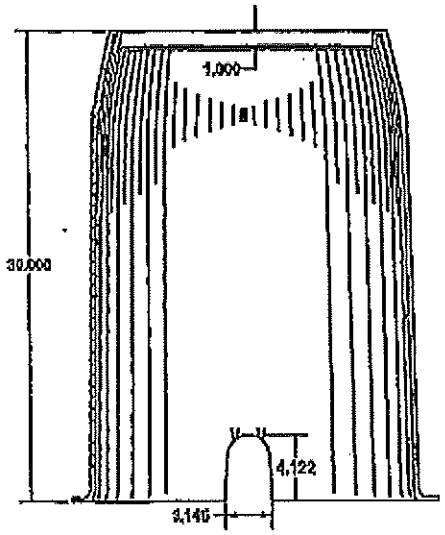
BINGHAM & TAYLOR

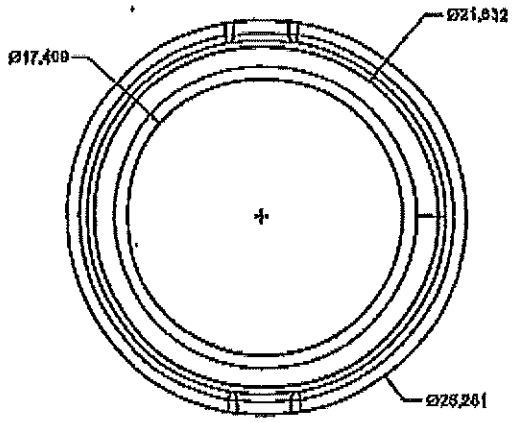
MMP202430

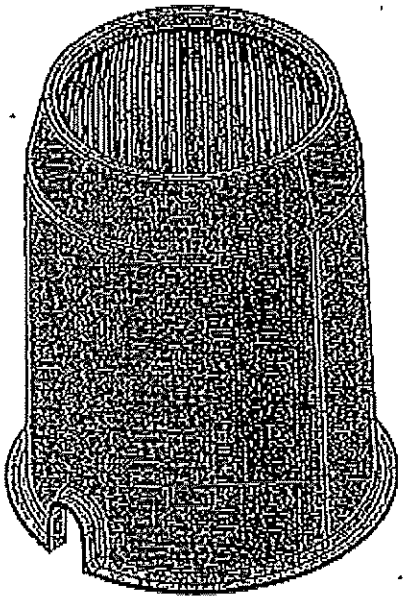
Molded Meter Pit 20x24x30	J.Klopp 02/10/16
	20.0 lbs
	11/27/17

