

Town of Brighton

Minimum Specifications for Dedication

**Prepared by
Department of Public Works
for
Highway Department
and
Sewer District**

**Approved by Brighton Town Board
December 9, 1987
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TOWN OF BRIGHTON
MINIMUM SPECIFICATIONS
FOR
DEDICATION
PREPARED BY
DEPARTMENT OF PUBLIC WORKS
FOR
HIGHWAY DEPARTMENT
&
SEWER DISTRICT

APPROVED BY BRIGHTON TOWN BOARD
December 9, 1987
(SEE REVISIONS SECTION FOR LATEST REVISION)

PART 1 - PURPOSE

1.1 The intent of this document is to inform the developer, the design engineer and other members of the development team of the minimum requirements of the Town of Brighton for both design and construction of utilities and pavements to be offered to the Town for dedication or due to becoming part of the infrastructure system. It is important to note that these specifications serve as minimum standards and do not relieve the design professional of their obligation to provide a technically competent design for each individual application. The design professional shall be a civil engineer experienced in this specific field and licensed to practice in the State of New York.

PART 2 - DEFINITIONS

Specifications

The general terms comprising all of the directions, provisions and requirements contained herein, together with such as may be added or adopted as supplemental specifications or special provisions, all of which are necessary for the proper performance of the contract or permit.

Design Engineer

The licensed professional engineer retained by the developer for preparation of plans and specifications for the development.

Developer

The owner of the lands being improved who shall be financially responsible to the Town of Brighton for satisfactory construction of said improvements. This responsibility cannot be delegated to the Contractor.

Contractor

The party of the second part to the contract or permit, the individual, firm, or corporation undertaking the execution of the work under the terms of the contract or permit and acting directly or through their agents or employees.

Town

The person representing the Town of Brighton, Department of Public Works, having direct contact with the execution of the contract specifications or permit under the direction of the Commissioner of Public Works: observe and oversee shall refer to the action of this representative.

Town Representative [Rev. 3/95]

The department representative designated by the Commissioner of Public Works or the Town to observe methods and materials relating to the development both on and off the site of the contract or permit.

PART 3 - RESPONSIBILITIES OF THE DESIGN ENGINEER

3.1 The design engineer shall be retained by the developer and shall act as agent in all matters involving decisions or procedures. The design shall be based upon accepted engineering practice and principles with the criteria set forth in this or any subsequently revised document and the most recent edition of the Town Code of the Town of Brighton serving as a *minimum* set of standards. It shall be the sole responsibility of the design professional to provide a technically complete and functional project. Services and responsibilities shall include, but not be limited to, the following:

3.2 PRIOR TO SITE PLAN APPROVAL:

- 3.2.1 Soil analysis where needed.
- 3.2.2 Impact of development on existing utilities, drainage patterns, and adjacent properties.
- 3.2.3 Computations of sanitary sewer demand and system capacity.
- 3.2.4 Computations of existing/proposed stormwater runoff and system capacity, including water quantity and quality mitigation. [Rev. 3/00]
- 3.2.5 Computation of water consumption/fire flows and system capacity. [Rev. 5/94]
- 3.2.6 Boundary and topographical surveys.
- 3.2.7 Conformity to the *"Town of Brighton Minimum Specifications for Dedication"*.
- 3.2.8 Conformity to all requirements of Local Laws No.6 of 1979 entitled *"Drainage Control Law"* and No.1 of 1980 entitled *"Flood Damage Prevention Law"*
- 3.2.9 Conformity to the *"New York Guidelines for Urban Erosion & Sedimentation Control"*, published by the USDA-Soil Conservation Service. [Rev. 5/94]
- 3.2.10 Application for permit for development in flood hazard areas, if required.
- 3.2.11 Preparation of proposed construction cost estimates for the performance bond and letter of credit. [Rev. 5/94]
- 3.2.12 Preparation of easement and special district maps and descriptions as required. [Rev. 5/94]
- 3.2.13 Approvals for use of or drainage discharge onto State, County, or private lands.
- 3.2.14 Permit approvals if required for access to or work to be performed on State or County right of ways or work within classified stream areas.
- 3.2.15 Monroe County Water Authority approval of proposed water supply systems. [Rev. 5/94]
- 3.2.16 Monroe County Department of Health approval of proposed sewage disposal systems, sewerage or pump stations.
- 3.2.17 Conformity to all other applicable regulatory agencies' requirements. [Rev. 5/94]

3.3 PRIOR TO FINAL ACCEPTANCE:

- 3.3.1 Stakeout and verification of all construction.
- 3.3.2 Completion of stormwater control system and approval thereof. [Rev. 3/00]
- 3.3.3 Certification that all facilities were constructed and fully completed according to approved design. [Rev. 3/00]
- 3.3.4 Certification of all testing performed in compliance with Town of Brighton or other agencies specifications. [Rev. 5/95]
- 3.3.5 Furnish one set of certified reproducible utility record maps for both plan and profile (see appropriate standard sheet). [Rev. 5/95]
- 3.3.6 Furnish one set of reproducible monumentation and dedication maps, if required.

PART 4 - PLAN REQUIREMENTS

4.1 GENERAL REQUIREMENTS

- 4.1.1 Title Block - Project Name, Address, Owner
- 4.1.2 Scale - 1"=50' Horizontal, 1"=5' Vertical, or larger standard scale (2, 10, 20, 40)
- 4.1.3 Location sketch, North arrow.
- 4.1.4 Correct names of existing/proposed streets and buildings.
- 4.1.5 Applicable notes and/or details to insure conformance to Town Specifications.
- 4.1.6 Plan sheets shall not exceed 24" x 36" in size. [Rev. 5/95]
- 4.1.7 All stationing shall be along the center line of each respective utility (i.e. sanitary, storm, water, roadway,

etc.). *[Rev. 5/95]*

4.1.8 Information presented shall be in a logical and uncluttered format with an adequate number of pages used for presentation of the project. *[Rev. 5/95]*

4.2 PLAN VIEW

4.2.1 Show location of all existing/proposed structures and utilities with their respective types, materials, sizes, lengths, slopes, inverts, etc.

4.2.2 Show existing and proposed right-of-way widths, with 60 feet being the minimum accepted for all new dedication. Indicate setback from right-of-way with a broken line.

4.2.3 Indicate radii at all road intersections, 35 feet being the minimum accepted for dedication.

4.2.4 Show, dimension, and label all existing easements with liber and page. Show, dimension, and label all proposed easements. All easements are to be noted with their intended purpose and to whom it will be or has been granted.

4.2.5 Show all existing/proposed contours as well as finish and basement floor elevations of existing/proposed structures.

4.3 PROFILE VIEW

4.3.1 Show original and proposed ground elevations at each change in elevation.

4.3.2 Show types, materials, sizes, lengths, slopes, and inverts of existing/proposed pipes. Show all utilities which cross the profile with appropriate clearance dimensions indicated.

4.3.3 Elevations of new roadways, sanitary sewers, storm sewers, and water mains shall be shown at every 100 foot station and each change in elevation.

4.4 RECORD DRAWINGS

4.4.1 Shall be provided on reproducible mylars that depict only those utilities and information so required.

4.4.2 As a minimum show exact plan and profile location of all sanitary and storm utilities that includes the type of material, size, length, slope, invert and rim elevations, wye locations at the mainline and lateral locations at the right of way. Manhole stationing is based upon the center of the manhole opening, not the center of the manhole barrel. *[Rev. 3/00]*

4.4.3 As a minimum show all right of way monuments placed in accordance with the requirements contained within these specifications and the exact alignment of all roadways, sidewalks and other points of access. All deviations from the approved design relative to vertical and horizontal alignment shall be noted and are to be incorporated into these drawings.

PART 5 - PERMITS

5.1 HIGHWAY:

5.1.1 A permit or license from the Town Superintendent of Highways is required for any and all work within the public right-of-way. Such work may include, but is not limited to: utility pavement cuts, new driveway construction or resurfacing, curbing removal, sidewalk repair or replacement, and tree work. Refer to the listing of fees contained within this document for further information. The Superintendent of Highways office is located at 1941 Elmwood Avenue (784-5280). *[Rev. 5/94]*

5.2 SEWER:

5.2.1 A permit for connecting to, and extension or repair of any existing sewers is required by the Town of Brighton Sewer District. Refer to the listing of fees contained within this document for further information. If the proposed project is outside of established sewer district boundaries, a petition, accompanied by an extension map, description, and associated fees will be required.

5.3 WATER:

5.3.1 All permits for water connections shall be obtained through the Monroe County Water Authority, 475 Norris Drive.

5.3.2 Any proposed extension outside of the Brighton Consolidated Water District boundary will require a petition, extension map, description and associated fees.

PART 6 - FEES

6.1 INSPECTION

6.1.1 On projects requiring extensive and/or complex construction procedures, the Town may require full time inspection. This expense shall be borne by the developer or their contractor. Reimbursement shall be based upon the actual costs incurred to provide this service and shall be made directly to the Town or its agent.

6.1.2 Refer to the listing of fees contained within this document for further information regarding sanitary/storm sewer fees.

PART 7 - GENERAL SPECIFICATIONS

7.1 WORKMANSHIP

7.1.1 All work shall conform to the plans or permits approved by the Commissioner of Public Works and these specifications. All changes must be approved by a written change order from the Commissioner of Public Works. The decision of the Commissioner of Public Works as to whether or not the work is satisfactory shall be final. Unsatisfactory work shall be corrected at once.

7.2 MATERIALS

7.2.1 All materials and articles incorporated in the work shall be new and of the best grade of their respective kinds for the purpose. When requested, the contractor shall supply samples of materials for laboratory tests. The contractor shall supply shop drawings and/or manufacturer's certificates for all materials delivered on site. Any materials delivered on site without certification shall be rejected until such time said certification is submitted. One copy of each item's delivery tickets shall be given to the Town representative.

7.3 HANDLING AND STORAGE OF MATERIALS

7.3.1 The contractor shall store equipment and materials at the job site in accordance with the instructions of the Commissioner of Public Works. Materials stored within the public right of way shall be so placed as to cause no obstruction to traffic and to the general public and shall be appropriately delineated by snow fencing, barricades, and/or flashers. Materials shall not be placed within 15 feet of fire hydrants. Gutters and drainage

inlets shall be unobstructed at all times. The contractor shall not store materials or encroach upon private property without the written consent of the owners of such private property. Materials shall be stored neatly and protected against deterioration. Materials which are rejected shall be immediately removed from the site. *[Rev. 5/94]*

7.4 OBSERVATION OF WORK

7.4.1 At any time during the progress of the work and up to the date of final acceptance, the Commissioner of Public Works shall have the right to reject any work which does not conform to the plans or specifications. Any omissions or failure on the part of the Town or its representative to disapprove or reject any work or materials shall not be construed as an acceptance of any defective work or materials. If any work shall be covered up without approval or consent of the Town or its representative, it shall, if required by the Town or its representative, be uncovered for examination and properly restored at the contractor's expense.

7.5 ASSISTANCE TO THE TOWN REPRESENTATIVE

7.5.1 The contractor shall provide the Town representative safe access to all of the work and shall furnish any help that may be required to handle materials for inspection.

7.6 CONTRACTOR'S PERSONNEL

7.6.1 The contractor shall place in charge of the work a superintendent who shall have the authority to act for the contractor. This superintendent must be present at all times during the normal working day to receive and comprehend directions and orders given by the Town or its representative. An emergency phone number shall be given to the Town that will enable contact with the superintendent after the normal working day for any emergency situations that might occur. All workmen must have sufficient skill and experience to properly perform all work assigned to them. Any person employed by the contractor who does not exhibit proper qualifications may be deemed by the Commissioner as incompetent or unfit to perform the work shall at once be discharged and shall not again be employed on projects for or within the Town of Brighton. *[Rev. 5/94]*

7.7 PROTECTIONS

7.7.1 The contractor shall provide, erect and maintain adequate barricades, signs, lights, trench sheeting and bracing and all other devices that may be deemed necessary for the protection and safety of the workers and the general public. The contractor shall comply with all the current rules and regulations of the New York State Department of Labor and the Occupational Safety and Health Act. Compliance with the requirements of this section of the document is the sole responsibility of the developer/contractor and shall in no manner be construed as that of the Town.

7.8 UNDERGROUND UTILITIES

7.8.1 The term existing utilities shall be deemed to refer to both public and privately owned utilities such as storm drains, sanitary sewers, water lines, gas, electrical and telephone services and appurtenances, including those under construction by others. The contractor shall conduct the work to prevent disruption of all existing services and to avoid damage to the existing utilities. Any damage resulting from the work shall be promptly repaired by the contractor at the contractor's own expense, in a manner approved by the Town and further subject to the requirements of any authority having jurisdiction. Where excavations by the contractor require any utility lines or appurtenant structures to be temporarily supported and otherwise protected during the construction work, such support shall be performed in a manner satisfactory to the Town and further subject to the requirements

of any authority having jurisdiction over such work. The contractor shall comply with the rules and regulations of Industrial Code Rule 23 and 53. No work shall be conducted by the contractor prior to requesting and receiving stakeouts of all utilities by the appropriate agencies. *[Rev. 5/94]*

7.9 PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPE

7.9.1 The contractor shall be responsible for the preservation of all public and private property, crops, trees, survey monuments, highway signs and markers, fences, etc., along and adjacent to the work site, and shall use every precaution necessary to prevent damage or injury thereto. The contractor shall also use suitable precaution to prevent damage to pipes, conduits, and other underground structures, whether shown on the plans or not. The contractor shall not willfully nor maliciously injure or destroy trees or shrubs and shall not remove or cut them without prior approval from the Town. When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect or misconduct in the execution of the work, or in consequence of the non-execution thereof on the part of the contractor; the contractor shall restore at the contractor's own expense such property to a condition similar to or better than that existing before such damage was done.

7.10 GUARANTEE

7.10.1 The contractor shall warrant that the work shall be free from any defects in materials or workmanship for two years from the date of final acceptance by the Commissioner of Public Works. A two-year maintenance bond equal to 100% of the total construction cost is required by the Brighton Consolidated Sewer District for the sanitary sewer and appurtenances. A two-year maintenance bond equal to 100% of the total construction cost is required for the highway or roadway portion (including the storm sewer system and appurtenances) to the Town of Brighton. In emergencies, the Town of Brighton may correct or make repairs to any defect in the work and charge the cost of said work to the contractor or the contractor's bonding company. *[Rev. 5/94]*

7.11 INSURANCE

7.11.1 *[Rev. 10/96]* The contractor shall secure and maintain for the duration of the development and guarantee period such insurance policies as will protect the contractor, subcontractor and the owner, from claims for bodily injuries, death or property damage, which may arise from operations under the contract or permit whether such operations be by the contractor or by any subcontractor or anyone employed by them directly or indirectly. The following insurance policies will be required:

General Liability	General Aggregate	\$2,000,000
	Products - Completed Operations Aggregate	\$2,000,000
	Personal Injury and Advertising	\$1,000,000
	Each Occurrence	\$1,000,000
	Fire Damage (Any one fire)	\$50,000
	Medical Expenses (Any one person)	\$5,000
Automobile Liability	Combined Single Limit	\$1,000,000
Excess Liability, Umbrella Form	Each Occurrence	\$3,000,000
Worker's Compensation and Employer's Liability	Each Accident	\$100,000
	All Persons by Disease	\$500,000
	Each Person by Disease	\$100,000

7.11.2 The contractor shall also name the Town of Brighton as additional insured to the above stated limits and indemnify and hold the Town of Brighton harmless from any loss, injury, damage or defense costs caused by contractor or his employees or agents, in the execution of the work herein.

