

**BEFORE THE BOARD OF COMMISSIONERS  
OF SALISBURY TOWNSHIP**

**ORDINANCE NO. 01-2024-667**

**AN ORDINANCE OF THE BOARD OF COMMISSIONERS OF SALISBURY TOWNSHIP,  
LEHIGH COUNTY, PENNSYLVANIA AMENDING CHAPTER 21, PARTS 1 AND 4,  
ENTITLED "OPENINGS AND EXCAVATIONS" and "CURBING AND SIDEWALKS",  
RESPECTIVELY, OF THE SALISBURY TOWNSHIP CODE OF ORDINANCES TO  
ESTABLISH REGULATIONS WITH RESPECT TO CERTAIN ROAD DEGRADATION,  
CURBING AND SIDEWALK INSTALLATION AND REPAIR ACTIVITIES ALONG  
PUBLIC STREETS, ROADWAYS AND RIGHT-OF-WAYS WITHIN THE TOWNSHIP**

**WHEREAS**, the Township of Salisbury is a First-Class Township organized and operating under the laws of the Commonwealth of Pennsylvania and the Township of Salisbury Code of Ordinances (the "Township"); and

**WHEREAS**, pursuant to the PA First Class Township Code, 53 P.S. § 56401 et seq., the Township is authorized to establish regulations with regards to roadway openings, excavations, curbing and sidewalk installations and repairs activities within public street, alleys or thoroughfare; and

**WHEREAS**, the Township Board of Commissioners believe it would benefit the health, safety, and general welfare of the citizens of the Township to amend certain provisions of Parts 1 and 4 of Chapter 21 of the Salisbury Township Code of Ordinances.

**NOW, THEREFORE, BE IT ORDAINED AND ENACTED**, by the Board of Commissioners of the Township of Salisbury, Lehigh County, Pennsylvania that the Township of Salisbury Code of Ordinances, Chapter 21, Parts 1 and 4 shall be amended in their entirety to read as follows:

**ARTICLE I.** Chapter 21, Part 1 is hereby amended to read as follows:

*Part 1*

**OPENINGS AND EXCAVATIONS**

**§ 21-101 Permit Required.**

*From and after the passage of this Part 1, it shall be unlawful for any person, firm, association, copartnership or corporation to make any opening or excavation in or under any street, alley or other public thoroughfare within the limits of the Township of Salisbury unless and until a permit therefore is secured from the Township for each such separate undertaking, such permit and the application therefore to be on forms prepared, prescribed and furnished by the Township.*

**§ 21-102 Permit Issuance Fee.**

*At the time of making application for the permit for any such opening or excavation, the applicant shall pay to the Township a permit issuance fee, escrow deposit, plus a Road Degradation Fee to be calculated based upon the age of the road surface, as established on the Fee Schedule attached hereto and incorporated by reference herein, and as may be revised from time to time by resolution or ordinance by the Board of Commissioners, for the use of the Township.*

#### **§ 21-103 Application for Permit.**

*The application shall set forth the location and purpose of the proposed excavation, the dates between which the excavation is to be open, the length, width and depth of the trench and the area and type of the roadway surfaces to be removed. The applicant shall agree to protect and defend and indemnify and save harmless the Township and its officers for or on account of any and all injuries or damages to persons or property on public or private property caused by said excavation and/or restoration of same or the materials, equipment or appliances used in such work.*

#### **§ 21-104 Completion of Work.**

*Excavations and road restorations shall comply with construction standards set forth in the Salisbury Township Construction Standards Manual ("Township Standards") a copy of which is attached hereto and incorporated herein by reference.*

#### **§ 21-105 Restoration of Road Surface.**

- 1. The applicant is responsible for restoration of the permanent road surface.*
- 2. At the time the application is made for a permit, the applicant shall pay to the Township a road degradation fee at the established rates based on the age of the road surface and number of square feet of the proposed opening.*

*Should the area of any opening made exceed the area set forth in the application for the permit, the cost of restoring the permanent road surface of the excess area shall be calculated at the rates herein provided and shall be paid by the applicant within 30 days of the restoration of said surface.*

#### **§ 21-106 Failure to Secure a Permit.**

*Failure to secure a permit or conviction under the provision of § 21-109 of this Part 1 shall not excuse any person, firm, association, copartnership, or corporation from restoring the permanent road surface to any area opened contrary to the provisions of this Part 1.*

#### **§ 21-107 Emergency Excavations.**

*In case of an emergency where an immediate excavation may be necessary for the protection of public or private property, the same may be made without application for a permit provided, however, that an application in the regular manner must be made for such excavation within 48 hours thereafter.*

#### **§ 21-108 Provisions for Public Safety.**

*The applicant shall at all times provide for the safety of the public by guard rails where necessary, and by the use of red signs in the daytime and red lights at night.*

#### **§ 21-109 Penalties.**

*Any person, firm, association, copartnership or corporation violating any provision of this Part 1 shall, upon conviction thereof before a District Justice of Salisbury Township, be subject to a fine of not less than \$300 and not*

*more than \$1,000 and in default of the payment of the fine or costs of such prosecution, shall be imprisoned for a period not exceeding 90 days. Each day a violation occurs shall constitute a separate and distinct violation of this Part.*

**ARTICLE II.** Chapter 21, Part 4 is hereby amended to read as follows:

***Part 4***

***CURBING AND SIDEWALKS***

**§ 21-401 Conditions and Provisions for Installation.**

*No person, firm or corporation shall install or cause to be installed any curbing or sidewalks along any public Township Street or along any proposed street that has been dedicated to public use in the Township of Salisbury, Lehigh County, Pennsylvania (the "Township") except in accordance with the provisions and conditions of this Part 4.*

**§ 21-402 Cartways and Road Areas.**

*Every public Township Street and every proposed public street which has been dedicated to public use shall be divided into a cartway or road area in the center thereof with curbing, planting, and sidewalk areas on each side thereof of widths depending upon the overall width of the street right-of-way from property line to property line, as referenced in the Township Standards.*

**§ 21-403 Curbing Specifications and Requirements.**

*All curbing hereafter shall be installed in accordance with the Township Standards.*

**§ 21-404 Sidewalk Specifications and Requirements.**

*All sidewalks hereafter installed in the Township shall be constructed in accordance with the Township Standards.*

**§ 21-405 Permit Required.**

*A property owner may apply for a permit to voluntarily install curbing and/or sidewalks at any time providing the appropriate permit application and fee are received by the Township and the appropriate permit is issued. However, Salisbury Township reserves the right to refuse to issue a curb and/or sidewalk permit in those instances where the cost of design and stakeout is judged to be unreasonably high, or it is judged that the installation of curbing and/or sidewalk would result in no public benefit. Nothing herein would prevent the issuance of a permit if the applicant agreed to pay the total cost for establishing line and grade.*

**§ 21-406 Notice and Inspection of Work.**

*After the excavation has been made and the forms have been set for the pouring of any curbing or sidewalk, the Township Engineer, or his designee, shall be notified so that he may inspect the work before any concrete is poured. No concrete shall be poured until such inspection has been made and approval is given by the Township Engineer, or his designee, to proceed with the pouring. Any curbing and/or sidewalks installed contrary to the provisions of this § 21-406 or of any other provision of this Part 4 is hereby declared to be a nuisance per se and shall, notwithstanding any prosecution being brought under § 21-408 of this Part 4, be removed within 15 days of written notice to do so given by the Township to the owner of the subject property.*

**§ 21-407 Failure to Install or Repair.**

*1. The Board of Commissioners of the Township shall have the right to compel the owner of any private property abutting on any public street or on any proposed public street dedicated to public use in the Township to install curbing and/or sidewalk along said private property, or to repair or replace existing curbing and/or sidewalk which is in need of repair or replacement, in accordance with the terms of this Part 4. Curbing and/or sidewalk shall not be required when a building permit application is received for a lot in an older subdivision or an established neighborhood, except where the installation of curbing and/or sidewalk will result in the extension of curbing and/or sidewalk already existing on an adjacent property or properties or will complete the curbing and/or sidewalk for a block.*

*2. If the owner of such property fails to install, repair or replace such curbing and/or sidewalk, as the case may be, after 30 days' written notice from the Township to do so, the Township shall install, repair or replace such curbing and/or sidewalk and collect the cost of such work and the Township Engineer's charge for establishing the line and grade for such curbing, plus an additional 10% of such cost, from the owner of the property along which the curbing has been installed, repaired, or replaced, said charges to be collectible by the Township in the manner provided by law for the collection of Township claims or by an action in assumpsit.*

**§ 21-408 Penalties.**

*Any person, partnership or partner thereof, or any corporation or officer thereof, who violates any provision of this Part 4 shall, upon conviction thereof before any District Justice in the Township, be sentenced to pay a fine of not less than \$300 nor more than \$1,000, plus costs of prosecution, and in default of payment thereof, shall undergo imprisonment for a period of not more than 90 days. Each day a violation occurs shall constitute a separate and distinct violation of this Part.*

**ARTICLE III.** If any provision, sentence, clause, section, or part of this Ordinance is for any reason found to be unconstitutional, illegal or invalid, such unconstitutionality, illegality, or invalidity shall not affect or impair any of the remaining provisions of this Ordinance. It is hereby declared as the intent of the Township that this Ordinance would have been adopted had such stricken provisions not been included herein.

**ARTICLE IV.** All other Ordinances or parts thereof which are contradictory with the provisions hereof, are repealed to the extent of such inconsistencies.

**ARTICLE V.** This Ordinance shall become effective immediately after its enactment.

**DULY ADOPTED** this 25<sup>th</sup> day of January, 2024, by the Board of Commissioners of the Township of Salisbury, Lehigh County, Pennsylvania, in lawful session duly assembled.

TOWNSHIP OF SALISBURY  
Lehigh County, Pennsylvania

BY: Debra J. Brinton  
Debra J. Brinton, President  
Board of Commissioners

ATTEST:

Cathy Bonaskin  
Township Secretary

## FEE SCHEDULE

## ROAD DEGRADATION

If the applicant seeks to excavate upon a street within seven years after the completion of paving the street, the applicant shall pay a Degradation Fee to the Township based on the following:

Paving Completion Time Frame	Cost Per Square Foot	Minimum Charge
Greater than seven (7) years	\$ 0.00 / square foot	\$ 0.00
Greater than six (6) but less than seven (7) years	\$ 2.00 / square foot	\$ 1,000.00
Greater than five (5) but less than six (6) years	\$ 4.00 / square foot	\$ 2,000.00
Greater than four (4) but less than five (5) years	\$ 8.00 / square foot	\$ 4,000.00
Greater than three (3) but less than four (4) years	\$12.50 / square foot	\$ 6,250.00
Greater than two (2) but less than three (3) years	\$15.00 / square foot	\$ 7,500.00
Greater than one (1) but less than two (2) years	\$18.00 / square foot	\$ 9,000.00
Less than one (1) year	\$20.00 / square foot	\$ 10,000.00

## RIGHT-OF-WAY PERMIT FEES

**Excavation in a Street - \$100 plus escrow**

**Excavation Behind the Curb - \$50 plus escrow**

**Driveway Apron with Curb Cut - \$50 plus escrow**

**Curb Ramp - \$50 plus escrow**

**Sidewalk Repair or Replacement without Curbing - \$50 plus escrow**

**Curbing Repair or Replacement - \$50 plus escrow**

**Zoning Review** (if required) (\$50 residential / \$75 commercial)

## RIGHT-OF-WAY PERMIT ESCROWS

**Excavation in a Street** - \$ 2,000 (up to 100 sf of pavement restoration plus \$10 per each additional sqft)

**Excavation Behind the Curb - \$ 2,000**

**Driveway Apron - w/Curb Cut - \$ 2,000**

**Curb Ramp - \$ 2,000 (\$5,000 if survey work required by Township)**

**Sidewalk without Curbing** - \$2,000 first 50 ft (no survey or cutsheet required) plus \$2 per additional foot or;

\$5,000 first 50 ft (with survey, design, cutsheet) plus \$4 per additional foot

**Curbing** - \$2,000 first 50 ft (no survey or cutsheet required) plus \$2 per additional foot or;  
\$5,000 first 50 ft (with survey, design, cutsheet, inspection) plus \$4 per additional foot

**Note 1.** Escrow amounts are only noted as the initial amount posted. Should escrow need to be replenished, the amount will be determined by the Director of Community Development.

**Note 2.** Any applicant seeking to excavate upon or open a street shall, after obtaining a street excavation work permit, notify the Township at least five (5) days prior to the commencement of any construction, overlay or other work, so that the Township may, at its discretion, have an inspector observe work being performed.

**Note 3.** For the purposes of releasing escrow, the Township will define the "completion" date of the project to be 6 months after the initial restoration of paving inspection. The escrow will be released at "completion" after an inspection of the work to assess any settling that may occurred.

# **SALISBURY TOWNSHIP**

LEHIGH COUNTY, PENNSYLVANIA

## **STANDARD CONSTRUCTION DOCUMENTS**

DECEMBER 2023

Approved and adopted by the  
Salisbury Township Board of Commissioners  
January 25, 2024

## CONTENTS

<b>SECTION A - GENERAL PROVISIONS.....</b>	<b>A-1</b>
ART. 1 - DEFINITIONS .....	A-2
ART. 2 - RESPONSIBILITY OF THE DEVELOPER: .....	A-3
ART. 3 - RESPONSIBILITY OF THE CONTRACTOR: .....	A-3
ART. 4 - PRECONSTRUCTION REQUIREMENTS: .....	A-3
ART. 5 - SCOPE OF OBSERVATION BY THE ENGINEER: .....	A-4
ART. 6 - APPROVALS AND STANDARDS: .....	A-5
ART. 7 - DIFFERING SUBSURFACE AND PHYSICAL CONDITIONS:.....	A-5
ART. 8 - REQUIRED SUBMITTALS: .....	A-6
ART. 9 - SAFETY AND PROTECTION:.....	A-7
ART. 10 - SURVEY .....	A-10
ART. 11 - MATERIAL TESTING: .....	A-11
ART. 12 - RELEASE OF IMPROVEMENTS SECURITY/COMPLETION OF IMPROVEMENTS: .....	A-11
ART. 13 - RECORD AS-BUILT PLANS: .....	A-11
<b>SECTION B - TECHNICAL SPECIFICATIONS.....</b>	<b>B-1</b>
STREETS .....	B-2
CURBING .....	B-12
SIDEWALKS .....	B-14
EXCAVATION.....	B-16
SANITARY SEWERAGE SYSTEM .....	B-22
WATER SUPPLY AND DISTRIBUTION .....	B-31
STORM SEWERS AND APPURTENANCES .....	B-40
TREE PLANTING AND LANDSCAPING .....	B-47
<b>SECTION C - STANDARD CONSTRUCTION DETAILS .....</b>	<b>C-1</b>



The following GENERAL PROVISIONS are to be used for Work within Salisbury Township.

Art. 1 - DEFINITIONS:

CONTRACTOR - The term "Contractor" shall in every case be held to mean the individual, co-partnership or corporation performing the Work of the project for the Developer.

DESIGN ENGINEER - The Engineer responsible for preparation of the plans for the Developer.

DEVELOPER - The Developer, where referred to in these Specifications, shall be the individual, partnership, corporation, or other entity, undertaking the improvement of property within the Township pursuant to the Subdivision and Land Development Ordinance, Zoning Ordinance, or any other Ordinance for the Township of Salisbury governing public improvements.

DOCUMENTS - These General Provisions, Technical Specifications and Standard Construction Details for the Township.

ENGINEER - The term "Engineer" shall be held to mean the Township Engineer, acting directly or through duly authorized representatives, such representatives acting within the scope of the particular duties and authority assigned to them by Salisbury Township.

The term "Engineer" may also be held to mean such other person, persons or authority as may hereafter be appointed to succeed to the functions, duties and employment herein specified to be performed by the said Engineer.

GEOTECHNICAL ENGINEER - The Geotechnical Engineer shall be the Geotechnical Engineer advising the Township on geotechnical issues.

HAZARDOUS ENVIRONMENTAL CONDITION - The presence at the site of Asbestos, PCB's, Petroleum, Hazardous Waste, Radioactive Material, Sinkholes, etc.

OBSERVER - An authorized representative of the Engineer assigned to make observations of the Work performed or being performed. The Observer is not authorized, and the Contractor shall not rely upon the Observer, to assume any responsibility for the Contractor's means, methods, techniques, sequences, and safety of construction.

PLANS - The plans or drawings of a subdivision, land development or plot plan as approved by the Township for substantial compliance with the applicable Ordinances, Regulations, etc.

SHOP DRAWINGS - All drawings, diagrams, illustrations, brochures, schedules, and other data which are prepared by the Contractor, a Subcontractor, manufacturer, supplier or distributor, and which illustrates the equipment, material or some portion of the Work.

TOWNSHIP – Salisbury Township.

WORK - Any and all obligations, duties, and responsibilities necessary to the successful completion of the project undertaken by a Contractor which shall include such obligations, duties, and responsibilities not only of the Contractor, but also of each and every Subcontractor.

Developer and approved by the Township Solicitor's office;

3. The Contractor shall submit to the Township and Engineer a preliminary progress schedule indicating the starting and completion dates of the various stages of the Work, and a schedule of shop drawing submissions. The Contractor shall provide a minimum of 48 hours' notice to the Engineer for observation of work;
4. If, in the opinion of the Engineer, the Work is of such complexity to require a Preconstruction Conference, such a conference will be held to review the above schedules, to establish procedures for handling shop drawings and other submissions, processing escrow release requests, and to establish a working understanding between the parties as to the project. The conference is to be attended by an authorized representative of the Developer, Contractor, his superintendent, and others as appropriate, and by the Engineer and Township as deemed necessary by the Township. Additionally, as Work continues, if in the opinion of the Engineer or Township that job progress meetings are necessary, these meetings are to be attended by the Contractor and Developer;
5. Copies of all permits and easements necessary to execute the Work must be provided to the Township and Engineer.

**Art. 5 - SCOPE OF OBSERVATION BY THE ENGINEER:**

- A. General observation of the construction of the Work, including but not limited to proposed water, sanitary, and storm sewerage systems, streets, overall grading, traffic signals, etc. shall be performed to the extent deemed necessary by the Engineer given the scope of the Work. Accessory to this observation is the review of all grade sheets, catalog and shop drawing submittals, processing of improvements security release requests, required surveying, etc. The Engineer shall not have the authority to stop the Work; that authority is reserved to the Township and Developer/Contractor;
- B. Any Work done or materials installed without proper notification of the Engineer for observation may be ordered removed or replaced by the Township;
- C. The Engineer will coordinate with Township staff personnel regarding their observation of the planting of shade trees, buffer strip landscaping, etc.;
- D. For Work along any State Routes, the Contractor shall meet with PENNDOT to identify the scope of PENNDOT construction observation and shall comply with PENNDOT standards for undertaking such work including safety procedures.

## **Art. 8 - REQUIRED SUBMITTALS:**

- A. The Contractor shall review, stamp with its approval and submit, an electronic copy of all material lists, catalog submissions, shop drawings, pipe certifications, concrete and asphalt mix designs, and samples for improvements as proposed by the Plans. All submittals should be properly identified. At the time of submission, the Contractor shall inform the Engineer in writing of any deviation in the submittals from the requirements of the Plans.

Mix design information for all materials used in constructing streets shall be submitted to and reviewed by the Engineer prior to the delivery of the materials on the project. PENNDOT pre-approval of these mix designs is required. A certification, by type and class, shall be provided to the Engineer to show that all pipe to be used on the project conforms to these Documents.

By approving and submitting shop drawings and samples, the Contractor thereby represents that it has determined and verified all field measurements, field construction criteria, materials, catalog numbers and similar data, or will do so, and that it has checked and coordinated each shop drawing and sample with the requirements of the Work and of the approved plans.

No portion of the Work requiring a shop drawing or sample submission shall be commenced until the submission has been reviewed by the Engineer. All such portions of the Work shall be in accordance with reviewed shop drawings and samples, and no release of security for any improvement will be made until all required documentation has been supplied.

The Engineer's review is only for general conformance with the Township Standards and general compliance with the information given in the Plans. The Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to the means, methods, techniques, sequences, and procedures of construction; and for coordination of the Work of all trades. Review of catalog submissions or shop drawings by the Engineer in no way relieves the Developer or Contractor from their responsibility to complete all work in accordance with these Documents. Any risk of error or omission or liability resulting therefrom is entirely assumed by the Developer and/or Contractor.

- B. For improvements included in the Work where delegation of professional design services are required by the Plans (e.g., retaining walls, box culverts, etc.) or where the Contractor is proposing an alternative to the Work shown on the Plans, the Calculations and Shop Drawings or plan revisions submitted must be signed and sealed by the design engineer responsible for their preparation. In addition, the Calculations and Shop Drawings or plan revisions submitted must be annotated by the Design Engineer to indicate that they have "Approved" the Calculations and Shop Drawings or plan revisions as being in compliance with the design as shown on the Plans.

- E. Maintenance and Pavement Marking and Traffic Signage - The scope of the Work may require the removal or temporary alteration of existing pavement marking and traffic signage. The Contractor shall maintain proper traffic control at all times (day and night) and provide temporary lighting of traffic signage in the event permanent lighting systems are removed or destroyed. The Contractor shall immediately re-establish all pavement markings and traffic signage destroyed, temporarily removed or obscured as a result of the Work.

The Contractor shall maintain traffic and protect the public from all damage to persons and property within the limits of the Work and for the duration of the Contract Period and as a minimum in accordance with the Plans. The Contractor shall furnish and erect all necessary signs, barricades, and bridging, and provide for the adequate lighting of all signs, barricades, and points of special hazard. The Contractor shall be responsible for settling all claims arising from failure on its part to adequately protect vehicular and pedestrian traffic.

The Contractor shall provide temporary bridging and plating in the event the traffic lanes are damaged or altered. Permanent construction of the traffic lanes shall be completed as soon as possible by the Contractor. The Contractor shall provide necessary pavement marking at temporary bridging and plating.

In order to minimize hazard and inconvenience, excavation in driveway areas shall be commenced only after receipt and review by the Engineer of all materials required to complete the particular installation.

No trench shall be allowed to remain partially or totally open overnight without proper signs, barricades, and temporary lighting. Traffic lanes shall be identified, marked, and maintained at all times.

It shall be the duty of the Contractor during the progress of the Work to maintain crossings, walks, and roadways open to traffic in a satisfactory condition, and to keep all fire hydrants, water valves, and fire alarm boxes accessible for use. The Contractor shall continually patrol the project area throughout the Contract Period to detect the existence of trench subsidence or other conditions resulting from its Work which constitute hazards to the public and it shall immediately remedy all such unsafe conditions. It shall not await notification from the Engineer or the Developer that hazardous conditions exist before acting to correct same.

In the event a road closure and detour is planned, a Detour Plan meeting all applicable requirements related to signs, sign locations, sign durations, etc. must be prepared by a Professional Engineer licensed in the Commonwealth of Pennsylvania, and certified as to compliance with PENNDOT Publication 213, and Federal Highway Manual for Uniform Traffic Control Devices. The Detour Plan shall be submitted to the Township for review prior to implementation;

**Art. 10 - SURVEY:**

- A. The Developer shall provide engineering surveys to establish reference points for construction which in the Engineer's judgment are necessary to enable the Contractor to proceed with the Work and to enable the Engineer to confirm its installation in accordance with the Plans. The Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior approval of the Engineer;
- B. All survey and grade control will be the responsibility of the Developer through its engineer and/or Contractor;
- C. Easements for storm drainage facilities and utilities, property lines adjacent to detention basins or other locations as may be required by the Engineer, shall be visibly staked prior to construction;
- D. Grade sheets for waterline, sanitary sewers, storm sewers, swales, etc. shall be submitted for review a minimum of three days before construction. The Developer is responsible for the accuracy thereof,
- E. The Observer will "spot-check" points during construction, as may be necessary. If necessary, the Observer may request the Engineer Survey Department to verify locations. Municipality costs of surveying checks will be treated as an observation charge to the Developer;
- F. The Developer shall have the basin construction baseline and the controlling site features staked, and shall set grade stakes for the bottom of the basin and the top of berm. Following the Developer's grading operations for the detention basin and prior to placement of the basin liner and topsoil, the Engineer will complete a preliminary basin as-built survey and volume calculations to verify that the basin location and volume generally conform to the approved plans. If applicable, prior to placement of topsoil and seeding, permeability/density test results of the liner material should be furnished to both the Township and Engineer by the Developer to confirm the limiting permeability is achieved, or a Certification as to the acceptable installation of the geotextile basin liner shall be provided by the liner manufacturer.

Upon completion of topsoiling and seeding, a final basin survey will also be completed by the Engineer. Basin surveys will be treated as an observation charge.

5. Traffic Improvements: Signal equipment, signs, striping, depressed curbs, etc. shall be noted on the plan;
6. Other Underground Utilities: Location and depth of sanitary sewerage system, electric, telephone, cable TV, and gas lines within the rights-of- way. Any encasement of the above utilities should be identified and the utility location and depth should be shown;
7. Abandoned utilities should be identified by a note and by drawing a line through the original location data.

SALISBURY TOWNSHIP  
TECHNICAL SPECIFICATIONS

STREETS

Materials and Construction

All materials and construction methods used in the construction of streets shall meet the requirements as set forth in Pennsylvania Department of Transportation (PENNDOT) Specifications, Publication 408 except as specifically modified by the requirements herein and except that the use of any type of slag material is prohibited.

EXCAVATION:

It is required that the Developer maintain all areas in a well-drained condition during the construction period so as to avoid pooling or ponding of water. If a sinkhole should develop during construction, the Developer shall immediately repair the sinkhole at its expense alone and in accordance with the following:

Upon detection of a sinkhole, the Developer or its Contractor shall notify the Township, contact its own geotechnical engineer who shall propose a repair solution and have that procedure reviewed by the Geotechnical Engineer. The Developer's geotechnical engineer and the Geotechnical Engineer shall monitor the repair in accordance with the reviewed procedure and upon completion of the repair and before any construction activity resumes in the area, the Developer's geotechnical engineer shall send a written report to the Township and to the Geotechnical Engineer that the sinkhole has been repaired in accordance with the reviewed procedure and that construction activities may continue.

Undercutting. Rock, shale, hardpan, loose rock, boulders, or other material unsatisfactory for lawns, fields, subgrades, roads, shoulders, or any areas intended for turfing shall be excavated to a minimum depth of 12 inches, or to the depth below subgrade as specified by the Developer and its geotechnical engineer and acceptable to the Geotechnical Engineer. Muck, peat, matted roots, or other yielding material, unsatisfactory for subgrade foundation, shall be removed to the depth designated by the Geotechnical Engineer. The excavated area shall be refilled with suitable material, obtained from the grading operations or borrow areas and thoroughly compacted by rolling. The necessary refilling will constitute a part of the embankment. Where rock cuts are made and refilled with select material, any pockets created in the rock surface shall be provided with proper drainage.

Compaction Requirements. In cut areas, the upper six inches of the subgrade material under areas to be paved shall be compacted to a density of not less than 98 percent of maximum density for cohesive soils or 100 percent of maximum density for non-cohesive soils as determined by the Standard Proctor Density Test (AASHTO T 99 - Method C).

The in-place field density shall be determined in accordance with AASHTO T 191, Sand Cone Method, or AASHTO T 310, Nuclear Method.