20x24x30 MOLDED METER BOX

Figure 33A







NOTES- ALL EDGES HAVE A 1/16 RADIUS
TOLERANCE ± .0625

REV.	DATE	COMMENT
A		RELEASED

Bingham & Taylor

BINGHAM & TAYLOR

MMP182230

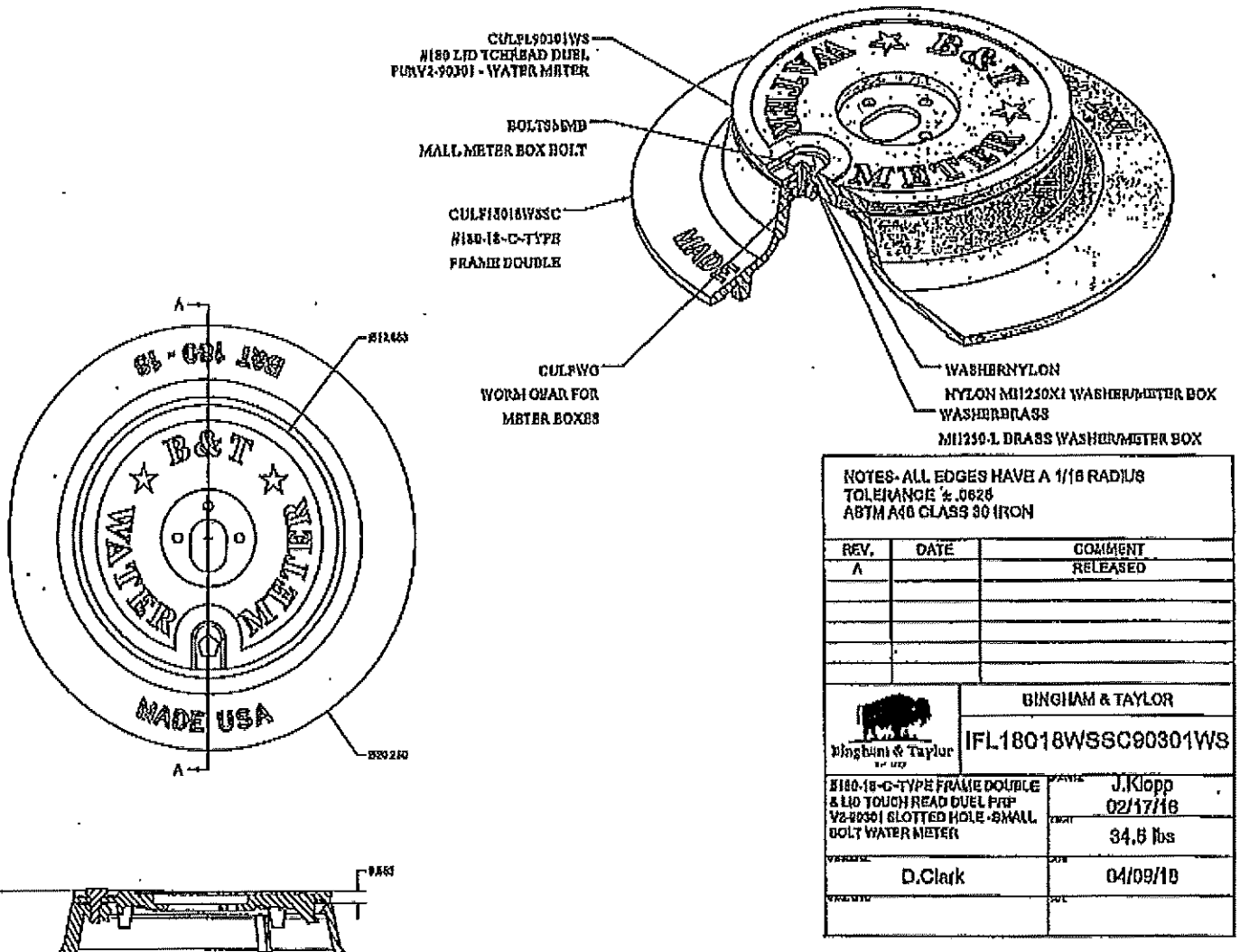
Molded Meter Pit 18x22x30

J.Klopp
02/18/16

0 lbs

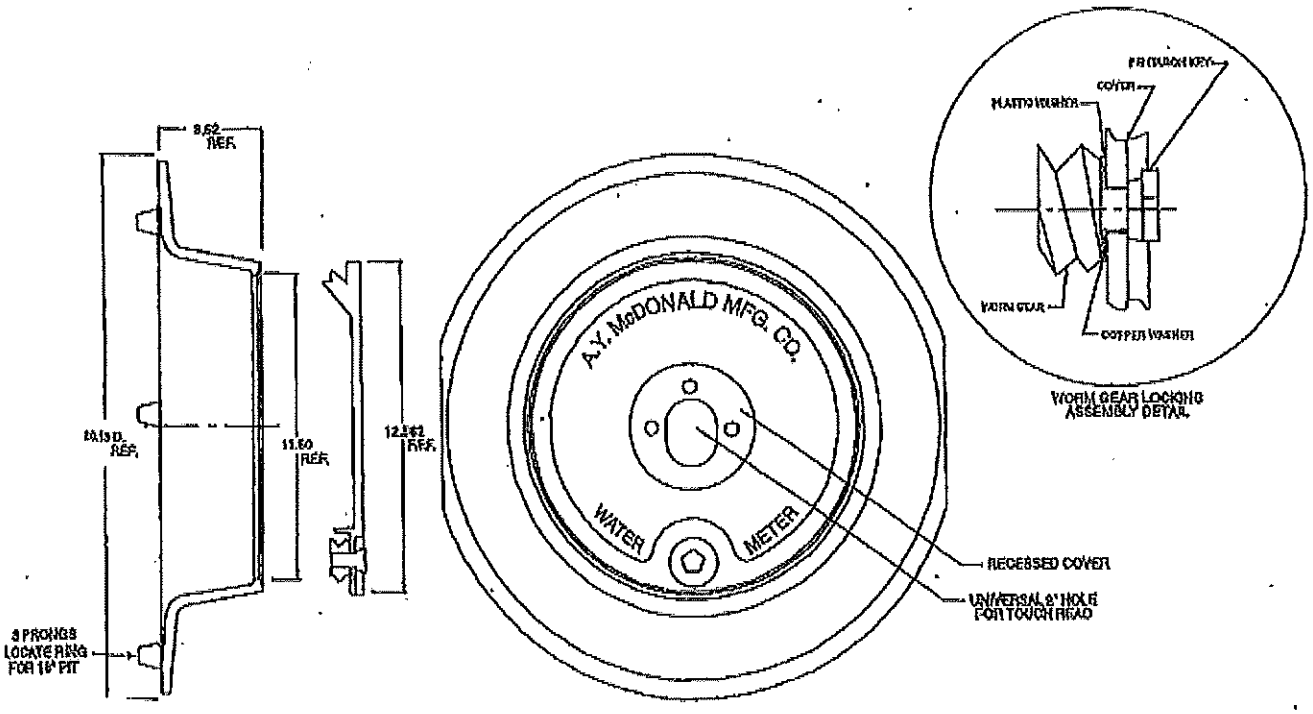
18x22x30 MOLDED METER BOX

Figure 33B



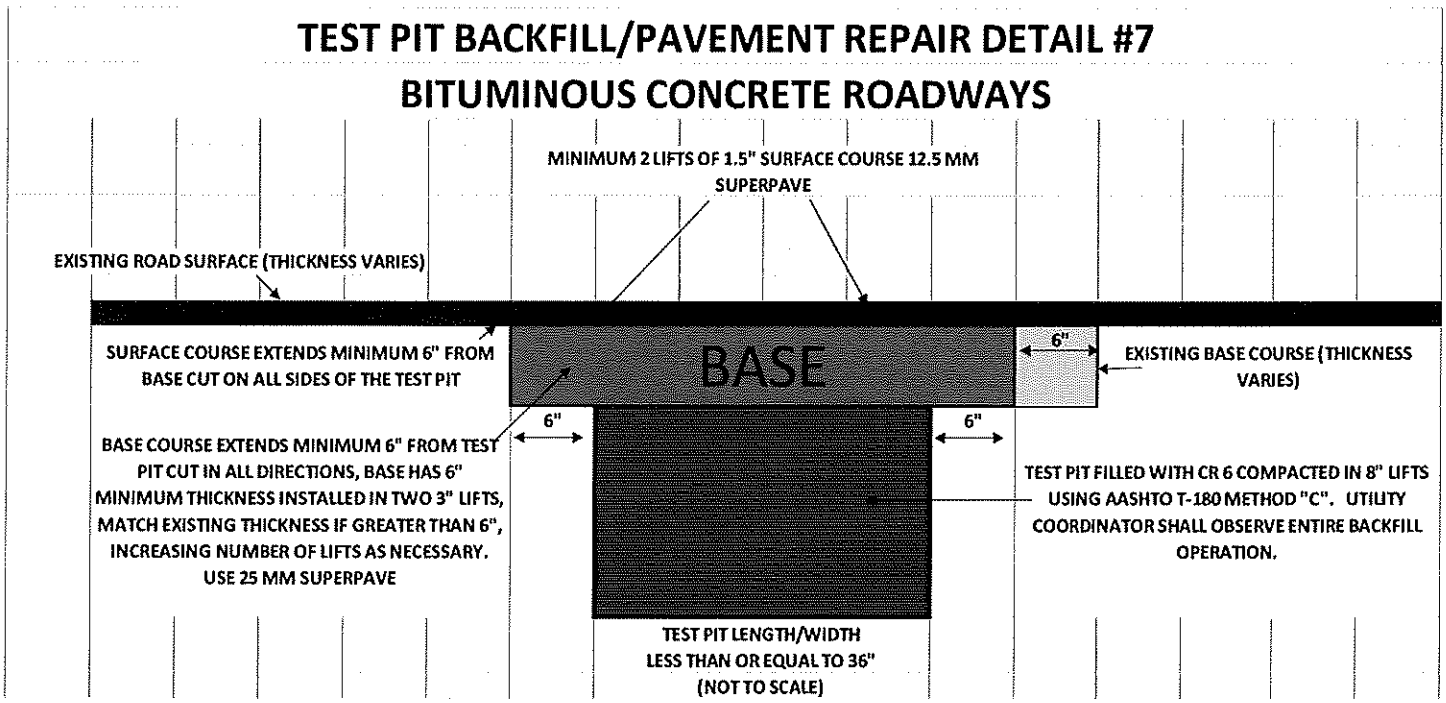
#180-18-C-TYPE FRAME DOUBLE AND LID TOUCH READ CAST IRON METER COVER

Figure 34



CAST IRON METER BOX FRAME AND COVER

Figure 35



TEST PIT ASPHALT RESTORATION STANDARD

Figure 36

MINUTES

BERRYVILLE TOWN COUNCIL
Regular Meeting
November 12, 2025
7:00 p.m.

A meeting of the Berryville Town Council was held on Wednesday, November 12, 2025, at 7:00 p.m. at the Berryville-Clarke County Government Center in Berryville.

Town Council

Present: Harry Lee Arnold, Jr., Mayor; Erecka L. Gibson, Vice Mayor; William Steinmetz; Paul Perez; Grant Mazzarino; Ryan Tibbens.

Absent:

Staff

Present: Keith Dalton, Town Manager; Jean Petti, Deputy Town Manager; Brandel Kelsey, Town Clerk; Terry Russell, Community Development Director; Chief Tim Bristol, Berryville Police Department

Press Mickey Powell, Winchester Star

1. Call to Order
Mayor Arnold called the meeting to order at 7:00 p.m.

2. Pledge of Allegiance
Mayor Arnold invited all those assembled to stand for the Pledge of Allegiance.

3. Approval of Agenda
Ms. Gibson moved to approve the agenda as presented. The motion passed by voice vote.

4. Presentations, Awards, and Recognitions
The town clerk, Mrs. Kelsey, read the attached resolution for former Councilmember Diane Harrison.

Mr. Tibbens moved that Council of the Town of Berryville approve the attached resolution honoring Diane Harrison's service to the community. Motion passed by voice vote.

Mayor Arnold presented the resolution to Mrs. Harrison and thanked her for her service.

Mayor Arnold recognized the town manager who asked to address the Council and those assembled. Mr. Dalton stated that he appreciated many things about Mrs. Harrison's service to the Town, but wanted to highlight one area in particular. He stated that Mrs. Harrison understood the Berryville Area Plan and protected it in uncompromising fashion. He explained that Mrs. Harrison understands that the growth previously planned and that which will be planned in the future in the Berryville Area serves as the linchpin of Clarke County Planning. Mr. Dalton thanks Mrs. Harrison for her dedication to her community and for the assistance and support she provided to Town staff.

Mayor Arnold introduced Allen Kitselman, Chairman of the Berryville Area Development Authority, who presented a resolution of the Authority honoring Mrs. Harrison's service on the board. Mr. Kitselman presented it to Mrs. Harrison.