7.12 MATERIALS AND METHODS OF CONSTRUCTION

7.12.1 Except as otherwise specified, all materials and construction methods shall be in accordance with the New York State Department of Transportation Standard Specifications Manual of Construction and Materials, latest revision. The method of measurement and basis of payment sections shall not be used unless specifically referred to. N.Y.S.D.O.T. manuals may be purchased from N.Y.S.D.O.T., 1530 Jefferson Road, Rochester, New York 14623. Typical roadway section with granite curbing and underdrain is the method that will be required for all new roadways to be offered to the Town for dedication. The alternate method of concrete gutters may be used for extensions of existing streets having concrete gutters if approved by the Commissioner of Public Works. Refer to the appropriate standard details contained within this document for specific requirements. [Rev. 5/94]

7.13 SUBSTITUTIONS - MATERIALS AND METHODS OF CONSTRUCTION

7.13.1 Whenever a particular brand or make of material, equipment, or other item is specified or is indicated on the drawings, any other brand or make, which in the opinion of the Town, is equivalent to that specified or indicated may be offered as a substitute, except where specifically stated otherwise. Proposed substitutions shall be subject to the provisions hereinafter specified.

7.13.2 The contractor shall submit for each proposed substitution complete descriptive literature and performance data together with samples of the materials where feasible to the design engineer. Upon review by the design engineer, a recommendation shall be made to the Town.

7.13.3 In all cases, the Town shall be the sole judge as to whether a proposed product is to be approved and the contractor shall have the burden of proving the same, at the contractor's own cost and expense, to the satisfaction of the Town. The contractor shall abide by the Town's decision when proposed substitute items are judged to be unacceptable and shall in such instance furnish the item specified or indicated. No substitute items shall be used in the work without written approval of the Town.

7.14 PERFORMANCE BONDS

7.14.1 A performance bond in an amount equal to 100% of the total construction cost shall be furnished to the Town of Brighton, named as beneficiary, by the developer and shall be kept in effect until such time as the project is accepted for dedication by the Town. The form, amount, and sufficiency of surety shall be approved by the Town Attorney prior to issuance of permits. Surety for the performance bond shall be an irrevocable letter of credit furnished by the developer in United States dollars equal to 100% of the total construction cost plus associated administrative and engineering fees. The letter of credit may be adjusted, in an amount proportional to the work completed, if approved in writing by the Commissioner of Public Works. The letter of credit shall provide for an automatic option of renewal, which will be sent to the Commissioner of Public Works a minimum of sixty (60) days prior to its expiration date. [Rev. 5/94]

PART 8 - TERMS AND DEFINITIONS

Select Earth

Select earth shall mean sand, gravel and similar material which shall be free from clay, loam, organic material, debris and unsuitable material and shall contain only small amounts of stones, pebbles or rock fragments, the

largest of which shall not exceed 2 inches.

Common Earth

Common earth shall mean clay, loam, sand, gravel and similar material which shall be free from debris and other unsuitable material and shall contain only small amounts of stones, the largest of which shall not exceed 6 inches.

Topsoil [Rev. 5/94]

Topsoil shall be the surface layer of soil and shall be free from refuse, any material toxic to plant growth, subsoil, woody vegetation and stumps, roots, brush, stones, clay lumps or similar objects larger than ½ inch in greatest dimension. The contractor may amend natural topsoil with approved compost materials and by approved methods so that of the portion passing the ½" sieve, 65 percent to 100 percent by weight shall pass the 1/4" square sieve, and not less than 20 percent nor more than 80 percent by weight shall pass the number 200 mesh sieve as determined by washing through the sieve in accordance with ASTM D422. Material used to amend topsoil shall not exceed 30% of the combined finished mixture.

Compost [Rev. 5/94]

Compost shall mean the finished organic product resulting from the controlled decomposition of vegetative matter free of contaminants, impurities and residual chemicals. Compost for mixing with topsoil is available free of charge from the Town of Brighton as supplies are available.

Unstable Material

Unstable material shall mean debris and all frozen, wet, soft or loose material which does not provide sufficient bearing capacity to satisfactorily support pipes or other work placed thereon as determined by the DPW.

Unsuitable Material

Unsuitable material shall mean all material which does not meet requirements for embankment fill or trench backfill; also all material classified as unstable by the DPW.

Solid Rock

Solid rock shall mean all rock larger than two cubic yards in volume which cannot be readily removed by power driven equipment normally used in earth excavation, except after preliminary breaking by drilling or by use of explosives.

Loose Rock

Loose rock shall mean shale, slate, soft sandstone, nested boulders and other such rock materials which are decomposed, stratified or shattered to such extent that it can be readily removed by power driven equipment normally used in earth excavation without the need for drilling or blasting.

Stone Bedding for Pipe

The material for stone bedding shall conform to the N.Y.S.D.O.T. manual, Section 703, Aggregates. The material size designation shall be 1 and 2 (primary size ½" and 1") mixed in equal amounts.

Crushed Stone for Subbase Courses

The material for the subbase courses shall conform to the N.Y.S.D.O.T. manual, Section 703-0201, Crushed Stone, and Section 304.03, Crusher Run Stone. The material size designation shall be #4 and #5 (primary size 3" and 4") for the first lift of crushed stone subbase, and #2 (maximum size 2") crusher run for the top lift of crushed stone subbase. (See applicable standard sheets for typical road section.)

Run of Bank Gravel

Run of bank gravel shall consist of sound, hard, durable stone, sand or other acceptable granular material well graded from coarse to fine meeting the N.Y.S.D.O.T manual specifications. The particles of which shall be of such size that, of that portion passing the 4" square sieve, not more than 70 percent by weight, shall pass the number 40 mesh sieve and not more than 10 percent by weight shall pass the number 200 mesh sieve as determined by washing through the sieve in accordance with ASTM D422.

Select Gravel Backfill

Select gravel shall consist of sound, hard, durable stone, sand or other acceptable granular material well graded from coarse to fine meeting the N.Y.S.D.O.T. manual specifications. The particles shall not exceed such size as will pass through a 2" square sieve, 30 percent to 65 percent by weight shall pass the 1/4" square sieve and not more than 10 percent by weight shall pass the number 200 mesh sieve as determined by washing through the sieve in accordance with ASTM D422.

Underdrain Filter Material

The underdrain filter material shall meet all the requirements of the N.Y.S.D.O.T Manual, Section 605.

Concrete

All concrete shall conform to the N.Y.S.D.O.T. manual, Sections 501, 502, and 709. The minimum compressive strength for concrete shall be as indicated in the Town of Brighton Specifications for individual items of construction or as ordered by the Town. The contractor shall submit to the Town for approval a concrete design mix from the supplier for each type of concrete that will be incorporated into the work.

Asphalt Concrete

All asphalt concrete shall conform to the N.Y.S.D.O.T. manual, Sections 401 and 403. The type of asphalt concrete shall be as indicated in the Town of Brighton Specifications for individual items of construction or as ordered by the Town. The contractor shall submit to the Town for approval a concrete design mix from the supplier for each type of concrete that will be incorporated into the work.

Clear and Grub [Rev. 2/00]

The contractor shall remove trees, shrubs, bushes, debris and other items which would hinder construction, but would not adversely affect storm water runoff under Section 215-3 of the Town Stormwater Management Ordinance. All such material shall be disposed of in a suitable manner off the project site. The construction area shall be cleared as specified above. Burning of rubbish and debris on the site shall not be permitted.

PART 9 - EARTHWORK**9.1 EXCAVATING AND GRADING**

9.1.1 The contractor shall excavate and remove sod and topsoil at the locations shown on the plans. The excavated material shall be deposited in stockpiles. The Town will approve areas for stockpiling in a manner which will keep the length of haul to a practical minimum. Proper erosion and drainage control techniques shall be implemented throughout all phases of construction and shall be in accordance with the *NYS Guidelines for Urban Erosion and Sedimentation Control*, when stockpiling material. [Rev. 3/00]

9.1.2 The contractor shall excavate and deposit earth other than topsoil according to grade stakes set by the design engineer. The excavated material shall be transferred to fill areas and deposited in layers not exceeding 6" in thickness. The fill areas shall be compacted by the use of approved compaction equipment. After the earthwork has been completed, the ground surface shall be reasonably smooth and free of deep ruts and holes. Compaction testing shall be performed when required by the Town and administered by the design engineer.

9.2 DITCHING AND GRADING

9.2.1 The contractor shall provide and maintain slopes, crowns and ditches on all areas to be excavated or filled to insure satisfactory drainage at all times. If it is necessary to interrupt existing surface drainage, storm sewers or underdrain, then temporary drainage facilities shall be provided. Water shall not be allowed to accumulate in the trenches but shall be drained or pumped away from the work to established drainage channels. No water shall be drained into a pipe under construction nor existing sanitary sewer lines. Proper control measures shall be implemented and maintained per approved site plan or as ordered by the Town. If necessary, proper sedimentation control should be implemented prior to or within the drainage way. *[Rev. 3/00]*

9.3 TRENCH EXCAVATION AND BACKFILL

9.3.1 Proper trench protection shall be employed that conforms to the provisions of the current Industrial Code Rule 23 and 53, the Occupational Safety and Health Act and all other applicable regulations.

9.3.2 The trench excavation shall be backfilled immediately upon completion once it has been observed by the Town. Select earth may be used outside the pavement and underdrain areas. The trench excavation in all pavement areas shall be backfilled with #2 crusher run stone or with an approved controlled density fill. All trenches shall be backfilled to existing grade-level by the end of the work day. If this is not possible, the trench shall be barricaded, fenced or covered with suitable materials upon permission by the Town representative to do so. Select gravel shall be used in all underdrain areas and when ordered by the Town. All backfill material shall be placed in 6" lifts and compacted to the following densities:

- 1) To ninety-five percent (95%) within the right-of-way and all pavement areas, existing or proposed (new development).
- 2) Base courses shall be as ordered by the Town.
- 3) To eighty-five percent (85%) in all other areas.

9.3.3 Compaction densities specified herein shall be of the percentage of the maximum density obtainable at optimum moisture content as determined and controlled in accordance with AASHTO standard T180, Method C. Field density tests shall be in accordance with AASHTO standard T147. Each layer shall be moistened or dried as required to obtain optimum moisture content. Compaction testing shall be performed when required by the Town and administered by the design engineer

9.4 EROSION CONTROL

9.4.1 Erosion control measures shall be employed as specified upon the approved plans, as needed based upon conditions encountered in the field, and as directed by the Commissioner of Public Works or his agent. All measures are to be in accordance with the New York Guidelines for Urban Erosion and Sediment Control Manual (most recent edition) as published by the Empire State Chapter of the Soil and Water Conservation Society. All measures of erosion control are to be in effect and approved by the Town prior to conducting any construction activities. *[Rev. 6/89]*

PART 10 - ROAD CONSTRUCTION

10.1 PREPARING SUBGRADE

10.1.1 Any and all utilities that are to be within the subgrade area shall be installed and properly backfilled prior to preparing the subgrade foundation. General site grading shall also be completed before starting subgrade work. Any equipment not required for subgrade work shall not be permitted on the subgrade after it is shaped to line and grade. [Rev. 5/94]

10.1.2 Excavation for subgrade foundations shall be cut to exact line and grade from grade stakes set by the design engineer. If the plan indicates an embankment or fill section, the fill material shall be select earth or R.O.B. gravel placed in 6" lifts and compacted to the proper density. A thoroughly and satisfactorily compacted subgrade is required. All topsoil, boulders, stumps, unstable and unsuitable materials shall be removed and replaced with select earth or R.O.B. gravel, properly compacted. Along and around structures such as manholes and catch basins the material shall be compacted to the required density using suitable tamping equipment. Low spots, ruts, weaving and pumping areas shall be corrected to the satisfaction of the Town. [Rev. 5/94]

10.1.3 The compacted subgrade shall be checked by the Town and approval obtained before placing or starting the base course material operation. Areas comprised of soils that exhibit characteristics of diminished load bearing capacities shall be assessed by a geotechnical engineer. A written evaluation and recommendation of any modifications to the roadway design shall be provided to the Commissioner of Public Works. Geotextile fabric shall be installed between the prepared subgrade and the initial course of crushed stone by the Town for all new roadway construction. [Rev. 5/94]

10.1.4 Upon approval of the subgrade, each subsequent course of the roadway section shall be installed by placing and compacting the material *ahead* of the construction equipment, so that the previous layer is not subject to direct loading by the vehicles once it has been successfully installed and approved by the Town. [Rev. 5/94]

10.2 CRUSHED STONE SUBBASE [Rev. 5/94]

10.2.1 The crushed stone subbase shall be constructed to the width and depth shown on the typical road sections. The bottom course material shall be constructed in one lift. Each lift must be approved by the Town before the next lift is started. Each course shall be spread with an approved mechanical spreader in such quantity that after being compacted with an 8-10 ton (static weight) vibratory roller, the thickness of each course shall be as specified on the typical road section standard sheets.

10.2.2 The rolling of each course shall be longitudinal to the centerline starting at the low edges and continued to the crown or outside edge for banked curves. After final grading and rolling of the top course, the surface shall be tested with a 16' straight edge. Any depression over 1/4" shall be satisfactorily eliminated. After the completion of the rolling, no hauling other than necessary to bring material for the next course will be allowed over the approved subbase. No surplus filler material will be allowed on the subbase courses. The first course shall not be laid in excess of 500 linear feet without being rolled and filled so as to render each course stable and thereby prevent softening or pumping of the subgrade.

10.2.3 If the subgrade material should become churned up or mixed with the crushed stone subbase material, or otherwise contaminated for any reason, the contractor shall remove the contaminated subbase material and replace it with clean crushed stone.

PART 11 - ASPHALT CONCRETE PAVEMENT

11.1 GENERAL

11.1.1 A compacted course of asphalt concrete, Type 3 Binder (Item 403.13) and a compacted wearing course

of asphalt concrete, Type 7F Top (Item 403.19) shall be installed to the width and thickness shown on the typical roadway sections and at the locations indicated on the approved plans. The contractor shall submit to the Town for approval a design mix from the supplier for each type of asphalt concrete that will be used for the street development. The contractor shall adhere to the N.Y.S.D.O.T. manual Section 401, parts 401-1, 401-2, 401-3, and Section 403, parts 403-1, 403-2, and 403-3 for supplying the asphalt concrete and the placement thereof. **No asphalt shall be placed before April 20 or after October 31. No asphalt shall be placed on wet surfaces or when the outside air and surface temperature is less than 50 degrees.** The placement temperature of the asphalt shall be between 225 to 350 degrees Fahrenheit. In any event, the Town shall make the final decision regarding asphalt placement at any given time. **Asphalt placement without Town approval shall be rejected.** [Rev. 5/94]

11.2 PAVING EQUIPMENT

11.2.1 All paving equipment shall be in good mechanical condition. Paving and rolling equipment shall be in proper working order and shall have no defective, missing, or improperly worn parts. Any equipment found defective, either before or during its use, shall be immediately repaired or replaced to the satisfaction of the Town representative. Any equipment that is contaminated with mud or other foreign materials shall be thoroughly cleaned prior to its use. Asphalt placed with improperly functioning or contaminated equipment shall be rejected.