No layer in an embankment area shall be covered by another until the proper density is obtained.

During construction of the embankment, the Contractor shall route its equipment whenever practical, both when loaded and when empty, over the layers as they are placed and shall distribute the travel evenly over the entire width of the embankment. The equipment shall be operated in such a manner that hardpan, cemented gravel, clay, or other chunky soil material will be broken up into small particles and become incorporated with the other material in the layer.

When the excavated material to be used in the embankment consists predominantly of rock fragments of such size that the material cannot be placed in layers of the prescribed thickness without crushing, pulverizing or further breaking down the pieces, such material may be placed in the embankment in layers not exceeding two feet in thickness. Each layer shall be leveled and smoothed with suitable leveling equipment and by distribution of spalls and finer fragments of rock. This type of lift shall not be constructed above an elevation four feet below the finished subgrade. Density requirements will not apply to portions of embankments constructed of materials which cannot be tested in accordance with specified methods. Methods based on performance criteria established from test sections shall be used where the fill gradation does not accommodate traditional in-place density measurements. These procedures establish a performance criterion with test strips consisting of lifts of fill placed in various thickness and number of passes with the compaction equipment. The Developer's engineer shall establish acceptable placement and compaction criteria based on the test strips, as reviewed by the Township.

FINISHING AND PROTECTION OF SUBGRADE. After the subgrade has been substantially completed, the full width shall be conditioned by removing any soft or other unstable material which will not compact properly. The resulting areas and all other low areas, holes or depressions shall be brought to grade with suitable select materials. Scarifying, blading, rolling and other operations shall be performed to provide a thoroughly compacted subgrade shaped to the lines and grades shown on the Plans.

Grading of the subgrade shall be performed so that it will drain readily. The Contractor shall take all precautions necessary to protect the subgrade from damage. Hauling over the finished subgrade is prohibited. All ruts or rough places that develop in a completed subgrade shall be smoothed and recompact.

No subbase, base, or surface course shall be placed on the subgrade until the subgrade has been reviewed by the Engineer and/or the Geotechnical Engineer, as applicable.



- (5) When excavation of an existing Township street is necessary, it shall be done in accordance with requirements of the Township; i.e., the Road Opening Permit.

c. Within proposed streets the backfill shall consist of:

- (1) A proper bedding of granular material properly formed to fully support the entire length of pipe;
- (2) Clean clay or PENNDOT No. 2A stone for initial backfill of the sides and for 12 inches above the pipe. For HDPE and PVC pipe, only PENNDOT No. 2A shall be used to 12 inches above the pipe, which envelope shall be maintained throughout the construction period and shall not extend into subbase materials for roadways;
- (3) Approved material free from organic matter, large or frozen lumps or stones over ten inches in their largest dimensions. Stones which are used in backfilling shall be so distributed through the mass that all interstices are filled with fine material.

The material shall be moistened or dried, if necessary, to obtain the required compaction. Backfill material shall be reviewed by the Engineer. The use of slag in any form for bedding or backfill is prohibited. Special care shall be taken in placing the backfill. Particular care shall be used to obtain thorough compaction under the haunches and along the sides to the top of the pipe.

All backfill shall be placed in loose layers not exceeding six inches in depth under and around the pipe, and not exceeding eight-inch lifts over the pipe. Successive layers shall be added and thoroughly compacted by hand and pneumatic tampers until the trench is completely filled to the elevation as directed. Backfilling shall be done in such a manner as to avoid injurious top or side pressures on the pipe.

Underground warning tape shall be installed a minimum of two feet above any pipe in the backfill of any mainline or lateral trench. Tape shall be alkali resistant, 4 mils polyethylene, 4 inches minimum width, continuously printed with name or symbol of utility buried below, color coded as follows:

Red: Electric.

Yellow: Gas, oil, and dangerous materials.

Orange: Telephone, cable TV, and other communications.

Blue: Water systems.

Green: Sewerage systems.

- (3) Bituminous wearing course shall not be placed when the air temperature is 40 degrees F or lower, nor when the temperature of the base or binder on which it is to be placed is 40 degrees F or lower;
- (4) Extra precautions shall be taken in drying the aggregate to be used in the mix, controlling the temperature of the delivered material, and compacting the mixture;
- (5) Bituminous wearing course shall not be placed if, on the date preceding placement, it rained or snowed, and the temperature fell below freezing during the previous evening;
- (6) Bituminous wearing course shall not be placed after November 15 without a written request from the Developer and the subsequent express written consent of the Township Manager and Engineer.

### 3. Extents of Roadway Restoration

- a. If the street opening is within 36 inches of the center of the roadway, the entire roadway width is to be overlayed, extending 5 feet beyond the extents of excavation on either side of the trench.
- b. If the street opening is not within 36 inches of the center of the roadway, overlay of a single lane of traffic is acceptable in most cases, extending 5 feet beyond the extents of excavation on either side of the trench.

**SHOULDERS:** Where applicable, the shoulder shall consist of the same pavement structure as the cartway.

**UNDERDRAIN:** Pipe underdrain shall meet the requirements of PENNDOT Specifications, Publication 408, Section 610 and be reviewed by the Engineer. The inside diameter of pipe shall be six inches, unless otherwise shown on the approved plans.

**NOTIFICATION:** No connections shall be made to existing Township streets without prior approval and without three working days advance notice to the Township to allow for scheduling of Township observation personnel.

**TRAFFIC SIGNAL EQUIPMENT:** The Developer and its Contractor shall follow all applicable signalization system design and installation standards and codes including but not limited to standards and codes of IEEE, ASTM, ANSI, International Municipal Signal Association (IMSA), Institute of Traffic Engineers (ITE), and PENNDOT, and shall bear the label of approval of the National Board of Fire Underwriters and Laboratory where applicable. New, first-quality, PENNDOT approved materials, made by a manufacturer of established recognized reputation, shall be furnished, and used unless otherwise specified. The Contractor shall follow PENNDOT Publication 408, Sections 930-936, 950-957, 960-966, 1101, 1103, and 1104, as well as Title 67 Chapter 221, Publication 148 (TC-7800), Publication 149, Publication 236, and Publication 111 (TC-8700).

slope protection walls, connected to the top of the foundation, shall be provided. Slope protection wall designs prepared by a Pennsylvania Registered Professional Engineer shall be submitted to the Engineer for review prior to construction. Abandoned Signal Foundations shall be removed to a depth of 1' below final grade, and the existing ground shall be restored in the area of the foundation to provide a uniform level surface. The area disturbed by removal shall be restored to match the adjoining undisturbed area.

Signal Heads. All Vehicular and Pedestrian Signal Head indications shall contain the following Dialight modules, or equivalent:

8" Red: 433-1110-003	12" Yellow: 433-3230-001
8" Yellow: 433-3130-001	12" Green: 433-2220-001
8" Green: 433-2120-001	12" Yellow Arrow: 430-3334-001
12" Red: 433-1210-003	12" Green Arrow: 430-2374-001

The pedestrian signal heads shall have Portland Orange and Lunar White LED indications representing the 'Hand' and 'Walking Person', respectively, manufactured by an approved PENNDOT supplier. All vehicular and pedestrian signal improvements shall be contained in a polycarbonate housing manufactured by PEEK traffic. Back plates, visors, and louvers shall be provided as indicated on the permit plans. Signal heads shall be securely mounted, using signal mounting brackets, where indicated, and in accordance with the regulations. Signal heads shall be installed over roadways with the top of the housings at the same elevation. Where vehicular and pedestrian signals are to be installed on the same support, the assemblies should be separated. Vehicular signal heads shall be aimed, as directed, toward a point approximately 150 feet in advance of the stop line and in the center of the traveled traffic approach. Pedestrian signals shall be aimed to the far side of the crosswalk they are to control. Signals shall be hooded securely with burlap material until the signal is put into operation.

Electrical Distribution. The Contractor shall coordinate with the local power company to obtain metered power for each traffic signal controller cabinet. All meter equipment shall be housed in the Small Single Door Enclosure.

Conduit runs shall be sized for future use. All conduit street crossings will be 3" conduit. Controllers should be located at the intersection of conduit runs, and not at the end of a conduit loop. Each controller foundation or pole foundation (if the controller is pole mounted) will have the equivalent of two 3" conduits entering it from an adjacent junction box. Multiple conduit runs between common terminals shall be installed in a common trench. All effort shall be made to install conduits prior to construction of final grade (i.e., driveways, road widening, et al.). All loops will terminate in junction boxes, and there will be at least one junction box on each corner.

Detection. Pedestrian Push Buttons shall be as manufactured by General Traffic Equipment Corp. Model PB-3-1000. Detector Lead-In cable shall be IMSA Spec No. 50-2, 14 AWG. Detector Loop wires shall be IMSA Spec. No. 51-5, 14 AWG. Loop Amplifiers shall be Intersection Development Corporation Model 913A/913A-SS, Single Channel Digital Inductive Loop Vehicle Detectors. Equivalent models may be considered by the Township.

SALISBURY TOWNSHIP  
TECHNICAL SPECIFICATIONS

CURBING

GENERAL: All materials and construction methods used in the construction of curbing shall meet the requirements as set forth in Pennsylvania Department of Transportation (PENNDOT) Specifications, Publication 408 except as specifically modified by the requirements herein.

Curbing shall be plain cement concrete vertical curb having a height of twenty-one inches (21") and tapering from a top width of six inches (6") to a base width of eight inches (8"), with a front face batter of one in twelve, and conforming to the requirements of Section 630 of PennDOT Publication 408 and RC-64 of the PennDOT Standards for Roadway Construction. A six inch (6") exposed curb reveal shall be used on all Township roads, unless otherwise directed by the Township Engineer.

Materials

CONCRETE: Concrete shall meet the requirements of PennDOT Publication 408, latest editions, Section 704 for Class A Cement Concrete. No concrete shall be mixed or placed when the air temperature is below 40°F. Cold and hot weather curing methods shall be used when required by the Township Engineer.

Construction

SUBGRADE: The subgrade shall be substantially dry, unfrozen, firmly compacted soil. Thorough compaction shall be attained by using an approved pneumatic compactor or self-contained compactor, capable of delivering a minimum of 800 to 1,000 pounds at the shoe.

BASE: A stone bed shall be placed thoroughly compacted to a depth of four inches (4") using the above-mentioned compactors. The stone shall be 2B subbase material.

FORMS: Forms shall be made of approved substantial material, preferably of steel, and shall be smooth, free of warp, and sufficiently rigid and supported to prevent misalignment. These forms shall be of a depth equal to that of the proposed curb. Prior to pouring the concrete, all forms and templates shall be thoroughly cleaned and treated with an approved material to prevent the concrete from adhering thereto. Material which will adhere to or discolor the concrete shall not be used.

POURING: Curbs shall be carefully poured without segregation of constituents, tamped and screeded true to grade and section, eliminating all voids. Sufficient mortar shall be brought to the surface for finishing in a smooth, neat, and even manner using approved tools.

JOINTS: Each curb section shall be constructed in lengths of ten feet (10'). In no case shall a section be less than five feet (5') long. Each section shall be separated when pouring by a 1/8-inch steel template equal to the full depth of the curb.

SALISBURY TOWNSHIP  
TECHNICAL SPECIFICATIONS

SIDEWALKS

GENERAL: All materials and construction methods used in the construction of sidewalks shall meet the requirements as set forth in Pennsylvania Department of Transportation (PENNDOT) Specifications, Publication 408 except as specifically modified by the requirements herein.

Materials

CONCRETE: Concrete shall meet the requirements of PennDOT Publication 408, latest editions, Section 704 for Class A Cement Concrete. No concrete shall be mixed or placed when the air temperature is below 40°F or above 90°F. Cold and hot weather curing methods shall be used when required by the Township Engineer.

Construction

SUBGRADE: The subgrade shall be substantially dry, unfrozen, firmly compacted soil. Thorough compaction shall be attained by using an approved pneumatic compactor or self-contained compactor, capable of delivering a minimum of 800 to 1,000 pounds at the shoe.

BASE: A stone bed shall be placed and thoroughly compacted to a depth of six inches (6") using the above-mentioned compactors. The stone shall be PennDOT 2A subbase material.

FORMS: Forms shall be made of approved substantial material, preferably of steel, and shall be smooth, free of warp, and sufficiently rigid and supported to prevent misalignment. These forms shall be of a depth equal to that of the proposed curb. Prior to pouring the concrete, all forms and templates shall be thoroughly cleaned and treated with an approved material to prevent the concrete from adhering thereto. Material which will adhere to or discolor the concrete shall not be used.

POURING: Sidewalks shall be carefully poured without segregation of constituents to a full depth (see details) and screeded true to grade and sections, eliminating all voids. Sufficient mortar shall be brought to the surface for finishing in a smooth, neat, and even manner using approved wood floats.

All sidewalks shall be poured to a depth of five inches (5"). All driveway aprons shall be poured to a depth of six inches (6") and reinforced the full length and width of the apron with a 6"x6" #6 wire mesh (see details).

SALISBURY TOWNSHIP  
TECHNICAL SPECIFICATIONS

EXCAVATION

GENERAL: The contractor shall perform the complete excavation of all types of materials and all characters of substance encountered in the installation of all pipelines and any demolition, together with all necessary and specified appurtenances. The Contractor shall, at his own expense, shore or otherwise protect all structures adjacent to any excavation which may be disturbed during the progress of work.

CLEARING AND STRIPPING UTILITY TRENCHES: In lawn areas, the Contractor shall strip topsoil and store the removed topsoil for placement during final restoration. Topsoil shall be stockpiled at an approved location, temporarily seeded, and protected to prevent erosion and sediment from leaving the surface area.

Where trenches to be excavated are in private rights-of-way containing trees, shrubs or any manmade structures, the Contractor shall inquire of the Property Owner and Township concerning the extent to which such obstacles to trenching can be cleared or stripped before proceeding. All other removal or damages made shall be replaced and restored at the Contractor's expense. No tree trimming or cutting of any trees from the project area will be allowed without the written approval of the Property Owner and Township.

WIDTH OF TRENCH: Utility trenches shall be sufficiently straight between manholes to permit the pipe to be laid true to line in the approximate center of the trench. The trench widths below the top of the pipe when laid to the required grade shall be such as to provide a free working space on each side of the pipe as shown on the details which are a part of these specifications. Where sheeting and shoring are used, the maximum allowable width shall be measured between the closest interior faces of the sheeting or shoring as placed. The overall width of the excavating bucket shall not exceed the maximum allowable trench width.

Whenever, for any reason, the maximum allowable trench width is exceeded at the top of the pipe, the Contractor shall, at his expense, employ one or more of the following procedures:

- a. The pipe shall be bedded in a cradle of flowable fill having a minimum thickness of one-fourth the inside pipe diameter or a minimum of six inches (6") under the barrel and extending up the side for a height equal to one-half the outside diameter. The cradle shall have a width at least equal to the outside diameter of the pipe barrel plus eight inches (8"). Backfill above the cradle and extending to two feet (2') above the crown of the pipe shall be compacted carefully.
- b. Install permanent sheeting and shoring while the pipe is being installed with the backfill placed and compacted to a height of at least one foot (1') above the top of the pipe.

**SHEETING AND SHORING:** The Contractor must support the sides and ends of all excavations wherever necessary with timber sheeting, sheet piling, braces, shoring and stringers. It shall be of sufficient strength to serve the purpose for which it is intended. Sheeting and shoring shall be installed and securely braced in position to prevent cave-ins, slips or washouts and to adequately protect life and property. Determination of the type, strength, and spacing of the sheeting or shoring shall be withdrawn and removed as the work progresses, except where damage may result by thorough removal. The right of the Township to order sheeting, etc., left in place, shall not render the issuance of such orders obligatory on the part of the Township. All sheeting shall be arranged so that it may be withdrawn as the trenches are backfilled, without injury to the pipe and its appurtenances and without injury to or settlement of adjacent structures, pavement, and other public or private property. Sheeting shall not extend to the bottom of the trench but only to the top of pipe unless soil conditions require otherwise.

All voids caused by withdrawal shall be immediately filled with sand or other satisfactory material and compacted by ramming or other methods. All sheeting left in place shall be cut off at least one foot (1') below the finished grade.

**ROCK EXCATATION:** The term "rock" shall mean any material which cannot be excavated except by drilling and blasting, drilling and wedging, or by hand methods, such as jackhammers, hydraulic hammers, or by other approved methods, or if one-half (1/2) cubic yard or more in volume. Foundations of concrete, brick, or stone laid in cement mortar will be classified as rock if the volume at any single location exceeds one-half (1/2) cubic yard. Any material, other than the above specified, will not be classified as rock. No soft or disintegrated rock removed with pick or sledgehammer, nor any ledge or single boulders under one-half (1/2) cubic yard in volume; no loose, shaken, or previously blasted rock, nor broken stone in rock filling will be considered as rock.

If rock below the specified grade is shattered due to excessive blasting, and if, in the opinion of the Geotechnical Engineer it is unfit for foundation, such shattered rock shall be removed, and the area backfilled to the proper subgrade with PennDOT 2A Crushed Limestone, Class B Concrete, or other material acceptable to the Geotechnical Engineer, at the expense of the Contractor.

**USE OF EXPLOSIVES:** The Contractor shall at all times exercise the utmost care in the use of explosives so as not to endanger life or property and shall at all times comply with Title 25, "Rules and Regulations for the Storage, Handling, and Use of Explosives", as set forth by the Pennsylvania Department of Environmental Resources.

Explosive materials shall be stored as directed by the Department of Environmental Protection, and these shall at all times be made accessible for inspection by representatives of the Department of Environmental Protection. The Contractor, prior to initiation of any drilling or blasting operations, shall thoroughly familiarize himself with all Federal, State, County, Local, and private laws, ordinances, rules, and regulations pertaining to the use and storage of explosives and methods of drilling. Under no conditions shall detonating devices, firing caps, priming cord, etc. be stored or transported in proximity to explosive materials.

The conduct of all blasting operations shall be under the direct control and supervision of a competent and responsible person who is an experienced blaster, licensed and approved by the

consists of sand or silt containing less than 20 percent by weight of particles passing the No. 200 mesh sieve, a minimum dry density of 100 percent of the maximum density will be required.

- c. All backfill shall be thoroughly compacted through the use of mechanical or vibratory tampers. Compaction of each layer shall not be less than 98% maximum density at optimum moisture control over the entire area. Backfilling shall be placed in a manner so as not to damage or disturb the pipe or other structures.
- d. All utility trenches shall be backfilled with select material and shall be properly compacted with approved mechanical tampers to a minimum compaction of 98%. Compaction testing is required and shall be performed as determined by the Township Engineer. All unsuitable or unstable material shall be replaced with suitable backfill material.
- e. Prior to construction of the bituminous concrete wearing course, all trench settlement areas shall be excavated to the depth of the unconsolidated or unacceptable backfill material, as determined by the Township Engineer. The excavated areas shall be backfilled with crushed stone material compacted in maximum lifts of six inches (6") to a minimum compaction of 98%, after which the base course shall be replaced.
- f. All trenches backfilled with earth shall be allowed to settle for at least 180 days before the permanent base course or pavement may be constructed.
- g. In unimproved or lawn areas located outside of the Township right-of-way, or as directed by the Township, the trench shall be backfilled with 2A stone material and be extend to a point one foot (1') above the top of the utility line or pipe, compacted in eight inch (8") layers. After placement of the initial backfill, the remainder of the trench shall be completed by filling the trench with suitable excavated material, machine-compacted in layers not more than one foot (1') in depth. No rock larger than six inches (6") in diameter will be permitted in the backfill material.
- h. Within the Township Roads or Township right-of-way, or paved/improved areas, upon proper installation and compaction of the bedding, pipe and envelope material the trench shall be two inches (2") of compacted bituminous stockpile patching material (cold patch) or with bituminous base course, as may be directed by the Engineer. After 90 days of settlement time, cold patch, if used, and backfill material shall be removed and the trench shall be sawcut an additional one foot (1') beyond the initial cut and paved in accordance with Township Specifications. If base course is used on the initial trench restoration, then the trench, plus one (1) additional foot on either side of the trench, shall be milled and the wearing course installed. If bituminous wearing course is not constructed within two years after the base course is completed. The maintenance period for the roadway shall be extended to three years.
- i. All work within the State right-of-way shall be done in accordance with the Highway Occupancy Permit and inspected by representatives of PennDOT. The Contractor shall notify PennDOT seventy-two (72) hours in advance of any anticipated work within State right-of-way.



SALISBURY TOWNSHIP  
TECHNICAL SPECIFICATIONS  
SANITARY SEWERAGE  
SYSTEMS

GENERAL: All materials and construction methods used in the construction of sanitary sewers and appurtenances shall meet the requirements as set forth in Pennsylvania Department of Transportation (PennDOT) Specifications, Publication 408 except as specifically modified by the requirements herein, and except that the use of any type of slag material is prohibited.

Materials

**PIPE FOR GRAVITY SEWERS:** All gravity sanitary sewers shall be:

1. Ductile iron pipe, Class 50 metal thickness; or
2. Polyvinyl chloride pipe (PVC) for 15 inch (15") diameter or smaller pipe only;
3. Other material, as reviewed by the Engineer/Township.

All PVC pipe to be installed for gravity sewers less than fourteen feet (14') deep shall conform to ASTM D3034, SDR-35, and for sewers between fourteen feet (14') and twenty-four feet (24') in depth shall conform to ASTM D3034, SDR 26. Sewers greater than twenty-four (24') in depth shall be ductile iron. The entire run, from manhole to manhole, shall be constructed in accordance with the type of pipe required for the maximum depth of the entire run. Standard pipe length shall be twelve and a half feet (12 ½') for eight inch (8") and larger diameter pipe and ten feet (10') for six inch (6") diameter pipe.

PIPE FOR PRESSURE SEWERS: All pressure sewers shall be material as reviewed by the Engineer/Township.

PIPE JOINTS: All ductile iron pipe joints shall be of the push-on type and shall conform to ANSI A21.11 (current issue). All PVC pipe joints shall be of an integral bell design with a rubber gasket joint which conforms to ASTM D 3212 – Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals – and ASTM F 477 – Elastomeric Seals (Gaskets) for Jointing Plastic Pipe.

MANHOLES: Manholes shall be constructed of precast concrete sections, including grade rings, eccentric cones, riser sections, and/or flat slab top sections conforming to ASTM C 478 Standard Specifications for Precast Reinforced Concrete Manhole Sections. Manhole base shall be cast-in-place. Precast concrete bases may be permitted subject to the approval of shop drawings for the manholes by the Engineer/Township. In general, after tamping the excavated area, a leveling course of nine inches (9") of compacted PennDOT No. 2A stone, shall extend to the walls of the excavation beneath the precast manhole base. If the installation of the precast bases does not meet the approval of the Engineer/Township, further use will be prohibited.

EXCAVATION: Refer to Excavation Section

BEDDING: Unless otherwise directed by the Engineer/Township, all pipe to be installed, including that which is laid on an eight-inch (8") cushion in areas of rock excavation, shall bear the full length on firm, flat compacted PENNDOT No. 2A stone bedding which is properly shaped to receive the pipe configuration at the joints. The bedding and initial backfill around the pipe shall be placed as follows:

1. For ductile iron pipe - minimum compacted thickness of four inches beneath the pipe;
2. For PVC pipe - when compacted the granular bedding shall extend from a minimum of four inches (4") beneath the pipe to a minimum of twelve inches (12") over top of the pipe.

Wherever the Geotechnical Engineer may deem it necessary, the pipe shall be laid on a concrete pad or cradle of sufficient size to span areas of unsatisfactory bearing.

LAYING AND INSTALLING PIPE: Pipe shall be laid to true alignment and regular grade. Before the pipe is laid, all dirt shall be removed from inside the pipe and all lumps, blisters, dirt, oil, grease and moisture shall be removed from inside and outside the ends. After the pipe is laid, care shall be taken to prevent the entrance of dirt or water from the trench. Every open end of a pipe or fitting shall be plugged before leaving the work for the day or before backfilling the trench. Plugs shall be on the site before the Contractor commences construction of the pipeline.

Installation methods for PVC pipe shall be in accordance with Uni-Bell UNI-B-5, Recommended Practice for the Installation of PVC Pipe and the Uni-Bell Plastic Pipe Association Handbook of PVC Pipe.

Cutting of pipe for closure pieces, or other reasons, shall be done in a neat and workmanlike manner by a method which will not damage the pipe. All such cutting of pipe shall be done in conformance with the manufacturer's recommendations.

The Engineer/Township may inspect all pipe before it is laid, and reject any section that is damaged by handling or is found to be defective to a degree which will materially affect the function and service of the pipe.

Pipe shall not be laid on frozen ground. Pipe which is not true in alignment, or which shows any settlement after laying, shall be taken up and re-laid.

The Contractor shall provide for the temporary diversion of stream flow, as may be necessary and where approved by the Department of Environmental Protection, in order to permit the installation of the pipe under dry conditions.

DEWATERING: Any water which collects in an excavation shall be removed by the Contractor before proceeding with the construction of the pipe line or structures.

LINE AND GRADE: The location (line) and/or grade of all sewers and pipe lines to be constructed shall be established by means of offset stakes, pins or other survey marks. Grades shall be furnished at intervals of 50 feet (50') for grades of 0.80 percent and over, and at

Department prior to commencing work within the manhole.

INSTALLATION OF STEPS: The steps shall be installed as indicated on the Plans, or as directed by the Engineer. When the steps are to be set in concrete they shall be placed and secured in position before the concrete is poured. The steps shall not be disturbed or used until the concrete or mortar has hardened for at least seven days. After this period has elapsed, the steps shall be cleaned and painted, unless they have been galvanized, or coated satisfactorily.

When steps are required with precast concrete pipe structures, they shall be cast into the sides of the pipe at the time the pipe sections are manufactured or set in place after the structure is erected by drilling holes in the concrete and cementing the steps in place.

Typical step configuration shall be in accordance with PENNDOT, Standards for Roadway Construction.

FITTINGS AND SERVICE LATERALS: The Contractor shall lay six inch (6") "Y" branches for the purpose of making service lateral connections at each lot shown on the subdivision plan, and elsewhere if so directed by the Engineer/Township or Developer. "Y" branches shall be laid at an angle with the horizontal compatible with a lateral slope of 1/4 inch per foot, and have their ends plugged with an approved stopper.

Service laterals from sewer to property line, or to the point designated by the Engineer/Township, shall be laid by the Contractor, when so ordered by the Engineer/Township. Service laterals shall be of sufficient depth to serve basements unless otherwise ordered by the Engineer/Township. Service laterals shall have their ends plugged with an approved stopper.

The Contractor is cautioned that the sewer is to be tested by a leakage test as described elsewhere in these Specifications, and that the method used to secure the plugs in the branches and laterals must be such that the plugs will withstand the internal pressure of the test.

In general, specifications regarding materials, workmanship and watertight construction for fittings and service laterals shall be the same as those for main line sewers.

The Contractor shall mark the location of the plugged end of each lateral by placing a two (2) lb./ft. steel channel bar post, painted green. It shall be placed at the end of the pipe so that it extends from the pipe invert to four feet above the surface of the ground. The Contractor shall also provide the Engineer/Township with a record of stations and offsets, measured from the preceding manhole and centerline of sewer, for the end of each service lateral.