5. Public Hearings

Construction Standards and Specifications

Mrs. Petti brought to the attention of the Council the changes that could be made to the Construction Standards and Specifications. Primary changes include relaxed asphalt restoration standards during fiber optic cable installation, provision of an option for submersible grinder pumps in some lift stations, and revisions to Erosion and Sediment Control because of changes in State law that are new this year.

Mayor Arnold opened the public hearing on Construction Standards and Specifications.

No citizens signed up to speak.

Mr. Dalton stated the review metastasized and there is no rush to approve the changes tonight, it can be moved to the next meeting.

Bryan Byrd from Glo Fiber made himself available to answer any questions the Council might have.

Mr. Perez asked if the standards are reduced would it allow Glo Fiber to serve the 700 residents that are not able to be served now. Mr. Byrd said no it would not. Mr. Steinmetz asked if the relaxing of the standards would clarify things in the future for future companies and Mr. Dalton said yes. Mr. Mazzarino asked which one of the standards is the most challenging for Glo Fiber. Mr. Byrd responded it would be the "no relaxation of asphalt restoration standards will be granted on streets that have been paved less than 60 months prior to the request."

Mayor Arnold asked if Josephine Street was getting Glo Fiber and Mr. Byrd said yes. He also asked if Berryville Glen was getting it and Mr. Byrd said no, not at this time.

Mayor Arnold said it seems like the efforts from the staff did not change the decision of Glo Fiber. Mr. Byrd said that the proposed amendments to the Construction Standards and Specifications will not change things much. Mrs. Petti asked if Glo Fiber modified their standards for other Counties, such as Frederick. Mr. Byrd said they did modify them for Frederick. Mrs. Petti said she does not think they are being candid about not

having to make different modifications with other Counties/Towns. Mr. Byrd said in all the places they have been, the one-foot repair is all they have had to do. Mayor Arnold asked if Glo Fiber has spoken to other Counties about test pits and Mr. Byrd replied in the affirmative.

Mr. Tibbens asked if Glo Fiber would allow the five-year warranty if they were to move forward with the changes. Mr. Byrd said yes, they would. Mr. Tibbens also asked if there could be a ten-year warranty on patchwork. Mr. Byrd responded that he could not make that decision.

Mr. Dalton recommended that the public hearing be continued to December 9, 2025 at 7:00 p.m.

Mr. Tibbens moved that the Council of the Town of Berryville extend the public hearing for the Construction Standards and Specifications to the next Council meeting on December 9, 2025. Motion passed with voice vote.

Lease on 36 Smithy Lane
Mr. Dalton spoke about the history of the property at 36 Smithy Lane and outlined the elements of the proposed lease.

Mayor Arnold opened the public hearing on 36 Smithy Lane.

Mrs. Martha Reynolds, the Executive Director of the Barns of Rose Hill introduced herself. She stated that the Smithy Cottage is very important to the work they do at the Barns. It enables the Barns to bring in better talent that is farther away. It allows the Barns to operate and without Smithy Lane they would not be able to. Mr. Mazzarino asked what they use it for, Mrs. Reynolds said they use the first floor as an office for the Barns and the second floor is where performers can stay. Mr. Tibbens wanted to know if there are any changes to the cottage that they are wanting to address in the next year. Mrs. Reynolds said they had some electrical things taken care of already and she thinks it would just be some painting that was already planned. Mr. Dalton explained that the HVAC has been upgraded. He stated that he hopes to have the front and rear porches renovated and the house painted by mid-2026. Mr. Dalton noted that there is a typo on page 13 of the draft lease' where it says "rebuilt" and should say "rebuild".

Mr. Perez asked if he should abstain from the vote because he is on the Board for the Barns. Mr. Steinmetz asked the same question because he has performed at the Barns. Mr. Dalton said he did not think there was any conflict. Both members agreed and participated in the review and discussion.

Mayor Arnold closed the public hearings.

6. Discussion of Public Hearing Items
Lease on 36 Smithy Lane
Mr. Mazzarino moved that the Council of the Town of Berryville approve the amended lease agreement between the Town and the Barns of Rose Hill, Inc. for use of the property described as the Smithy Cottage,

which is located at 36 Smithy Lane and further moved that the town manager is authorized to execute said lease on behalf of the Town. Motion passed by voice vote.

7. Citizens' Forum
None

8. Consent Agenda
Mr. Steinmetz moved to approve the consent agenda as presented. The motion passed by voice vote.

9. Unfinished Business
None

10. New Business
None

11. Council Member Reports
Mayor Arnold said the Veterans Day Ceremony was held at the firehouse and had a great turnout. He stated that Allan McWilliams was honored as the Veteran of the Year for 2025.

Mr. Steinmetz said the next Planning Commission meeting is on November 20th at 6:00 p.m.

Mr. Tibbens stated the Fall Festival in the Park was a great success. He wanted staff to know that Mrs. Tibbens thanked them for all of their help.

Chief Bristol told Council the accreditation renewal evaluation will be going on next week.

12. Staff Reports
Community Development
Mr. Russell presented a power point on Mosby Boulevard/East Fairfax Street sidewalk project.

Mr. Steinmetz asked if the proposal includes crosswalks and Mr. Russell said yes. Mr. Steinmetz has concerns about freezing weather. Mr. Russell said the project will proceed weather permitting. Mr. Dalton said VDOT wants to finish things quickly. He also stated that Mrs. Petti mailed out letters to citizens about not salting the new concrete. The schools will be notified of construction activities, though disruption is not anticipated. Mr. Tibbens asked if the contractor will take care of any lawn damage, since it will be done in the winter time and you may not see yard damage right away. Mr. Russell will find out.

Wayfinding Sign Project
Mrs. Petti spoke about the Wayfinding Sign Project updates. VDOT plans are at 90% to reissue the bid, unless Council wants to change anything. Mr. Dalton said that the project must be finished by the end of 2026. Mrs. Petti stated it is set for a spring 2026 installation.

13. Committee Updates
Mayor Arnold recognized the chairs of each standing committee of the Town Council to introduce action items, provide updates, and impart additional information that they think may be helpful to the Council.

Budget and Finance Committee
Ms. Gibson stated the next meeting will be held February 23, 2026 at 3:00 p.m., it will be a work session.

Community Development Committee & Streets and Utilities Committee
Mr. Tibbens said the next meeting will be on November 25, 2025 at 3:30 p.m., and project updates will be discussed.

Personnel, Appointments, and Policy
Mayor Arnold said there are two openings on the Planning Commission, he would prefer these vacancies be filled by citizens living in Wards 3 & 4, and one opening on the Tree Board.

Public Safety
None

14. Closed Session
The Council of the Town of Berryville will conduct a closed session in accordance with §2.2-3711.A.1 of the Code of Virginia to consult with the town manager regarding the appointment of a chief of police.

Motion to Enter Closed Session
Mr. Mazzarino moved that the Council of the Town of Berryville enter closed session in accordance with §2.2-3711-A-1 of the Code of Virginia to consult with the town manager regarding the appointment of a chief of police. Motion passed by voice vote.

Certification Motion and Resolution
Mr. Steinmetz moved that the Council of the Town of Berryville adopt the following resolution certifying it has convened a closed meeting on this date pursuant to an affirmative recorded vote and in accordance with the provisions of The Virginia Freedom of Information Act:

Resolution

WHEREAS, Section 2.2-3712.D of the Code of Virginia requires a certification by this Council that such closed meeting was conducted in conformity with Virginia law,

NOW, THERFORE, BE IT RESOLVED that the Council hereby certifies that, to the best of each member's knowledge, (i) only public business matters lawfully exempted from open meeting requirements by Virginia law were discussed in the closed meeting to which this certification resolution applies, and (ii) only such public business matters as were identified in the motion convening the closed meeting were heard, discussed or considered by the Council.