11.2.2 Rollers shall have a minimum static (not including vibrating pressure) weight of ten (10) tons. Vibratory rollers shall have a vibratory speed of 1,500 v.p.m. minimum, and have a maximum speed of 2-1/2 mph in vibratory mode. Vibratory rollers shall be of a type that are specifically designed for the compaction of bituminous concrete. A split-drum roller, meeting the requirements mentioned above shall be used when paving cul-de-sacs and where tight curves must be negotiated.

11.3 METHOD OF PLACEMENT

11.3.1 The surface shall be rolled when the asphalt mixture is in proper condition and when the rolling does not cause undo displacement, cracking or shoving. The wheels of the roller shall be kept properly moistened with water or water mixed with small quantities of detergent. Solvents harmful to the asphalt shall not be used.

11.3.2 The binder course shall be placed only after the subbase has been approved by the Town. If required by the Town, the crushed stone subbase material shall be treated with a prime coat of item 618.10 or 618.20 prior to placing the binder. *NOTE: Binder shall be in place one year prior to placement of wearing course.*

11.3.3 The surface of the existing pavement shall be thoroughly cleaned of mud and debris and tack-coated prior to placement of true and level and/or top layers in accordance with N.Y.S.D.O.T. manual Sections 401-3.07 and 633.

11.3.4 The binder course and wearing course shall be true to line and grade. Each course when checked with a 16' straight edge shall not have any variations exceeding 1/4". Adjacent to curbs, gutters, and all other areas inaccessible to the roller, the binder and wearing course shall be compacted to the satisfaction of the Town using a mechanical tamper. *NOTE: No road cuts shall be permitted for five (5) years following placement of final wearing course except for emergency repairs of existing utilities.*

PART 12 - CONCRETE GUTTERS

12.1 GENERAL

12.1.1 Concrete gutters may be used only when extending an existing street to the next intersecting street having concrete gutters or for construction of a park road meeting the criteria set forth for such roads. All other streets shall be constructed to the specifications and typical road sections for granite curb.

12.1.2 The concrete gutters shall be constructed to the dimensions shown on the typical gutter section.

12.2 MATERIALS

12.2.1 The contractor shall adhere to the N.Y.S.D.O.T. manual Section 501, parts 501-2.02 (Class A) and 501-3 for supplying concrete and the placement thereof. The contractor shall submit to the Town for approval a design mix from the supplier for the concrete to be used for gutter construction. The Class A concrete gutters shall be proportioned and mixed for a 28-day compressive strength of 4000 p.s.i. minimum. *The design engineer and/or contractor shall be responsible for concrete testing to insure the minimum strength requirements are met. [Rev. 5/94]*

12.3 METHOD OF PLACEMENT

12.3.1 The gutter shall be constructed on a crushed stone base. The gutter shall be formed by using steel forms unless other methods are approved by the Commissioner of Public Works. Minimum slope for machine-placed gutters shall be 0.5%. *[Rev. 5/2003]*

12.3.2 The forms shall be set true to line and grade and shall extend for the full depth of the concrete. All forms shall be straight, free from warp and of sufficient strength to resist the pressure of the concrete without springing. Bracing and staking of forms shall be such that the forms remain in both horizontal and vertical alignment until their removal. At least 200 L.F. of forms shall be set and approved before concrete placement is commenced. The joints between gutter sections shall be formed by 1/8" full depth steel spacer plates set at uniform intervals of not more than 10'. Full depth expansion joints, consisting of 1/2" premolded bituminous impregnated felt joint material shall be installed at a minimum of 30' intervals and also at each side of the gutter inlet aprons and around all appurtenances and/or fixed structures extending into or through the concrete gutter. The gutter joints shall be filled with item 618.05, asphalt sealer, in accordance with the N.Y.S.D.O.T. manual Section 618. Before placing concrete, the forms shall be oiled and the subgrade moistened. The exposed surface of the concrete gutter shall be a broomed finish and treated with an approved curing and sealing compound. The contractor shall submit data to the Town on the type of chemical to be used at least 10 days prior to starting the gutter placement. The Town shall determine the rate of application and the number of coats that will be required for the curing and sealing compound. The completed gutters shall be uniform in appearance, free from honeycomb, cracks or surface irregularities that restrict the flow of water. Where the gutter is unsatisfactory, whole sections shall be removed and replaced. Surface patching of the gutter will not be permitted. *[Rev. 5/94]*

PART 13 - CONCRETE SIDEWALKS

[Rev. 2/7/2006]

13.1 GENERAL

13.1.1 Concrete sidewalks with a minimum width of 5' shall be installed in conjunction with all new street improvements unless otherwise approved by the Commissioner of Public Works. The sidewalks shall be constructed to the dimensions shown on the typical sections and at the locations shown on the approved plans.

13.1.2 All work shall comply with the most recent requirements of the Americans with Disabilities Act.

13.2 MATERIALS

13.2.1 Expansion joint material. ASTM D1751, fiberboard, 1/2" thick; except as otherwise specified.

13.2.2 Concrete shall conform to New York State Class A for walks with NYS right of ways, City Class K for walks within Town and County right of ways. The contractor shall adhere to the N.Y.S.D.O.T. manual, Section 501 parts 501-2.02 (Class A) and 501-3 for supplying concrete and the placement thereof.

13.2.3 An approved mix for sidewalks outside NYS right of ways would be the following (Manitou No. 1570 or equal):

Item	Lbs. Per Cu. Yd.
Cement, Type II	564
Sand, N.Y.S.D.O.T. approved	1430
#1 Stone, N.Y.S.D.O.T. approved	590
#2 Stone, N.Y.S.D.O.T. approved	1090
Water	250-260 for a 3" to 4" slump
Daravair	5-6 oz. per cu. yd. for 4-6% air entrainment WRDA w/Hycol, 17 oz. per yd.

13.2.4 W2.9, 6"x6" wire reinforcement mat, when applicable, shall be placed at mid-thickness of sidewalk. Rolled WWF shall not be used.

13.2.5 The contractor shall submit to the Town for approval a design mix from the supplier for the concrete to be used for sidewalk construction. The concrete for sidewalks shall be proportioned and mixed for a 28 day compressive strength of 3500 p.s.i. minimum. The design engineer and/or contractor shall be responsible for concrete testing to insure the minimum strength requirements are met.

13.3 METHOD OF PLACEMENT

13.3.1 Unless specified otherwise, all sidewalks outside of NYS right of ways shall be 5 inches thick, 7 inches thick through driveways, and be 5 feet wide as shown on the standard details. Walk within NYS right of ways shall be 4 inches thick, 6 inches thick through driveways, and be 5 feet wide as shown on the standard details.

13.3.2 The subgrade shall have all foreign material removed and be compacted to an even surface that is parallel to the finish grade of the sidewalk, except in the case of proximity to tree roots (see 13.4.5). The subgrade shall be compacted to a minimum density of 95% (modified proctor). Any soft or weaving spots in the subgrade shall be removed and replaced with approved material.

13.3.3 The sidewalk shall be placed upon a crushed stone subbase. The subbase shall be placed upon a well graded and compacted subgrade. The subbase shall be compacted to a minimum density of 95% (modified proctor). The subbase shall extend 6" beyond the finished sides of the sidewalk as shown on the standard details.

13.3.4 Forms shall be full depth, set accurately to line and grade and be securely held in position. The forms shall be metal or wood sidewalk forms for straight sections and of approved material for radii. The forms shall be set to true line and grade, and shall extend for the full depth of the concrete. All forms shall be free from warp and of sufficient strength to resist the pressure of the concrete without springing. Bracing and staking of forms shall be such that the forms remain in both horizontal & vertical alignment until their removal. At least 200 L.F. of forms shall be set and approved before concrete placement is commenced.

13.3.5 The subbase shall be wetted prior to placing the concrete for the sidewalk. Full depth expansion joint

material shall be placed every 25' and held securely in place so that a straight joint results. Contraction joints shall be placed every 5'. All contraction joints shall be as per the standard details at the end of these specifications.

13.3.6 The concrete sidewalks shall have full depth expansion joints consisting of 1/2" premolded bituminous impregnated felt joint material spaced at a maximum of 25' intervals. Expansion joint material shall also be installed around all appurtenances and/or fixed structures extending into or through the concrete sidewalk. The contraction joints shall be spaced at 5' intervals between expansion joints for 5' wide sidewalks. For sidewalks wider than 5', expansion and contraction joints shall be provided as ordered by the Town.

13.3.7 Contraction joints shall be cut by use of an approved tool to a minimum depth of 1½". The jointer for tooled joints shall have a 1½" deep bit, with 1/4" radius. An acceptable alternative to using the 1½" jointer tool would be to cut the contraction joints to a minimum of 2" deep, using a straight edge and trowel in a "cake cutter" fashion, and finishing the joint with a shallower jointer tool.

13.3.8 All exposed surfaces shall be broomed. Edges and joints shall be tool finished, except as otherwise specified. All lines formed shall be true and straight. The walk surface shall have a fine broomed finish, with exposed tooled edge and joint banding, flush with broomed finish, free of all ridges.

13.3.9 The finished concrete surface shall be treated with an approved curing and sealing compound. The contractor shall submit data to the Town on the type of chemical to be used at least 10 days prior to starting the sidewalk placement. The Town shall determine the rate of application and number of coats that will be required for the curing and sealing compound.

13.3.10 No concrete shall be placed before April 20th, or after October 31st. No concrete shall be placed when the outside air and surface temperature is less than 40 degrees. In any event the Town shall make the final decision regarding concrete placement at any given time. Concrete placement without Town approval shall be rejected.

13.4 TREE ROOTS IN PROXIMITY TO SIDEWALK CONSTRUCTION [Rev. 3/2007]

13.4.1 Sidewalks flags within ten (10) feet of the trunk of trees shall be removed by use of hand tools only. Roots within this same area shall be cut using approved hand tools.

13.4.2 Tree roots less than two (2) inches in diameter in the walk area shall be removed to a depth of 12" below finished grade of the new walk., and no farther than 5" from the edge of the new walk. Roots shall be cut flush with trench excavation limits, and all cut debris shall be removed from the excavation area.

13.4.3 Tree root cutting shall be conducted with sharp cutting tools. Exposed tree roots shall be immediately covered with wet burlap and re-buried as soon as possible. The roots shall be trimmed neat and clean, with appropriate equipment suited to the task. *Roots shall not be "trimmed" using backhoe equipment, or any other equipment that will spilt the root or leave jagged edges.* Do not paint or otherwise cover cut root surfaces.

13.4.4 Where extensive cutting of tree root system has occurred, the Contractor shall insure the tree root system receives one-half to one inch of water over the entire tree canopy area at least once per week for the duration of the project.

13.4.5 When replacing walks over tree roots that are greater than two (2) inches in diameter, the Contractor shall construct a thin form walk, four (4) inch minimum thickness, as ordered by the Engineer. See Standard Detail: *Thin-Form Sidewalk Installation Detail*.

13.4.6 Root control fabric shall be installed adjacent to the sidewalk for tree roots which are located between the walks and the street, per Town standard specifications.

PART 14 - DETECTABLE WARNING SURFACE

14.1 GENERAL

14.1.1 Scope of Work - This work shall consist of furnishing and installing a detectable warning surface on sidewalk curb ramps or other locations as indicated on the plans or elsewhere in the contract documents. The detectable warning surface shall meet the dimensional details and other requirements as noted on the standard sheets and elsewhere in the contract documents.

14.2 MATERIALS

14.2.1 All detectable warning systems shall meet the following color and friction requirements:

14.2.1.1 The color of the detectable warning surface shall be dark gray, Munsell Book Notation BG-PB 3/5; dark brown, Munsell Book Notation 10YR 3/2; dark red, Munsell Book Notation 10R 3/6; or dark green, Munsell Book Notation 2.5G 3/6 as specified elsewhere in the Contract Documents. The color of the constructed detectable warning surfaces shall be uniform over the entire surface and shall be an approximate visual match to the color specified elsewhere in the Contract Documents as determined by the Engineer.

14.2.1.2 The friction characteristics of completed detectable warning surfaces shall be approximately the same as the adjoining sidewalk or sidewalk curb ramp surfaces as determined by the Engineer.

14.3 SYSTEMS

14.3.1 The Contractor may elect to use any of the following detectable warning systems:

14.3.1.1 **Stamped detectable warning systems.** Stamped detectable warning systems must be capable of uniformly providing the Town's standard detectable warning pattern on sidewalk curb ramps and other surfaces constructed of the Town's standard class (or NYS standard class, where appropriate) of concrete for sidewalks. The color specified elsewhere in the Contract Documents shall be uniformly incorporated throughout the concrete mix, or incorporated into the concrete surface immediately prior to stamping the detectable warnings.

14.3.1.2 **Surface applied detectable warning systems.** For surface applied detectable warning systems, the Manufacturer shall submit certified test results indicating compliance with the following requirements to the Engineer, at least 30 calendar days prior to proposed installation:

STANDARD	PROPERTY	RESULTS
ASTM-C-501	Wear Resistance	Wear Index: 25
MIL-D-3124	Impact Resistance	9 N steel ball dropped twice from 2.4 meters produced no adhesion failure or cracking

STANDARD	PROPERTY	RESULTS
ASTM E-96	Water Vap. Transm	100 grams/sq. meter/24 hours
ASTM C-109	Compressive Strength	41 MPa average
ASTM D-C190	Tensile Strength	3 MPa
MIL D-3134	Bonding Strength	2.2 MPa shear, 3.4 MPa pull
ASTM C-293	Flexural Strength	13.0 MPa minimum
ASTM E-162	Fire Resistance	Flame spread index 0. Smoke deposited 1 mg.

- 14.3.1.3 Manufacturers of surface applied detectable warning systems shall certify that their materials comply with the volatile organic compound (VOC) requirements of the NYS Department of Environmental Conservation regulation 6NYCRR, Part 205, *Architectural Surface Coatings*.
- 14.3.1.4 The detectable warning system shall be capable of providing the Town's standard detectable warning surface on sidewalk curb ramps and other surfaces constructed of the Town's standard class (or NYS standard class, where appropriate) of concrete for sidewalks.
- 14.3.1.5 The color specified elsewhere in the Contract Documents shall be homogeneous throughout the thickness of the surface material.

14.3.2 Precast Portland cement concrete detectable warning systems.

- 14.3.2.1 Precast Portland cement concrete detectable warning systems shall be manufactured in accordance with the applicable materials specifications in the applicable construction details specified under the appropriate section(s) in these Contract Specifications.
- 14.3.2.2 The precast Portland cement detectable warning system shall be capable of providing the Town's standard detectable warning surface on sidewalk curb ramps and other applicable locations.
- 14.3.2.3 The color specified elsewhere in the Contract Documents shall be incorporated into the concrete during the pre-casting process.