BACKFILLING: Refer to Excavation Section.

LEAKAGE TEST FOR GRAVITY SEWERS: The Contractor shall clean debris of whatever nature from the pipes and shall repair all apparent leaks, after which the loss of water from the sewer or the infiltration of water into the sewer in each test section shall not exceed 50 gallons per inch of inside pipe diameter per mile of sewer per 24 hours for polyvinyl chloride (PVC) and ductile iron pipe, as determined by the following leakage tests, to be conducted by, and at the expense of, the Contractor.

SPECIFICATION-MINIMUM HOLDING TIME REQUIRED FOR A 0.5 PSIG  
PRESSURE DROP  
FOR SIZE AND LENGTH OF PIPE INDICATED FOR Q = 0.0015 CFS

Pipe Dia. (in.)	Min. Time (min: sec.)	for Min. Time (ft.)	for Longer Length (sec.)	100 ft.	150 ft.	200 ft.	250 ft.	300 ft.	350 ft.
4	1:53	597	.190L	1:53	1:53	1:53	1:53	1:53	1:53
6	2:50	398	.427L	2:50	2:50	2:50	2:50	2:50	2:50
8	3:47	298	.760L	3:47	3:47	3:47	3:47	3:48	4:26
10	4:43	239	1.187L	4:43	4:43	4:43	4:57	5:56	6:55
12	5:40	199	1.709L	5:40	5:40	5:42	7:08	8:33	9:58
15	7:05	159	2.671L	7:05	7:05	8:54	11:08	13:21	15:35

Ductile iron pipe used in a gravity system shall be pressure tested in accordance with the same procedure as outlined for polyvinyl chloride pipe.

The gauge used for measurements in the above tests shall be graduated in increments no greater than 0.25 psig.

For any of the above procedures, if the prevailing groundwater level is above the top of the pipe to be tested, the required test pressure will be increased by an amount equal to the groundwater pressure exerted on the pipe;

3. Under certain circumstances where there is high ground water, the Engineer/Township may require an Infiltration Test for some or all sections of the sewers in the contract. This test shall meet the leakage test requirements previously cited, and shall be used only where directed by the Engineer/Township. The Infiltration Test shall consist of segregating that portion of the line to be tested and measuring the amount of infiltration by a method approved by the Engineer/Township, such as with a V-notch weir or a timed overflow.

LEAKAGE TEST FOR MANHOLES: Each manhole shall be tested by an exfiltration test or vacuum test as outlined below. Any manhole that is adjusted, damaged or in any way altered after passing the leakage test shall be retested and/or repaired to the satisfaction of the Engineer/Township.

EXFILTRATION TEST: All pipes entering the manhole to be tested shall be plugged and the manhole shall be filled with water to within three inches of the proposed top elevation of the manhole casting. The test shall be placed on the manhole for a period of 30 minutes after which the drop in water level shall be measured. The manhole will have passed the exfiltration test if the drop in water level does not exceed 1/4 inch; or

NOTIFICATION: No connections shall be made to existing Township systems without a valid Pennsylvania Department of Environmental Protection sewer extension permit, where required, and without prior approval and three working days advance notice to the Township to allow for scheduling of Township observation personnel. Connections to the Township sanitary sewerage system require a "Confined Space Entry Permit".

SINKHOLES: It is required that the Developer maintain all areas in a well-drained condition during the construction period so as to avoid pooling or ponding of water. If a sinkhole should develop during construction, the Developer shall immediately repair the sinkhole at its expense alone and in accordance with the following:

Upon detection of a sinkhole, the Developer or its Contractor shall notify the Township, contact its own geotechnical engineer who shall propose a repair solution and have that procedure reviewed by the Geotechnical Engineer. The Developer's geotechnical engineer and the Geotechnical Engineer shall monitor the repair in accordance with the reviewed procedure and upon completion of the repair and before any construction activity resumes in the area, the Developer's geotechnical engineer shall send a written report to the Township and to the Geotechnical Engineer that the sinkhole has been repaired in accordance with the reviewed procedure and that construction activities may continue.

SERVICE CONNECTIONS: Refer to Standard Construction Detail – SMALL SERVICE CONNECTION or RESIDENTIAL SERVICE CONNECTION.

BLOW-OFF ASSEMBLY: Refer to Standard Construction Detail – 2” SURFACE BLOWOFF.

COPPER SERVICE LINES: Service connections from the main to the curb stop of sizes three-quarter-inch (3/4”) (minimum) through two-inch (2”) diameter shall be Type K copper tubing, conforming to ASTM B88 (current issue), designed for a working pressure of not less than 150 psi. The copper service line shall be one continuous section of copper tubing from the corporation to the curb stop and shall not include any couplings.

DUCTILE IRON SERVICE LINES: Service connections from the main to the curb stop of sizes larger than two inch (2”) diameter shall be ductile iron conforming to the AWWA C151 and C153.

CONCRETE: All concrete required for thrust blocks, concrete mats, etc. shall conform to the requirements of Pennsylvania Department of Transportation (PennDOT) Specifications, Publication 408, Section 704, Class A concrete minimum.

METER PITS: Refer to Standard Construction Detail – RESIDENTIAL SERVICE CONNECTION.

PUMP STATIONS: Detailed plans, design calculations, and specifications for all water booster pumping stations or other special installations shall be submitted for review by the Engineer/Township. The Developer shall arrange with the manufacturer to provide the services of a factory-trained representative to perform the initial start-up of the station and to instruct the operating personnel in the operation and maintenance of the station. In addition, three (3) copies of a complete operating and maintenance manual shall be provided to the Engineer before the station will be accepted by the Township. The station shall be designed and constructed so as to be controlled and monitored by the Township’s S.C.A.D.A. System. All programming and connection costs are to be borne by the Developer.

#### Construction

EQUIPMENT: The Contractor shall provide equipment to handle the pipe in unloading and placing in its final position, without damage to the pipe.

The Contractor shall provide hand tampers and pneumatic tampers sufficient to obtain the compaction of the pipe bedding and backfill as specified.

EXCAVATION: Refer to Excavation Section

BEDDING: Refer to Excavation Section.

LAYING AND INSTALLING PIPE: Pipe shall be laid to true alignment and regular grade. Any

DEWATERING: Any water which collects in an excavation shall be removed by the Contractor before proceeding with the construction of the pipeline or structure.

LINE AND GRADE: The location (line) and grades, if deemed necessary by the Engineer for the water main, shall be established by means of offset stakes, pins or other survey marks. Grades, when necessary, shall be furnished at intervals of fifty feet (50'), minimum. Grade cut sheets shall be prepared by the Developer's Engineer and submitted to the Engineer for review a minimum of three working days prior to construction.

A minimum horizontal separation of ten feet (10') and a minimum vertical separation of eighteen inches (18") shall be maintained between waterlines and sanitary or storm sewers in accordance with Pennsylvania Department of Environmental Protection Public Water Supply Manual, Part II, Community System Design Standards, Chapter 8, Section 8.7 inclusive, or latest version of the governing regulations. When conflicts occur with existing facilities and the separations are less than mentioned above, the corrective methods shall be reviewed by the Engineer/Township.

SETTING VALVES, FIRE HYDRANTS AND FITTINGS: Valves for fire hydrants shall be located four feet (4') in front of the curb or as directed by the Engineer/Township. Main line valves in general shall be located on the extensions of right-of-way lines of intersecting streets. Particular care shall be taken to see that all valves are in proper working order. Construction of waterlines in developments consisting of Phases or Sections shall be accomplished in such a manner that subsequent Phases or Sections can be constructed without disruption of water service to a previous Phase or Section. This requirement may involve the installation of valves and/or blow-off assemblies additional to those shown on the plans. These valves and/or blow-off assemblies shall be secured by a method reviewed by the Engineer/Township (see LAYING AND INSTALLING PIPE) or secured by extending the line a minimum of one full pipe length past the valve and by backfilling properly. This extension shall be capped with a blow-off assembly and be pressure tested as described herein. The valve shall be tested with a listening device as described herein. Care shall be taken in setting the mainline valve so that the pipe extension terminates at the project limit. Where hydrant tees are allowed, hydrant valves shall be secured to the hydrant tee using acceptable fastening methods.

Fire hydrants shall be set to line and grade and located as shown on the Standard Construction Details - FIRE HYDRANT or as directed by the Engineer/Township Public Works Department. Excavations for fire hydrants shall be three feet square and extend down to a depth eighteen inches (18") below the bottom of the hydrant. The excavation shall be filled to the bottom of hydrant elevation with AASHTO No. 3 stone. Hydrants shall be set with the 4-1/2-inch pumper connection facing the street, unless otherwise directed by the Engineer/Township Public Works Department. After setting the hydrant, AASHTO No. 3 stone shall be placed to six inches (6") above the flange, and the balance of the excavation filled with suitable material. Particular care shall be taken to set all hydrants vertical and to see that they are in proper working order. Thrust blocks shall not cover the hydrant drains. The traffic break-away section shall be no greater than 4 inches above final grade.

Blow-off valves and other fittings shall be installed where shown on the plans, or as directed by the Engineer/Township Public Works Department and as shown on the Standard Construction Details - 2" SURFACE BLOWOFF.

1. FILLING OF MAINS: Filling of mains is under the complete control of the Township when the water used for filling is from a Township source. A Record Plan drawing of the segment of the system to be filled shall be available to the Township prior to filling the main. In lieu of Record Plans at this time, two sets of a schematic "line" diagram of the water system shall be prepared by the Contractor and given to the Superintendent or Foreman of Water to review before the Township will fill the lines. All valves and fire hydrants shall be shown on this diagram. A Township waterworks operator will monitor all filling.
2. DISINFECTION OF COMPLETED MAINS: Before being placed in service, the newly constructed water main shall be disinfected and tested in accordance with AWWA C651 and as specified herein. Chlorine may be applied by use of calcium hypochlorite comparable to commercial products known as H.T.H., Perchloron, or Maxochlor. This procedure will be under the control of a Township waterworks operator who will confirm that all applicable backflow and cross connection precautions are followed.

The chlorinating agent shall be applied in such a manner to treat completely all sections of the system. The chlorinating agent shall be applied in a quantity to produce a dosage of 25 mg/l to 50 mg/l of free chlorine. Disinfection shall continue for a minimum of 24 hours and the residual free chlorine at the end of that time shall be a minimum of 10 mg/l.

During the chlorination process all valves and accessories shall be operated.

3. DISINFECTION OF TAPPING SLEEVES: The developer or its Contractor shall thoroughly clean the exterior of the main to be tapped and the interior surface of the tapping sleeve, and shall swab the interior surface of the tapping sleeve with sodium hypochlorite liquid.
4. LOW VOLUME PURGE: After chlorination, the heavily chlorinated water shall be purged from the line at its extremities until the test results of the replacement water are equal chemically and bacteriologically to those of the permanent source of supply. All flushing will be controlled by a Township waterworks operator. The individual service lines shall also be properly flushed. The purged water shall contain no more chlorine or other residual than allowed by the Pennsylvania Department of Environmental Protection or any other agency having jurisdiction.
5. BACTERIOLOGICAL TESTS: After all of the above testing is satisfactory, samples for the bacteriological tests shall be taken by an independent testing laboratory, certified by the Pennsylvania Department of Environmental Protection and approved by the Township waterworks operator. Samples shall be taken at the locations designated by the Engineer/Township Public Works Department and in accordance with AWWA C651. The Developer or its Contractor shall pay for the tests and shall direct the laboratory to submit only the test results directly to the Engineer and the Township Public Works Department. The result for coliform bacteria shall be 0 per 100 ml, and the result for heterotrophic bacteria shall be 0 per 100 ml. The concentration of available chlorine shall be between 0.4 mg/l and 1.2 mg/l.



Each section tested shall be slowly filled with water, care being taken to expel all air from the pipes. All control valves from the Township system shall only be operated by Township personnel. If necessary the pipes shall be tapped at high points to vent the air. The required pressure shall be applied for not less than three hours and all pipe, fittings, valves, hydrants and joints shall be carefully examined for defects. Leaking joints shall be made tight and defective work replaced until the leakage is reduced to the allowable amount, which shall be determined by the following formula:

$$L = \frac{SDLP^{1/2}}{133,200} \text{ where}$$

L = allowable leakage, in gallons per hour;

S = length of pipe tested, in feet;

D = pipe diameter, in inches;

(P)<sup>1/2</sup> = square root of the test pressure, P, in pounds per square inch gauge (psig).

For fire lines, the Township Fire Inspector shall be notified.

7. TESTING VALVES: The following procedure is given as a guideline for testing the valves. Other procedures may be acceptable, and can be offered as an alternative for review by the Engineer. After the pressure test(s) are completed, every internal valve shall be checked for leaks in the following manner:
  - a. Starting at the most remote point from the source of pressure, each valve shall be closed;
  - b. As each valve is closed, the pressure on the side of the valve away from the source shall be relieved;
  - c. Line pressure shall be maintained on the side of the valve toward the source of pressure;
  - d. The Developer's utility subcontractor shall supply and operate the proper leak detection equipment, together with the Observer and personnel from the Water Department shall listen to each valve with a device that can detect a flow of water through the valve;
  - e. Each valve shall be checked working systematically back to the source of the pressure.

If there is doubt about the results of the above test on a particular valve, a water pressure test shall be conducted at a differential pressure of at least 100 psig across the valve, as directed by the Engineer.

8. HIGH-RATE FLOW TEST: High-rate flow test shall be performed on all newly installed waterlines only after satisfactory completion of the required hydrostatic and bacteriological tests. The Contractor shall provide advance notice conforming to the

## SALISBURY TOWNSHIP

### TECHNICAL SPECIFICATIONS

#### STORM SEWERS AND APPURTENANCES

GENERAL: All materials and construction methods used in the construction of storm sewers and appurtenances shall meet the requirements as set forth in Pennsylvania Department of Transportation (PENNDOT) Specifications, Publication 408 except as specifically modified by the requirements herein, and except that the use of any type of slag material is prohibited.

#### Materials

PIPE AND STRUCTURES: Reinforced Concrete Pipe (RCP) shall be used for all storm sewers to be constructed within street rights-of-way to be dedicated to the Township or located within drainage easements. High density polyethylene (HDPE) may be permitted by the Township in certain cases. The minimum diameter of any drainage pipe shall be 15 inches. Manholes shall be constructed of precast concrete manhole sections. Inlets and endwalls shall be precast reinforced concrete structures. Manholes and inlets shall not be constructed of precast concrete blocks or sewer brick. Sewer brick shall be used only at the top of the concrete structure to allow for adjustment of the casting. See Construction, LEVELING COURSE.

All materials shall be by a manufacturer listed in PENNDOT, Publication 35, Bulletin 15 (Approved Construction Materials).

CONCRETE STORM SEWER PIPE, REINFORCED: Concrete culvert and sewer pipe, reinforced, shall conform to the requirements of AASHTO M170 (current edition) for Class III, Class IV or Class V pipe, as may be specified.

HIGH DENSITY POLYETHYLENE PIPE (HDPE): HDPE pipe shall meet the requirements of AASHTO M252 or AASHTO M294, Standard Specification for polyethylene corrugated drainage pipe.

MORTAR: Mortar for brick masonry, pipe joints, and connections to other structures shall conform to the requirements of Pennsylvania Department of Transportation (PENNDOT) Specifications, Publication 408, Section 705.7.

RUBBER GASKET JOINTS: Joints using rubber gaskets shall conform to the requirements of AASHTO M198. Rubber gaskets for concrete pipe shall be continuous rubber rings which fit snugly in the annular spaces between the overlapping surfaces of the ends of the pipes to form a flexible watertight seal under all conditions of service. The gasket shall have smooth surfaces free from all imperfections.

CONCRETE: Plain and reinforced concrete used in structures, pipe cradles, connections of pipes with structures, low flow channels, support of structures or frames, etc. shall conform to the requirements of Pennsylvania Department of Transportation (PENNDOT) Specifications, Publication 408, Section 704, Class A concrete minimum.

Cutting of pipe for closure pieces, or other reasons, shall be done in a neat and workmanlike manner by a method which will not damage the pipe. All such cutting of pipe shall be done in conformance with the manufacturer's recommendations.

The Engineer/Township may inspect all pipe before it is laid, and reject any section that is damaged by handling or is found to be defective to a degree which will materially affect the function and service of the pipe.

Pipe shall not be laid on frozen ground. Pipe which is not true in alignment or which shows any settlement after laying, shall be taken up and re-laid.

The Contractor shall provide for the temporary diversion of stream flow, as may be necessary and where approved by the Department of Environmental Protection, in order to permit the installation of the pipe under dry conditions.

DEWATERING: Any water which collects in any excavation shall be removed by the Contractor before proceeding with the construction of the pipeline or structures.

LINE AND GRADE: The location (line) and/or grade of all sewers and pipe lines to be constructed shall be established by means of offset stakes, pins or other survey marks. Grades shall be furnished at intervals of 50 feet for grades of 0.80 percent and over, and at intervals of 25 feet for grades under 0.80 percent. When the Contractor uses a laser to obtain line and grade for laying the pipe, periodic checks shall be made by the Contractor from grade stakes. The first-grade stake shall be furnished at 25 feet and at intervals not greater than 100 feet thereafter. When the Observer checks for vertical and/or horizontal alignment of the pipe, the Contractor shall assist him. Grade cut sheets shall be prepared by the Developer's engineer and submitted to the Engineer for review a minimum of three working days prior to construction.

A minimum horizontal separation of ten feet and a minimum vertical separation of 18 inches shall be maintained between waterlines and sanitary or storm sewers in accordance with Pennsylvania Department of Environmental Protection Public Water Supply Manual, Part II, Community System Design Standards, Chapter 8, Section 8.7 inclusive, or latest version of the governing regulations. When conflicts occur with existing facilities and the separations are less than mentioned above, the corrective methods shall be reviewed by the Engineer/Township.

HIGH DENSITY POLYETHYLENE PIPE: HDPE shall be installed in accordance with the requirements of the PENNDOT Specifications, Publication 408, Section 601. However, in all installations, during construction the minimum depth from surface grades to top of pipe shall be 3 feet, and upon final grading in existing or proposed roadways, the minimum depth from road subgrade to top of pipe shall be 2 feet, unless greater depths are recommended by the pipe manufacturer. All pipe shall have watertight joints unless otherwise reviewed by the Engineer upon receipt of documentation to indicate that an alternative joint would be appropriate.

Repair of damaged HDPE shall be according to the pipe manufacturer's recommendations. This shall include but is not limited to removal and replacement or a repair procedure acceptable to the Engineer/Township.

Typical step configuration shall be in accordance with PENNDOT Standards for Roadway Construction, detail for STANDARD MANHOLES, PRECAST MANHOLES & MANHOLE STEPS, RC-39.

**BACKFILLING OF STRUCTURES:**

1. After a structure has been completed, the area around it shall be filled with approved material, in horizontal layers not to exceed eight inches in loose depth, and compacted to the density specified. The fill shall be made to the elevation shown on the Plans, or as directed by the Engineer/Township;
2. Backfill shall not be placed against any structure until concrete is given the necessary time to cure;
3. Fill shall be deposited uniformly around the structure while backfilling to prevent unequal lateral pressure. Special care shall be taken to prevent any wedging action against the structure.

**UNDERDRAIN:** Pipe underdrain shall meet the requirements of PENNDOT Specifications, Publication 408, Section 610 and be reviewed by the Engineer. Inside diameter of pipe shall be six inches, unless otherwise shown on the approved plans.

**SECURITY GRATES:** Security grates shall be installed on all headwalls, endwalls, end sections, and culverts with openings 15 inches or greater. It shall be the responsibility of the Developer or its Contractor to submit to the Engineer for review a detailed drawing of the proposed security grate prior to fabrication. The number of bars shall be determined by the culvert size with bar spacing not to exceed six inches each way. Structural steel shall conform to ASTM A36 and bars shall conform to ASTM A615, Grade 60, epoxy coated or hot-dipped galvanized after fabrication. Grates shall be attached to the structures in a manner permitting ready removal for future cleaning of debris.

**DETENTION BASINS:** The construction of detention basins shall meet the requirements of PENNDOT Specifications, Publication 408, Sections 200 and 800 and be reviewed by the Engineer/Geotechnical Engineer.

In cut areas or in embankment areas, the upper six inches of the subgrade material beneath the clay blanket, within detention basin construction limits shall be compacted to a density of not less than 98 percent of maximum density. Maximum density is the maximum dry weight density in pounds per cubic foot as determined by the Standard Proctor Density Test (AASHTO T 99 - Method C).

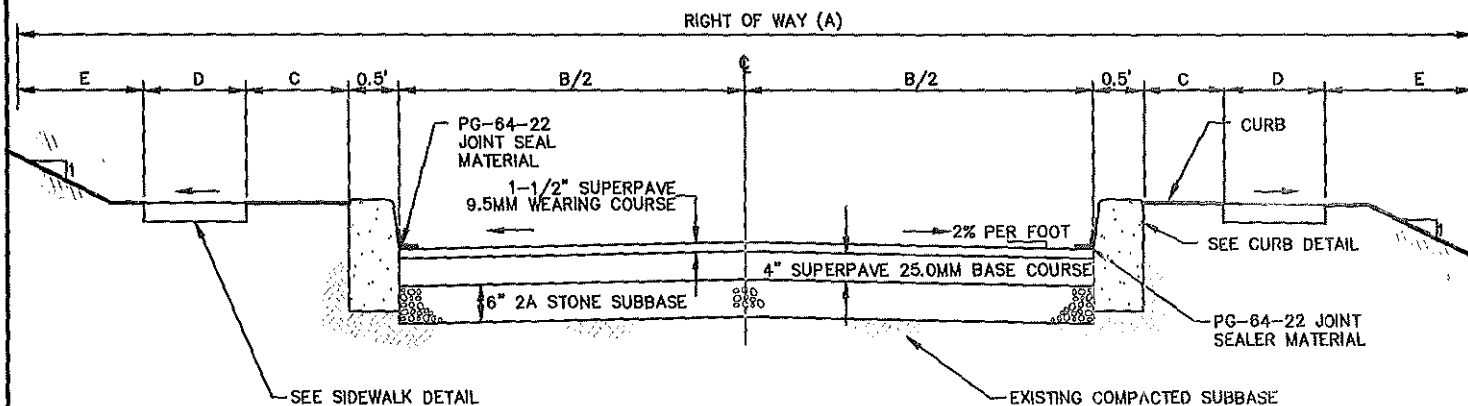
Any required impervious liner shall be as recommended by the Geotechnical Engineer.

**UNDERGROUND DETENTION FACILITIES:** Underground detention facilities may be constructed of either: reinforced concrete vaults or tanks, large diameter plastic, metal or concrete pipe or commercially-available proprietary underground systems. The underground detention facilities shall be designed by the Developer's design engineer and/or geotechnical engineer and reviewed by the Engineer/Geotechnical Engineer. All materials used in the construction of underground detention facilities shall be watertight, and any required impervious liner shall be as

Engineer shall monitor the repair in accordance with the reviewed procedure and upon completion of the repair and before any construction activity resumes in the area, the Developer's geotechnical engineer shall send a written report to the Township and to the Geotechnical Engineer that the sinkhole has been repaired in accordance with the reviewed procedure and that construction activities may continue.

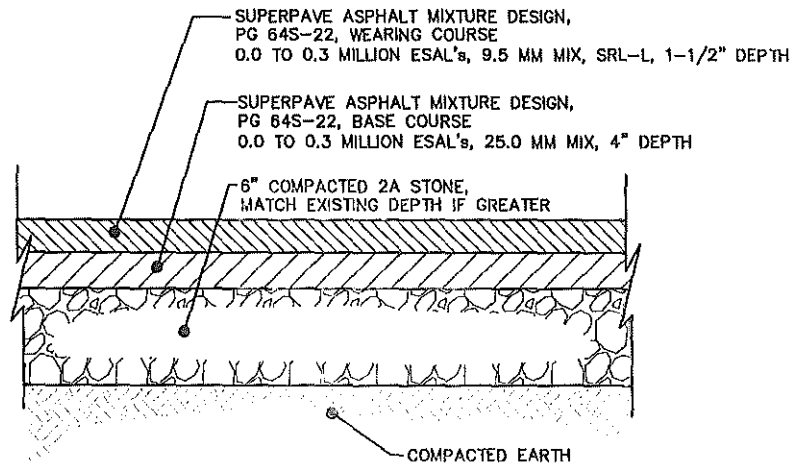
## SECTION C - STANDARD CONSTRUCTION DETAILS

UPWARD THRUST BLOCKING .....	W-05
FIRE HYDRANT .....	W-06
2" SURFACE BLOWOFF .....	W-07
STANDARD MAG METER INSTALLATION (PLAN) .....	W-08
STANDARD MAG METER INSTALLATION (SECTION) .....	W-09
LATERAL CONNECTION.....	SAN-01
CLEAN-OUT TO GRADE .....	SAN-02
SANITARY SEWER CLEAN-OUT (IN-PAVEMENT) .....	SAN-03
SANITARY CLEAN-OUT (IN GRASS).....	SAN-04
LOW PRESSURE SEWER INLINE CLEAN-OUT .....	SAN-05
FIGURE 640 LOCKING SEWER CLEANOUT .....	SAN-06
FIGURE 668 LOCKING SEWER CLEANOUT .....	SAN-07
STANDARD PRECASE CONCRETE MANHOLE .....	SAN-08
STANDARD PRECAST CONCRETE PIPE DROP MANHOLE .....	SAN-09
INTERIOR DROP CONNECTION IN EXISTING MANHOLE .....	SAN-10
DOGHOUSE SANITARY SEWER MANHOLE .....	SAN-11
HEAT SHRINKABLE MANHOLE SEAL .....	SAN-12
TYPICAL SANITARY PIPE TRENCH & BACKFILL .....	SAN-13
STANDARD COMBINATION AIR VALVE MANHOLE .....	SAN-14
INLET BOX .....	STM-01



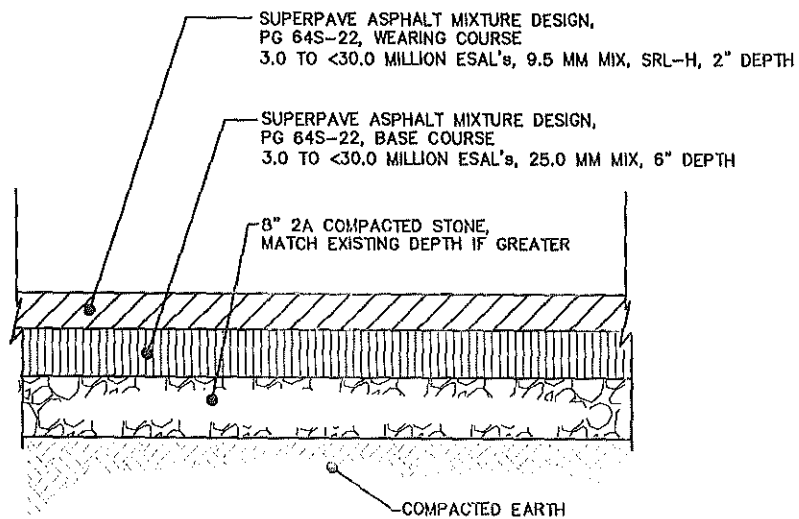
OVERALL RIGHT-OF-WAY WIDTH (A)	CARTWAY WIDTH (B)	PLANTING SPACE BETWEEN CURB AND SIDEWALK (C)	SIDEWALK WIDTH (D)	PLANTING SPACE BETWEEN SIDEWALK AND PROPERTY LINE (E)
80 FEET	48 FEET	3 FEET	5 FEET	7.5 FEET
60 FEET	36 FEET	3 FEET	5 FEET	3.5 FEET
50 FEET	30 FEET	3 FEET	5 FEET	1.5 FEET
45 FEET	30 FEET	2 FEET	5 FEET	N/A
40 FEET	24 FEET	2.5 FEET	5 FEET	N/A
35 FEET	24 FEET	N/A	5 FEET	N/A
33 FEET	24 FEET	N/A	4 FEET	N/A
30 FEET	23 FEET	N/A	3 FEET	N/A