VOTE BY ROLL CALL:

Mr. Steinmetz	**Aye**
Mr. Perez	**Aye**
Mr. Mazzarino	**Aye**
Mr. Tibbens	**Aye**
Ms. Gibson	**Aye**
Mr. Arnold	**Aye**

15. Adjourn

The Council adjourned at 9:32 p.m. on a motion by Ms. Gibson.

_____ _____

Erecka L. Gibson, Vice Mayor Brandel Kelsey, Town Clerk

A RESOLUTION OF THE COUNCIL OF THE TOWN OF BERRYVILLE HONORING

Diane Harrison

WHEREAS, Diane Harrison has lived and worked in Berryville for over twenty years, becoming a valued volunteer and organizer in local service groups and artistic circles. Diane was elected as the Ward 2 Representative to the Town Council of the Town of Berryville in July 2018 and reelected in November 2022; and

WHEREAS, she embraced her calling wholeheartedly, driven by a desire to make a difference in the lives of her neighbors. In pursuit of this, she served on the Community Development Committee, Berryville Area Development Authority, Joint Clarke County/Berryville Economic Development Committee, was co-chair of the Clarke County Fire and EMS Commission, and was chair of Streets and Utilities Committee; and

WHEREAS, Diane sought engagement with the residents of her Ward and the Town as a whole, building rapport and consensus with her constituents, always remembering that a journey of service is one of the most rewarding paths; and

WHEREAS, she fostered community feel, recognizing that a Town requires resilient infrastructure but also relies on open channels of communication and deep respect; and

WHEREAS, Diane promoted polices of economic resilience, led traffic calming efforts, brought her artistic talents to bear in the rebrand of the Town logo, and supported technological innovation and accessibility for the Town, particularly the Town website's design and functionality.

NOW, THEREFORE, BE IT RESOLVED, that the Council of the Town of Berryville honors Diane Harrison, and considers the time collaborating on Council a privilege. Her insight, trust, and teamwork are deeply appreciated.

By order of the Town Council this 12th day of November, 2025.

_____ _____

Harry Lee Arnold Jr., Mayor **Erecka L. Gibson, Vice Mayor**

BERRYVILLE TOWN COUNCIL COMMUNITY DEVELOPMENT / STREETS AND UTILITIES COMMITTEE MINUTES
Berryville-Clarke County Government Center
101 Chalmers Court, Berryville, VA 22611
Tuesday
November 25, 2025
3:30 pm

Members of the committee present: Paul Perez; Ryan Tibbens, Chair

Staff present: Jean Petti, Deputy Town Manager; Terry Russell, Community Development Director

1. Call to Order
Mr. Tibbens called the meeting to order at 3:37 p.m.

2. Approval of Agenda
The agenda was approved by consensus on a motion by Mr. Perez.

3. Unfinished Business
Wayfinding Signs
Jean Petti provided a Wayfinding Signs update. VDOT has provided assurances that the design is approved and should shortly be returned to the Town so that a Request for Bid can be issued in late 2025 or early 2026. Mr. Tibbens asked if the project was expected to be accomplished on budget and, if not, would it be scalable. Mrs. Petti responded that the revision would bring the project closer to budget and if the entire project could not be accomplished within budgetary limits, the plan is to fabricate the signs and phase installation. She noted that mobilization and installation were individual line items on the bidding form. Signs are expected to be fabricated and installed in 2026.

Mosby/East Fairfax Sidewalk Project Update
Terry Russell presented a summary of the anticipated schedule for the installation of sidewalk along Mosby Boulevard and East and West Fairfax Streets. The project is on track for completion by February 2026, weather permitting. Mr. Tibbens asked where any concerns from residents should be directed and Mr. Russell responded that he would be available to answer questions as they arise.

Street Paving Update
Mrs. Petti reviewed the contractual changes to 2025 Paving, Milling, and Line Striping. As the contractor, Stuart M. Perry, did not perform shoulder restoration within the contract time frame and has been unable to provide an anticipated completion date, the Town approached VDOT for assistance and will complete the task. Payment to the vendor will be adjusted. Line striping omissions remain and the vendor has committed to returning to finish.

Water Main Upgrade Update
Mrs. Petti updated the committee regarding utility improvements for Dorsey Street, which are on track for December 2025.

4. New Business
Service Line Warranty Program
The first item of new business was consideration of a Service Line Warranty program. The Town was approached by Home Serve to endorse a marketing campaign for utility customers who may be interested in insuring their water and sewer lines against blockages and breakage. Mr. Perez noted a desire to explore more thoroughly the quality of customer service that participants experience and Mr. Tibbens concurred. Both council members expressed reservations about endorsement, with Mr. Tibbens suggesting that educating utility customers about the availability of such programs without endorsing one may be more appropriate. Both Mr. Perez and Mr. Tibbens unequivocally rejected the optional royalty to the Town that is available under the program. Mr. Tibbens shared with the committee that he had discovered that insurance at the discounted rates was already available through Washington Gas. The committee directed staff to collect a review proof of what would be mailed to customers and prepare a draft of an educational notice that could be added to the Town website or included in a mailing that would not provide endorsement of any particular insurance vendor. The committee will consider these at the next regularly scheduled meeting.

Community Service Line Inventory
The second item of new business was an update from Mrs. Petti regarding the Community Service Line Inventory. The Town of Berryville is in compliance with the development of the inventory and the inventory is available for public review. All water customers who may be at risk of lead exposure, e.g., those with “Unknown” materials in their water laterals, have received a letter instructing them to call or email the Town for assistance in determining the material of their water line. All of the water mains are known, though some records require substantiation, and approximately 60% of the water laterals are known and recorded. No lead lines have been found, and none are suspected to exist. In Spring 2026, all water meter crocks will be opened to verify the material of Town-owned and customer-owned lines. These records will be cross referenced with field inspections and customer self-reporting results. By 1 November 2027, the Town expects to have inventoried every main, connector, and lateral served by the Town’s waterworks.

6. Other
Pedestrian Bridge over the Town Run in Rose Hill Park
Under the agenda item “Other”, was a single item, a discussion of the pedestrian bridge over the Town Run in Rose Hill Park. As the bids for replacement exceeded the budget, Town Manager Keith Dalton has requested direction from Town Council. Committee members discussed the possibility of prefabricated bridge options, a shorter/flatter bridge run, different material selection, and the possibility of having community in-kind participation. Mr. Russell addressed the limitations imposed by ADA compliance and Mrs. Petti noted the challenges of working over/in a protected waterway. Mrs. Petti promised to relay their comments to Mr. Dalton as he explores options.

7. Adjournment
The meeting adjourned at 4:57 p.m.

Berryville – Clarke County
Government Center
101 Chalmers Court, Suite A
Berryville, VA 22611

[T] 540/955-1099
[F] 540/955-4524
[E] info@berryvilleva.gov
www.berryvilleva.gov

BERRYVILLE
EST. 1798 Genuine VIRGINIA

Report of the Department of Public Works
December 2025

Paving
The Public Works Department will be finishing up the recent paving operation by re-establishing the shoulders of the roads with compacted 21B stone.

Water
The Department has two work orders outstanding for the water treatment plant, both work orders were delayed, one by delayed supplies and one by weather. We will be installing a drain pipe for a pressure release valve at the plant and cleaning the river intakes as supplies and weather allow.

Sewer
Nothing to report.

Parks
We continue our every weekday park inspections. We have recently installed lighting on the Town's Christmas tree in anticipation of the Dec 5th lighting celebration. The downtown snowflake installation has also been completed.

Parade
The Department will assist the Police Department with traffic control during the Parade on Saturday, Dec 6th.

Snow Operations
The Department goes into emergency mode during Snow/Ice removal operations. We split into two groups, working 12-hour shifts each in order to keep Town roads clear and safe. We also assist VDOT with clearing State roadways through Town.

Leaf Pickup
Leaf pickup is ongoing. The operation is labor intensive and we do all we can to keep the Town clean.