14.4 REQUIREMENTS

14.4.1 All detectable warning systems shall meet the following requirements:

- 14.4.1.1 Prior to the start of work, the Contractor shall show evidence of successful completion of similar installations and provide a job site sample for the approval of the Engineer. The sample size shall be 1.5 meters x .6 meters [5' x 2'] minimum, and constructed at a location selected by the Engineer.
- 14.4.1.2 As many test panels will be constructed as are necessary to achieve a sample panel that meets the satisfaction of the Engineer. All work shall conform to the appearance of the approved sample to the satisfaction of the Engineer. The sample shall not be incorporated into the work and will be removed when ordered by the Engineer.

- 14.4.1.3 The Contractor shall follow all applicable suppliers and manufacturer's requirements for environmental conditions, surface preparation, installation procedures, curing procedures, and materials compatibility.
- 14.4.1.4 The Contractor is responsible for removing any material spatters from areas not included in the scope of the work.
- 14.4.1.5 The Contractor shall repair any damage that should arise from the installation or the clean-up effort.

14.5 CONSTRUCTION DETAILS

14.5.1 Detectable warning systems selected by the Contractor shall meet the following construction details:

14.5.1.1 **Stamped detectable warning systems.**

- A. Stamped detectable warning systems shall be installed during construction of sidewalk curb ramps and other surfaces as specified elsewhere in the Contract Documents.

14.5.1.2 **Surface applied detectable warning systems.**

- A. The Contractor shall submit three copies of literature describing the following to the Town for approval at least 30 days prior to the proposed installation:
- The Detectable Warning Surface Material
 - All associated materials
 - Preparation requirements
 - Equipment required
 - Name(s) of suppliers
 - Name(s) of subcontractor(s)

In addition, a minimum 300 mm x 300 mm [12" x 12"] sample of the Detectable Warning Surface Material shall be submitted to the Town for approval.

- B. The Manufacturer shall demonstrate in writing and by providing references that the surface applied detectable warning surface material and the proposed system for bonding the detectable warnings to the substrate, if applicable, have been satisfactorily used for roadway, sidewalk curb ramp, path or exterior floor applications in high pedestrian use locations, under weather conditions similar to those experienced in New York State, for a minimum period of five years.
- C. Installers of surface applied detectable warning systems shall be approved by the detectable warning surface material manufacturer. In no case shall the Contractor permit the use of any method, or application of any materials, by untrained personnel or non-approved installers of surface applied detectable warning systems. If a surface applied detectable warning system is used, the surface material manufacturer's certification of compliance with this requirement shall be provided to the Engineer.

14.5.1.3 **Precast Portland cement concrete detectable warning systems.** Precast Portland cement

concrete detectable warning systems shall be installed in accordance with the applicable construction details specified under the appropriate section(s) in these Contract Specifications.

PART 15 - GRANITE CURB

15.1 The granite curb shall be 16" vertical with a 5" top surface sawn to an approximate true plane. The front and back arris lines shall be straight and true. The front face shall be quarry split, 1/2" batter for 6" down.

15.2 The curb shall be set to true line and grade on a 3" bed of 1:3:6 dry mix after which it shall be backed up with a 3000 p.s.i. concrete. The backing shall be placed in such a manner that the concrete is forced between the joints, forming a tight seal. Curb sections shall not be fitted together closer than 1/4" at the arris line. Without exception, radius type granite curbing shall be used on all radii less than 100'. Minimum radius of granite curbing shall be 35'. Transition sections and driveway sections shall be provided for all driveway cuts. All joints shall be fitted flush with a 1:2 mortar mix. The top and exposed front face of the joint shall be neatly pointed flush with the curb surfaces and satisfactorily cleaned of all excess mortar. (See applicable standard sheet)

15.3 The contractor shall replace all granite curb that is not true to line and grade, chipped, oil or asphalt stained, and otherwise not satisfactory to the Town.

PART 16 - RIGHT-OF-WAY MONUMENTS

16.1 The developer shall be responsible for the placement of right-of-way monuments of the type shown on the applicable standard sheet. The monuments shall be set on all P.C. and P.T. points on curves, all angle points, all intersecting streets and cul-de-sac centers. Intermediate monuments shall be set on all long tangents and at other locations ordered by the Town. The right-of-way monuments shall be accurately set and, if ordered by the Town or if required by the Monroe County Geodetic Survey Law (Local Law No. 6 of 1971), will be tied into the state or county coordinate system. In any case, the point of beginning shall be clearly referenced on the monumentation map. All right-of-way monuments shall have a suitable frame and cover set over the monument. (See applicable standard sheet). The developer shall be responsible for the preservation and type of monument set for the duration of the project until the time of final acceptance by the Commissioner of Public Works. [Rev. 6/89]

PART 17 - STORM WATER DRAINAGE

17.1 The storm sewer system must conform to all requirements of Local Law No. 6 of 1979 entitled "Drainage Control Law" and Local Law No. 1 of 1980 entitled "Flood Damage Prevention Law" as contained in the Code of the Town of Brighton (most recent revision).

17.2 The storm sewer must be hydraulically sized with a suitable outlet so as to perform to the design criteria as outlined in the American Society of Civil Engineers Manual entitled *Design and Construction of Sanitary and Storm Sewers* (most recent edition). Generally accepted practices shall be employed to facilitate the conveyance of stormwater so that stagnation, ponding and backwatering of and within the system do not occur, while providing slopes that promote self-flushing velocities of three (3) feet per second when flowing full. If the outlet for storm water is not available, the developer must provide, at his expense and without cost to the Town of Brighton, any and all easements necessary and also do any and all excavation and/or placing of pipes, conduits or drainage structures outside of the right-of-way. Any storm sewer outlet or drainage ditch needed beyond the limits of the project must be clearly noted, approved and detailed on the preliminary and as built plans. Permission from affected property owners with proper approvals must be obtained prior to commencing work. [Rev. 5/94]

17.3 The design engineer shall be responsible for the design of a suitable storm water drainage system based on the size of the drainage area. The appropriate formulas shall be used to calculate and design the drainage system. A minimum 25 year storm frequency shall be used to design the stormwater system. The design engineer shall submit calculations and information based on the 25 year and 100 year storm frequency, indicating the consequences of such a storm event and impact on the stormwater system and property. One copy of all such criteria shall be submitted to the Town with the preliminary plans. The design engineer shall indicate on the preliminary and record drawing plans the type, size, and class or gauge of all storm drains, detail of the type of the bedding for the pipe and also swale and ditch dimensions.

17.4 The design engineer and contractor shall follow the specifications, standard sheets and approved plans for the design and construction of catch basins, drop inlets, field inlets, manholes, frames and grates, materials and methods, pipe bedding details and backfilling requirements.

17.5 Storm water drainage pipes shall be constructed with approved materials and shall be a minimum of 12" in diameter. All storm drainage pipes within right-of-way shall be flexible pipe (PVC or polyethylene), ductile iron pipe or reinforced concrete pipe. All storm drainage pipes outside of the right-of-way shall be reinforced concrete pipe. *[Rev. 5/94]*

PART 18 - UNDERDRAIN

18.1 The pipe shall be a minimum of 6" diameter smooth flow polyethylene piping, ADS N-12 or approved equal, and shall conform to ASTM F-405, latest revision. Geotextile fabric as previously specified in the subgrade preparation shall extend through the underdrain limits. The underdrain installation shall conform to the applicable standard sheet. Installation shall be continuous along both sides of the roadway with no interruptions except for interception by drainage inlet structures. *[Rev. 5/94]*

PART 19 - EROSION CONTROL

19.1 Appropriate erosion and sediment control measures shall be incorporated into the project design in accordance with the measures outlined in the "New York Guidelines for Urban Erosion & Sediment Control" published by the USDA-Soil Conservation Service. The design engineer shall include all appropriate notes and details on the site plan pertaining to specific erosion control measures. The contractor shall be responsible for installation and maintenance of the control measures indicated on the plan or as required based upon site conditions. *[Rev. 6/89]*

PART 20 - STREET LIGHTING

Street lighting shall be installed in conjunction with infrastructure improvements as directed by the DPW. The style, intensity and locations of such lighting shall be designed to meet current illumination guidelines as established by the Illuminating Engineering Society and the American Association of State Highway and Transportation Officials and as required by the DPW. The improvements shall become an extension of an existing lighting district, or, in the event one does not exist, a new district shall be established. *[Rev. 5/95]*

PART 21 - DEDICATION REQUIREMENTS

[Rev. 2/8/2006]

21.1 At the completion of the project and before final acceptance of the project by the Commissioner of Public Works, the following items shall be submitted to the Commissioner of Public Works for dedication of the project to the Town of Brighton:

21.1.1 A formal offer of dedication describing the street(s) shown on the subdivision map or road dedication map.

21.1.2 Monumentation map showing placement of R.O.W. monuments and letter of certification from the design engineer's surveyor stating that the monuments have been properly set in accordance with Town Specifications.

21.1.3 A warranty deed conveying title of the street(s) described to the Town of Brighton.

21.1.4 A guaranteed certification of title showing the principal at the time of dedication and that the described street(s) are free from liens and encumbrances.

21.1.5 A highway maintenance bond shall be furnished to the Town of Brighton whereby the developer agrees to maintain all of the improvements and work done as required under the performance bond. (The maintenance bond shall be for a two- year period after date of final acceptance and in an amount equal to 100% of the total construction cost of the highway portion, including stormwater systems and appurtenances.)

21.1.6 Sewer maintenance bonds to the Brighton Consolidated Sewer District shall be for a two-year period after date of final acceptance and in an amount equal to 100% of the total sanitary sewer construction cost.

21.1.7 A two-year letter of credit, in the amount of 10% of the construction cost may be furnished to the Town in lieu of each maintenance bond required as described above in 21.1.5 and 21.1.6.

PART 22 - RULES AND REGULATIONS FOR CONNECTIONS TO SANITARY SEWERS

[Rev. 6/89]

22.1 The sewer system as so constructed, or as thereafter added or changed shall be under the charge and control of the Sewer Commission, under whose supervision it shall be used by property owners, and no person shall enter into, open or interfere with or use said sewer system except under the observance and direction of said Sewer Commission, and after formal permission shall have been given by said Sewer Commission. The Sewer Commission shall adopt rules and regulations to govern the maintenance and use of the sewer system and shall therein fix the amount of fees that shall be chargeable to individuals or property owners who may wish to enter or use the sewer system, which fees shall be sufficient in amount to pay for the cost of observation of such entry or entries. Any person violating any provisions hereof and interfering with, entering, or using said sewer system without obtaining such permission shall be guilty of a misdemeanor and liable to punishment accordingly.

22.2 All permits for connecting to any sewers will be issued by the Commissioner of Public Works or a designated representative, and may be revoked at any time.

22.3 Persons desiring to connect to the sewers should apply to the Superintendent of Sewers for the necessary forms. Permits for work in the Town of Brighton will be issued only to master plumbers duly licensed by the Town of Brighton. Prior to issuance of the requisite Town permits, the applicant must have paid the applicable fees and received the appropriate Monroe County Pure Waters approvals.

22.4 All work shall be done under the supervision and in accordance with the directions of the Town representative designated by the Commissioner of Public Works. A permit charge shall be required which shall include one inspection to be paid for when the permit is issued. Refer to the listing of fees contained within this document for further information regarding sanitary/storm sewer inspection fees.

22.5 The Brighton Sewer District will not allow any storm water or underdrainage systems to be connected

to the sanitary sewer system.

22.6 Before any sewer facilities are placed in service, they shall be approved by the Monroe County Department of Health, 111 Westfall Road, Rochester, New York 14620. The Commissioner of Public Works shall be furnished with written approval from the Health Department.

PART 23 - GENERAL PROVISIONS FOR SANITARY SEWER MAINS AND APPURTENANCES

23.1 Standard abbreviations in the text are listed below:

American Standard Association (ASA)
American Society of Testing and Materials (ASTM)
American Welding Society (AWS)
American Institute of Steel Construction (AISC)
American Water Works Association (AWWA)

23.1.1 The plans and specifications shall be read together. All questions as to their meaning shall be promptly submitted to the Department of Public Works. The Commissioner of Public Works' interpretation of the plans and specifications shall be final. The plans shall not be scaled for dimensions.

23.2 MATERIALS

23.2.1 Flexible Pipe (PVC) -Sanitary sewers may be constructed of flexible pipe with integral wall, bell and spigot rubber ring joints as manufactured by Johns-Manville Company or approved equal with a minimum wall thickness of SDR-35. Sewer pipe shall meet ASTM Standard Specifications D-3034, joints ASTM D-3212, fitting materials ASTM D-1784, and any later revisions thereto. See appropriate standard sheet for bedding detail.

23.2.2 Vitrified Tile Pipe (VTP) - Sanitary sewers may be repaired with VTP, ASTM designation C-700 with "O" ring joints to match existing material only. No VTP shall be used for new construction. See the appropriate standard sheet for bedding detail.

23.2.3 Cast Iron Pipe (CIP) [Rev. 6/89] - Sanitary sewer laterals may be constructed of CIP, ASA designation Class 22 with mechanical or "O" ring joints and may be laid in undisturbed earth. Laterals shall be 4" min, X.H.C.I.P.

23.2.4 Ductile Iron Pipe (DIP) [Rev. 6/89] - Sanitary sewer mains may be constructed of DIP, A.W.W.A. C-51, class 52 or A.N.S.I. A21.51 for ductile iron pipe. DIP shall be used in all instances where casing pipe shall be required for stream crossings, bores or forcemains.

23.2.5 Other Pipe - Other types and classes of pipes may be approved for sewer construction if data is submitted by the design engineer to the Commissioner of Public Works on the type and class of sewer pipe to be used in lieu of the above mentioned sewer pipes.

23.3 WYE BRANCHES

23.3.1 The wye branches for sanitary sewers shall be supplied in a strength classification equal to or stronger than the main in which the wyes are to be installed.

23.3.2 Joints for approved piping systems shall be of a type approved by the Commissioner of Public Works

and shall be installed according to the manufacturer's specifications.

23.3.3 Wye branches shall be placed in sewers for lateral connections at the approximate center line for each lot along the street. The branches shall be placed with the opening upward at a 45 degree angle from the horizontal. Whenever the wye branch is located at a depth in excess of 10', a crushed stone encased riser shall be extended upward at a 60 degree angle from the horizontal to a depth of 8' below the finished grade or to such elevation as the Town may establish.

23.3.4 The open ends of wye branches or laterals shall be tightly sealed with approved plugs installed in place as directed in the pipe manufacturer's latest installation manual. The plugs or caps shall be able to withstand all air test pressures. The ends of all wye branches or laterals shall be marked with a witness stake extending from the end of the pipe to 3' above existing grade, the top of which shall be painted with the appropriate colored enamel (green for sanitary, white for storm).

23.4 CLEANOUTS

23.4.1 Cleanouts shall be provided within 5' outside of the right-of-way or easement line and a maximum spacing of 75' between cleanouts thereafter up to the building. *[Rev.5/94]*

23.4.2 Cleanouts used in paved areas shall be placed in a cast iron frame and cover and installed flush with finished grade. The castings shall be as manufactured by Neenah Foundry Company or Syracuse Castings Company. The type shall be as indicated on the appropriate standard sheet.