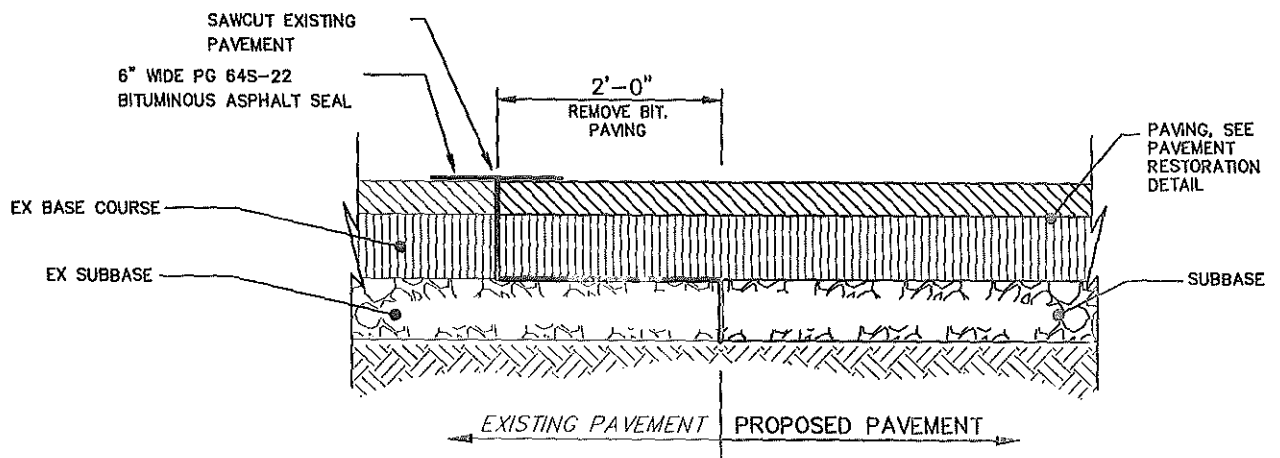
**NOTE:**

1. GEOTECH SHALL CONFIRM SOIL TYPE AND CLASSIFICATION.



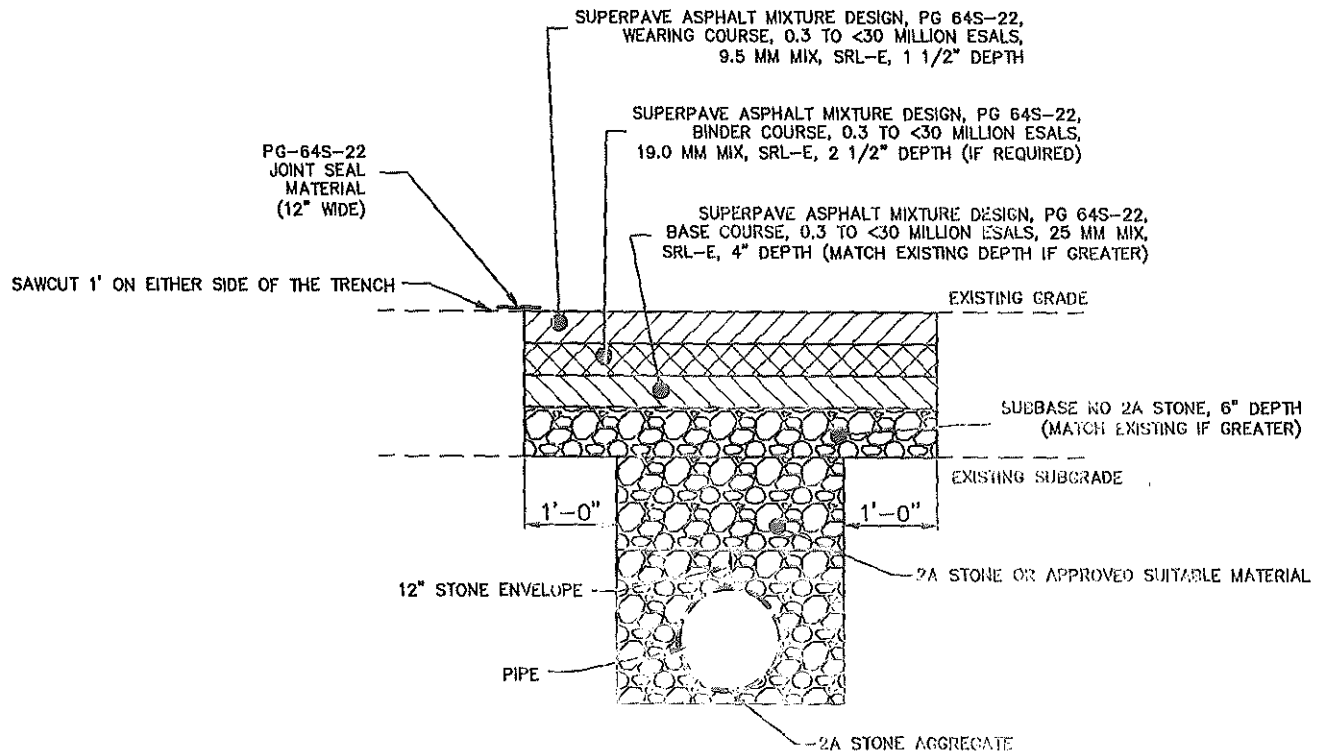
**NOTE:**

1. GEOTECH SHALL CONFIRM SOIL TYPE AND CLASSIFICATION.



**NOTES:**

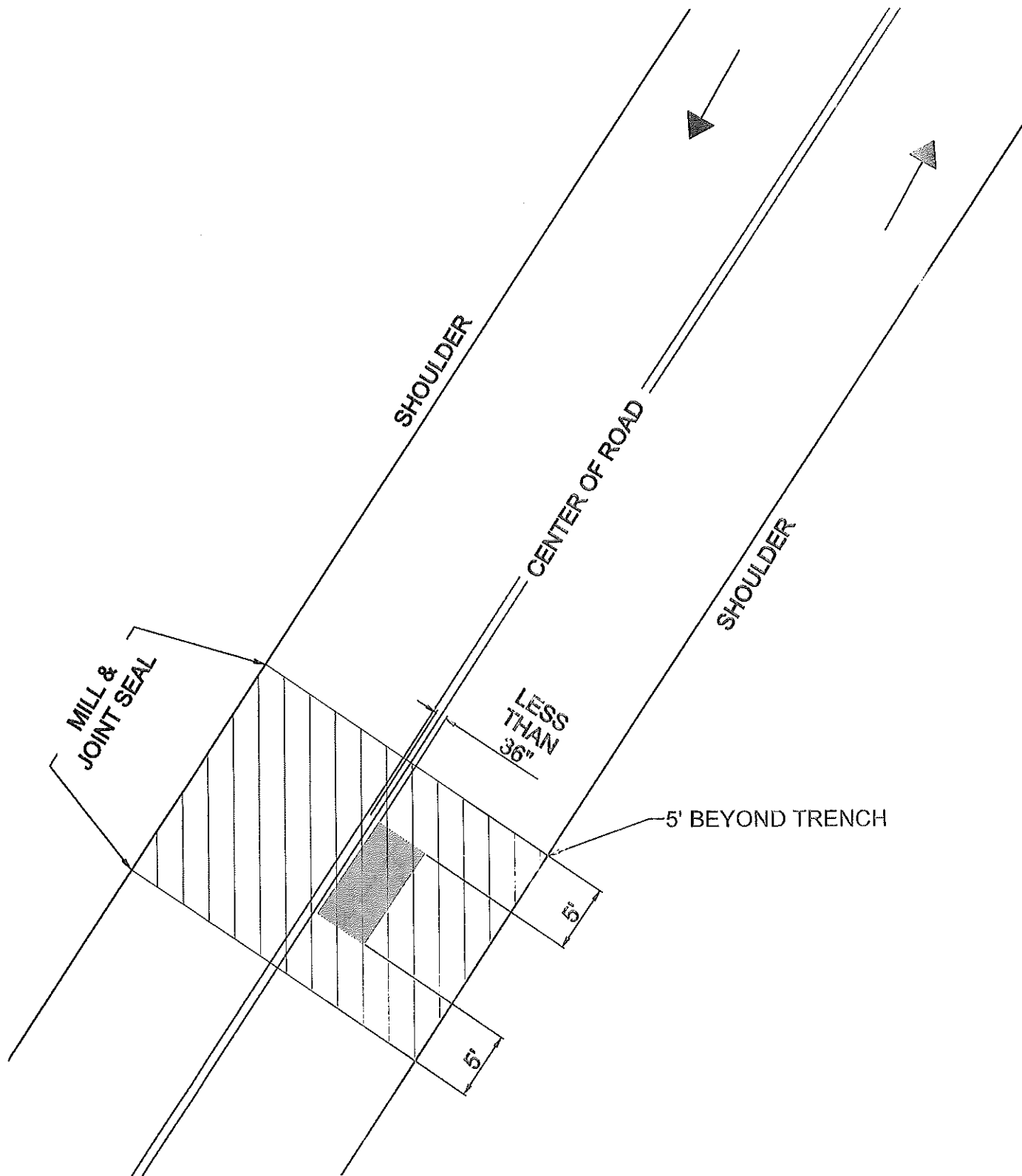
1. FOR PAVING MATERIAL AND DEPTH, REFER TO PAVEMENT SECTION DETAILS.



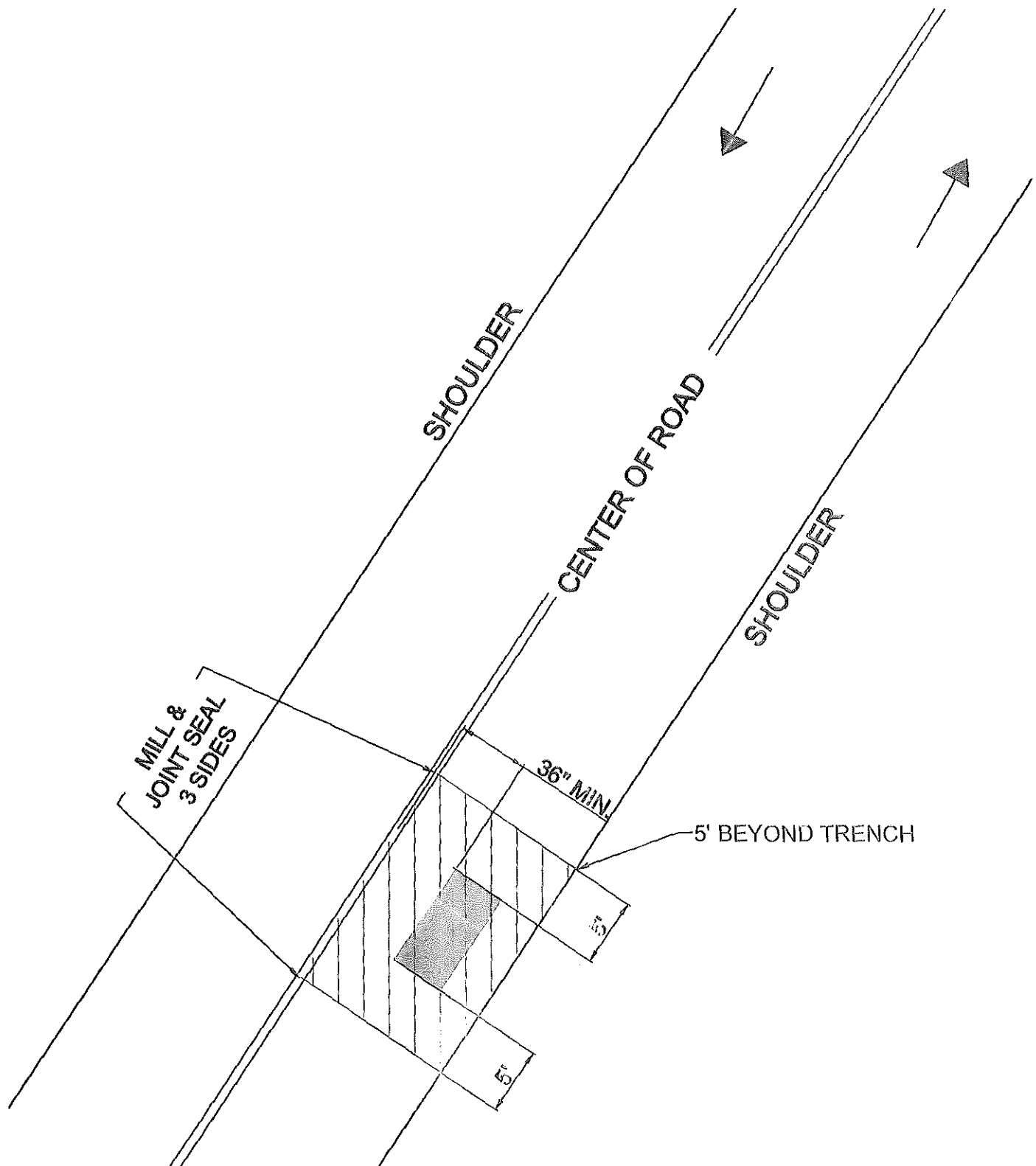
TACK COAT ALL JOINTS PRIOR TO PAVEMENT INSTALLATION.  
REFER TO PENNDOT RC-30.4, LATEST EDITION

**NOTES:**

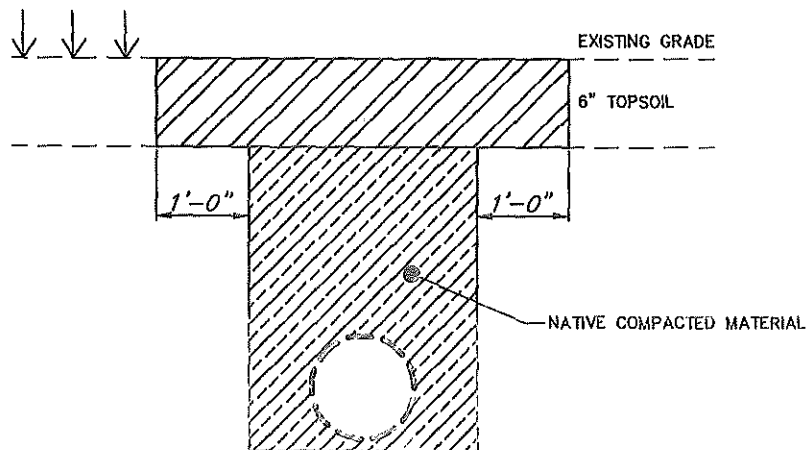
1. ALL BACKFILL MATERIAL SUBJECT TO AUTHORITY APPROVAL.
2. ADDITIONAL DEPTH OF EXCAVATION WILL BE REQUIRED IF SUBSOIL IS UNSUITABLE AS DETERMINED BY ENGINEER.
3. BEDDING AND ENVELOPE SHALL BE 2A STONE AGGREGATE.
4. BEDDING AND ENVELOPE SHALL EXTEND TO UNDISTURBED SOIL ON SIDES AND BOTTOM OF TRENCH.



IF OPENING IS WITHIN 36" OF CENTER OF ROADWAY,  
FULL WIDTH OVERLAY REQUIRED.

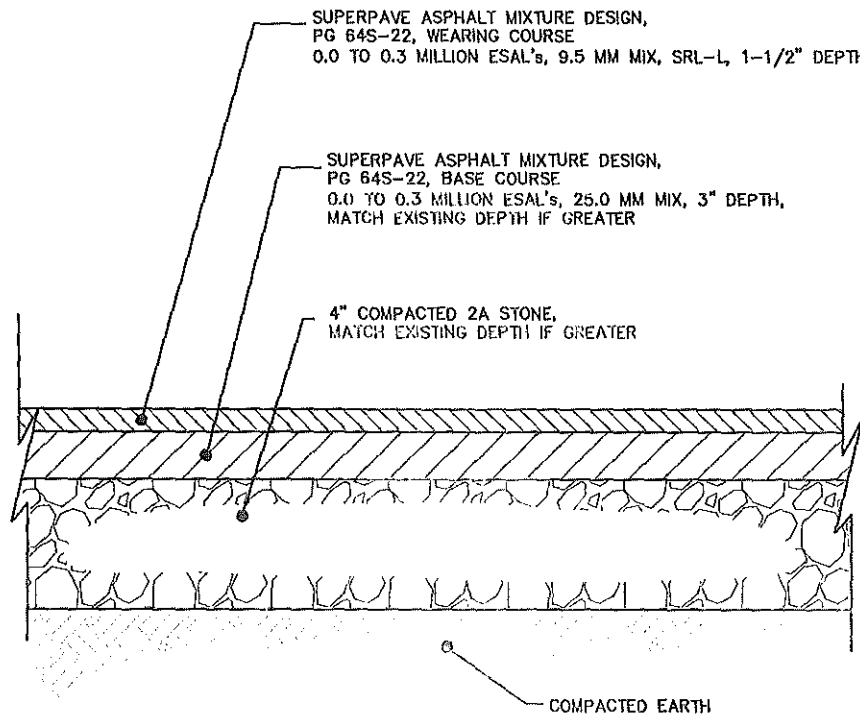


IF OPENING IS MORE THAN 36" OF CENTER OF ROADWAY, OVERLAY OF SINGLE LANE IS ACCEPTABLE.

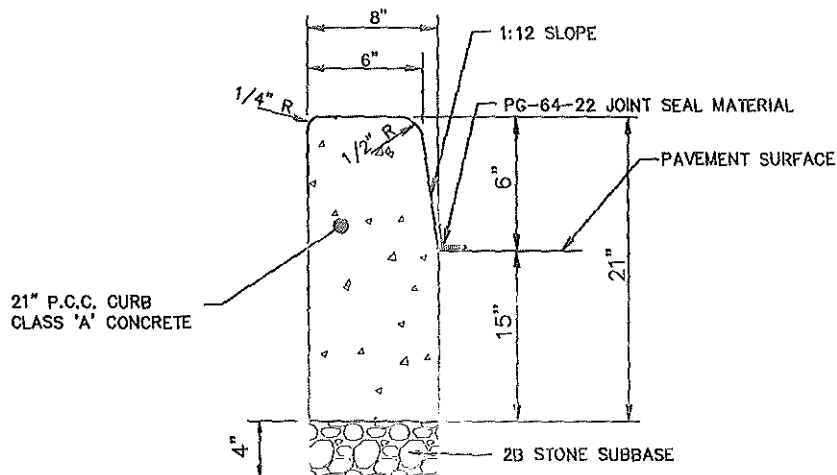


**NOTES:**

1. ORDINARY BACKFILL: CLEAN DRY EARTH WITH MAXIMUM STONE SIZE OF 6".
2. REFER TO PENNDOT RC-30M, LATEST EDITION

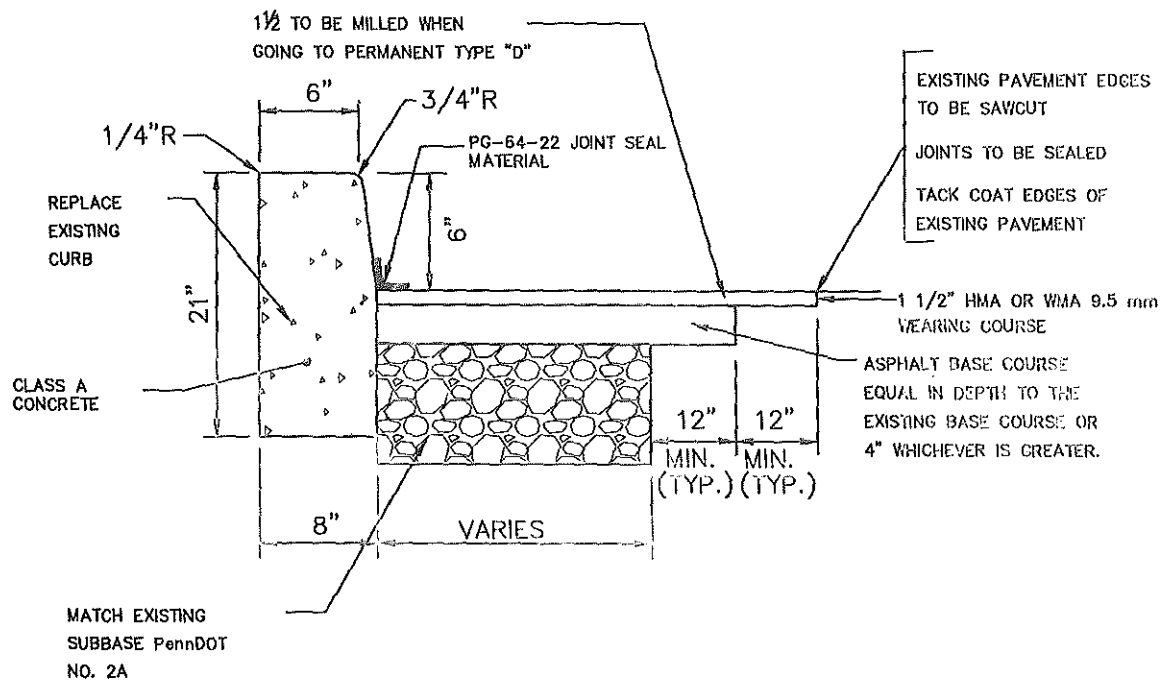






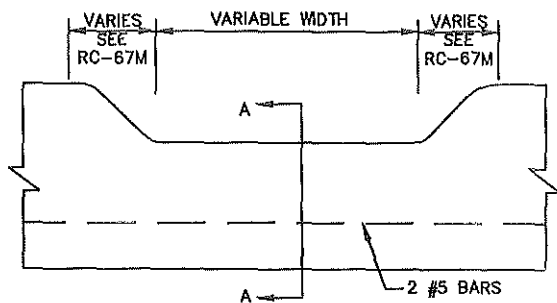
**NOTES:**

1. REFER TO PENNDOT RC-64M, LATEST EDITION.
2. PROVIDE MATERIALS AND CONSTRUCTION MEETING THE REQUIREMENTS OF PUBLICATION 408 SECTION 630.
3. CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF 3,500 PSI AT 28 DAYS.
4. 3/8 INCH EXPANSION JOINTS OF BITUMINOUS MATERIAL SHALL BE PLACED EVERY 30 FEET, AT STRUCTURES, AND AT THE END OF A DAY'S WORK. CURBING SHALL HAVE SAW CUT CONTRACTION JOINTS EVERY 10 FEET TO THE FULL DEPTH OF CURB.
5. CURBING SHALL BE TIED INTO INLETS WITH TWO NO. 5 REINFORCING BARS TO PREVENT SETTLEMENT.
6. IF ROOF DRAINS ARE INSTALLED THROUGH THE CURB, THERE SHALL BE A MINIMUM OF 2 INCHES OF COVER OVER THE CONDUCTORS AND 1 INCH OF REVEAL OVER THE EXISTING ROADWAY SURFACE TO ALLOW FOR FUTURE OVERLAY.
7. EXCAVATION TO BE MADE TO A DEPTH OF 24 INCHES BELOW FINAL CURB GRADE. THE BOTTOM OF ALL EXCAVATIONS TO BE WELL TAMPED BEFORE FORM WORK IS PLACED.

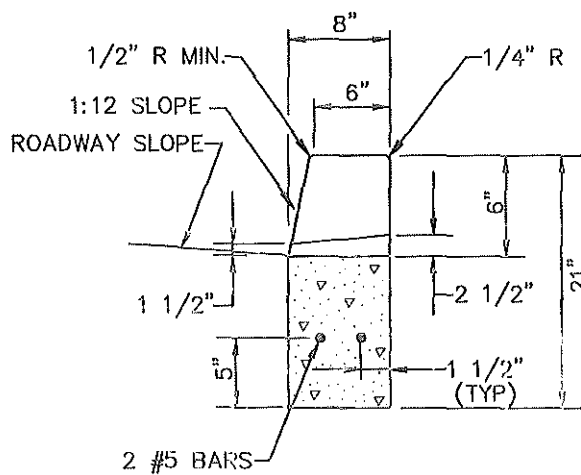


**NOTES:**

1. SEAL PAVING AT NEW CURB
2. FOR ALL CURB WITHIN PUBLIC RIGHT-OF-WAY
3. USE 3,500 PSI AIR-ENTRAINED CONCRETE.
4. USE CLASS "A" CONCRETE.



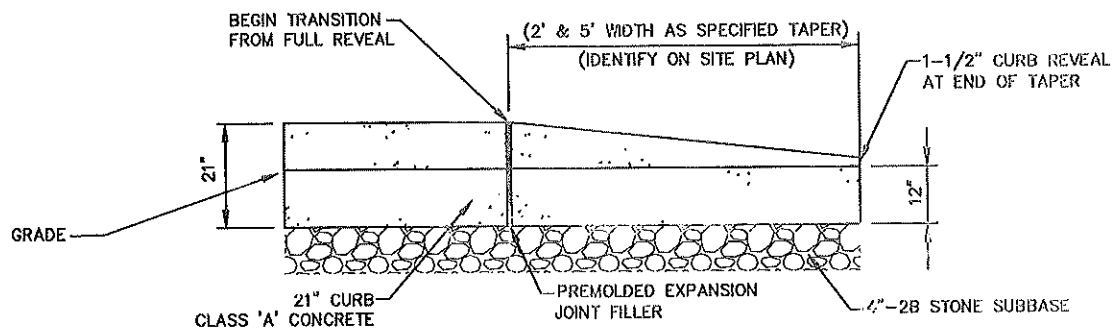
ELEVATION VIEW



SECTION A-A

NOTES:

1. REFER TO PENNDOT RC-64M.
2. PROVIDE MATERIALS AND CONSTRUCTION MEETING THE REQUIREMENTS OF PUBLICATION 408 SECTION 630.