Public Utilities Department Report

9th of December 2025

Item Title: Department Update
Prepared By: Frank Kelsey

Water Treatment Plant Activity
All water quality results are available at https://vadwv.gecsws.com/

A new analyzer was delivered and installed. The zeta potential analyzer will provide real-time, quantitative control of the coagulation and flocculation process.

The Water Treatment Plant is running well and in accordance with state regulations. The Town is on schedule and in compliance with VDH consent order's Corrective Action Plan.

Town staff and Engineers are working to finalize the Water Treatment Plant upgrade design.

Wastewater Treatment Plant Activity
Inboden continues to operate the facility with care and consideration, completing monthly preventative maintenance on equipment to ensure pumps and motors are operating efficiently.
november

BERRYVILLE POLICE DEPARTMENT

101 Chalmers Ct., Suite A, Berryville VA 22611
(T) 540.955.3863 (F) 540.955.0207
policeadmin@berryvilleva.gov
Timothy J. Bristol – Interim Chief of Police

MEMO

DATE: 12/04/2025
TO: Town Council
FROM: Interim Chief T. J. Bristol
CC:
RE Police Department Monthly Report – 12/04/2025

Monthly Activity Report

The activity report for the month of November 2025 is attached to this report.

Public Safety Committee

The Public Safety Committee did not meet in October 2025.

Department News

On 12/04/2025 the Berryville Police Department was awarded its certificate of accreditation. This is the second award to this department of this kind. This keeps the Berryville Police department accredited for the next four years. The Berryville Police Department will have to go through accreditation again in 2029.

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Police and Security Report

Month/Year: November 2025	Year To Date 2025	November 2025	October 2025
Complaints Answered			
911 Hang Up:	20	1	3
Alarms:	66	3	8
Animal Complaint:	84	8	12
Assault:	19	1	1
Assist County:	97	9	10
Assist EMS and Fire:	116	25	6
Auto Larceny:	1	0	0
Burglary:	2	0	0
Civil Complaints:	79	3	7
Disturbance:	31	3	4
Domestic Disturbance:	21	2	0
Driving Under the Influence	11	0	0
Drunk In Public:	9	0	1
Fraud:	37	1	1
Larceny:	35	2	3
Harassment/Intimidation:	31	2	2
Homicide:	0	0	0
Identity Theft	4	2	0
Juvenile Related:	23	1	6
Mental Health Crisis:	51	6	4
Narcotics Related:	4	0	0
Noise	14	0	2
Public Service:	54	4	6
Sexual Assault:	2	0	0
Robbery:	0	0	0
Shoplifting:	0	0	0
Suspicious Activity:	189	17	12
Trespassing:	23	0	1
Vandalism:	34	3	5
Welfare Check:	74	10	8
Miscellaneous Complaints:	630	52	64
Total Complaints Answered:	1761	155	166

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Police and Security Report (Continued)

	Year To Date 2025	November 2025	October 2025
Traffic			
Accidents Investigated:	52	6	2
Assist Motorist:	0	0	0
Child Safety Seat Install:	9	1	1
Funeral Escort:	27	1	5
Hit & Run:	16	2	3
Parking Tickets:	99	1	17
Traffic Warnings:	270	27	8
Traffic Summons Issued			
Defective Equipment:	0	0	0
Driving Suspended:	2	0	0
Expired Inspection:	1	0	0
Expired Registration:	11	3	1
Fail to Obey Highway Sign:	101	20	10
Fail to Obey Traffic Signals:	3	2	0
Fail to Stop/Lights & Siren:	0	0	0
Fail to Yield Right of Way:	6	2	1
Hit and Run:	0	0	0
No Liability Insurance:	1	1	0
No Operator's License:	15	2	2
No Seat Belt:	0	0	0
Reckless Driving:	6	1	2
Speeding:	89	12	12
Miscellaneous Summons:	21	5	6
Total Traffic Summons Issued:	256	48	34
Found Open at Businesses in Town			
Doors:	5	0	1
Windows:	0	0	0
Garage Doors:	0	0	0

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Timothy J. Bristol – Interim Chief of Police

Police and Security Report (Continued)

	Year To Date 2025	November 2025	October 2025
Criminal Papers Served			
Abduction:	0	0	0
Arson:	0	0	0
Assault and Battery:	7	1	0
Assault and Battery on Police Officer:	0	0	0
Auto Larceny:	0	0	0
Breaking and Entering:	1	0	0
Capias:	11	0	2
Disorderly Conduct:	0	0	0
Driving Under the Influence:	10	0	0
Drunk In Public:	13	0	1
Fail to Obey Police Officer:	0	0	0
Fail to Pay Parking Ticket:	0	0	0
Forgery:	0	0	0
Fraud:	1	0	1
Homicide:	0	0	0
Illegal Drugs/Paraphernalia:	8	0	0
Larceny:	6	0	1
Possess Alcohol Underage:	0	0	0
Protective Order Violations:	3	0	0
Rape:	0	0	0
Resisting Arrest:	1	0	0
Robbery:	0	0	0
Shoplifting:	6	0	0
Trespassing:	0	0	0
Vandalism:	3	0	1
Weapons Violation:	1	0	0
Miscellaneous Criminal Arrests:	36	0	3
Juvenile Detention Order Totals:	9	2	2
Total Criminal Arrests:	116	3	11

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Timothy J. Bristol – Interim Chief of Police

Police and Security Report (Continued)

	Year To Date 2025	November 2025	October 2025
Response to Resistance			
Total Community Interface	2104	239	207
Total Enforcement Contacts	530	79	36
Physical Custody	34	1	6
Reported Force Involved	2	0	0
Administrative Review - Justified	2	0	0
Administrative Review - Not Justified	0	0	0
Complaint of Injury - Arrestee	0	0	0
Medical Treatment for Injury - Arrestee	0	0	0
Complaint of Injury - Officer	0	0	0
Medical Treatment for Injury - Officer	0	0	0
Type of Force Involved			
Compliance Hold / Open Hands	0	0	0
Takedown	2	0	0
Strikes (Hands / Knees)	0	0	0
Chemical Sprays (O.C.)	0	0	0
Impact Weapon (Baton)	0	0	0
Mechanical Non-Lethal	0	0	0
Firearm	0	0	0
Arrestee Demographics			
White Male	21	3	1
Black Male	2	0	0
Other Male	0	0	0
White Female	10	0	1
Black Female	4	1	0
Other Female	0	0	0

Town Council Agenda Item Report Summary

December 9, 2025

Item Title
Community Development Update

Prepared By
Terry Russell

Planning Commission
The Planning Commission held a work session on November 20, 2025 with staff and Christopher Cos. regarding the request to rezone approximately 43 acres of the Friant property on Battletown Drive.

The Planning Commission held a regular meeting Tuesday, November 25, 2025 in order to conduct a public hearing on a Zoning Ordinance Amendment to change the height limit for fences in the front yard setback of residential properties.

Berryville Area Development Authority
The BADA has met on November 19, 2025. It discussed the capacities of the Town's water and sewer facilities in relation to potential future growth. The BADA is scheduled to meet on December 17, 2025.

Architectural Review Board
The ARB met on Wednesday, December 3, 2025. Following the meeting the ARB judged the Berryville Main Street parking meter decorating contest.

Tree Board
The Tree Board has not met since the last Town Council meeting.

Board of Zoning Appeals
The BZA will hold a public hearing on Thursday December 18, 2025 to consider a variance request for 10 Swan Avenue.

Wayfinding
The Wayfinding signs 95% plans were received from VDOT on December 4, 2025. Staff will revise bid document dates and proposes to issue the IFB by the beginning of January 2026.

Town Council Agenda Item Report Summary

December 9, 2025

Item Title

Set Public Hearing – Zoning Ordinance text amendments for fences

Prepared By

Terry Russell

Background/History/General Information

A text amendment to ARTICLE III – SUPPLEMENTARY REGULATIONS SECTION 303 – FENCES, 303.3. of the Berryville Zoning Ordinance to amend the height of fences in front setbacks in residential zones and in front setbacks for residential uses in commercial zones.