23.5 MANHOLES

23.5.1 It is the intent of these specifications to describe the construction of first class manholes which will exclude all ground water by means of carefully constructed foundations, rubber gasketed and mortared barrel joints, all grouting required, and coating the inside and outside with two (2) coats of Asphaltic Manhole Sealer. *[Rev. 6/89]*

23.5.2 The sanitary sewer manholes shall be constructed at the locations shown on the plans or as designated by the Town in the field so as not to exceed 300' between manholes. The manholes shall be standard or drop manholes with paved or half-pipe inverts and shall conform to the details shown on the standard sheets for manholes and inverts. The excavation for the manhole bases shall be excavated to the exact elevation shown on the plans. Any over-excavation shall be made up by placing an extra thick concrete footing or filling with crushed stone. In the case of precast manhole bases, the trench bottom shall be over-excavated to a minimum of 12" and backfilled with crushed stone to properly position and level the manhole base. Earth fill will not be permitted to adjust grade for over-excavation. If the trench bottom should be unstable or become unstable, the contractor shall stabilize the area upon which the manhole base will rest by excavating and placing crushed stone to a depth ordered by the Town. *[Rev. 2/2006]*

23.5.3 When placing the base slabs, the contractor shall support the precast reinforced concrete barrel with concrete blocks so that it is level and positioned correctly. The concrete shall be placed under and extended at least 6" outside the barrel.

23.6 MANHOLE BASES

23.6.1 The sanitary manhole bases shall be constructed of 4000 p.s.i. concrete cast-in-place, with the base pour lapping the first riser section to provide a watertight seal. A precast manhole base may be used in lieu of cast-in-place (see the appropriate standard sheet). Said base shall meet the manufacturer's specifications noted

for manhole barrels. (See below).

23.7 MANHOLE BARRELS

23.7.1 The manhole barrels shall be constructed of 4000 p.s.i. precast, reinforced concrete sections manufactured in accordance with ASTM specifications C-478. The riser sections shall have tongue and groove ends and shall be of watertight construction. The riser and cover slab joints shall be assembled with rubber gaskets and then shall be sealed with non-shrink grout in a sufficient quantity to completely fill the joints both inside and out. Eccentric taper top sections shall be used on manholes having a depth greater than 9' (See Manhole Standard Sheets). The flat slab tops shall have a minimum thickness of 8" and shall be constructed of 4000 p.s.i. reinforced concrete. [Rev. 5/94]

23.8 MANHOLE STEPS

23.8.1 The manhole steps shall be copolymer polypropylene plastic steps with 1/2" Grade 60 steel reinforcement as manufactured by M. A. Industries, Inc., Model PS2-PFS. *Cast iron steps are not allowed.* [Rev. 2/1/2007]

23.8.2 Installation of the step shall be performed by the manufacturer, not the contractor. Spacing shall conform to dimensions described in this specification and on the standard sheets for manhole steps.

23.8.3 *Note: No other materials or products shall be used for steps.*

23.9 MANHOLE FRAMES AND COVERS

23.9.1 The castings shall be of sufficient strength to sustain wheel loads of 8 tons, plus 100% impact. The frames and covers shall be as manufactured by Neenah Foundry Company or Syracuse Castings Company. Bricks for frame height adjustment shall be ASTM designation C-32, Grade SS. The type shall be as indicated on the appropriate standard sheets. [Rev. 6/89]

23.10 WATERTIGHT MANHOLE COVERS

23.10.1 Watertight manholes shall conform in size and construction shown for standard manholes. Watertight manholes shall be provided with two covers. The inner cover shall be set on a 1/4" rubber gasket and shall be fitted with a hold-down bar and locking device. The cover bearing surfaces shall be machined. The frame and cover shall be Neenah R-1755E or an approved equal. The watertight frames and covers shall conform to all applicable specifications for standard frames and covers.

23.11 MANHOLE SEALER

23.11.1 All sanitary sewer manholes shall have the inside and outside completely sealed with a heavy-duty water repellent, protective coating, made of coal tar and shall comply with ASTM specification D-450 Type B. The sealer shall be Koppers Bitumastic Super Service Black or an approved equal. The interior and exterior surfaces of concrete barrels shall be sealed by the manufacturer and touched up or recoated by the contractor.

23.12 MANHOLE OPENINGS

23.12.1 Allowances for all proposed pipe openings and gaskets shall be cast at the factory by the manufacturer. No field cutting of the structures shall be permitted. All pipe to manhole connections shall utilize a gasket entry system as shown on the appropriate standard sheet. For connections to existing manholes, all openings shall be cored using an approved method. Pipes shall be installed using an approved connector, Press Seal Gasket or

approved equal (See Standard Sheet S6). *[Rev. 11/06]*

23.13 MANHOLE INVERTS

23.13.1 The contractor shall embed in the concrete base a continuous half-pipe invert that is of the correct slope and size.

23.13.2 If the invert cannot be constructed of half-pipe, a brick invert shall be used that is of the correct slope and smooth. Both the brick invert and half-pipe inverts shall be extended with brick upward to the top of the pipes. Bricks shall be ASTM designation C-32, Grade SS.

23.13.3 A minimum drop of 0.20 feet shall be provided for the inverts through the manhole (see Standard Sheet S4). Wherever the inlet invert is such that the 9" maximum slope is exceeded, the inlet pipe shall be connected with a 24" minimum outside drop and cleanout pipe half bricked up. When drop inverts are required, the entire excavated area around the drop pipe shall be filled with compacted crushed stone or controlled density fill extending not less than 24" along the pipe and with a minimum cover of 6" as shown on the appropriate standard sheets. *[Rev. 3/3/2011]*

23.14 SHALLOW MANHOLES

23.14.1 Where there is insufficient depth to construct standard manholes, shallow manholes shall be constructed as shown on the appropriate standard sheet. The trench excavation for sanitary sewers and appurtenances shall be of such width to insure proper bedding and backfill procedures. In general, the trench width shall be excavated to the outside diameter of the pipe plus one foot on each side of the pipe. The opening in the top slab for shallow manholes shall be placed in the center of the slab. See the appropriate standard sheets for details on trench excavation and the various types of bedding details. *[Rev. 5/94]*

23.15 MANHOLE BEDDING AND BACKFILL

23.15.1 All manholes shall be supported as specified in the appropriate detail sheet(s). Backfilling around the structure shall be accomplished as required with crushed stone or run of bank gravel brought up uniformly in twelve inch (12") lifts compacted to 95% Proctor density. *[Rev. 3/95]*

PART 24 - TRENCH EXCAVATION, BEDDING AND BACKFILL

24.1 MATERIALS

24.2 Excavated material suitable for backfill shall be placed in spoil banks where it will not interfere with the work. Unsuitable material shall be removed from the work area as it is excavated to a suitable location on site that does not impact existing drainage patterns and is not within existing drainage ways. Spoil banks shall be located on only one side of trenches, so arranged that the trench wall is not overloaded. Where there is insufficient space for material in spoil banks adjacent to the work, the excess material shall be removed to an approved stockpile area and brought back as required for backfilling. *[Rev. 3/2000]*

24.3 Bell joint holes shall be accurately located along the pipe bed. Each bell joint hole shall be cut sufficiently large for making the joint and not larger. It shall be required to achieve not less than ordinary pipe bedding, i.e., a foundation shaped to fit the lower portion of the pipe for its entire length. All pipes shall be haunched to spring line in accordance with the manufacturer's requirements. Completion of the pipe envelope shall be performed as specified in the appropriate detail.

24.4 METHOD OF PLACEMENT

24.5 In all pipe trenches, whether in paved streets or not, the backfill shall be carefully tamped around the pipes. No stones shall be thrown into the trench; only select earth, crushed stone or select gravel shall be deposited around the pipes after they have been properly bedded. The placement of backfill material shall be by hand for a depth of at least 12" above the pipe. The backfill material shall be thoroughly tamped. The backfill material must not be thrown down from above faster than the workers below can properly distribute and compact it. The remainder of the trench may be backfilled with select earth placed in 1' lifts and compacted to the required density. When for any reason the work is left unfinished, all trenches and other excavations shall be backfilled to existing grade level by the end of the work day. If this is not possible, the trench shall be suitably barricaded, fenced or covered. Roadways and sidewalks shall be left unobstructed with their surface in a safe and satisfactory condition.

24.6 The contractor shall furnish a sufficient pumping plant, and shall provide and maintain at the contractor's own expense satisfactory drainage, whenever needed in the trench and other excavations. This shall be maintained during the progress of the work and through its completion and final inspection. No appurtenances or mains shall be laid in water. All pipes of whatever character shall, when set, conform to the alignments and grades required by the plans; and as the work proceeds, all of the required fixtures that are indicated upon the plans, or that may be required during the progress of the work, shall be installed in their proper positions. Rough cleanup shall follow each backfilling operation. The cleanup shall include the removing of all debris, replacing driveways in an accessible manner, replacing disrupted drainage culverts and ditches, and rough grading. The area shall be leveled and may be slightly mounded to allow for future settlement.

PART 25 - SITE RESTORATION

25.1 Application of topsoil shall be to a minimum depth of four inches. Seed shall be applied at a rate of four pounds per 100 square feet and may be hydroseeded. Fertilizer types 5-10-5 or 10-6-4 may be used and shall be applied at a rate of 4 pounds per 100 square feet for type 5-10-5, and 2-1/2 pounds per square feet for type 10-6-4.

25.2 Restoration of asphalt pavement and base work shall be conducted between May and October. Seeding, topsoil and mulch work shall be conducted prior to June 15 and after September 1 when conditions are favorable.

PART 26 - LAYING SEWER MAINS AND APPURTENANCES

26.1 MATERIALS

26.1.1 Sanitary sewer mains shall be constructed with approved materials and shall be a minimum of 8" in diameter. *[Rev. 6/89]*

26.2 METHOD OF PLACEMENT

26.2.1 The sewer pipe shall be set to true line and grade and properly bedded. The sewer pipe shall be observed for line and grade by the Town's representative before backfilling operations are started. If any portion of the sewer line has been backfilled without so being observed by the Town's representative, the contractor shall uncover the pipe for inspection when directed to do so.

26.2.2 All pipe line materials shall be carefully handled. The pipe and fittings shall be lifted by hoists or lowered on skidways in such a manner to avoid shock to any of the materials being installed. Pipe and fittings

shall not be dropped or dumped when being unloaded at the site or when being placed in the trench.

26.2.3 A minimum separation of 10' horizontally and 18" vertically shall be maintained between the outside edges of all sewer and water lines. Horizontal separation may be less than 10' provided the bottom of the water main is at least 18" above the top of the sewer, or if this vertical separation cannot be obtained, or the water main passes under the sewer, the sewer shall be constructed of materials and joints equivalent to water main construction standards and shall be pressure tested to assure water tightness after backfilling. Water mains passing under sewers shall have a vertical separation of at least 18" measured from the bottom of the sewer to the top of the water main. The water main shall be centered at the point of crossing so the joints will be equidistant and as far as possible from the sewer; and the sewer shall have adequate support to prevent excessive deflection of the joints and possible settling on and breaking of the water main.

26.2.4 Each pipe, fitting and appurtenance shall be inspected before it is lowered into the trench. The interior of the pipe and all joint surfaces shall be thoroughly cleaned and shall thereafter be maintained clean. The open ends of all pipes shall be securely plugged whenever pipe laying is not in progress. No water shall be drained into the pipeline during construction.

26.3 JOINING PIPE

26.3.1 The pipe shall be laid upgrade with the spigot end placed in the direction of the flow. The pipe shall be fitted together to form a smooth, even and continuous conduit. Pipes that have been disturbed after laying shall be re-laid.

PART 27 - TESTING

27.1 GENERAL

27.1.1 Every section of pipe between manholes shall be visually checked with a bright light. If the illuminated interior of the pipe line shows poor alignment, displaced pipes or any other defects, the defects shall be corrected at once.

27.1.2 Air testing of all sewer lines and appurtenances shall be performed (See Air Test specs contained herein). Manholes shall be either vacuum tested, or tested by infiltration in high groundwater conditions, or by exfiltration. In the exfiltration test, the manhole shall be filled with water to within 3" of rim and tested for a 4 hr. period with no loss of water.

27.1.3 Deflection tests shall be performed on all flexible pipe. The test shall be conducted after the final backfill has been in place at least 30 days. No pipe shall exceed a deflection of 5%. If the deflection tests are to be run using a mandrel having a diameter equal to 95% of the inside diameter of the pipe. The test shall be performed without mechanical pulling devices.

27.1.4 Upon satisfactory completion of all required tests, the line shall be televised in its entirety. A color video tape (with voice over narration) and log of the televising are to be provided to the DPW. [Rev. 6/00]

27.1.5 Test results are to be verified and signed by a N.Y.S. licensed professional engineer. This data and a cover letter providing certification of testing by said professional shall be submitted to the Commissioner of Public Works. [Rev. 5/94]

27.2 AIR TEST FOR SEWER LINES

27.2.1 EQUIPMENT

27.2.1.1 Cherne Air-Loc Equipment, as manufactured by Cherne Industrial, Inc., of Edina, Minnesota or approved equal. Equipment used shall meet the following minimum requirements:

27.2.1.2 Pneumatic plugs shall have a sealing length equal to or greater than the diameter of the pipe to be inspected.

27.2.1.3 Pneumatic plugs shall resist internal test pressures without requiring external bracing or blocking.

27.2.1.4 Three individual hoses shall be used for the following connections:

- 1) From control panel to pneumatic plugs for inflation.
- 2) From control panel to sealed line for introducing the low pressure air.
- 3) From sealed line to control panel for continually monitoring the air pressure rise in the sealed line.

27.2.2 PROCEDURE

27.2.2.1 All pneumatic plugs shall be tested prior to use to verify ability to seal said line section. After a manhole to manhole reach of pipe has been backfilled and cleaned, the plugs shall be placed in the line at each manhole and inflated to 25 psig. Low pressure air shall be introduced into this sealed line until the internal air pressure reaches 4 psig greater than the average back pressure of any ground water.