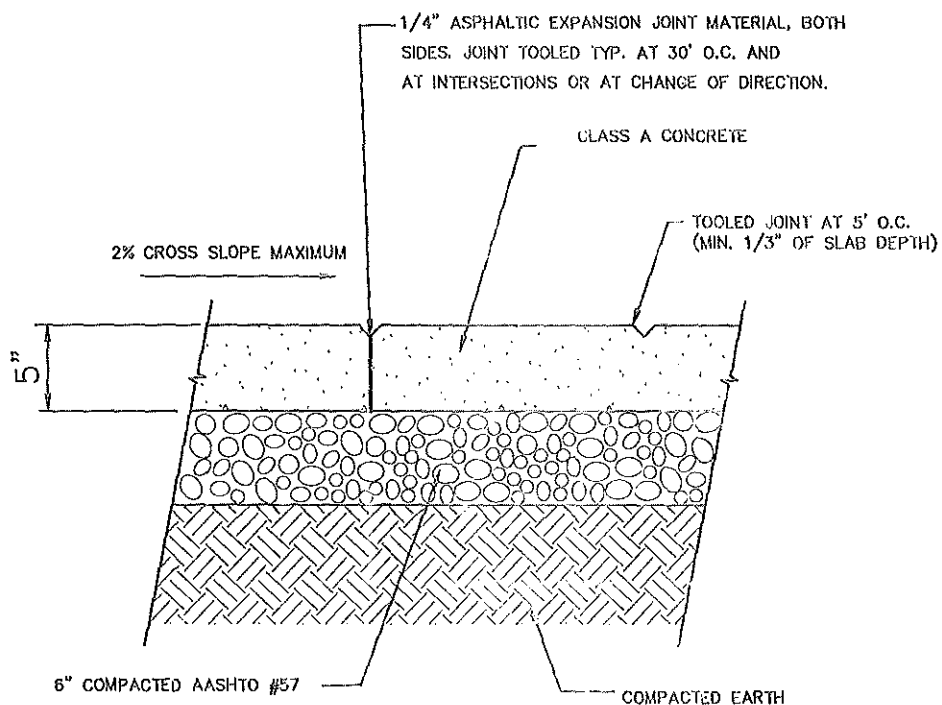


**NOTES:**

1. REFER TO PENNDOT RC-64M.
2. PROVIDE MATERIALS AND CONSTRUCTION MEETING THE REQUIREMENTS OF PUBLICATION 408 SECTION 630.

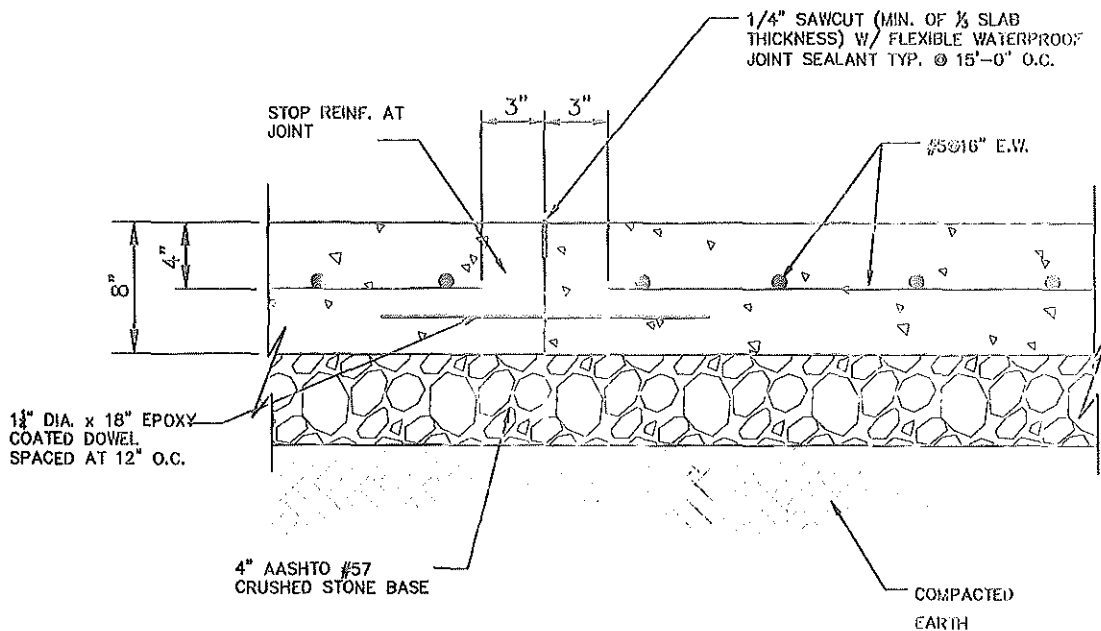


1. THE APRON IN THE DRIVEWAY AREA SHALL BE 6-INCHES THICK CONCRETE REINFORCED WITH 6-INCH BY 6-INCH, W2.9 x W2.9 WELDED WIRE FABRIC (WWF). THE WWF SHALL BE INSTALLED SO THAT IT IS NOT CLOSER THAN TWO INCHES FROM THE TOP OR BOTTOM SURFACES OF THE CONCRETE. 6-INCHES CRUSHED STONE SHALL BE USED AS A BEDDING UNDER THE DRIVEWAY APRON.
2. CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS.
3. CONCRETE SHALL BE AIR ENTRAINED WITH 6.5% AIR ENTRAINMENT,  $\pm$  1.5%.
4. CONCRETE SHALL HAVE A MINIMUM WATER CEMENT RATIO OF 0.45 WITH A MAXIMUM SLUMP OF 4-INCHES.
5. CONCRETE SHALL HAVE A BROOM FINISH.
6. DRIVEWAY APRONS SHALL BE SEPARATED FROM BOTH CURBING AND SIDEWALKS BY THREE-EIGHTS-INCH EXPANSION JOINTS TO ALLOW EASY REPLACEMENT.



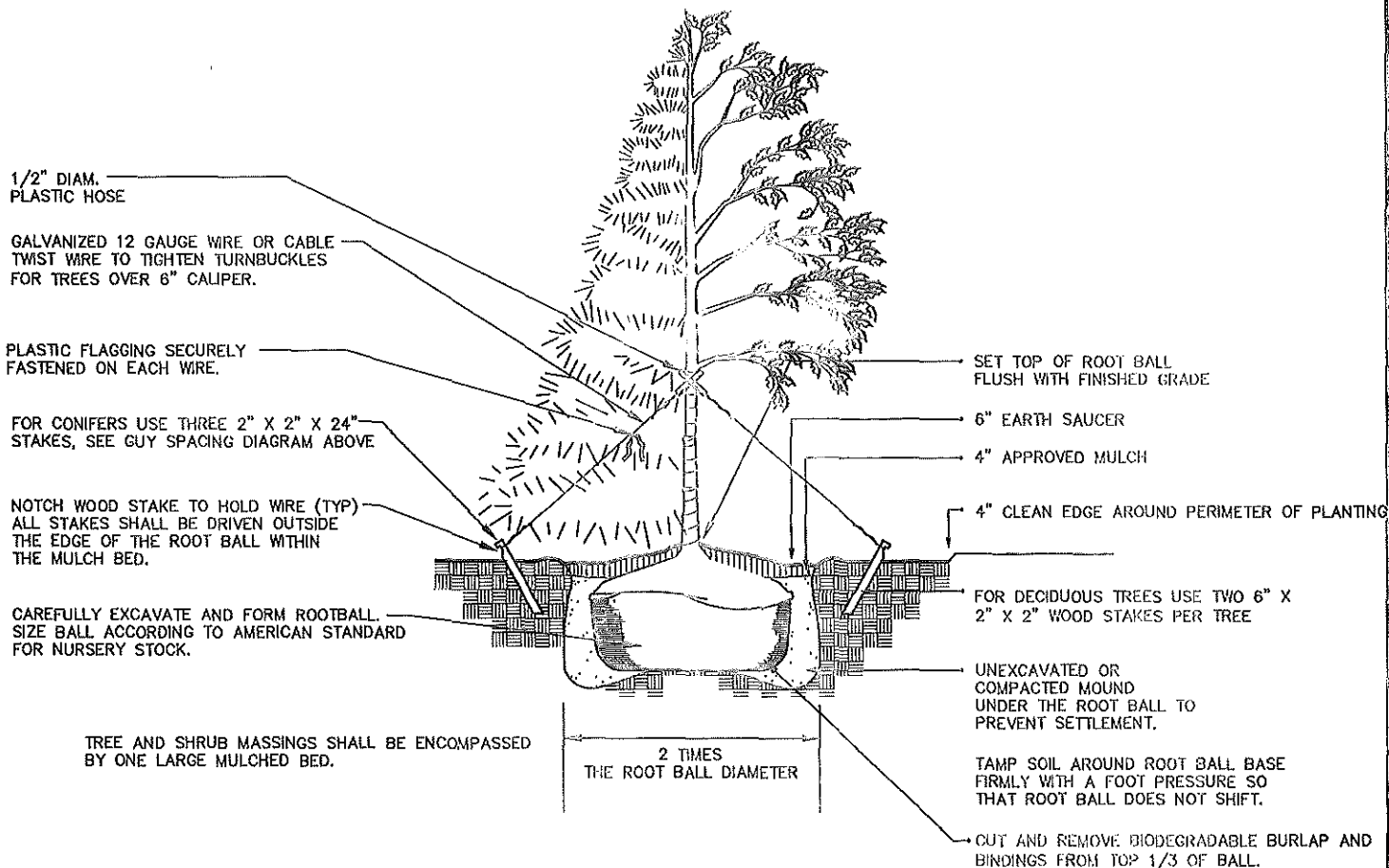
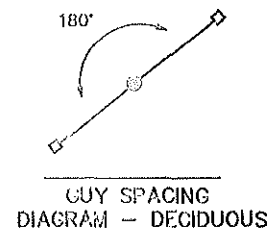
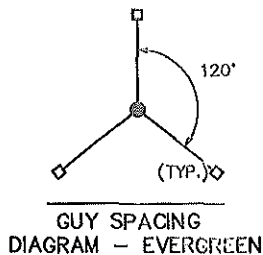
#### NOTES:

1. JOINTS, EDGES, AND ENDS TO BE FINISHED WITH A RADIUS OF NOT LESS THEN  $\frac{3}{8}$  INCH.
2. ALL SIDEWALK TO BE PITCHED TO DRAIN TOWARD THE STREET.
3. LIGHT BROOM FINISH (UNLESS SPECIFIED OTHERWISE).
4. 3/8" PREMOLDED EXPANSION JOINT MATERIAL. JOINT TOOLED TYP. AT 20' O.C. AND AT INTERSECTIONS OR AT CHANGE OF DIRECTION (UNLESS SPECIFIED OTHERWISE).
5. TOOLED CONTROL JOINT AT 5' O.C., (MIN. 1/3 OF SLAB DEPTH (UNLESS SPECIFIED OTHERWISE)).
6. WELDED WIRE MESH, WHERE SPECIFIED, SHALL BE HELD 1" MIN. ABOVE SUB-GRADE BY BOLSTERS OR CHAIRS MATCHING MATERIAL AND FINISH OF REINFORCING AND SHALL BE 100% CUT AT ALL JOINTS.
7. EXCAVATION TO BE MADE TO A DEPTH OF AT LEAST 12 INCHES BELOW THE SIDEWALK GRADE. THE BOTTOM OF ALL EXCAVATIONS TO BE WELL TAMPED BEFORE FORMING IS PLACED.
8. SEE ROADWAY CROSS SECTION FOR MINIMUM WIDTH OF SIDEWALK.



#### HEAVY DUTY CONCRETE NOTES:

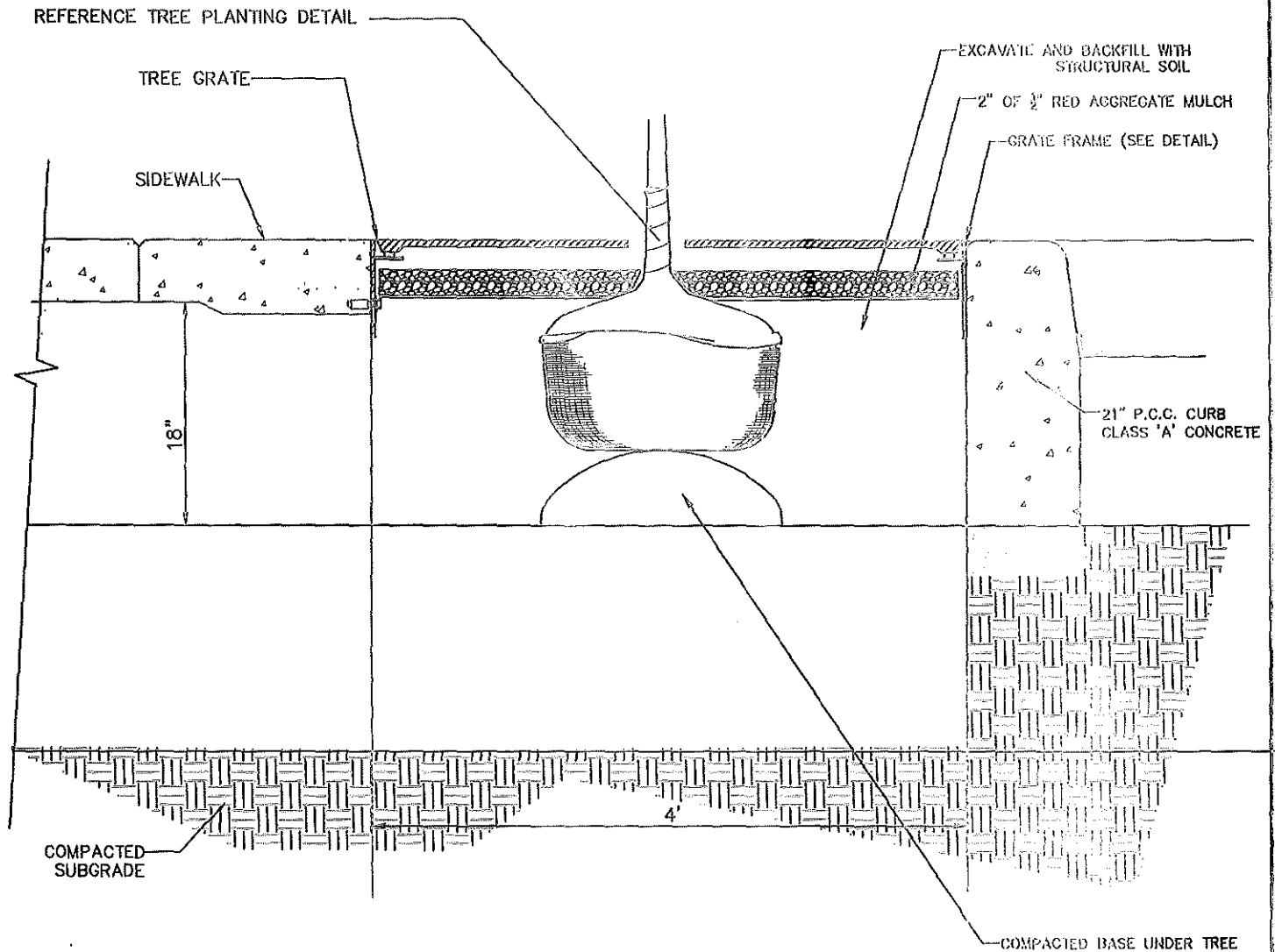
1. ALL REBAR TO BE EPOXY COATED.
2. NEW HEAVY DUTY CONCRETE TO BE DOWELED INTO EXISTING BUILDING SLAB/FOUNDATION.
3. CONCRETE STRENGTH TO BE 4,000 PSI.
4. CONTROL JOINT SPACING TO BE CONFIRMED PRIOR TO POUR.
5. PROVIDE EXPANSION JOINT BETWEEN EXISTING PAVING AND NEW HEAVY DUTY CONCRETE.
6. PROVIDE 3/4 INCH CHAMBER AT CONCRETE EDGE.



#### NOTES:

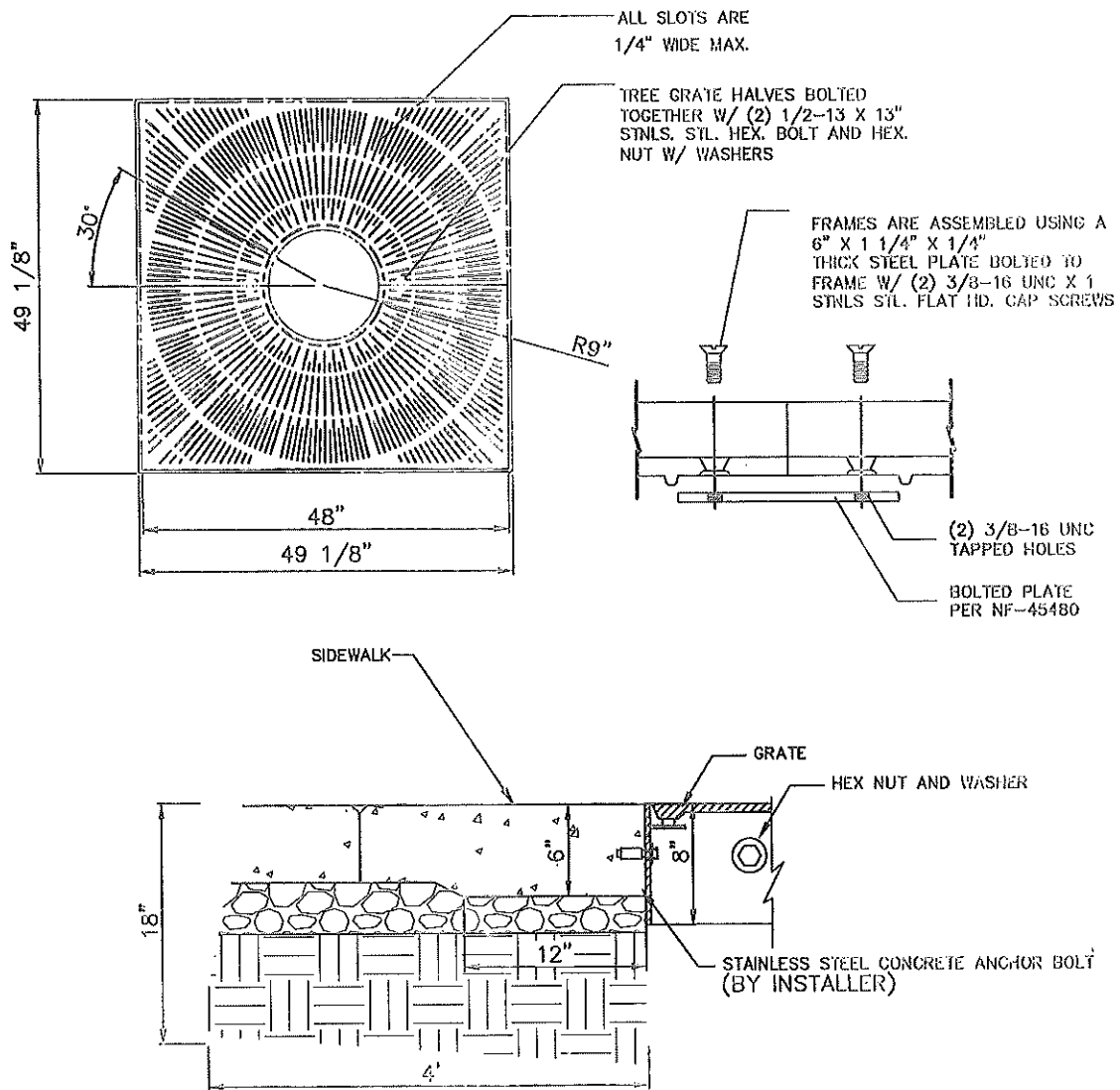
1. REMOVE PLASTIC, PAPER, OR FIBER POTS FROM CONTAINERIZED PLANT MATERIAL. PULL ROOTS OUT OF THE ROOT MAT, AND CUT CIRCLING ROOTS WITH A SHARP KNIFE. LOOSEN THE POTTING MEDIUM AND SHAKE AWAY FROM THE ROOT MAT. IMMEDIATELY AFTER REMOVING THE CONTAINER, INSTALL THE PLANT SUCH THAT THE ROOTS DO NOT DRY OUT. PACK PLANTING MIX AROUND THE EXPOSED ROOTS WHILE PLANTING AND WATER THOROUGHLY WHEN 50% OF THE BACKFILL IS PLACED. IF WATER DOES NOT INFILTRATE, CONSULT WITH THE LANDSCAPE ARCHITECT BEFORE PROCEEDING. IF THE WATER INFILTRATES WITHIN 30 MINUTES, COMPLETE THE BACKFILL AND FORM A SAUCER AROUND THE TREE. WATER AGAIN.
2. ALL TREES SHALL BE STAKED PER THE STAKING DETAIL ABOVE. CONTRACTOR SHALL MAINTAIN THE STAKING FOR A PERIOD OF NO LESS THAN 1 YEAR. RE-STAKE AND ADJUST TREES AS NEEDED DURING THIS TIME PERIOD.

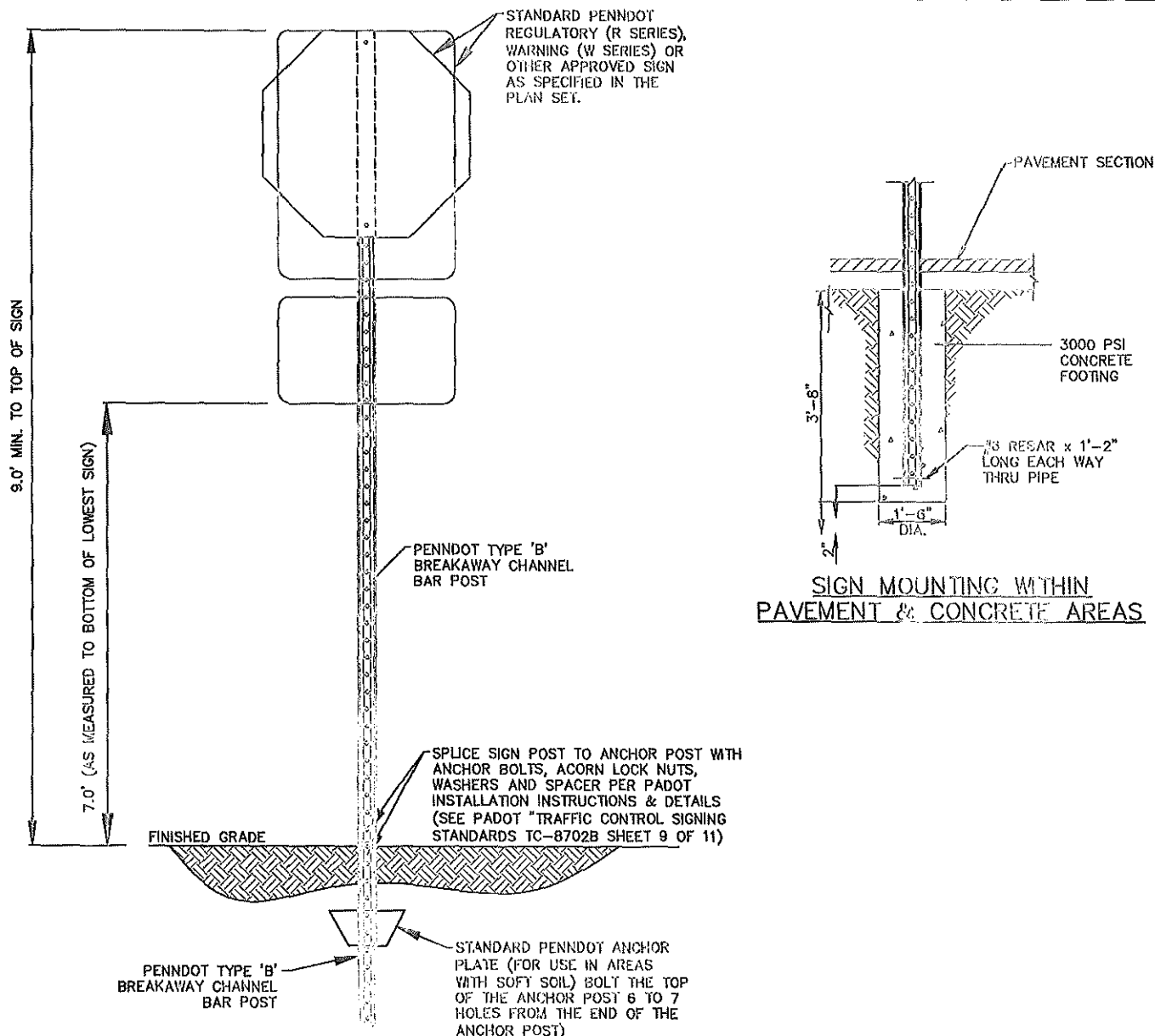




**NOTES:**

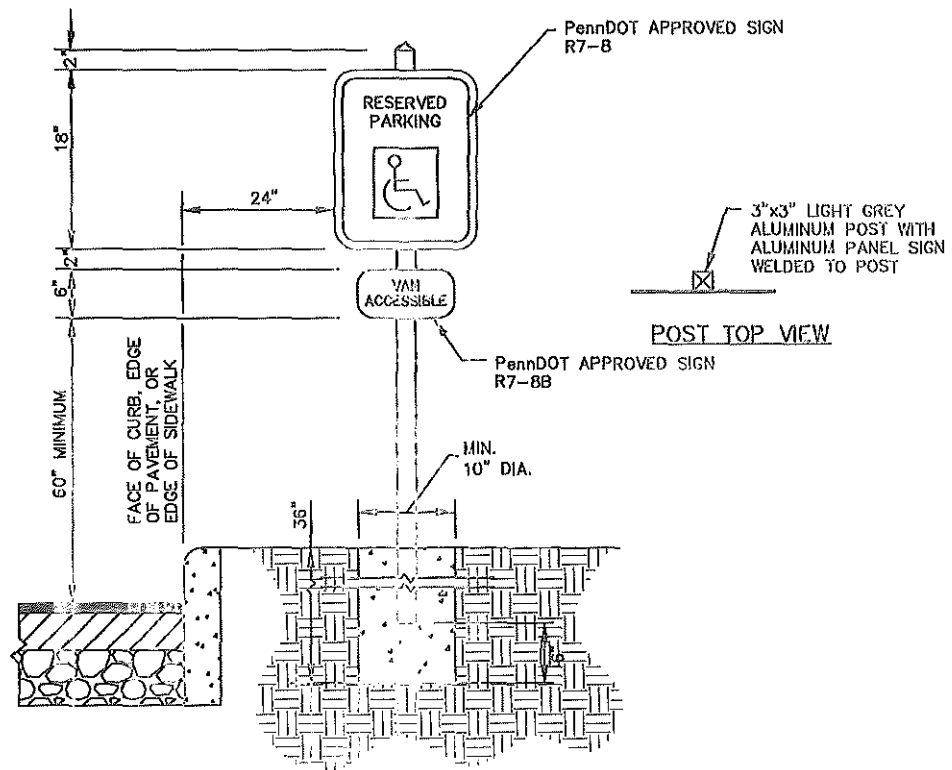
1. EXTEND STRUCTURAL SOIL 8' BEYOND THE TREE PIT, UNDER THE SURROUNDING SIDEWALK.