Fences are regulated by **Section 303 – Fences** of the Berryville Zoning Ordinance. Fences may be located along property lines up to a height of six feet. In some cases fences this height cause the front yards of adjacent properties to feel too enclosed and may cause a vision obstruction for vehicles exiting the adjacent properties. In other jurisdictions fences tend to be lower in height in front yards than in rear yards. A maximum height of 4 feet is common in other jurisdictions. The following proposes amended language that would lower the maximum height of fences to 4 feet in front setbacks.

ARTICLE I – DEFINITIONS

* * *

SECTION 102 – SPECIFIC TERMS

* * *

fence - A barrier, usually made of posts and wire, boards, or masonry, intended to prevent escape or intrusion or to make a boundary. Trees, shrubbery, or other foliage does not constitute a fence under this definition.

* * *

ARTICLE III – SUPPLEMENTARY REGULATIONS

* * *

SECTION 303 – FENCES

303.1 No fragile, readily flammable material such as paper, cloth, or canvas shall constitute a part of any fence, nor shall any such material be employed as an adjunct or supplement to any fence.

303.2 No fence shall be constructed within two (2) feet of ay right-of-way line **(12/98)**, except on corner lots as set forth in Section 302.

303.3 Fences shall not exceed a height of six (6) feet, except that fences shall not exceed a height of four (4) feet in front setbacks in residential zones and in front setbacks for residential uses in commercial zones, as measured from the top-most point thereof to the ground or surface, along the center line of the fence, in a commercial or residential zone, except on corner lots as set forth in Section 302.

303.4 Fences in commercial zones shall not exceed a height of six (6) feet, as measured from the top-most point thereof to the ground or surface, along the center line of the fence, except on corner lots as set forth in Section 302. The Planning Commission may approve fences of up to ten (10) feet in height on a case-by-case basis. **(12/98)**

303.5 Fences surrounding industrial sites, public playgrounds, institutions, or schools may not exceed a height of fourteen (14) feet.

Findings/Current Activity

Staff has received concerns from citizens regarding the height of fences in front yards in some locations. It is common in local jurisdictions to restrict fences to lower heights in front yards to prevent vision obstructions for vehicles and other security considerations, while providing higher height limits in rear yards to enhance privacy.

Schedule/Deadlines

N/A

Planning Commission

The Planning Commission held a pubic hearing on November 25, 2025. It recommended that the Town Council approve the Zoning Text Amendment as proposed.

Other Considerations

N/A

Recommendation

Staff recommends that the Town Council set a public hearing to be held at its regular meeting held in January 2026.

Sample Motion

I move that the Town Council of Berryville, VA set a public hearing to be held at its regular meeting in January 2026, to consider a text amendment to ARTICLE III, SUPPLEMENTARY REGULATIONS, of the Berryville Zoning Ordinance, Section 303.3 as follows: Fences shall not exceed a height of six (6) feet, except that fences shall not

exceed a height of four (4) feet in front setbacks in residential zones and in front setbacks for residential uses in commercial zones, as measured from the top-most point thereof to the ground or surface, along the center line of the fence, in a commercial or residential zone, except on corner lots as set forth in Section 302.

Town Council Agenda Item Report Summary

December 9, 2025

Item Title
Mosby Boulevard – East Fairfax Street Sidewalks

Prepared By
Terry Russsell

Background/History/General Information

The Town of Berryville awarded a contract to Imperio Construction, LLC, to construct new sidewalks on the southside of East Fairfax Street in the block west of Page Street, and the northside of Mosby Boulevard from McNeill Drive to Hancock Court. The form of agreement between the Town and the contractor was executed on October 21, 2025.

These projects are made possible through the Transportation Alternatives Program (TAP) of the Virginia Department of Transportation (VDOT).

This is a Federal reimbursement program intended to help local sponsors fund community-based projects that expand non-motorized travel choices and enhance the transportation experience by improving the cultural, historical, and environmental aspects of the transportation infrastructure. The Transportation Alternatives Program expands travel choices, strengthens local economy, improves quality of life and protects the environment. It does not fund traditional roadway projects or maintenance.

The program provides 80 percent match funding for projects such as pedestrian and bicycle facilities, safe routes to schools, conversion of abandoned railway corridors to trails, and historic transportation facility preservation. The Town of Berryville provides the other 20 percent of the funding.

VDOT administers this funding program through its Local Assistance Division.

Financial Considerations

The construction contract is $39,083.50 for East Fairfax Street and $136,218.50 for Mosby Boulevard for a total of $175,302.00.

Schedule/Deadlines

The contract requires completion by May 19, 2026. The contractor has informed us that construction will start in January 2026.

Administration and Finance Report

December 09, 2025

Item Title:

Report of the Administration and Finance Department

Prepared by:

Cynthia Poulin, Treasurer

Attachments:

1. ARPA Report
2. November Cash Balance

December 9, 2025
Monthly Update

American Rescue Plan Act of 2021

Funds expended over the past month
The November 2025 expenditure report is attached.

Attachments
- November 2025 ARPA Expenditure Report
- ARPA Master List
- Project Status Reports

Oct-25

	BUDGETED	USED THIS MONTH	TOTAL USED	BALANCE	PERCENT USED	
Signage						
Estimated cost of these actions						
- Signage	$ 140,000.00	$ -	$ 43,280.00	$ 96,300.00	31%	$ 140,000.00
- Total			$ 43,280.00			$ 140,000.00
Fund balance from first payment						$ 31,135.34
Fund balance from second payment						$ 65,584.66
Complete necessary water and sewer infrastructure projects						
Capital Projects						
Estimated cost of these actions						
- Cost of the projects	$ 3,495,500.79	$ 225.00	$ 1,601,974.10	$ -	85.00%	$ 3,485,953.17
			$ 1,624,322.13	$ 269,204.56		$ 3,485,953.17
Total			$ 3,226,296.23			
Fund balance from first payment						$ -
Fund balance from second payment						$ 269,204.56
Pay for administrative costs						
Esimated cost of these actions						
- Administrative costs per FY (5.5)	$ 60,000.00	$ -	$ 44,407.40	$ 15,592.60	74%	$ 60,000.00
- Total			$ 44,407.40			$ 60,000.00
Fund balance from first payment						$ 15,592.60

NOTES:

INFRASTRUCTURE COSTS:		1st Tranche	$ 2,267,493.00
Frazier Assoc.(Wayfinding)	$ -	Used to date	$ 2,221,185.06
Core & Main	$ -	Balance	$ 46,307.94
VA RIGGERS	$ -		
Pete McLean	$ -	2nd Tranche	$ 2,267,493.00
Norfolk Southern	$ -	Used to date	$ 1,932,703.78
FUOG Interbuild	$ -	Balance	$ 334,789.22
Pennoni (Water Projects Bel Voi & Battletown)	$ 225.00		
Webster Nursery(Concrete walls)	$ -		
Total	$ 225.00		