27.2.2.2 After the stabilization period (3.5 psig minimum pressure in the pipe), the air hose from the control panel to the air supply shall be termed "acceptable" if the time required in minutes for the pressure to decrease from 3.5 to 2.5 psig (greater than the average back pressure of any ground water that may be over the pipe) shall not be less than the time shown for the given diameters in the following table:

Pipe Diameter	Minimum Time (MM:SS)	Length for Minimum Time (feet)	Time Formula (seconds) for Longer Lengths (L=length in feet)
4"	3:46	597	$0.380 \times L$
6"	5:40	398	$0.854 \times L$
8"	7:34	298	$1.520 \times L$
10"	9:26	239	$2.374 \times L$
12"	11:20	199	$3.418 \times L$
15"	14:10	159	$5.342 \times L$
18"	17:00	133	$7.692 \times L$
21"	19:50	114	$10.470 \times L$
24"	22:40	99	$13.674 \times L$

Pipe Diameter	Minimum Time (MM:SS)	Length for Minimum Time (feet)	Time Formula (seconds) for Longer Lengths (L=length in feet)
27"	25:30	88	$17.306 \times L$
30"	28:20	80	$21.366 \times L$
33"	31:10	72	$25.852 \times L$
36"	34:00	66	$30.768 \times L$

[Rev. 7/97]

- 27.2.2.3 In areas where ground water is known to exist, the contractor shall install, if directed by the Town, a one-half inch diameter, brass or plastic (do not use iron), capped pipe nipple, approximately 10" long, through the manhole. This shall be done at the time the sewer line is installed. Immediately prior to the performance of the Line Acceptance Test, the ground water shall be determined by removing the pipe cap, blowing air through the pipe nipple into the ground so as to clear it, and then connecting a clear plastic tube to the nipple. The hose shall be held vertically and a measurement of the height in feet of water over the invert of the pipe shall be taken after the water has stopped rising in this plastic tube. The height in feet shall be divided by 2.3 to establish the pounds of pressure that will be added to all readings. For example, if the height of water is 11-1/2 feet, then the added pressure will be 5 psig. This increases the 3.5 psig to 8.5 psig, and the 2.5 psig to 7.5 psig. The allowable drop of one pound and the timing remain the same. If the installation fails to meet this requirement the contractor shall, at his own expense, determine the source of leakage. The contractor shall then repair or replace all defective materials. The air test shall be repeated until each reach of sewer meets with the test requirements. [Rev. 5/1995]

27.3 VACUUM TEST FOR MANHOLES

27.3.1 EQUIPMENT

- 27.3.1.1 NPC Manhole Vacuum Tester, as manufactured by NPC Systems, Inc. of Worchester, MA. or approved equal.

27.3.2 PROCEDURE

- 27.3.2.1 All manholes shall, without exception, be tested after backfilling. It is strongly suggested that testing also be performed prior to backfilling to avoid unnecessary excavation for repairs.
- 27.3.2.2 All pipes entering the manhole shall be plugged, taking care to securely brace the plug from being drawn into the manhole.
- 27.3.2.3 The test head shall be placed inside the 24" opening and the seal inflated in accordance with the manufacturer's recommendations.
- 27.3.2.4 A vacuum of 10 inches of mercury shall be drawn and the vacuum pump shut off. With the valves closed, the time shall be measured for the vacuum to drop to 9 inches. The manhole shall pass the test if the time is greater than the following:

Manhole Depth	Time to Drop 1" Hg (seconds)		
	4 ft. dia. Manhole	5 ft. dia. Manhole	6 ft. dia. Manhole
10 ft. or less	60	75	90
10 ft. to 15 ft.	75	90	105
15 ft. to 25 ft.	90	105	120

[Rev. 7/97]

- 27.3.2.5 If the manhole fails the initial test, necessary repairs shall be made with a non-shrink grout. Retesting shall proceed until satisfactory results are obtained.

PART 28 - LATERAL CONNECTIONS

28.1 Building lateral connections to sanitary sewers shall be made at openings provided in the sewer main. The location of such openings may be obtained from the Office of the Superintendent of Sewers. Where no openings exist, the Superintendent of Sewers shall direct the plumber on the type and location of the cut-in to be made to the sewer and all work shall be in accordance with the directions given. Taps on vitrified tile pipe shall be made with mechanical tapping equipment. Any breaking or degradation of the sewer main by cutting-in shall be repaired at the expense of the plumber and to the satisfaction of the Superintendent of Sewers.

28.1.1 No connection into the sewer shall project beyond the face of the inside wall.

28.1.2 The plumber shall check to see that all lateral connections have an unobstructed flow from the point of connection to the sewer main. Any obstruction in the lateral connection to the main shall be removed before the connection is made by the plumber.

28.1.3 Connections to sanitary sewers shall be made with extra heavy cast iron pipe or flexible SDR-21/35 pipe as directed by the Town not less than 4" in diameter. The cast iron pipe shall be sound, cylindrical, smooth, of uniform thickness and shall be coated inside and out with coal tar pitch applied hot. Joints shall be made with an approved rubber gasket. Cleanouts shall be provided along the lateral so that the length of any section shall not exceed 75' without the provision of a cleanout. A 4" combination wye and 1/8 bend for a cleanout shall be installed 5'± outside the right-of-way or easement line (see appropriate standard sheet).

28.1.4 All fittings shall be recessed with smooth, continuous inner surfaces. Change in direction of flow shall be made by the use of proper fittings. Where required, one-sixteenth bends shall be placed at least one foot apart. One-eighth bends may be used when permitted by the inspector. The use of one-quarter bends shall not be permitted. The trench excavation, pipe laying, bedding and backfill for lateral connections shall conform to the specifications as set forth under excavation-bedding and backfill and laying sewer mains and appurtenances (see appropriate standard sheets).

PERMIT AND INSPECTION FEES [Rev. 03/07/2011]

1. Storm and Sanitary Lateral Connection to Main Sewer..... \$50.00

Application for permit to be made at the Brighton Sewer Dept., 1941 Elmwood Avenue, (585) 784-5282.

The fee is collected when the permit is applied for by the plumber. A single permit may cover both storm and sanitary connections as long as the same plumber completes both.

NOTE: Additional inspections as required during the connection are charged at \$35.00 per hour, and are billed to the plumber when the work is completed. Overtime inspection is charged at \$50.00 per hour.

A rental fee is charged at the time the permit is applied for. The amount is based on a fee scale depending on the month of the year.

2. Repair to Laterals*..... \$50.00

3. Additions to Houses or Buildings*..... \$50.00

*For 2. and 3. no rental fee is charged; inspections are billed as described in 1.

4. Construction of mains 8" or larger with manholes, catch basins, etc.

- A. Initial permit cost..... \$50.00

- B. Inspection deposit is required, computed at the rate of 40 cents per lineal foot of pipe to be installed, with a minimum of \$250.00 (non-refundable). On completion of the work, total inspections are added, and a bill sent to the contractor for any amount over the inspection deposit. Cost of inspections is \$35.00 per hour, and overtime inspections are charged at \$50.00 per hour.

5. Residential Driveway or New Curb Cut..... \$40.00

- Open Cutting of Road Section..... \$250.00

Application for permit to be made at the Highway Department, 1941 Elmwood Avenue, telephone (585) 784-5280.

Fees are required at the time of application and are non-refundable.

Any removed curbing shall be delivered in good condition to the Brighton Highway Department, 1941 Elmwood Avenue, telephone (585) 784-5280, regardless of curbing type.

NOTE: The fees listed here are typical ones, and may not represent all of the fees required for your project. Prices listed here are subject to change by action of the Brighton Sewer Commission and/or Commissioner of Public Works. Please contact the Brighton Highway or Sewer Department for more information.

TOWN OF BRIGHTON SPECIFICATIONS - REVISIONS

No.	Yr/Mo/Day	Section(s)	Description	
1	1989	6	16.1	Monument locations revised to include cul-de-sac centers.
2	1989	6	23.13	Added section.
3	1989	6	23.2.3	Revised to read "Sanitary sewer laterals may be constructed...".
4	1989	6	23.2.4	Section added.
5	1989	6	23.4	Added section.
6	1989	6	23.5.1	Added section.
7	1989	6	23.9.1	Added reference to brick adjustment.
8	1989	6	26.1.1	LAYING SEWER MAINS - added <i>sanitary sewer main shall be a min. 8" diameter.</i>
9	1989	6	9.4, 19.1, 18.1	Added references to "New York Guidelines for Urban Erosion & Sediment Control"
10	1989	6	H15 H16, previously H13 H14	Revised typical storm manhole detail relative to cast in place base depth thickness on rock increased to 6" from 4", height from finished grade to bottom of top slab increased 4", height required for using an eccentric cone section raised from 7' to 9'.
11	1989	6	PART 22 -	Deleted <i>Excerpts from Sewer Commission Rules...</i> and paragraph detailing the filing of a \$5,000 bond with the Town.
12	1989	6	PART 21 -	Maintenance bond amount changed to amount equal to 100% of the total construction cost and that L/C may be furnished in lieu of each bond.
13	1994	2	H10, previously H8	Revised typical right of way monument detail relative to depth and replaced re-bar with brass monument disk.
14	1994	2	H19	New detail for casing pipe when roadways or streams must be crossed by boring beneath.
15	1994	2	H2.1	New standard detail for light duty roadway section with concrete gutters.
16	1994	2	H2.4	New standard detail for Town park roadway section.
17	1994	2	H21, previously H17	Revised typical storm lateral denoting requirements for type of pipe to be installed based upon depth of trench.
18	1994	2	H23, previously H18	Revised typical record map detail.
19	1994	2	H4	Revised placement of dry mix beneath curbing and amount of concrete backing.
20	1994	2	S10	New detail for sanitary cleanouts.
21	1994	2	S2	Revised typical detail for flexible sanitary sewer bedding/trench by increasing the depth of the pipe envelope to 12" from 6".
22	1994	2	S4 S5	Revised typical sanitary manhole detail relative to cast in place base depth thickness on rock increased to 6" from 4", height from finished grade to bottom of top slab increased 4", use of Press Wedge II pipe gasket, height required for using an eccentric cone section raised from 7' to 9'.
23	1994	5	10.1	Added geotextile information to subgrade stabilization section, requirements of geotechnical engineer evaluation and sequence of operation prohibiting use of construction equipment upon the subgrade.
24	1994	5	11.1	Deleted reference to specific asphalt thickness and "temperature rising" reference.
25	1994	5	12.1	Added "or for construction of a park road", "contractor" as a responsible party for concrete testing.
26	1994	5	12.3.2	Added sentence referring to "broomed finish".
27	1994	5	PART 13 -	Added reference to ADA requirements.
28	1994	5	13.3	Added expansion joint information for sidewalks wider than 5', added "or crushed stone" as an option for the sidewalk base, deleted the specific reference to "gravel base", deleted "temperature rising" reference, added "contractor" as a responsible party for concrete testing.
29	1994	5	17.2	Added "prevent stagnation", "prior to commencing work".

No.	Yr/Mo/Day	Section(s)	Description	
30	1994	5	17.5	Added reference to PVC/HDPE; deleted reference to all CMP.
31	1994	5	18.1	Replaced "corrugated" with "smooth interior", Hancor Agriflow with ADS N-12 HDPE; added "Geotextile fabric, as previously.....underdrain limits" and "geotextile".
32	1994	5	23.12.1	Added <i>Allowances for all proposed pipe openings....by the manufacturer, No field cuttingshall be permitted.</i>
33	1994	5	23.14	Added section.
34	1994	5	23.4.1	Added requirement of cleanouts at easement lines.
35	1994	5	23.7	Added specifications for manholes greater than 9' deep, revised top slab thickness to 8" for all diameter manholes.
36	1994	5	27.1	Deleted reference to "riding" (Rigid) ball, added televising requirement, added reference to test results being certified by licensed professional engineer in NYS.
37	1994	5	3.2.11	Added "and letter of credit".
38	1994	5	3.2.12	Added "district".
39	1994	5	3.2.15	Added "supply".
40	1994	5	3.2.17	Added section.
41	1994	5	3.2.5	Deleted "if required".
42	1994	5	3.2.9	Added section.
43	1994	5	5.1	Added "or license", "but is not limited to", "or resurfacing", "sidewalk replacement, tree work, etc.".
44	1994	5	5.2	Sewer - added "a petition", "and associated fees".
45	1994	5	7.10	Replaced "10%" with "100%".
46	1994	5	7.12	Deleted reference to examining NYSDOT Specifications at the DPW.
47	1994	5	7.14	Added "in United States Dollars", "as beneficiary" and "The letter of credit shallCommissioner of Public Works at that time.".
48	1994	5	7.6	Added "or within".
49	1994	5	7.8	Added "No work shall be conducted prior to receiving stakeouts ..."
50	1994	5	PART 25 -	Added section.
51	1994	5	PART 24 -	Deleted reference to placement of spoil <i>2' away from excavation wall.</i>
52	1994	5	PART 8 -	TERMS AND DEFINITIONS - Topsoil, Compost, Erosion Control, Clear and Grub definitions added. Trench Excavation and Backfill revised to eliminate reference to specific safety activities.
53	1995	3	23.15	Added section.
54	1995	3	PART 2 -	INSPECTOR - replaced Inspector" with "Town representative" (this change typically made throughout the document when the term "inspector" was encountered), "supervise" with "oversee", "inspect" with "observe".
55	1995	4	H1.1	New standard detail for light duty roadway section with granite curbing.
56	1995	4	H1.2	New standard detail for medium duty roadway section with granite curbing.
57	1995	4	H1.3	New standard detail for heavy duty roadway section with granite curbing.
58	1995	4	H14, previously H12	Revised typical shallow storm manhole detail relative to cast in place base depth thickness on rock increased to 6" from 4", height from finished grade to bottom of top slab increased 4".
59	1995	4	H2.2	New standard detail for medium duty roadway section with concrete gutters.
60	1995	4	H2.3	New standard detail for heavy duty roadway section with concrete gutters.
61	1995	4	H20	New detail for storm cleanouts.
62	1995	4	H22	Revised detail pertaining to pavement restoration.
63	1995	4	H3	Revised underdrain detail to show limits of geotextile fabric and size/type of approved underdrain pipe.