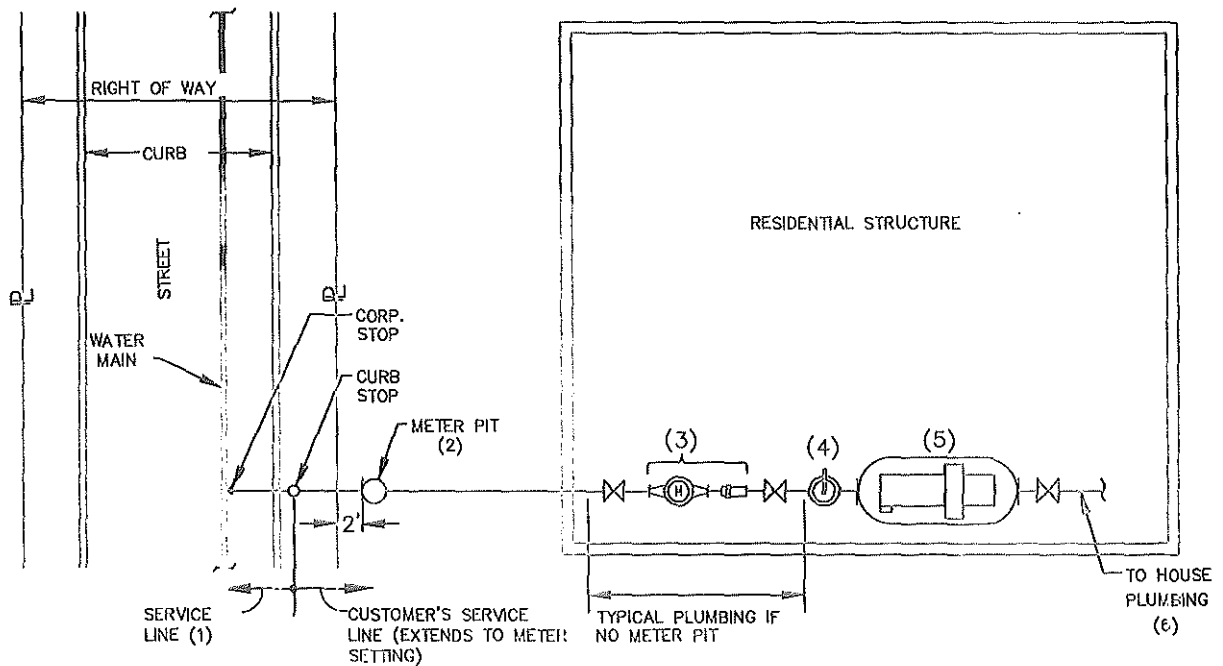
#### NOTES:

1. POST MOUNTED SIGNS SHALL BE TYPE B CHANNEL BAR POSTS AND SHALL CONFORM TO PENNDOT "TRAFFIC CONTROL SIGNING STANDARDS" TC-8702B SHEET 8 THRU 11 OF 11. APPROPRIATE POSTS SHALL BE SELECTED BASED ON THE SIZE OF THE SIGN USING THE SELECTION TABLES CONTAINED THEREIN.
2. SIGN INSTALLATION SHALL BE IN ACCORDANCE WITH PENNDOT "TRAFFIC CONTROL SIGNING STANDARDS" TC-8702B SHEETS 8 THRU 11 OF 11 AS AMENDED.
3. ALL REGULATORY (R SERIES) SIGNS SHALL CONFORM TO THE PENNDOT "HANDBOOK OF APPROVED SIGNS", PUBLICATION 236M, AS AMENDED UNLESS OTHERWISE SPECIFIED.
4. ALONG NON-CURBED LOCAL ROADWAYS, SIGNS SHALL BE SETBACK 6.0' FROM THE SHOULDER/PAVEING EDGE AND SHALL BE AT A HEIGHT 5.0' ABOVE THE EDGE OF PAVEMENT SURFACE.
5. ALL SIGNS SHALL BE INSTALLED WITH ACORN NUT FASTENERS
6. FOR "RESERVED PARKING SIGN" (R7-8) REFER TO DETAILS AND SPECIFIED MOUNTING HEIGHTS WHICH ARE LOWER FOR INCREASED VISIBILITY PER ADA REGULATIONS.



**NOTES:**

1. ALL SIGNS ARE TO BE BREAKAWAY CONNECTIONS
2. REFERENCE PENNDOT PUBLICATION 236 APPROVED SIGNS



PARTIAL SITE PLAN

NOTES:

1. SEE THE SMALL SERVICE CONNECTION DETAIL FOR CONSTRUCTION STANDARDS. A MINIMUM 1" DIAMETER SERVICE LINE IS REQUIRED FOR INSTALLATIONS WITH A METER PIT AND/OR BOOSTER PUMP. THE SIZE OF THE CUSTOMER'S SERVICE LINE SHALL BE NO SMALLER THAN THE SIZE OF THE AUTHORITY'S SERVICE LINE.
2. A METER PIT IS REQUIRED IF THE LENGTH OF THE CUSTOMER'S SERVICE LINE EXCEEDS 100'. SEE THE DOMESTIC SERVICE METER PIT DETAIL.
3. THE METER AND DUAL CHECK VALVE SHALL BE PURCHASED FROM THE AUTHORITY.
4. A PRESSURE REDUCING VALVE IS REQUIRED WHEN PRESSURES WILL EXCEED 80 PSI.
5. A BOOSTER PUMPING SYSTEM MAY BE REQUIRED IF THE STATIC PRESSURE IS LESS THAN 45 PSI. MAJOR COMPONENTS OF A BOOSTER PUMPING SYSTEM SHALL INCLUDE A (A) JACUZZI MODEL #5RP2, SHALLOW WELL JET PUMP, (B) FLEXCON INDUSTRIES MODEL #JR44-HS OR MODEL #WR60-02 JET-RITE DIAPHRAGM - TYPE PRESSURE TANK, OR APPROVED EQUAL, INSTALLED IN ACCORDANCE WITH THE TOWNSHIP PLUMBING CODE OR BOCA NATIONAL PLUMBING CODE. BOOSTER PUMPS SHALL HAVE A PROTECTION FUNCTION THAT WILL STOP THE PUMPS IN CASE OF DRY RUNNING.
6. AN AUXILIARY RELIEF VALVE, EXPANSION TANK OR OTHER MEANS OF PROVIDING FOR THERMAL EXPANSION SHALL BE INSTALLED IN THE INTERNAL PLUMBING SYSTEM TO PREVENT DAMAGE TO THE HOT WATER HEATER AND/OR PLUMBING SYSTEM.

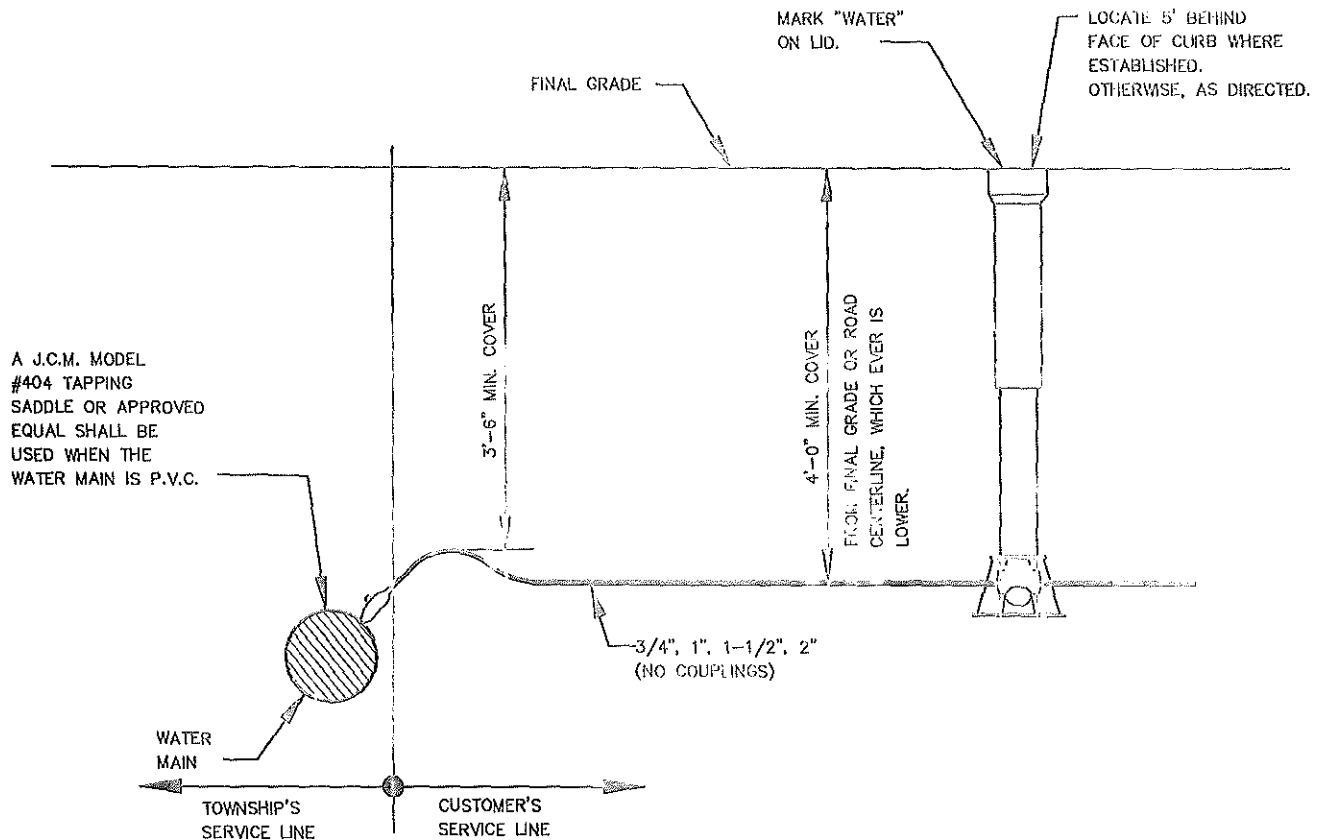
# LIST OF MATERIALS

COPPER TUBING - TYPE K (SEE NOTE 3)

CORPORATION STOP - FORD #FB1000-Q, MUELLER #B2500B OR APPROVED EQUAL.

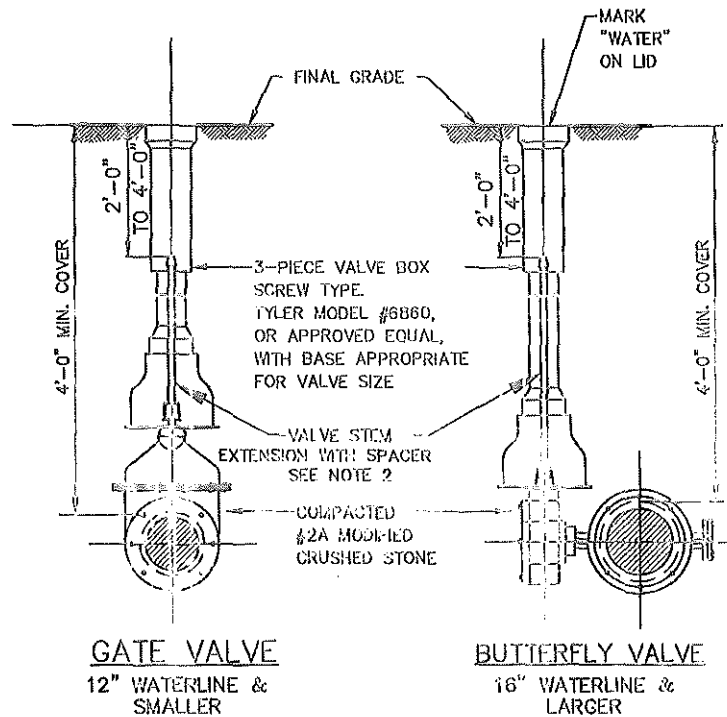
CURB STOP - MUELLER #B25209 (FULLPORT) OR EQUAL.

CURB BOX - BINGHAM & TAYLOR #4901-B WITH FOOT PIECE,  
#4970 OR APPROVED EQUAL.



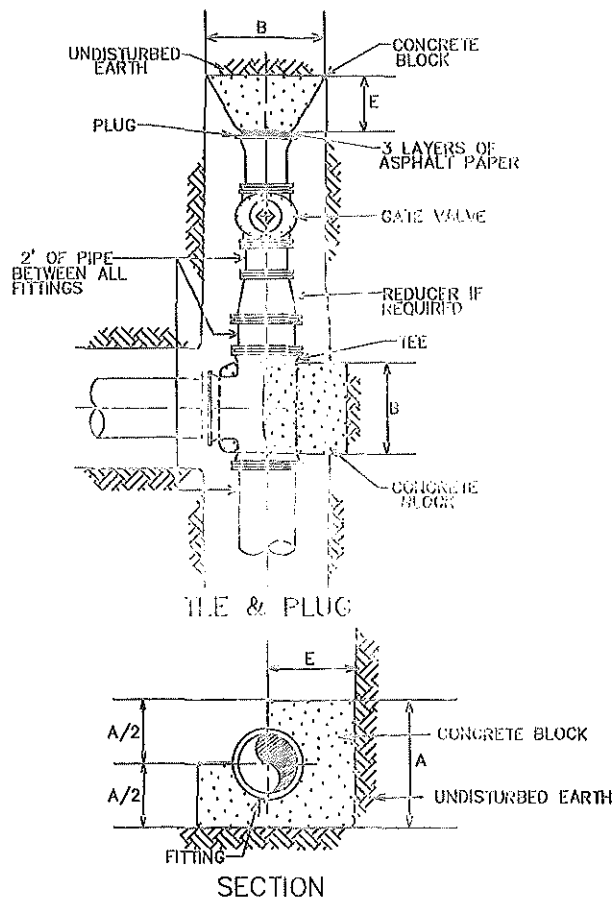
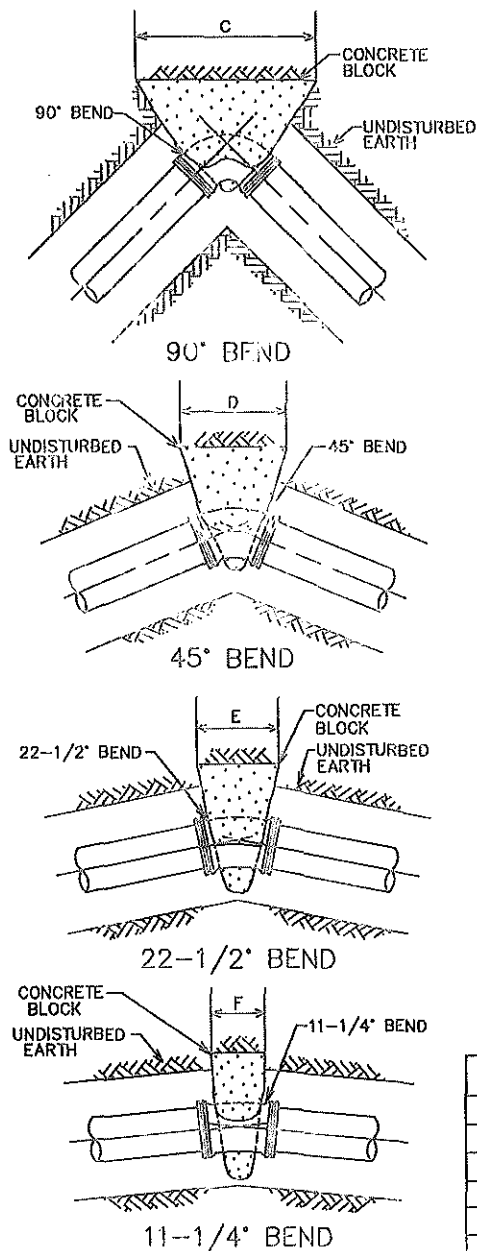
## NOTES:

- SERVICE LINE SHALL HAVE A MIN. 4" BEDDING OF LIMESTONE SCREENINGS AND SHALL BE BACKFILLED TO A MINIMUM 12" OVER PIPE WITH LIMESTONE SCREENINGS.
- AN EXTENSION ROD AND GUIDE RING SHALL BE INSTALLED ON CURB STOPS DEEPER THAN 5 FT. THE TOP OF AN EXTENSION ROD SHALL BE NO DEEPER THAN 5 FT.
- WHERE CLOSED EXCAVATION IS REQUIRED OR DEEMED NECESSARY, THE SERVICE LINE SHALL BE INSTALLED WITHIN A SCHEDULE 40 P.V.C. CASING, AND BE POLYETHYLENE PRESSURE TUBING, CLASS 160, CONFORMING TO A.W.W.A. C-901 SPECIFICATIONS, LATEST REVISION.



**NOTES:**

1. VALVES SHALL BE RESTRAINED TO A FITTING USING MEGALUGS, OR AN APPROVED EQUAL.
2. ANY VALVE WHOSE OPERATING NUT IS GREATER THAN 4 FEET DEEP SHALL BE EQUIPPED WITH AN EXTENSION STEM THAT HAS A MIN. 1 INCH SQUARE SOLID STEEL SHAFT FITTED OVER THE OPERATING NUT AND HAVE A 2 INCH SQUARE OPERATING NUT ON THE TOP. THE SHAFT SHALL BE CENTERED IN THE BOX WITH A SPACER AND BE FASTENED TO THE OPERATING NUT. THE EXTENSION KIT SHALL BE MANUFACTURED BY THE VALVE MANUFACTURER OR APPROVED EQUAL.

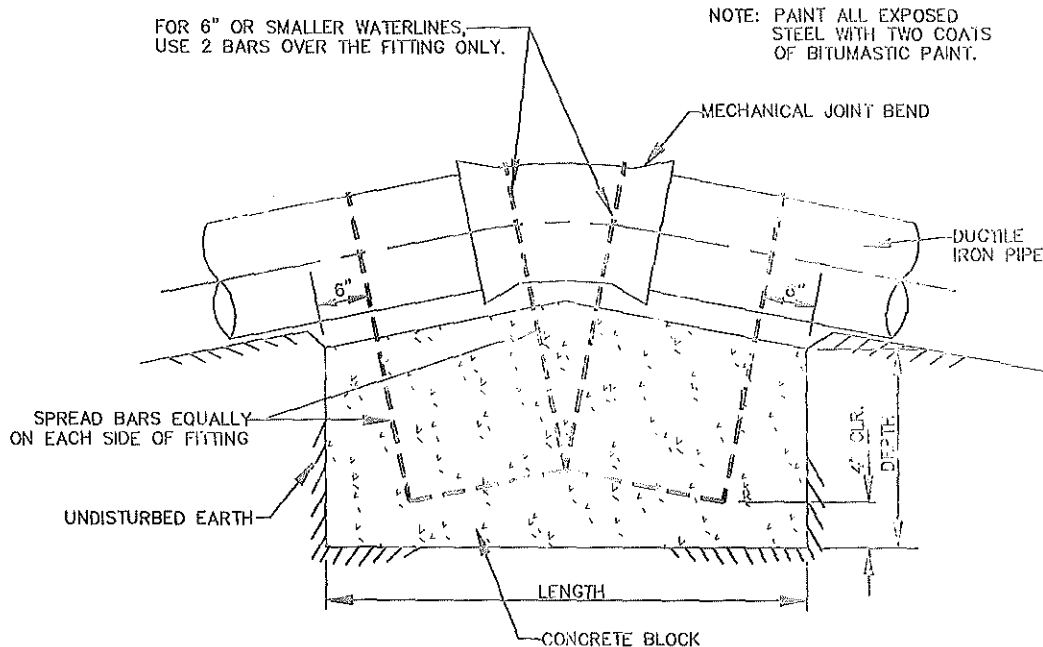


PIPE SIZE	REACTION BACKING DIMENSION					
	A	B	C	D	E	F
20"	4'- 0"	6'- 8"	8'- 4"	5'- 3"	2'- 6"	1'- 5"
16"	3'- 4"	5'- 5"	7'- 0"	4'- 3"	2'- 1"	1'- 3"
12"	2'- 6"	4'- 3"	6'- 0"	3'- 3"	1'- 7"	1'- 0"
8"	1'- 8"	3'- 0"	4'- 3"	2'- 4"	1'- 2"	1'- 0"
6"	1'- 3"	2'- 2"	3'- 4"	1'- 10"	1'- 0"	1'- 0"

**NOTE:**

IN ADDITION TO CONCRETE THRUST BLOCKS, MEGALUGS SHALL BE USED TO RESTRAIN MECHANICAL JOINT FITTINGS AND FIELD LOCK GASKETS TO RESTRAIN PUSH-ON JOINTS WITHIN 40- FEET OF BOTH VERTICAL AND HORIZONTAL BENDS FOR 12-INCH DIAMETER AND SMALLER WATER MAINS, AND WITHIN 60- FEET FOR MAINS LARGER THAN 12-INCH.



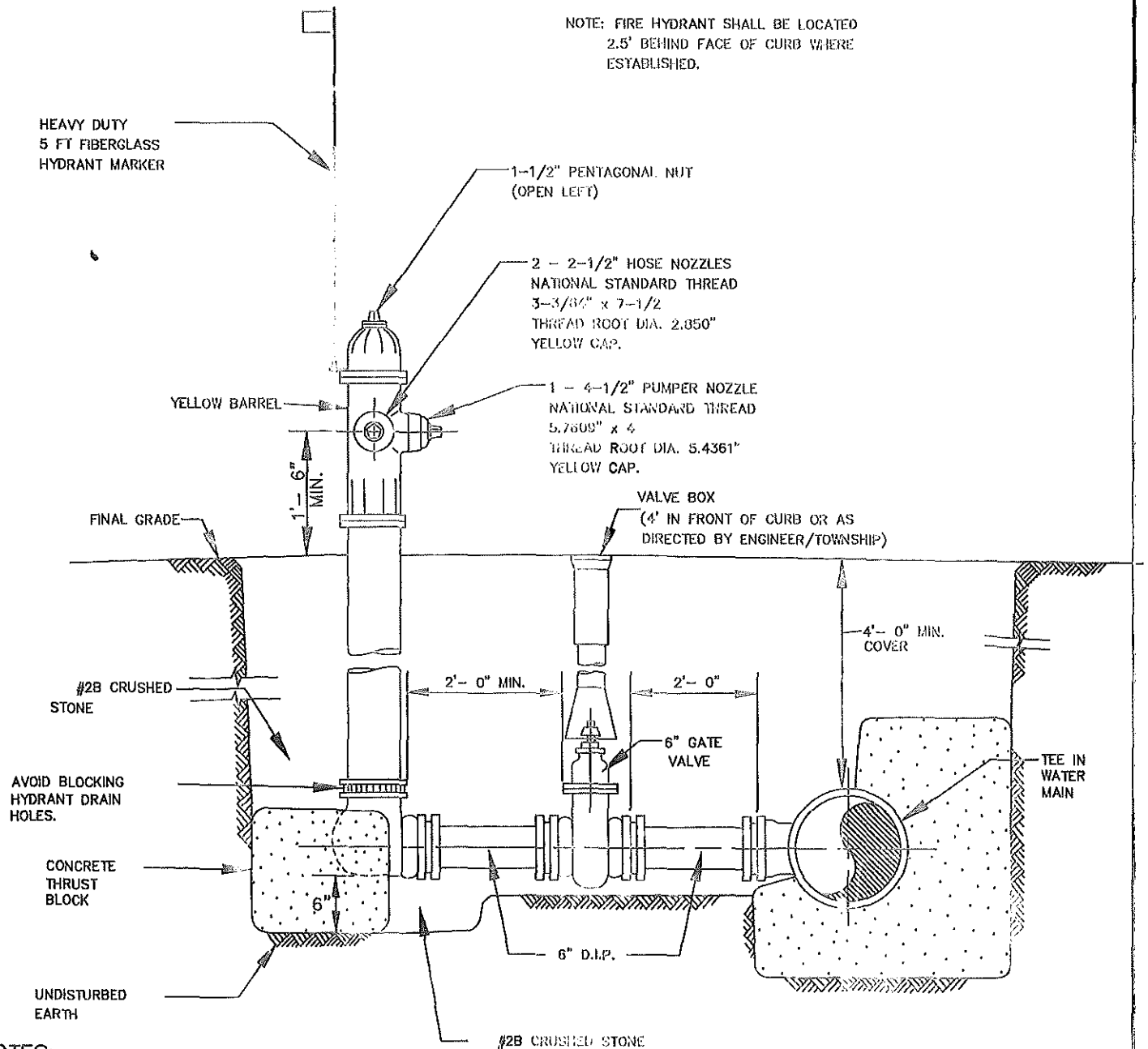


SECTION VIEW

DIMENSIONS FOR CONCRETE BLOCKING FOR UPWARD THRUST												
PIPE SIZES	LENGTH			WIDTH			DEPTH			REBARS		
	11-1/4'	22-1/2'	45'	11-1/4'	22-1/2'	45'	11-1/4'	22-1/2'	45'	11-1/4'	22-1/2'	45'
6" & 8"	3'	4'	6'	3'	3'	3'	2'	3'	4'	1-#4	2-#4	2-#5
12"	4.5'	6'	8'	3'	3'	4'	3'	4.5'	5'	2-#4	2-#6	3-#6
16"	6'	8'	11'	3.5'	3.5'	5'	3.5'	5'	5'	2-#5	4-#5	6-#6
20"	7'	9'	13'	4'	5'	5.5'	4'	5'	6'	3-#5	6-#5	6-#7

**NOTE:**

IN ADDITION TO CONCRETE THRUST BLOCKS, MEGALUGS SHALL BE USED TO RESTRAIN MECHANICAL JOINT FITTINGS AND FIELD LOCK GASKETS TO RESTRAIN PUSH-ON JOINTS WITHIN 40-FEET OF BOTH VERTICAL AND HORIZONTAL BENDS FOR 12-INCH DIAMETER AND SMALLER WATER MAINS, AND WITHIN 60-FEET FOR MAINS LARGER THAN 12-INCH.

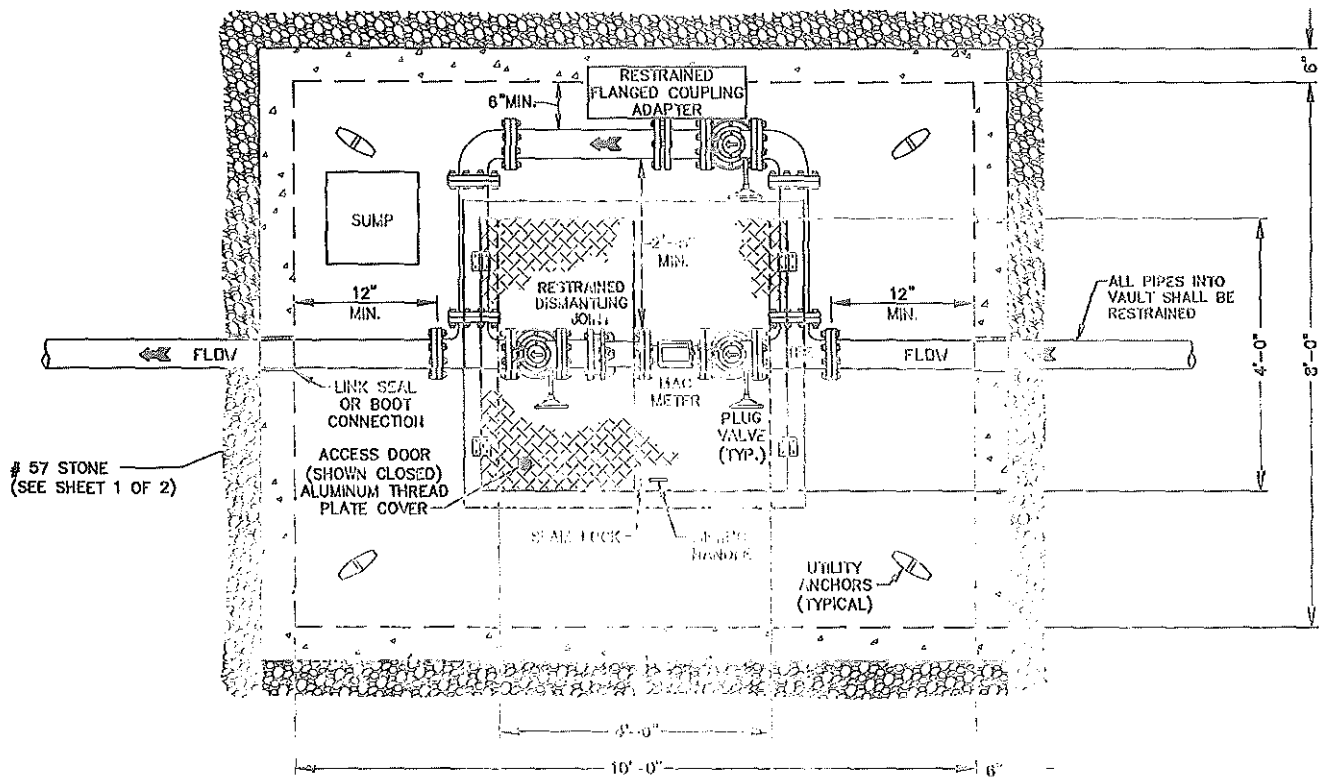


#### NOTES:

1. THE ENTIRE FIRE HYDRANT ASSEMBLY SHALL BE RESTRAINED. MEGALUGS SHALL BE USED ON MECHANICAL JOINT FITTINGS AND FIELD LOCK GASKETS FOR PUSH-ON JOINTS.
2. A HYDRANT SECURITY DEVICE SHALL BE INSTALLED AS DIRECTED BY LEHIGH COUNTY AUTHORITY. DEVICE SHALL BE PURCHASED FROM LEHIGH COUNTY AUTHORITY.
3. PRIVATE FIRE HYDRANTS SHALL HAVE YELLOW BARRELS AND CAPS.