ARPA MASTER LIST

11/30/2025

	PROJECT NAME	BUDGET	SPENT TO DATE	BALANCE	%COMPLETE	
1	Computers:Utility Clerk,PWs	$ 2,437.90	$ 2,437.90	$ -	100%	Admin
2	Police Radio Replacements	$ 75,000.00	$ 75,000.00	$ -	100%	
3	PW Compressor	$ 23,629.85	$ 23,629.85	$ -	100%	infra
4	Water Dist Sys Flushing Equip	$ 7,500.00	$ 9,844.38	$ -	100%	infra
5	Water Meter Reading Equip	$ 12,458.03	$ 12,458.03	$ -	100%	infrastr
6	Grants for Improper Con to Sewer Sys	$ 4,500.00	$ 4,500.00	$ -	100%	grant
7	W/s Admin Fees	$ 175,260.82	$ 175,260.82	$ -	100%	
8	Premiuim Pay for Employees	$ 172,000.00	$ 174,323.86	$ -	100%	premium pay
9	Grant John H Enders/Rescue Squad *	$ 80,000.00	$ 80,000.00	$ -	100%	grant
10	Grant to Barns of Rose Hill *	$ 40,000.00	$ 40,000.00	$ -	100%	grant
11	Grant for Façade Improvement	$ 196,185.08	$ 196,185.08	$ -	100%	grant
12	Website	$ 5,845.29	$ 5,845.29	$ -	100%	Admin
13	Leak Study	$ 8,662.50	$ 8,662.50	$ -	100%	infra
14	SSES Study	$ 117,868.73	$ 117,868.73	$ -	100%	infra
15	River Pumping Station Upgrade	$ 25,000.00	$ 28,538.55	$ -	100%	infra
16	Water Meter & Setter Replacements *	$ 350,000.00	$ 350,000.00	$ -	95%	infra
17	Hermitage Pump Station	$ 26,000.00	$ 26,000.00	$ -	100%	infra
18	Booster Building Upgrade	$ 20,000.00	$ 22,985.85	$ -	100%	infra
19	WWTP Headworks Lighting Upgrade	$ 4,764.00	$ 4,764.00	$ -	100%	infra
20	Ridge Road Water Main	$ 25,939.04	$ 25,939.04	$ -	100%	infra
21	Water, Sewer and Drainage Projects	$ 2,228,476.76	$ 2,228,476.76	$ -	100%	infra
22	Rockcroft Water Main Abandonment	$ 10,000.00	$ 10,550.96	$ -	100%	infra
23	Security Upgrades	$ 125,000.00	$ 100,995.91	$ -	100%	infra/admin70
24	Drainage Dorsey, Walnut, Treadwell	$ 1,500.00	$ 1,500.00	$ -	100%	infra
25	Bel Voi and Battletown Water Main Repl	$ -	$ 11,612.50	$ -	100%	infra
26	Wayfinding Signs	$ 140,000.00	$ 43,700.00	$ 96,300.00	40%	
27	Raw Water Intake Land-Easement Acquisition	$ 13,672.50	$ 13,672.50	$ -	100%	infra
28	Grant Housing (3 years)	$ 40,000.00	$ 40,000.00	$ -	100%	
29	Capital Projects	$ 543,285.50	$ 274,080.94	$ 269,204.56	0%	
	Administrative /Legal Fees	$ 60,000.00	$ 45,055.39	$ 15,592.60	75%	Admin
	Total Encumbered	$ 4,534,986.00	$ 4,153,888.84	$ 381,097.16		
	Total ARPA	$ 4,534,986.00				

* Project For (2) two years

Project Status Report 16

Date: 12/09/2025

Project Name:
Water Meter and Setter Replacements

Project Budget: $350,000.00
Expected Completion Date: June 2023

Executive Summary:
Upgrade ¼ of the Town's water Meters and setters.

Project Goals:
1. Improve capture of water use.
2. Improve back flow protection.
3. Reduce meter reading costs.

Project Status:

Status Item	Status	Summary
Budget $350,000.00	Completed	Total Spend: $350,000.00
Schedule/Timeline	On Track	% Complete: **95**

Project Milestones:

Description	% Complete	Status
1. Order meters, setters, valves, plus other supplies	100%	Completed
2. Install meters / setters	90%	On Track

Project Issues or Concerns:
1. Multiyear project

Project Status Report 26

Date: 12/09/2025

Project Name:
Wayfinding Signs

Project Budget: $190,000.00
From ARPA: $140,000.00
From Town: $50,000.00
Expected Completion Date: December 2023

Executive Summary:
Design, construct, and install entrance and wayfinding signs.

Project Goals:
1. To improve business environment in downtown business district.

Project Status:

Status Item	Status	Summary
Budget 190,000.00	On Track	Total Spend: $43,700.00
Schedule/Timeline	On Track	Complete: 40%

Project Milestones:

Description	% Complete	Status
1. Design	50%	On Track
2. Determine Sign locations	50%	On Track
3. Secure VDOT approvals	95%	On Track
4. Develop offering for design and construction/award/have signs fabricated	0%	On Track
5. Secure contractor to install signs	0%	Not Started
6. Have signs installed	0%	Not Started
RFP ISSUED ON 6/30/2022 & COUNCIL AUTHORIZED THE TOWN MANAGER TO AWARD BID.		

Project Issues or Concerns:

Project Status Report 29

Date: 12/09/2025

Project Name: Capital Projects

Project Budget: $543,285.50

Expected Completion Date:

Project List Under Consideration:
Bel Voi Water Main Replacement
Bar Screen at STP
North Crow Street Drainage
Rose Hill Park Bridge
Project Goals:

Project Status:

Status Item	Status	Summary
Budget $543,285.50	On Track	Total Spend: $274,080.94
Schedule/Timeline	On Track	% Complete: **50**

Project Milestones:

Description	% Complete	Status
1. Construction plans	100%	Completed
2. Develop IFB	100%	Completed
3. Secure Easements	0%	Not Started
4. Issue offering/ review offering	100%	Completed
5. Select Contractor	100%	Completed
6. Complete project	0%	Not Started

Project Issues or Concerns:

Cash Balance Report

Period Ending 11/30/2025

Town of Berryville

12/4/2025 11:28 AM

	Bank Information	Balance
1	Bank of Clarke Operating Acct#- 1138499	-$61,475.48
2	Bank of Clarke NOW Acct#- 1138502	$7,502,341.33
3	Bank of Clarke Payroll Acct#- 1138510	$40,257.01
4	Bank of Clarke CIP Acct#- 1138405	$18,553,253.15
5	Bank of Clarke SW Acct#- 1138413	$493,212.49
6	Bank of Clarke PDAF Acct#- 1138421	$25,530.83
7	Bank of Clarke DSR Acct#- 1138456	$113,181.91
9	Bank of Clarke RAU Acct#- 1138472	$952.12
10	Bank of Clarke VRA Reserve Acct#- 6041647	$470,000.00
11	Bank of Clarke Proffer Reserve Acct#- 1897098	$90,450.46
12	Bank of Clarke Performance Bonds Acct#- 1910841	$11,329.36
13	TRUIST Acct#- 5137523525	$568,673.18
14	Bank of Clarke PD Contributions Acct#- 5759859	$10,015.82

Total Cash Balance:	$27,817,722.18

Check Listing

Date From: 11/1/2025 Date To: 11/30/2025
Vendor Range: 1-800 FLOWERS - Zuleger, David E. & Joanne C.

Check Number	Bank	Vendor	Date	Amount
10188	1	BELL JR, MICHAEL EUGENE	11/05/2025	**$40.00**
10189	1	Dalton, Keith	11/05/2025	**$75.00**
10190	1	FERGUSON ENTERPRISES	11/05/2025	**$216.08**
10191	1	GILPIN, WILLIAM MITCHELL	11/05/2025	**$40.00**
10192	1	James River Equipment	11/05/2025	**$983.25**
10193	1	LIBBY, DANA	11/05/2025	**$40.00**
10194	1	Malone, Gwen	11/05/2025	**$40.00**
10195	1	Parker Jr., Thomas Randall	11/05/2025	**$40.00**
10196	1	Petti, Jean	11/05/2025	**$75.00**
10197	1	POLICE AND SHERIFFS PRESS, THE	11/05/2025	**$20.00**
10198	1	SINCLAIR, TIMOTHY	11/05/2025	**$40.00**
10199	1	Steinmetz, William	11/05/2025	**$75.00**
10200	1	Total Pest Services, Inc	11/05/2025	**$322.00**
10201	1	U.S. BANK NATIONAL ASSOCIATION	11/05/2025	**$15.00**
10202	1	BKT UNIFORMS	11/12/2025	**$4,297.80**
10203	1	CIVICPLUS	11/12/2025	**$6,350.53**
10204	1	Country Roads Tire & Auto Inc	11/12/2025	**$125.00**
10205	1	DMV	11/12/2025	**$65.00**
10206	1	EMMART OIL CO	11/12/2025	**$641.37**
10207	1	Joiner Micro Laboratories, Inc.	11/12/2025	**$25.00**
10208	1	MONROE ENVIRONMENTAL CORPORATION	11/12/2025	**$3,300.00**
10209	1	PENNONI ASSOCIATES INC	11/12/2025	**$9,245.00**
10210	1	Power Connection, Inc., The	11/12/2025	**$897.14**
10211	1	RHOMAR INDUSTRIES, INC.	11/12/2025	**$1,244.54**
10212	1	ROBINSON, DIANNA LYNNE & KENNETH NEIL 12983	11/12/2025	**$3.96**
10213	1	Shade Equipment Company	11/12/2025	**$583.95**
10214	1	Southern Software, Inc.	11/12/2025	**$1,125.00**
10215	1	U.S. BANK NATIONAL ASSOCIATION	11/12/2025	**$81.40**
10216	1	Valley Automation	11/12/2025	**$32,611.52**