No.	Yr/Mo/Day	Section(s)	Description	
64	1995	4	H5.1	New detail for construction of sidewalks.
65	1995	4	H5.2, previously H5	Revised sidewalk ramp to comply with ADA requirements.
66	1995	4	H6, previously H5	Typical drop inlet detail (brick construction) has new number .
67	1995	4	H8	New detail for typical precast drop inlet.
68	1995	4	H9, previously H7	Revised typical standard field inlet detail to provide for 6" underdrain/weep connections.
69	1995	4	S11, previously S10	Revised typical sanitary lateral denoting requirements for type of pipe to be installed based upon depth of trench.
70	1995	4	S3	Revised typical shallow sanitary manhole detail relative to cast in place base depth thickness on rock increased to 6" from 4", height from finished grade to bottom of top slab increased 4", use of Press Wedge II pipe gasket, access hole in top slab to be situated in the center of the top slab.
71	1995	4	S9	Revised typical manhole dimensions detail sheet pertaining to invert differences.
72	1995	5	23.2.5	Added "...if data is submitted <i>by the design engineer</i> to the Commissioner..."
73	1995	5	27.2	AIR TEST FOR SEWER LINES - revised Procedures section time of air testing for 6" line from 30 minutes to 3 minutes, added to Procedures section, third paragraph, first sentence "In areas where groundwater the contractor shall install, <i>if directed by the Town</i> , a one half inch ... through the manhole."
74	1995	5	3.3.4	Replaced "verification" with "certification"
75	1995	5	3.3.5	Added "certified", replaced "as-built" with "record" (this change typically made throughout the document when the term "as-built" was encountered).
76	1995	5	4.1.6	Added section.
77	1995	5	4.1.7	Added section.
78	1995	5	4.1.8	Added section.
79	1995	5	4.4	Added section.
80	1995	5	7.3	Replaced "minimum" obstruction to traffic with "no" obstruction to traffic, added "and shall be accompanied by appropriate delineation of flashing barricades".
81	1995	5	H14, S3	Revised detail for shallow manholes specifying concentric top slab.
82	1995	5	PART 6 -	Added section.
83	1995	5	S3, S4 S5	Revised typical mortar mix to 2 parts portland cement, 4 parts sand, use of type II cement.
84	1996	10	7.11	Revised insurance rates.
85	1996	6	H14	Revised detail specifying concentric flat cover slab.
86	1997	7	27.2.2.2	Modified table of times for air testing of sewer mains.
87	1997	7	27.3.2.4	Modified table of times for vacuum testing of manholes.
88	2000	2	5.1	Updated phone number references for Highway and Sewer Departments.
89	2000	2	Permit and Inspection Fees, Page 31	Updated fees and descriptions. Updated phone number references for Highway and Sewer Departments.
90	2000	2	All	Incorporated standard outline format for sections and paragraphs.
91	2000	2	PART 8 -	Definition for Clear & Grub - Changed <i>Section 10A-1 of Town Drainage Ordinance</i> to <i>Section 215-3 of the Town Stormwater Management Ordinance</i> , to reflect updating of law.
92	2000	3	3.2.4	Added: “ including water quantity and quality mitigation”
93	2000	3	3.3.2	Added section.
94	2000	3	3.3.3	Added section.
95	2000	3	9.1.1	Added: “throughout all phases of construction and shall be in accordance with the <i>NYS Guidelines for Urban Erosion and Sedimentation Control</i> ,

No.	Yr/Mo/Day		Section(s)	Description																																																																																																												
96	2000	3	9.2.1	Added: “ If necessary, proper sedimentation control should be implemented prior to or within the drainage way.”																																																																																																												
97	2000	3	24.2	Added: ‘to a suitable location on site that does not impact existing drainage patterns and is not within existing drainage ways”																																																																																																												
98	2000	3	Standard Sheets	Revised ALL standard sheets, added some NEW standard sheets, and CHANGED numbers of some. The following changes in numbers/additions were made:																																																																																																												
				<table><tr><th>Detail</th><th>Changed From</th><th>Changed To</th></tr><tr><td>Speed Hump</td><td>Added</td><td>H2.5</td></tr><tr><td>Curb</td><td>H4</td><td>H4.1</td></tr><tr><td>Recessed Conc. Curb</td><td>Added</td><td>H4.2</td></tr><tr><td>Driveway Detail</td><td>Added</td><td>H5.3</td></tr><tr><td>Asph. Park Trail</td><td>Added</td><td>H5.4</td></tr><tr><td>Drop Inlet - Curb</td><td>H6</td><td>H6.1</td></tr><tr><td>Drop Inlet - Gutter</td><td>H7</td><td>H6.2</td></tr><tr><td>Drop Inlet - Precast</td><td>H8</td><td>H6.3</td></tr><tr><td>Field Inlet</td><td>H9</td><td>H6.4</td></tr><tr><td>Cul-de-sac Curb</td><td>H11</td><td>H7.1</td></tr><tr><td>Cul-de-sac Gutter</td><td>H12</td><td>H7.2</td></tr><tr><td>Cul-de-sac o/s Curb</td><td>H13</td><td>H7.3</td></tr><tr><td>Cul-de-sac o/s Gutter</td><td>Added</td><td>H7.4</td></tr><tr><td>Storm Manhole</td><td>H14</td><td>H8</td></tr><tr><td>Storm Manhole</td><td>H15</td><td>H8</td></tr><tr><td>Storm Manhole</td><td>H16</td><td>H8</td></tr><tr><td>St. Flex Pipe Bed</td><td>H17</td><td>H9.1</td></tr><tr><td>St. Rigid Pipe Bed</td><td>H18</td><td>H9.2</td></tr><tr><td>Highway Crossing</td><td>H19</td><td>H11</td></tr><tr><td>St. Cleanout</td><td>H20</td><td>H6.5</td></tr><tr><td>St. Bldg. Lateral</td><td>H21</td><td>H6.6</td></tr><tr><td>Pavement Restoration</td><td>H22</td><td>H12</td></tr><tr><td>Record Map Illustration</td><td>H23</td><td>H13</td></tr><tr><td>San. Flex Pipe Bed</td><td>S1</td><td>S1.1</td></tr><tr><td>San. Rigid Pipe Bed</td><td>S2</td><td>S1.2</td></tr><tr><td>San. Manhole</td><td>S3</td><td>S2.1</td></tr><tr><td>San. Manhole</td><td>S4</td><td>S2.1</td></tr><tr><td>San. Manhole</td><td>S5</td><td>S2.1</td></tr><tr><td>Outside Drop - Cast</td><td>S6</td><td>S3.1</td></tr><tr><td>Outside Drop - Mon.</td><td>S7</td><td>S3.2</td></tr><tr><td>Inside Drop</td><td>Added</td><td>S3.3</td></tr><tr><td>Monolithic MH Base</td><td>S8</td><td>S3.4</td></tr><tr><td>Manhole Dimensions</td><td>S9</td><td>S4</td></tr><tr><td>San. Cleanout</td><td>S10</td><td>S5.1</td></tr><tr><td>San. Bldg. Lateral</td><td>S11</td><td>S5.2</td></tr></table>	Detail	Changed From	Changed To	Speed Hump	Added	H2.5	Curb	H4	H4.1	Recessed Conc. Curb	Added	H4.2	Driveway Detail	Added	H5.3	Asph. Park Trail	Added	H5.4	Drop Inlet - Curb	H6	H6.1	Drop Inlet - Gutter	H7	H6.2	Drop Inlet - Precast	H8	H6.3	Field Inlet	H9	H6.4	Cul-de-sac Curb	H11	H7.1	Cul-de-sac Gutter	H12	H7.2	Cul-de-sac o/s Curb	H13	H7.3	Cul-de-sac o/s Gutter	Added	H7.4	Storm Manhole	H14	H8	Storm Manhole	H15	H8	Storm Manhole	H16	H8	St. Flex Pipe Bed	H17	H9.1	St. Rigid Pipe Bed	H18	H9.2	Highway Crossing	H19	H11	St. Cleanout	H20	H6.5	St. Bldg. Lateral	H21	H6.6	Pavement Restoration	H22	H12	Record Map Illustration	H23	H13	San. Flex Pipe Bed	S1	S1.1	San. Rigid Pipe Bed	S2	S1.2	San. Manhole	S3	S2.1	San. Manhole	S4	S2.1	San. Manhole	S5	S2.1	Outside Drop - Cast	S6	S3.1	Outside Drop - Mon.	S7	S3.2	Inside Drop	Added	S3.3	Monolithic MH Base	S8	S3.4	Manhole Dimensions	S9	S4	San. Cleanout	S10	S5.1	San. Bldg. Lateral	S11	S5.2
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99	2000	3/20	3	Added: “Manhole stationing is based upon the center of the manhole opening, not the center of the manhole barrel.”																																																																																																												
100	2000	5/18	S4	Corrected error in labeling in Manhole Diameter and Invert Difference Table (labels “B” and “G” were transposed).																																																																																																												
101	2000	6/06	27	Changed: “... log of the televising are to provided...” to: “... log of the televising are to be provided...”																																																																																																												
102	2002	3/07	H1.1, H1.2, H1.3, H2.1, H2.2, H2.3, H2.4	Added notes 1 and 2, referring to cleaning and tack coating surfaces prior to paving.																																																																																																												
103	2002	3/07	H11	Added material indication “Concrete Sand” to Section A-A for filler material inside casing.																																																																																																												

No.	Yr/Mo/Day	Section(s)	Description
104	2003	5/16 H2.1, H2.2, H2.3,H4.2, H7.2	Added note regarding minimum slope for machine-placed gutter.
105	2003	5/16 H5.2, H5.2.1, H5.2.2, H5.5.1, H5.5.2	Added section "Detectable Warning System". Replaced H5.2 with other standards sheets showing various ramp configurations with detectable warning systems.
106	2003	8/4 H9.1, H9.2, S1.1, S1.2	Changed variable for pipe diameter from "Bc" to "D"
107	2006	2/1 H5.1	Changed subbase course spec. label.
108	2006	2/1 H5.1.1	Added Standard Sheet - <i>Sidewalk Within NYS Right of Way</i> .
109	2006	2/1 H5.1.2	Added Standard Sheet - <i>Thin-Form Sidewalk Detail</i> .
110	2006	2/8 PART 13 -	Added to and reorganized entire section.
111	2006	2/10 Page 31	Revised Permit and Inspection Fees
112	2006	8/18 Page 31	Revised Permit and Inspection Fees - Area code to '585'
113	2006	8/18 S1.2	Fixed note #3. Changed word from "storm mains" to "sanitary mains".
114	2006	11/6 Table of Contents, 23.12.1, H8, S2.1, S3.1, S3.2, S3.3, S3.4, S6	Created new standard sheet S6. Added note to other standard sheets listed to refer to Sheet S6. Added S6 to Table of Contents. Revised section 23.12.1 to refer to required connector and Standard Sheet S6.
115	2007	2/1 H 5.5.1	H5.1.1 - Changed concrete mix from NYS Class A to NYS Class D. S3.3, Revised §, eliminating cast iron manhole steps. Revised §.
116	2007	2/1 S3.1, S3.2	Eliminated brick in cleanout. Extend cleanout with half-pipe (aids in positioning cleaning equipment).
117	2007	2/1 S3.3	Inside Drop manhole detail removed from spec - no longer allowed. Must use outside drop.
118	2007	2/1 23.5.2	Removed reference to standard sheet (reference was incorrect).
119	2007	2/1 23.8	Eliminated reference to cast iron steps. Polypropylene steps allowed only, per standard sheets for manholes.
120	2007	2/1 S3.3	Sanitary Sewer Inside Drop Manhole removed from spec book (no longer allowed).
121	2007	2/1 Table of Contents	Revised to accommodate removal of Standard Sheet S3.3.
122	2007	3/6 13.4, H5.1.2	Enhanced Section with more detail. Revised Standard Sheet H5.1.2 for Thin-Form Walk.
123	2007	6/29 H 5.1.2	Corrected length between contraction joints in Side View.
124	2008	2/14 H 5.3	Added "section" titles, variable width to sidewalk crosssection.
125	2009	2/4 H 5.5.1	Added note 6, "Minimum Standards", referring to NYSDOT Curb Ramp Details.
126	2010	1/5 H 5.1.1	Added fiber reinforcement option to WWF note.
127	2011	3/3 Page 24	Section 23.13.3. Added 0.2' min. drop through MH requirement for inverts - referencing Standard Sheet S4.
128	2011	3/8 Pg. 31, H6.6, H11, S5.1, S5.2	Updated Permit and Inspection Fees page. Added notes to H6.6, S5.1, S5.2 regarding ferrous metal cleanout caps and minimum cover. Major revision of H11 for pipe crossing.
129	2011	3/16 H14	Added Standard Sheet, "Metal Pole Base Foundation"

TOWN OF BRIGHTON
MINIMUM SPECIFICATIONS
FOR DEDICATION
ILLUSTRATIONS - STANDARDS

STANDARD SHEET

Typical 1/2 Road Section

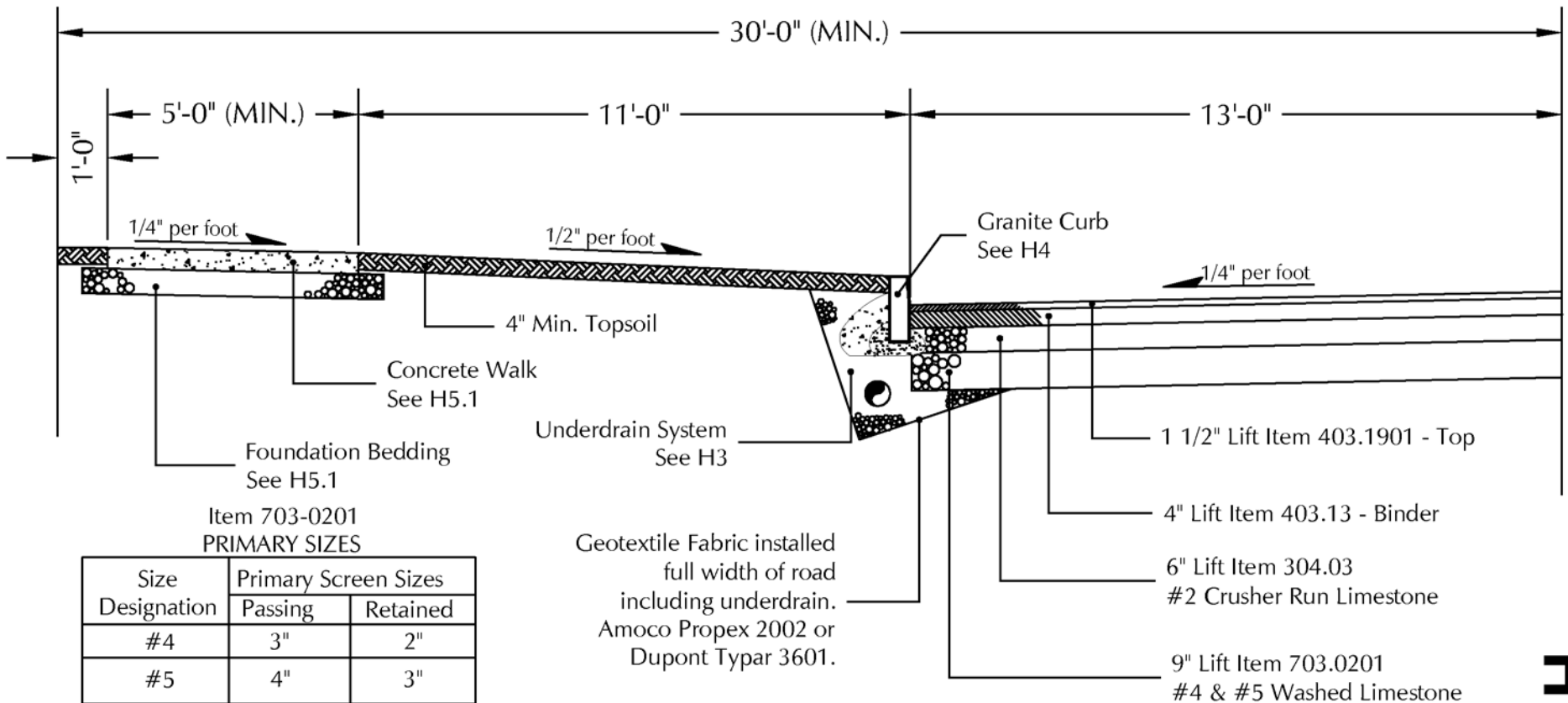
Light Duty With Granite Curb

(N.T.S)

Town of Brighton Dept. of Public Works 03/07/2002 H01_1.DWG

R.O.W.

CL



Notes:

1. If required by Town, crushed stone subbase material shall be treated with a prime coat of Item 618.10 or 618.20 prior to placing the binder.
2. Surface of the existing pavement shall be thoroughly cleaned of mud and debris and tack-coated prior to placement of true and level and/or top layers in accordance with NYSDOT manual Sections 401-3.07 and 633.