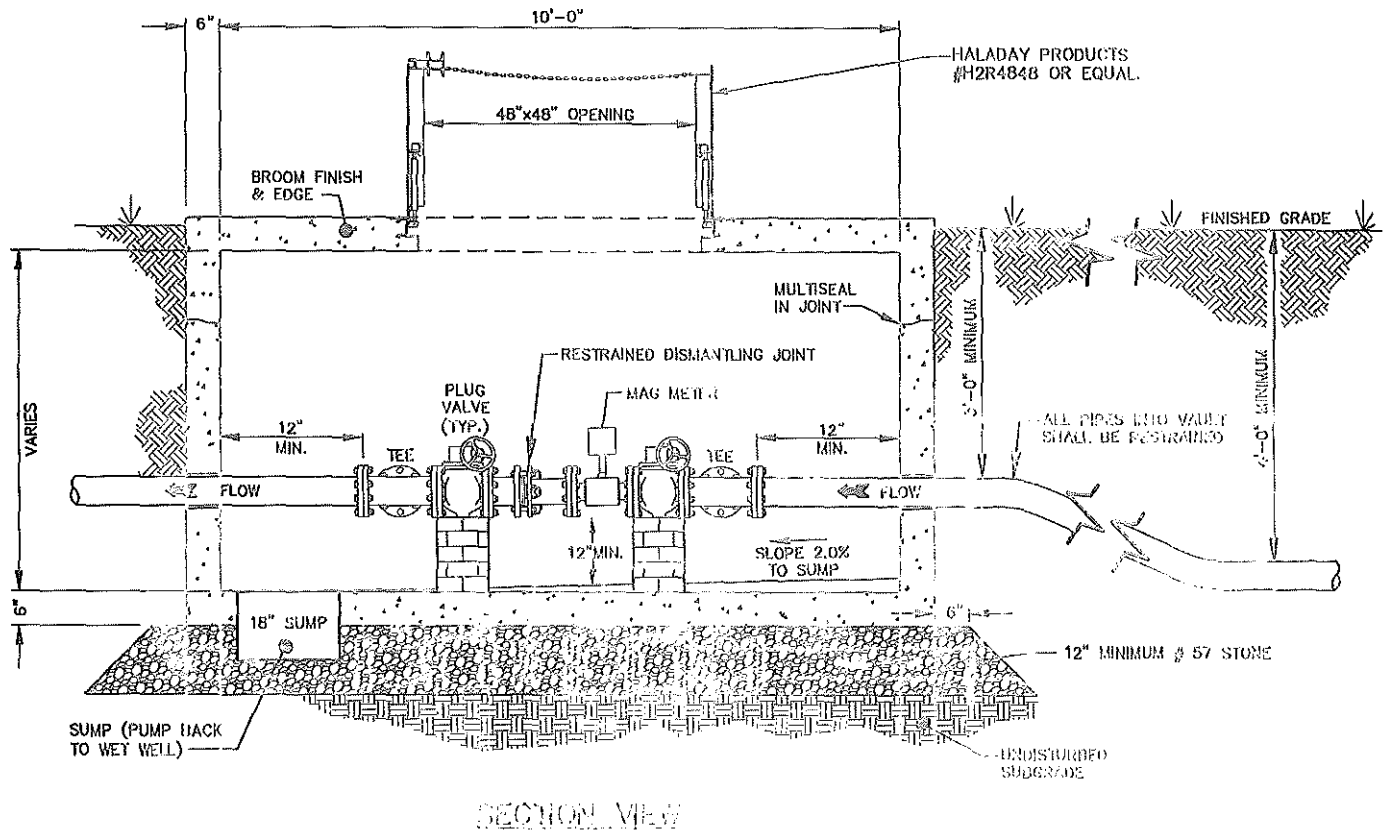
SHEET: W-07



PLAN VIEW

NOTES:

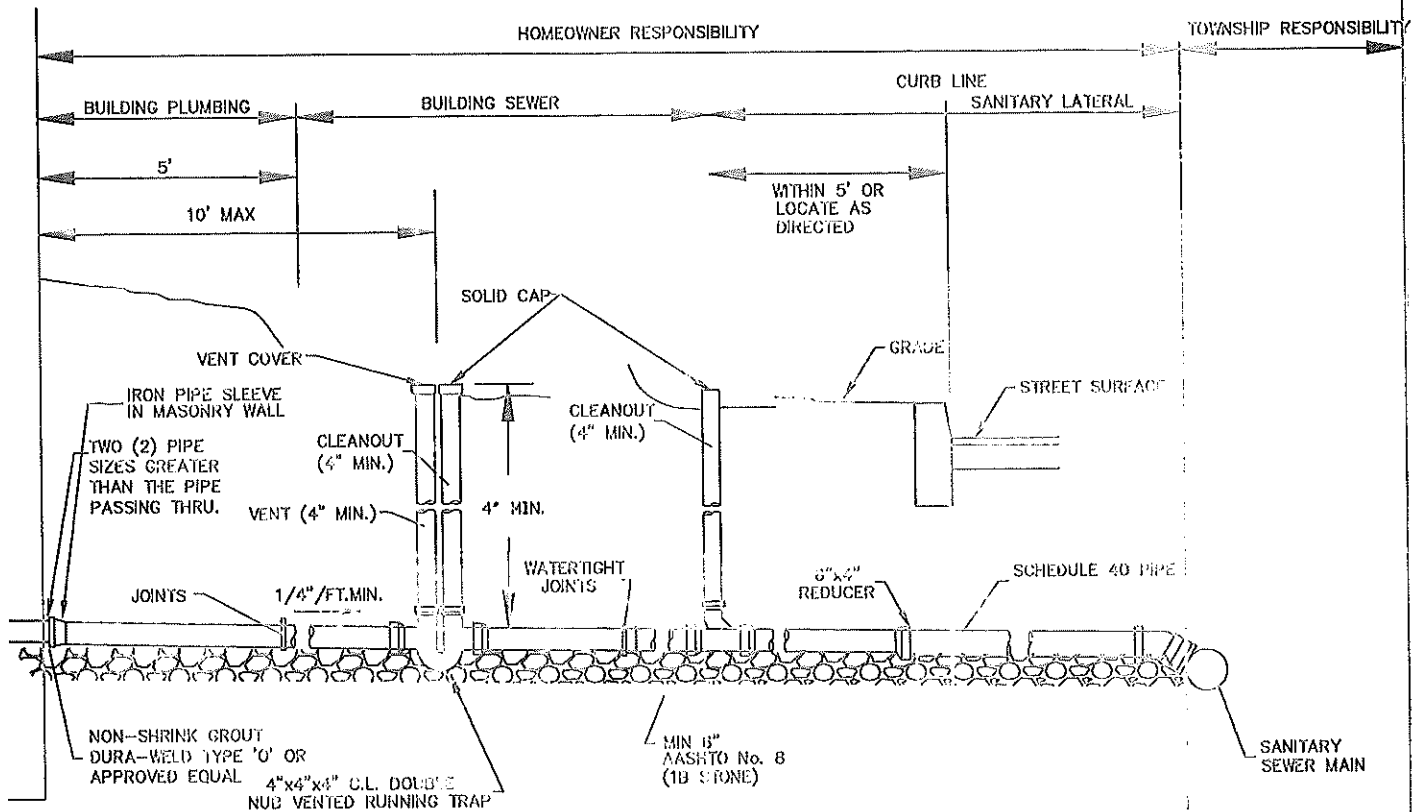
1. A FULL SCALE ENGINEERED METER PIT DETAIL SHALL BE PROVIDED TO THE TOWNSHIP AND THE ENGINEER FOR REVIEW



SECTION VIEW

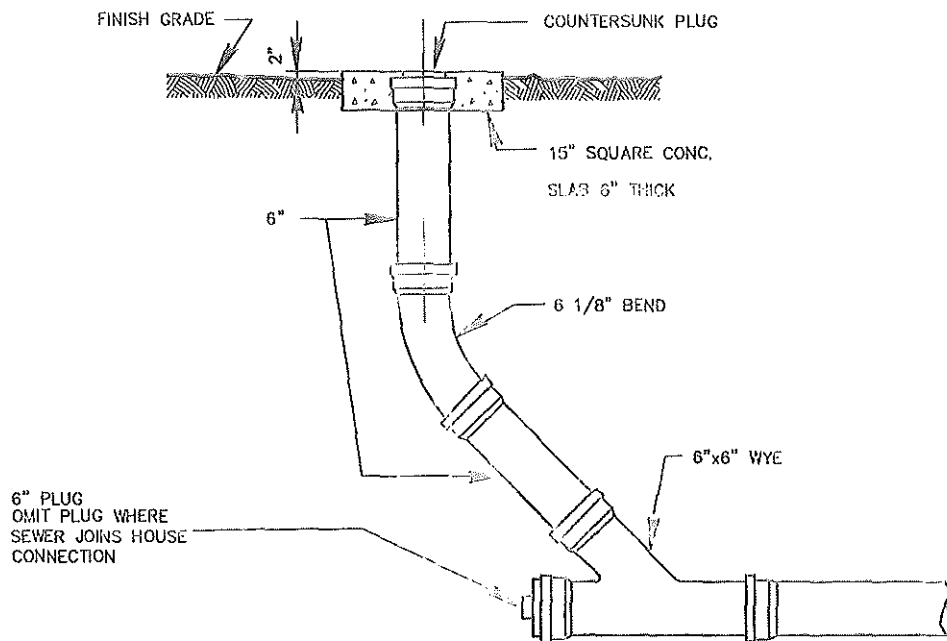
NOTE:

1. A FULL SCALE ENGINEERED METER PIT DETAIL SHALL BE PROVIDED TO THE TOWNSHIP AND THE ENGINEER FOR REVIEW



**NOTE:**

SCHEDULE 40 SOLID WALL PVC PIPE OR HEAVIER WITH AN INTEGRAL BELL, GASKETED JOINT, OR SPIGOT JOINT. FITTINGS SCHEDULE AND JOINTS SHALL CONFORM TO THE SAME REQUIREMENTS AS THE PIPE. ANY SOLUTION CEMENTS USED SHALL CONFORM TO THE ASTM STANDARDS FOR THE MATERIAL BEING USED. PVC PIPE AND FITTINGS MEETING THE REQUIREMENTS OF ASTM CODE SECTION D3034, SDR 35 (EXTRA STRENGTH) ARE ALSO ACCEPTABLE FOR BUILDING SEWER MATERIAL.

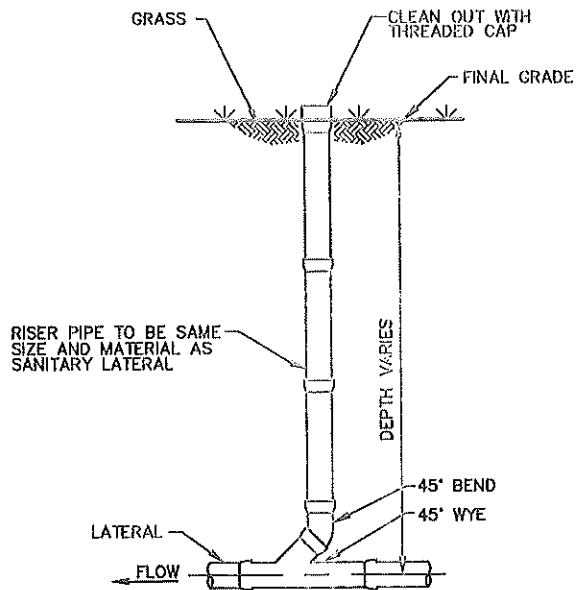


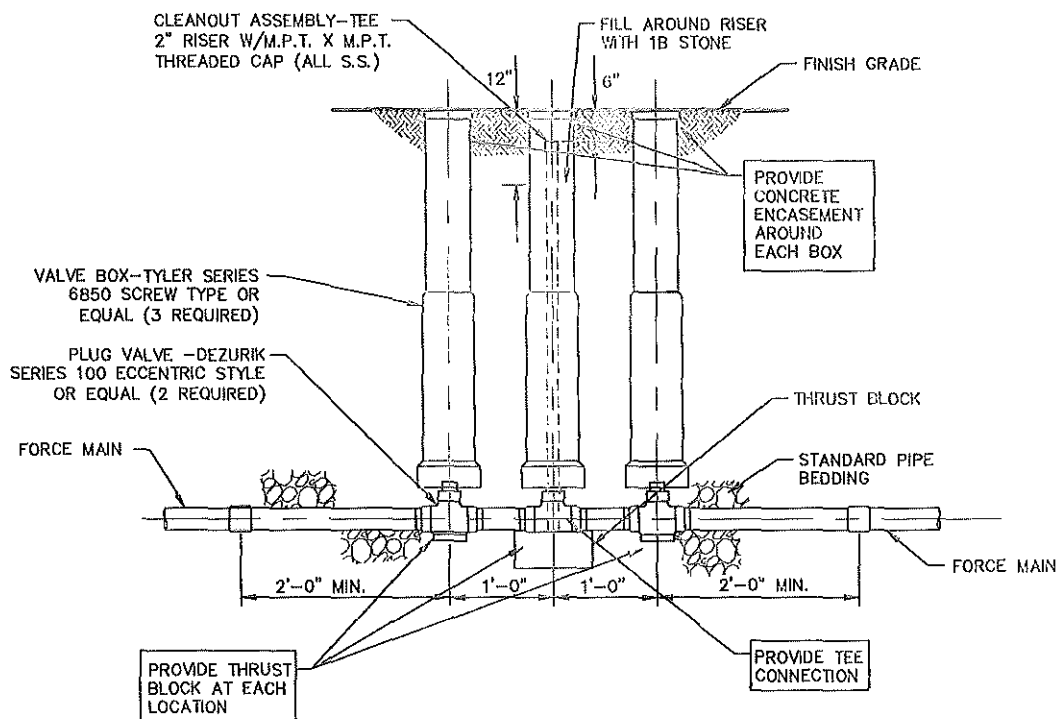
**NOTE:**

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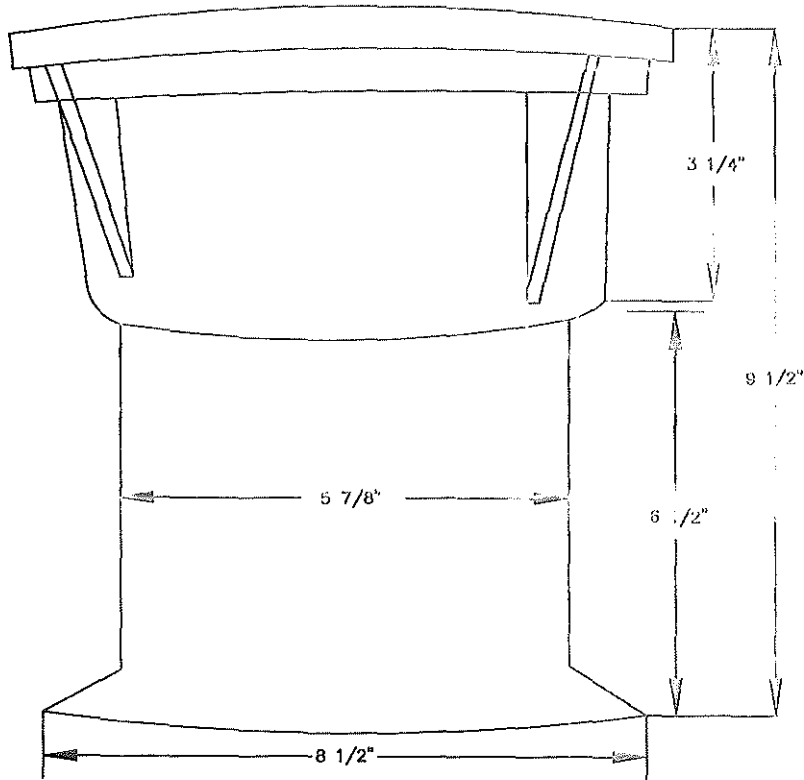




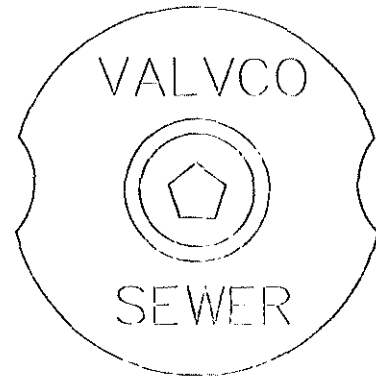
**NOTE:**

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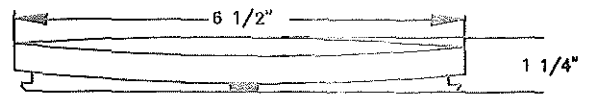
SEWER CLEANOUT  
SIDE VIEW



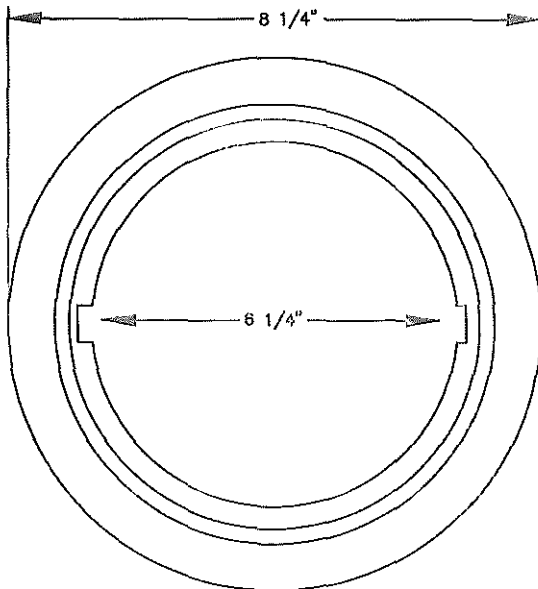
LID TOP VIEW



LID SIDE VIEW



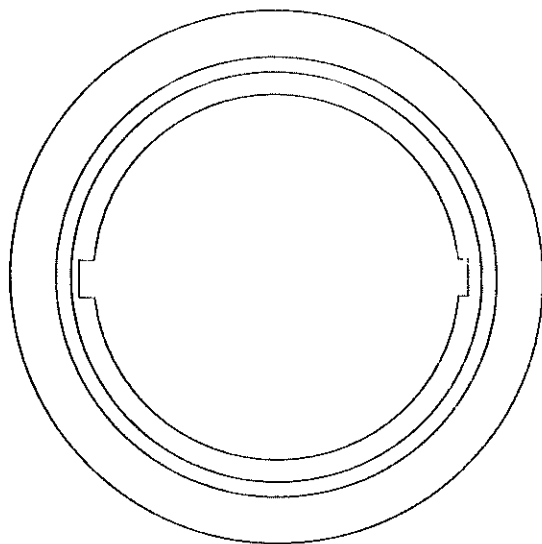
SEWER CLEANOUT  
TOP VIEW



SUITABLE FOR LAWN  
DUTY USAGE

CASTING CONFORMS TO:  
ASTM SPECIFICATION A-48 CLASS 25  
COUNTRY OF ORIGIN: USA

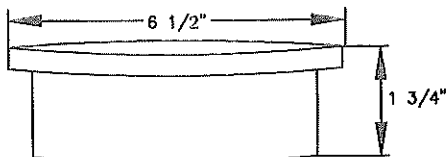
ABS CONFORMS TO:  
ASTM SPECIFICATION D-1778  
CP TEST & VALVE PRODUCTS, INC.



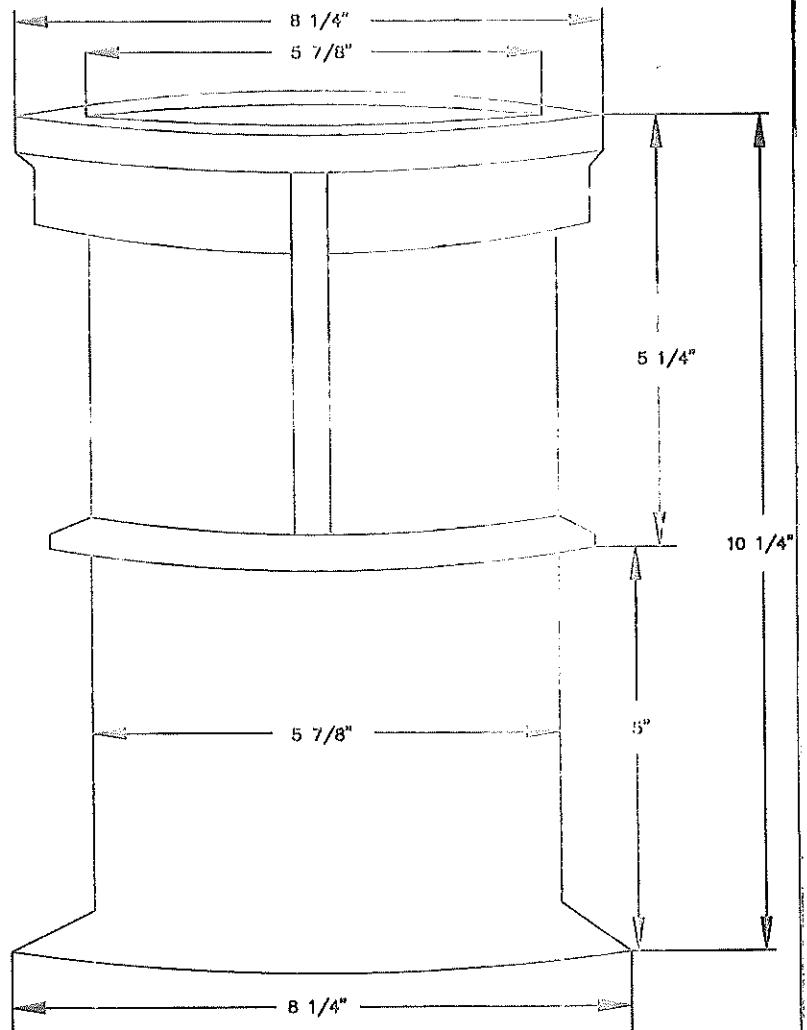
SEWER CLEANOUT  
TOP INTERIOR VIEW



CAP TOP VIEW



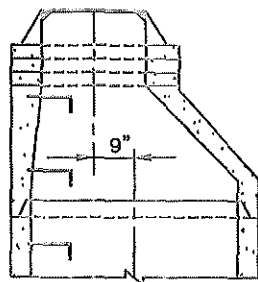
CAP SIDE VIEW



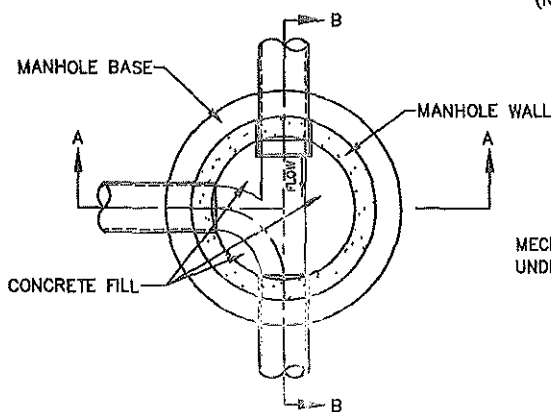
SEWER CLEANOUT  
SIDE VIEW

CASTING CONFORMS TO:  
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COUNTRY OF ORIGIN: USA

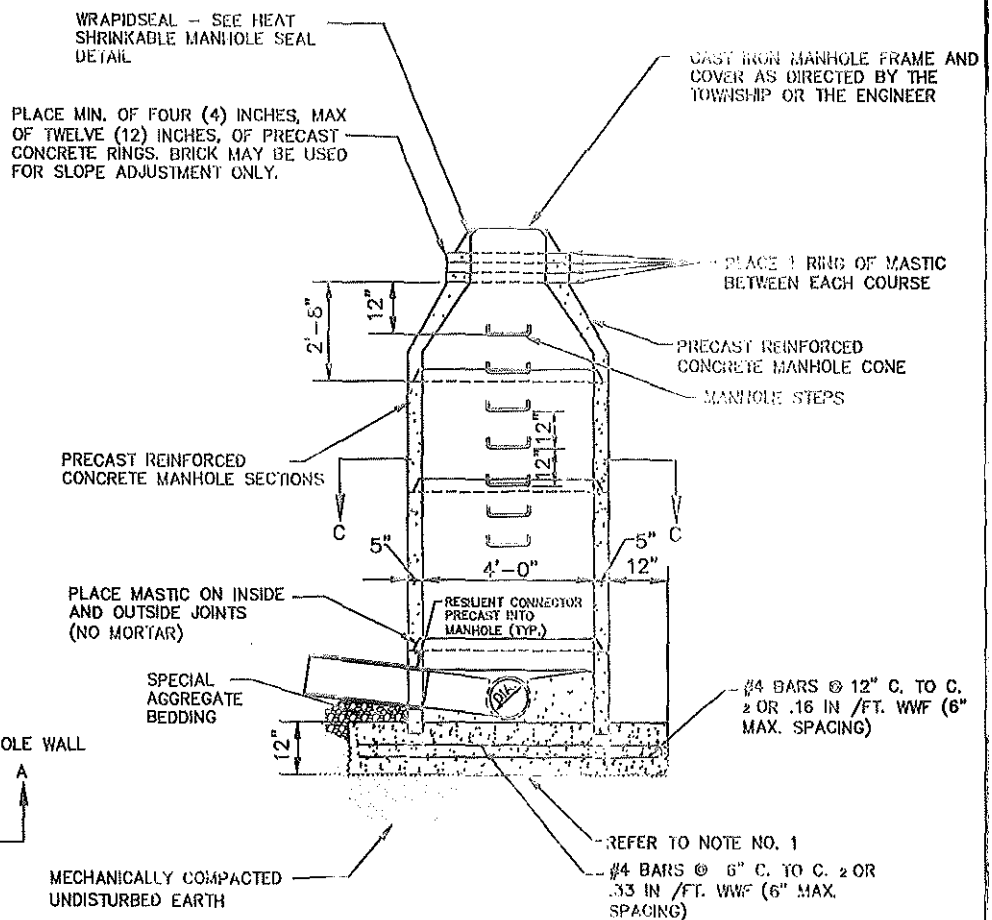
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ASTM SPECIFICATION D-1778  
CP TEST & VALVE PRODUCTS, INC.