Check Listing

Date From: 11/1/2025 Date To: 11/30/2025
Vendor Range: 1-800 FLOWERS - Zuleger, David E. & Joanne C.

Check Number	Bank	Vendor	Date	Amount
10217	1	Waterloo Electric Service, LLC	11/12/2025	**$499.17**
10218	1	American Water Works Association	11/19/2025	**$424.00**
10219	1	BALLARD, GEOFFREY WAYNE & JAMIE ADRIENNE 11471	11/19/2025	**$52.28**
10220	1	BOOR, RICHARD	11/19/2025	**$1,650.00**
10221	1	CCBCC OPERATIONS LLC (07) (BVL) 12524	11/19/2025	**$496.85**
10222	1	CLARKE COUNTY GENERAL DISTRICT COURT	11/19/2025	**$120.00**
10223	1	CORE & MAIN LP	11/19/2025	**$657.52**
10224	1	E.A.S. WINCHESTER, PLLC	11/19/2025	**$925.00**
10225	1	ECONO SIGNS, LLC	11/19/2025	**$450.59**
10226	1	FINNEY, REBECCA SUE & TODD ALLEN	11/19/2025	**$33.94**
10227	1	GODWIN MANUFACTURING CO INC	11/19/2025	**$9,387.00**
10228	1	GRIFFITH ENERGY SERVICES INC 12437	11/19/2025	**$3,044.59**
10229	1	Hall Company, The	11/19/2025	**$6,890.12**
10230	1	INBODEN ENVIRONMENTAL SVCS	11/19/2025	**$23,076.08**
10231	1	MALLOY FORD	11/19/2025	**$411.14**
10232	1	Michelle M. Jones	11/19/2025	**$1,746.80**
10233	1	MONROE ENVIRONMENTAL CORPORATION	11/19/2025	**$3,300.00**
10234	1	NUCKOLS PROPERTY SOLUTION	11/19/2025	**$6,000.00**
10235	1	OTTOBRE, CHRISTINE LILLIAN & RANDAL C 12941	11/19/2025	**$25.00**
10236	1	PEACOCK STAR SERVICES	11/19/2025	**$3,166.00**
10237	1	RHOMAR INDUSTRIES, INC.	11/19/2025	**$118.83**
10238	1	Select Specialty Products	11/19/2025	**$714.85**
10239	1	Shade Equipment Company	11/19/2025	**$12,171.86**
10240	1	STEPHENSON EQUIPMENT INC	11/19/2025	**$1,266.38**
10241	1	THOMSON REUTERS	11/19/2025	**$244.56**
10242	1	Treasurer of Frederick County	11/19/2025	**$6,421.20**
10243	1	U.S. BANK NATIONAL ASSOCIATION	11/19/2025	**$1,637.36**
10244	1	VALLEY REGIONAL ENTERPRISES, INC.	11/19/2025	**$52.00**

Check Listing

Date From: 11/1/2025 Date To: 11/30/2025
Vendor Range: 1-800 FLOWERS - Zuleger, David E. & Joanne C.

Check Number	Bank	Vendor	Date	Amount
10245	1	VIRASEC IT Support Services, Inc.	11/19/2025	**$4,020.60**
10246	1	VUPS	11/19/2025	**$181.20**
10247	1	ZACHARY BECKNER	11/19/2025	**$213.47**
10248	1	TAYLOR BERTA	11/21/2025	**$228.47**
10249	1	ANDERSON LAWN CARE, INC.	11/25/2025	**$950.00**
10250	1	Andrews, Matthew	11/25/2025	**$50.90**
10251	1	BERRYVILLE ENTERPRISES 12585	11/25/2025	**$70.83**
10252	1	BKT UNIFORMS	11/25/2025	**$23.00**
10253	1	BLOSSMAN GAS INC	11/25/2025	**$433.71**
10254	1	Carolyn Clotzman	11/25/2025	**$56.84**
10255	1	COMBS WASTEWATER MANAGEMENT LLC	11/25/2025	**$75.00**
10256	1	CORE & MAIN LP	11/25/2025	**$10.00**
10257	1	DATA SALES CO INC 12549	11/25/2025	**$89.78**
10258	1	DISH NETWORK LLC 07 12430	11/25/2025	**$53.74**
10259	1	EMMART OIL CO	11/25/2025	**$65.00**
10260	1	FLORIDA NATURAL FOOD SERVICE, INC. 13572	11/25/2025	**$23.13**
10261	1	HALLMARK MARKETING COMPANY LLC 12566	11/25/2025	**$30.73**
10262	1	LEONARD ALUMINUM UTILITY BUILDINGS LLC 13653	11/25/2025	**$41.06**
10263	1	MAIN STREET ARCHITECTURE 12584	11/25/2025	**$502.88**
10264	1	Minnesota Life Insurance Co.	11/25/2025	**$723.84**
10265	1	MOORE AND DORSEY INC	11/25/2025	**$362.00**
10266	1	ORELLANA, HERNANDEZ BLANCA YAMILETH 11528	11/25/2025	**$995.79**
10267	1	REMAX ROOTS 12483	11/25/2025	**$78.62**
10268	1	REPUBLIC SERVICES INC 07 12448	11/25/2025	**$3,079.31**
10269	1	Ridgeway Auto Body	11/25/2025	**$30,222.35**
10270	1	ROMERO, VIGIL MARTA LETICIA 3370	11/25/2025	**$43.90**
10271	1	VALLEY HEALTH PRIMARY CARE BERRYVILLE 13799	11/25/2025	**$344.54**
84		Checks Totaling -		**$190,572.35**

Check Listing

Date From: 11/1/2025 Date To: 11/30/2025
Vendor Range: 1-800 FLOWERS - Zuleger, David E. & Joanne C.

Check Number	Bank	Vendor	Date	Amount

Totals By Fund

	Checks	Voids	Total
100	$106,326.90		$106,326.90
501	$32,649.46		$32,649.46
502	$51,595.99		$51,595.99
Totals:	$190,572.35		$190,572.35

December 9, 2025
Discussion/Decisions

Appointment and reappointment to the Planning Commission

Overview
At present, there are two vacancies on the Planning Commission, each with an unexpired term remaining.

William Steinmetz's term on the Planning Commission will expire on December 31, 2025.

Current Discussion
It is recommended that Patrick Irish be appointed to the Planning Commission to fill an unexpired term.

It is recommended that William Steinmetz be reappointed to a full four-year term on the Planning Commission.

Sample Motions
I move that the Council of the Town of Berryville appoint Patrick Irish to an unexpired term on the Berryville Planning Commission, with such term to commence on December 10, 2025 and end on August 31, 2026.

I move that the Council of the Town of Berryville appoint William Steinmetz to a four-year term on the Berryville Planning Commission, with such term to commence on January 1, 2026 and end on December 31, 2029.