SECTION B-B



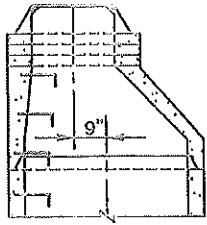
SECTION C-C



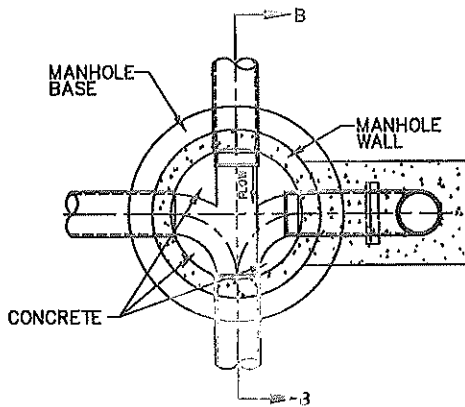
SECTION A-A

**NOTES:**

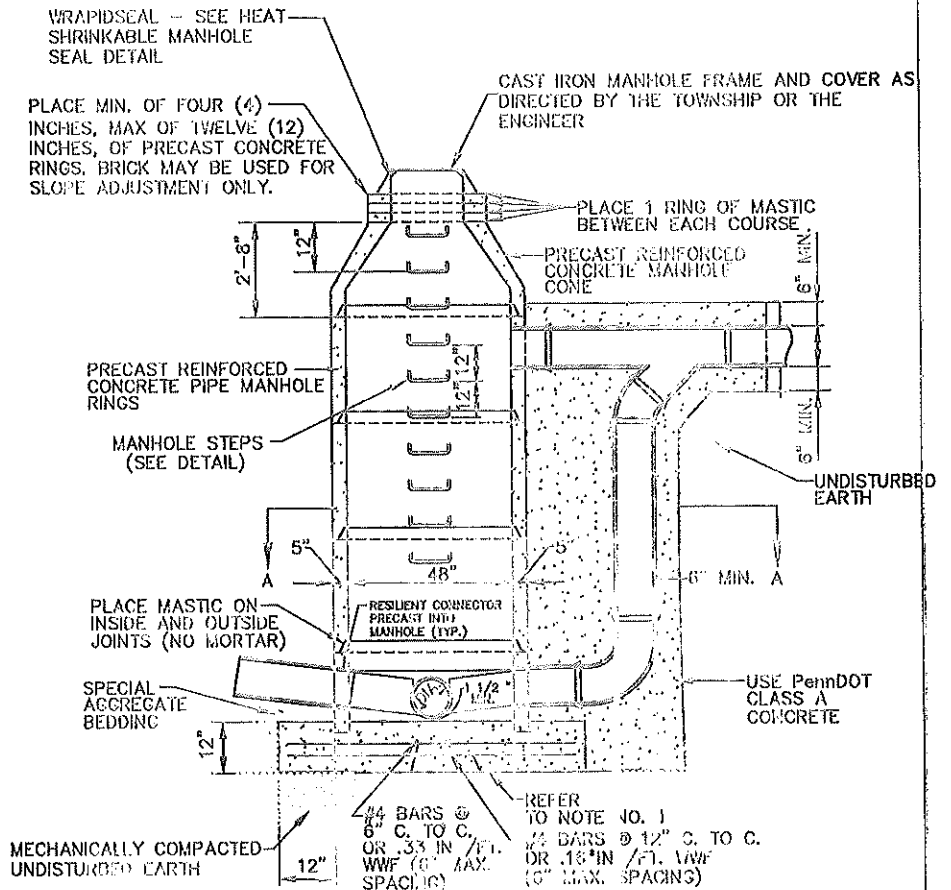
1. PRECAST BASE MAY BE USED IF PLACED ON A 9 INCH FOUNDATION OF PennDOT NO. 2A SUBBASE.
2. PROVIDE FLEXIBLE GASKET IN MACHINED GROOVE IN LID.
3. PAINT ENTIRE OUTER SURFACE OF MANHOLE WITH ONE (1) COAT OF AN APPROVED BITUMASTIC MATERIAL.
4. STEPS TO BE INSTALLED IN PLASTIC STEP INSERT COMPATIBLE WITH THE STEP.
5. STEP AND STEP INSTALLATION SHALL MEET ALL REQUIREMENTS OF ASTM C-478 AND C497 FOR DIMENSIONS, LOAD RATING, AND PULLOUT RESISTANCE.
6. STEP DIMENSIONS AND CONFIGURATION SHALL BE IN ACCORDANCE WITH PennDOT STANDARDS, (RC-39).



SECTION B-B



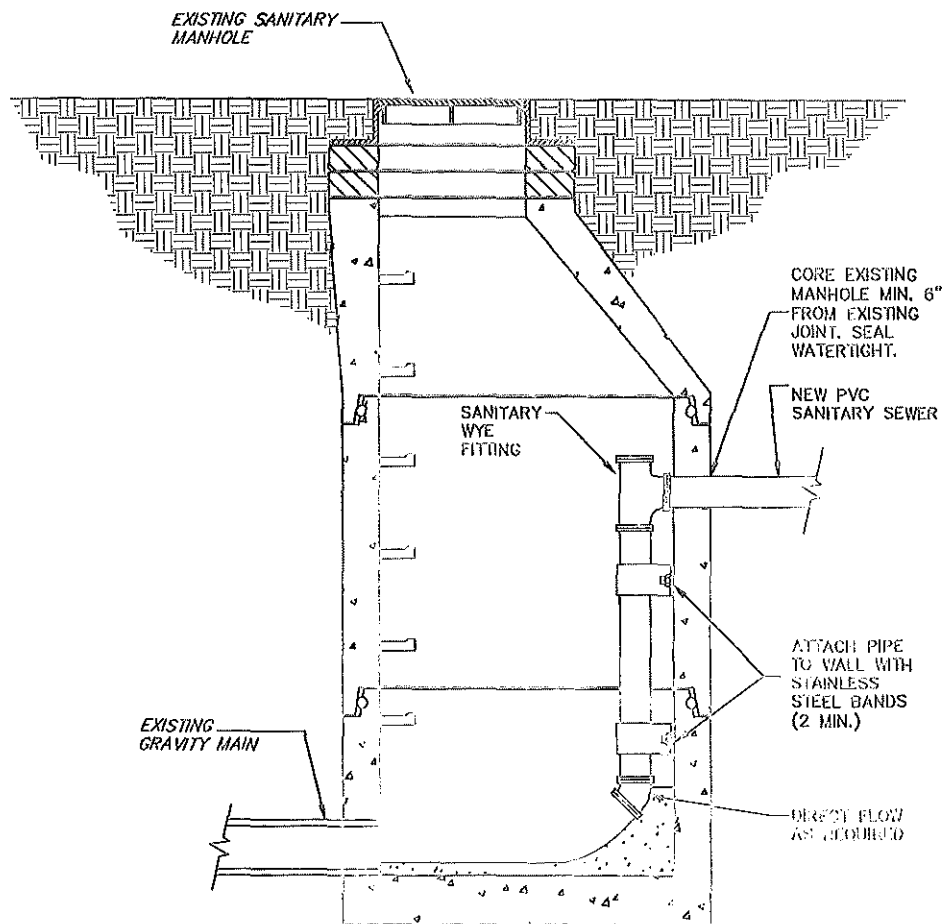
SECTION A-A



MANHOLE SECTION

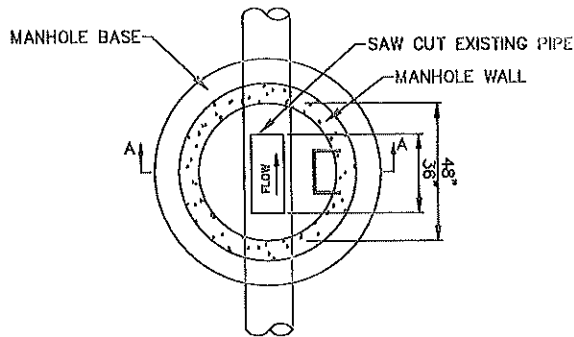
#### NOTES:

1. PRECAST BASE MAY BE USED IF PLACED ON A 9 INCH FOUNDATION OF PennDOT NO. 2A SUBBASE.
2. PROVIDE FLEXIBLE GASKET IN MACHINED GROOVE IN LID.
3. PAINT ENTIRE OUTER SURFACE OF MANHOLE WITH ONE (1) COAT OF AN APPROVED BITUMASTIC MATERIAL.
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6. STEP DIMENSIONS AND CONFIGURATION SHALL BE IN ACCORDANCE WITH PENNDOT STANDARDS. (RC-39).

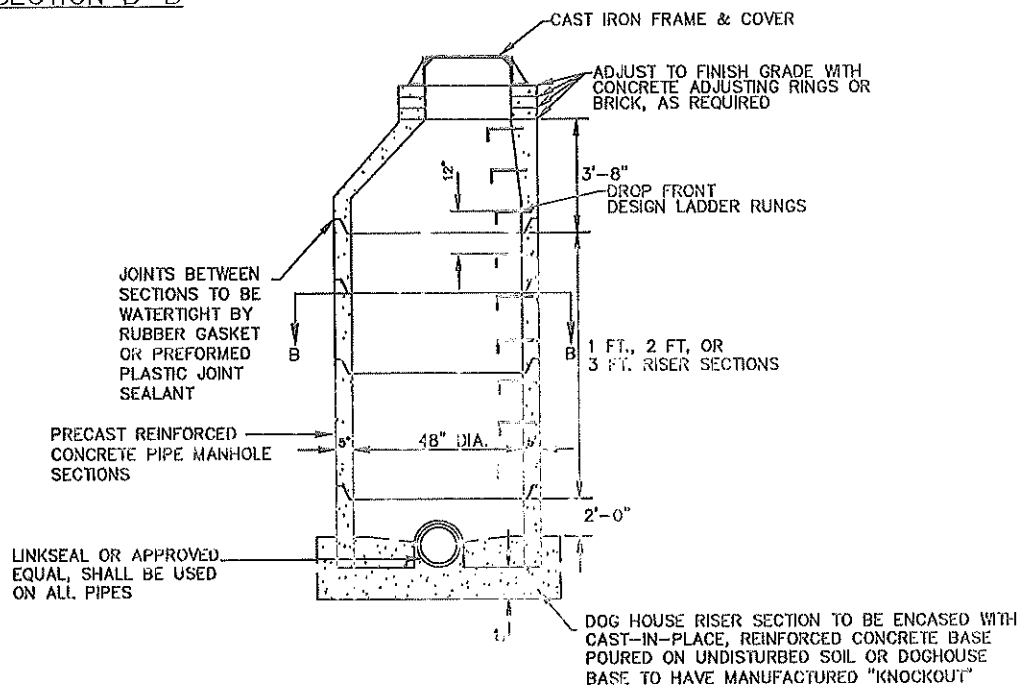


**NOTE:**

1. CONFIRM STEP LOCATIONS AND MH SECTION JOINTS PRIOR TO CONSTRUCTION  
ADJUST AS NEEDED.
2. FORM NEW CHANNEL TO DIRECT FLOW INTO EXISTING CHANNEL



SECTION B-B

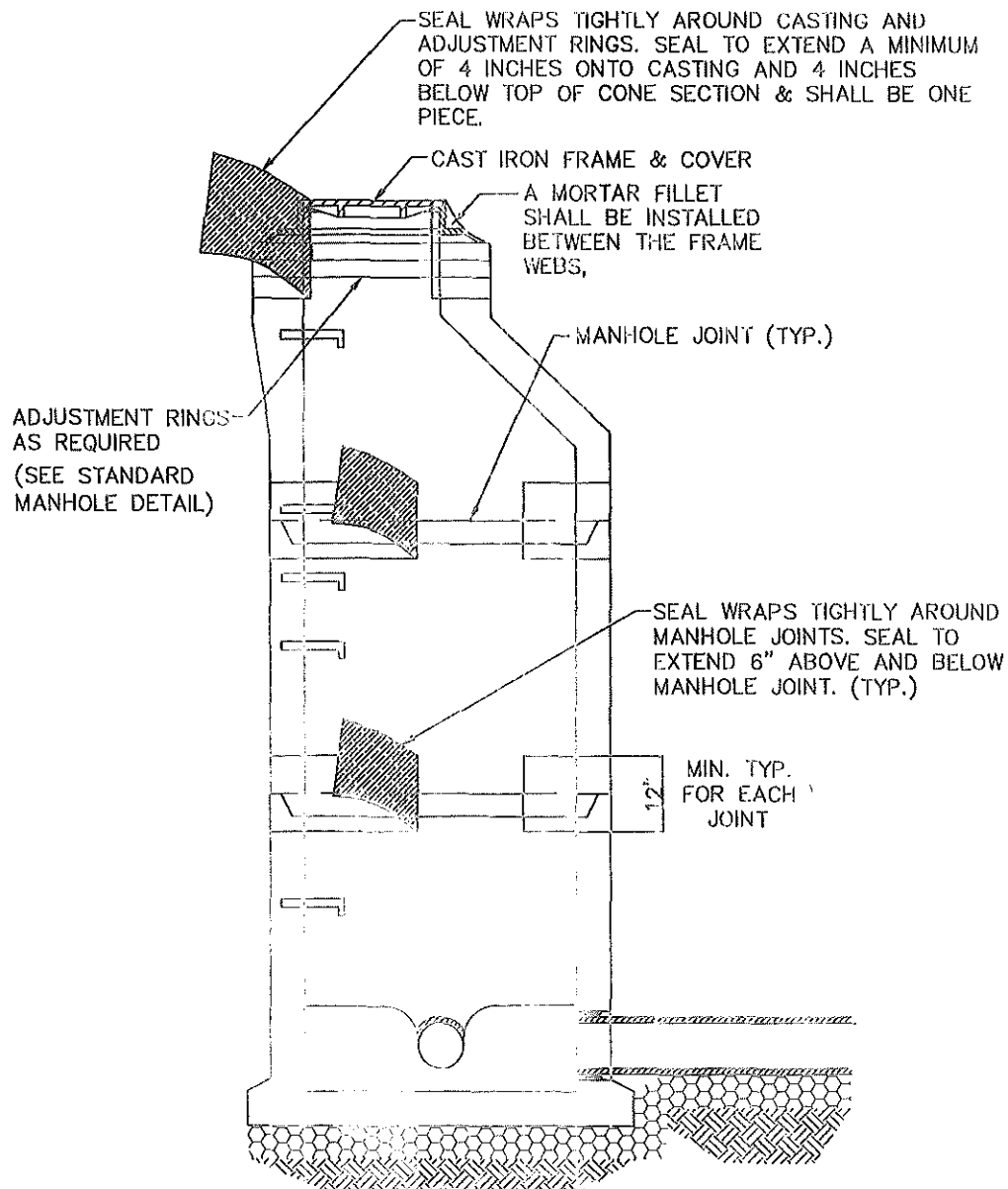


SECTION A-A

NOTES:

1. THE CENTERLINE OF THE MANHOLE SHALL BE LOCATED OVER THE CENTERLINE OF THE MAIN SEWER, WHENEVER POSSIBLE.
2. GRADE ADJUSTMENT RINGS SHALL BE PRECAST CONCRETE AND NOT EXCEED 12" IN HEIGHT. BRICK MATERIALS ARE NOT PERMITTED.
3. ALL TESTING TO BE COMPLETE BEFORE THE CROWN OF THE EXISTING SANITARY LINE IS REMOVED FROM INSIDE THE NEW DOGHOUSE MANHOLE.

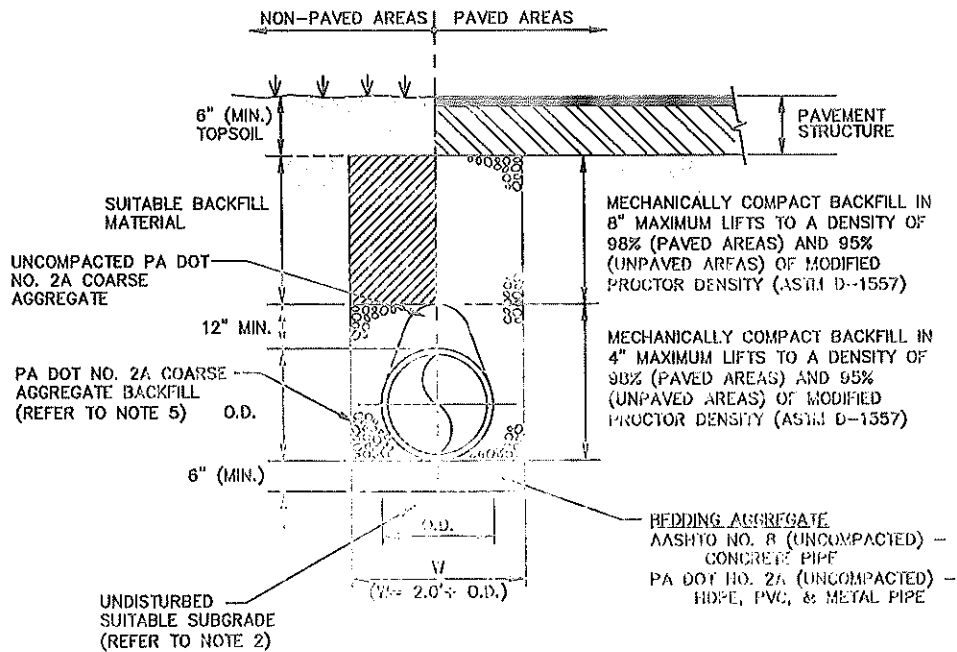




**NOTES:**

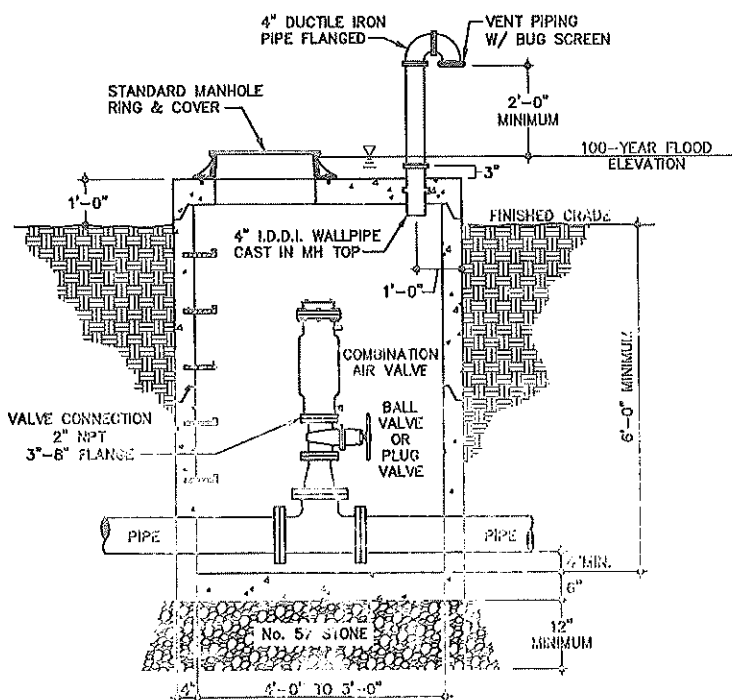
1. MANHOLE SEAL TO BE "WRAPIDSEAL"® MANUFACTURED BY CANUSA-CPS OR APPROVED EQUAL.
2. MANHOLE JOINT SEAL SHALL BE INSTALLED ON ALL JOINTS.

SEE DETAILS FOR REQUIREMENTS

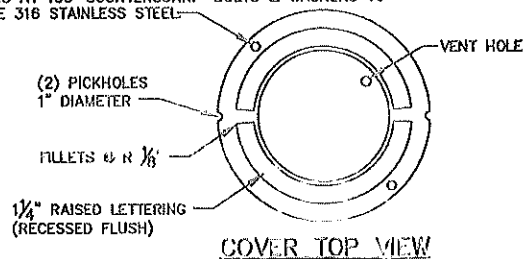


# NOTES:

1. EXCAVATE TRENCH BOX AND INSTALL SHORING AS REQUIRED TO COMPLY WITH FEDERAL, STATE, AND LOCAL LAWS AND CODES.
2. IF UNSUITABLE MATERIAL IS FOUND, UNDERCUT AS DIRECTED BY THE ENGINEER AND BACKFILL WITH SUITABLE MATERIAL TO BOTTOM OF BEDDING ELEVATION.
3. KEEP EXCAVATIONS DRY AND FREE OF WATER. INTERCEPT AND DIVERT SURFACE DRAINAGE AWAY FROM EXCAVATIONS. DEWATER ANY PRECIPITATION AND SUBSURFACE WATER FROM EXCAVATIONS.
4. DO NOT ADVANCE TRENCHING OPERATIONS MORE THAN 200 FEET AHEAD OF COMPLETED PIPELINE.
5. ALL TRENCHES WITHIN PAVED AREAS SHALL BE BACKFILLED WITH FULL DEPTH PA DOT NO. 2A COARSE AGGREGATE.



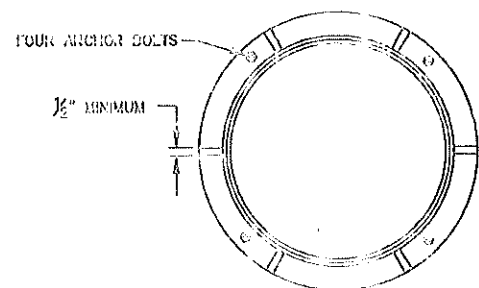
(2)  $\frac{1}{2}$ " x  $1\frac{3}{4}$ " HEX HEAD, STAINLESS STEEL BOLTS AND WASHERS AT 180° COUNTERSUNK. BOLTS & WASHERS TO BE TYPE 316 STAINLESS STEEL



#### RING & COVER SPECIFICATIONS:

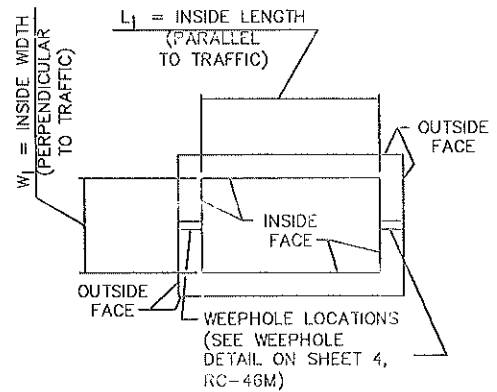
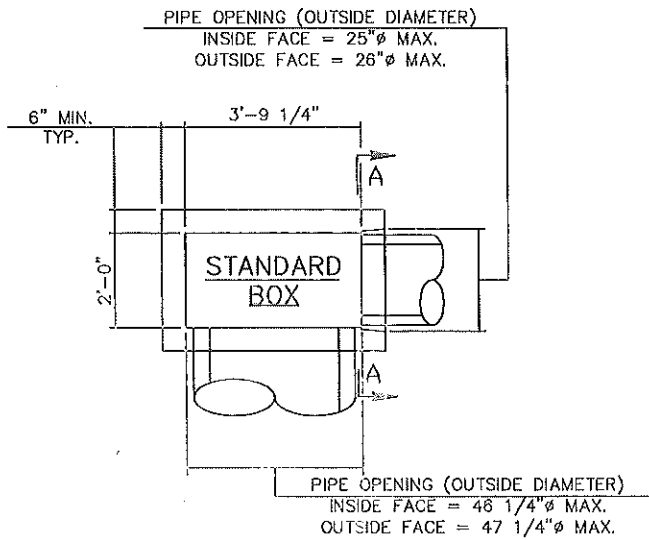
1. CLASS 35 GREY IRON.
2. COMPLIES WITH ASTM A48 CL350.
3. ALL LETTERING SHALL BE CLEAN, CRISP, AND CLEARLY LEGIBLE.
4. DOMESTICALLY MADE AND MANUFACTURED IN THE USA.

MINIMUM WEIGHTS	
RING	180
COVER	120
TOTAL	300

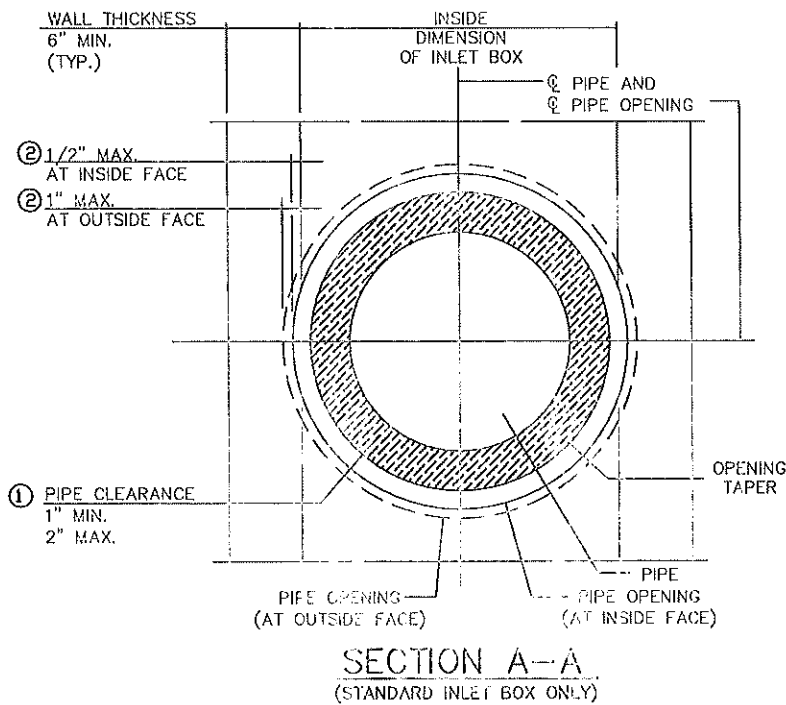


#### NOTES:

1. TEE FITTING AND ISOLATION VALVE TO BE SAME SIZE AS AIR VALVE.
2. ALL PIPING AND FITTINGS, IN THE MANHOLE, SHALL BE PROTECTO 401 LINED OR FBE COATED.
3. MANHOLE INTERIOR SHALL BE COATED WITH 100-mils OF AN APPROVED EPOXY COATING.
4. MANHOLE STEPS SHALL BE PLACED 12" ON CENTER.



INLET BOX SCHEMATIC



LEGEND

OUTSIDE FACE - OUTSIDE FACE OF INLET BOX WALL  
INSIDE FACE - INSIDE FACE OF INLET BOX WALL

NOTES:

- FOR ADDITIONAL NOTES, SEE SHEETS 1-3, OF PENNDOT PUBLICATION RC-46M.
- FOR PIPE LOCATION AND PIPE OPENING NOTES, SEE SHEET 2, OF PENNDOT PUBLICATION RC-46M.