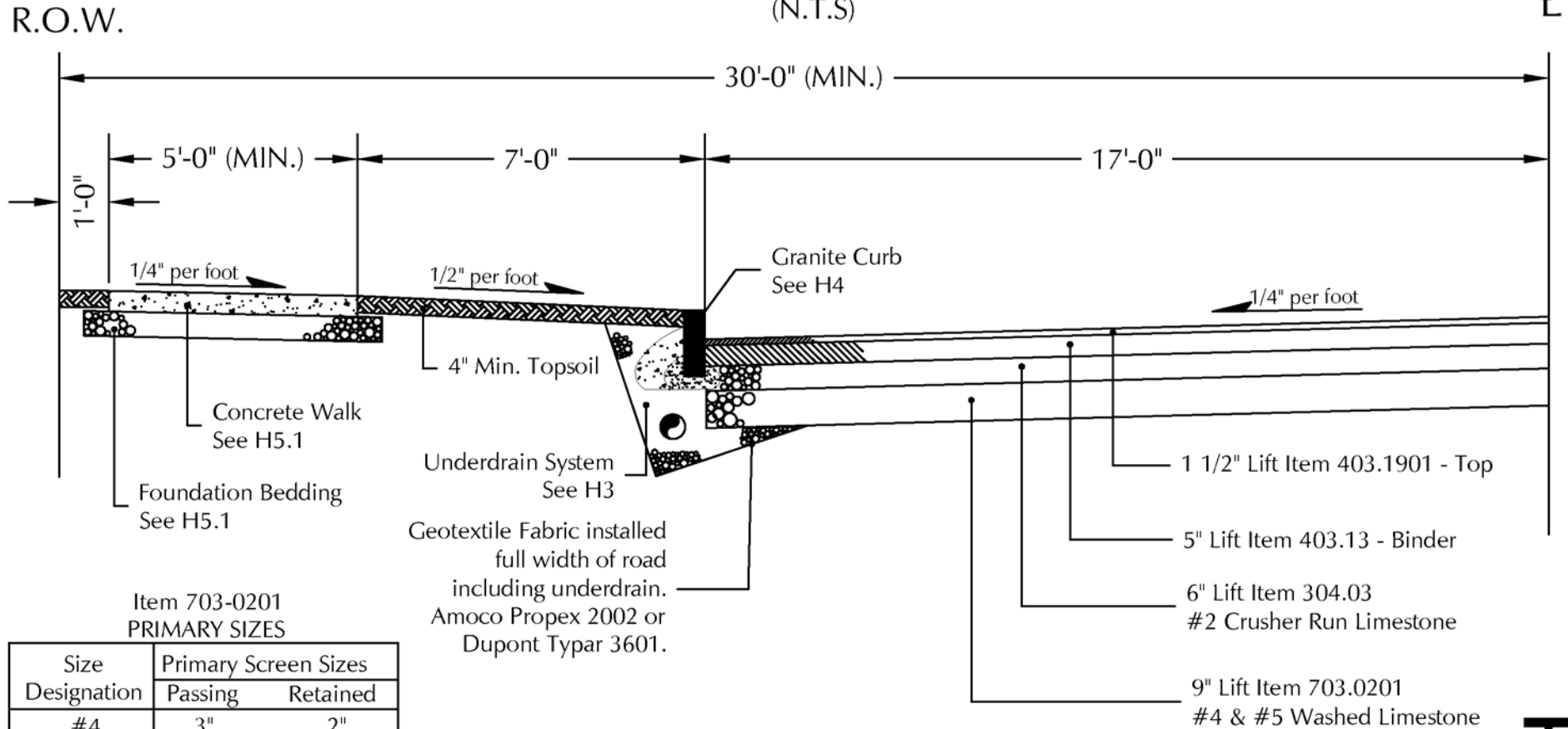
H 1.1

STANDARD SHEET

Typical 1/2 Road Section

Medium Duty With Granite Curb

(N.T.S)



Item 703-0201
PRIMARY SIZES

Size Designation	Primary Screen Sizes	
	Passing	Retained
#4	3"	2"
#5	4"	3"

Notes:

1. If required by Town, crushed stone subbase material shall be treated with a prime coat of Item 618.10 or 618.20 prior to placing the binder.
2. Surface of the existing pavement shall be thoroughly cleaned of mud and debris and tack-coated prior to placement of true and level and/or top layers in accordance with NYSDOT manual Sections 401-3.07 and 633.

H 1.2

STANDARD SHEET

Typical 1/2 Road Section

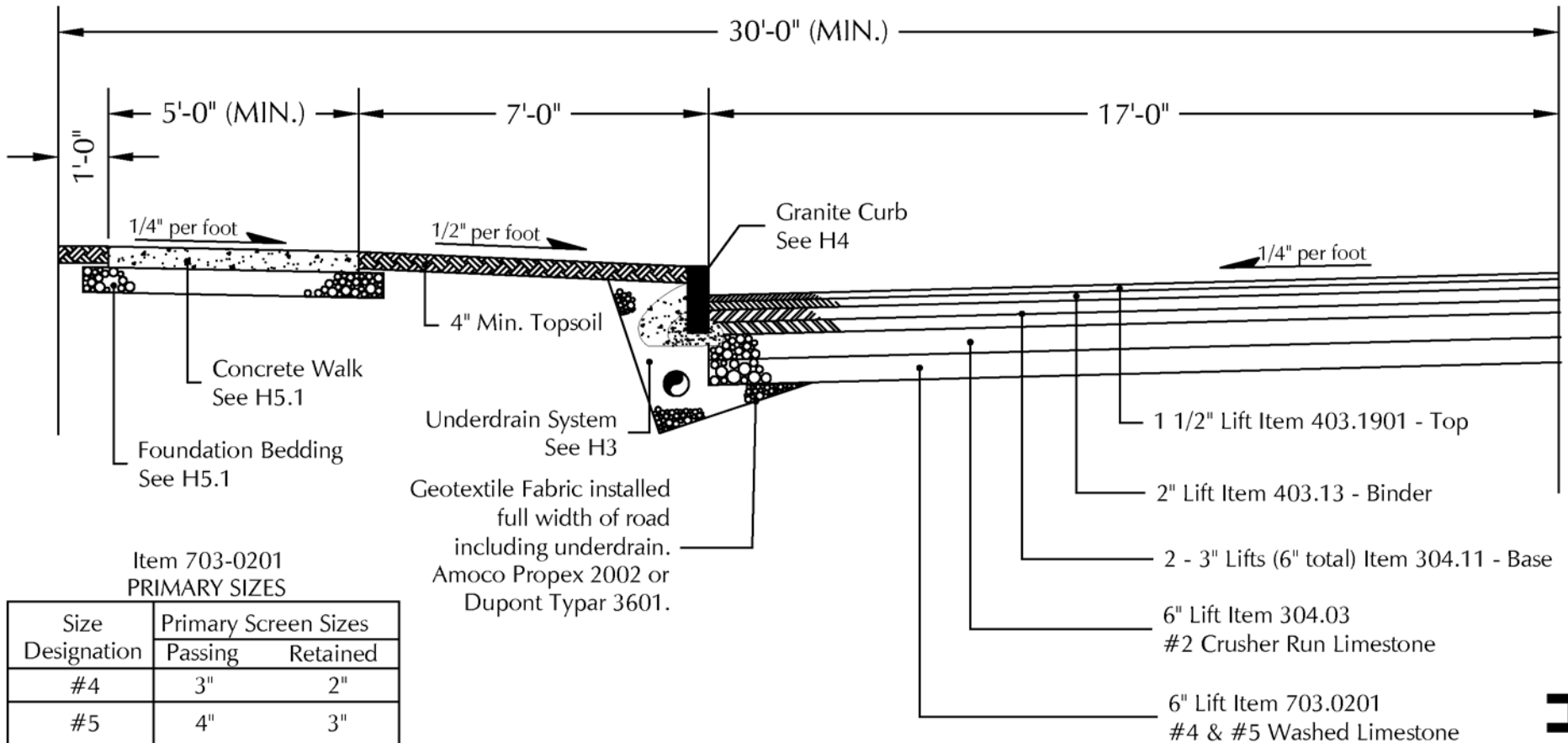
Heavy Duty With Granite Curb

Town of Brighton Dept. of Public Works 03/07/2002 H01_3 DWG

R.O.W.

(N.T.S)

CL



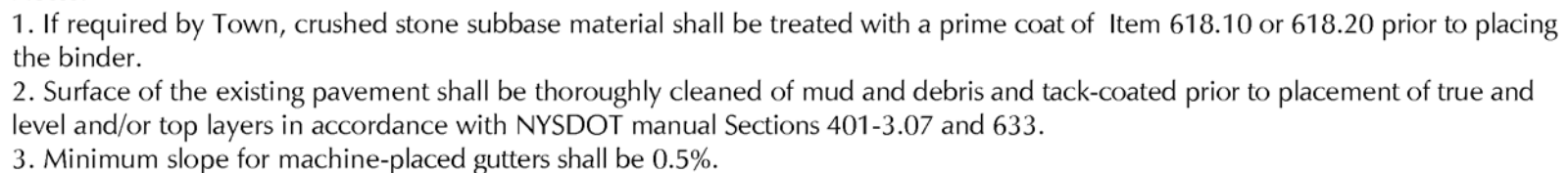
Item 703-0201
PRIMARY SIZES

Size Designation	Primary Screen Sizes	
	Passing	Retained
#4	3"	2"
#5	4"	3"

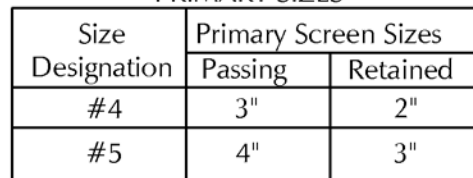
Notes:

1. If required by Town, crushed stone subbase material shall be treated with a prime coat of Item 618.10 or 618.20 prior to placing the binder.
2. Surface of the existing pavement shall be thoroughly cleaned of mud and debris and tack-coated prior to placement of true and level and/or top layers in accordance with NYSDOT manual Sections 401-3.07 and 633.

H 1.3



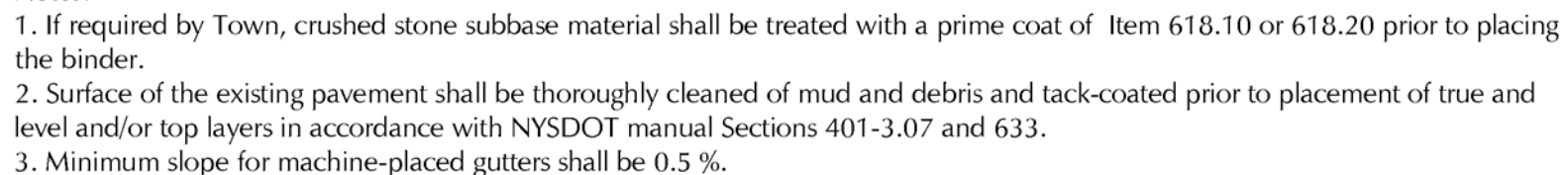
(N.T.S)



1. If required by Town, crushed stone subbase material shall be treated with a prime coat of Item 618.10 or 618.20 prior to placing the binder.
2. Surface of the existing pavement shall be thoroughly cleaned of mud and debris and tack-coated prior to placement of true and level and/or top layers in accordance with NYSDOT manual Sections 401-3.07 and 633.
3. Minimum slope for machine-placed gutters shall be 0.5%.

H2.2

R.O.W.



STANDARD SHEET

Typical 1/2 Road Section

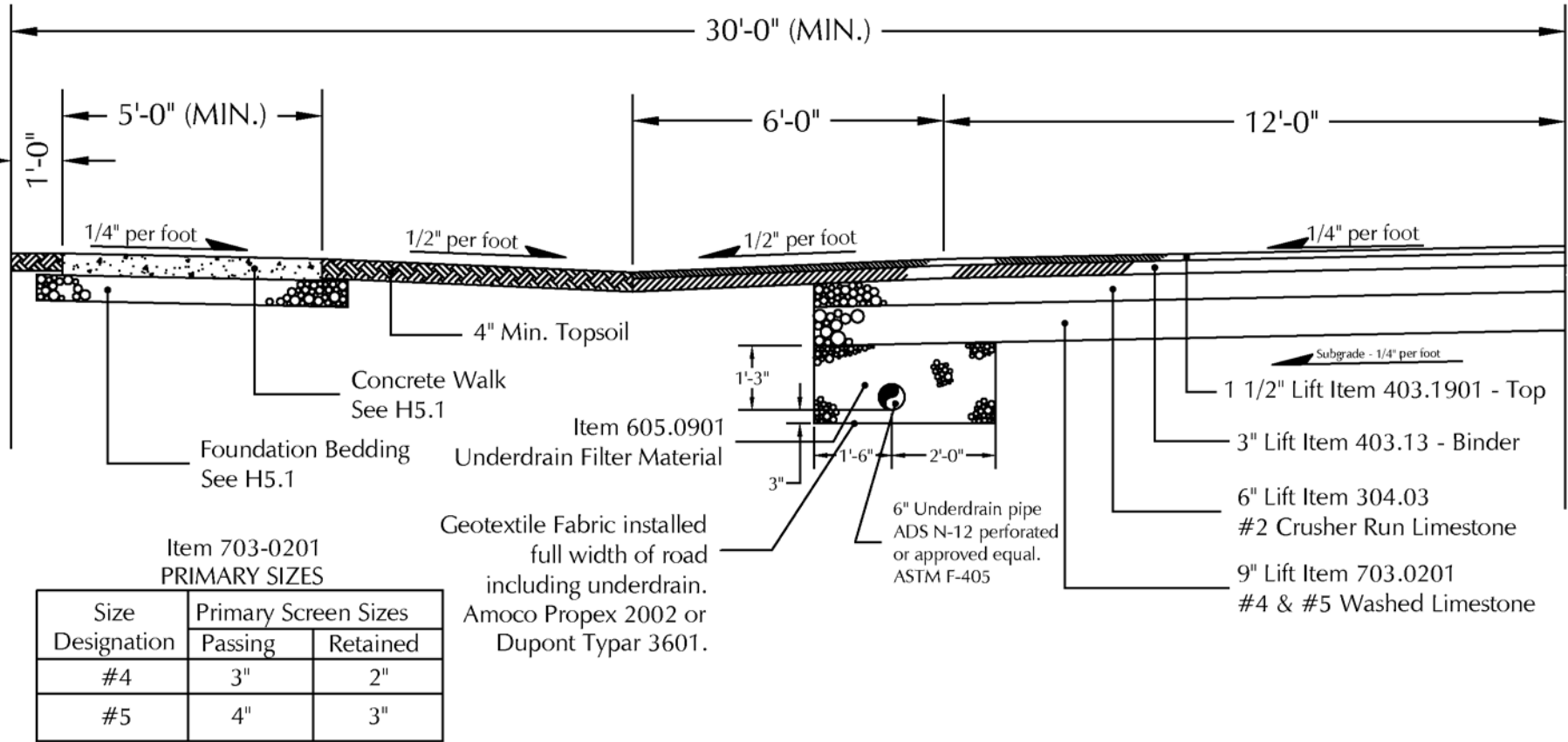
Town Park Road

Town of Brighton Dept. of Public Works 03/07/2002 H02_4.DWG

R.O.W.

(N.T.S)

CL



Notes:

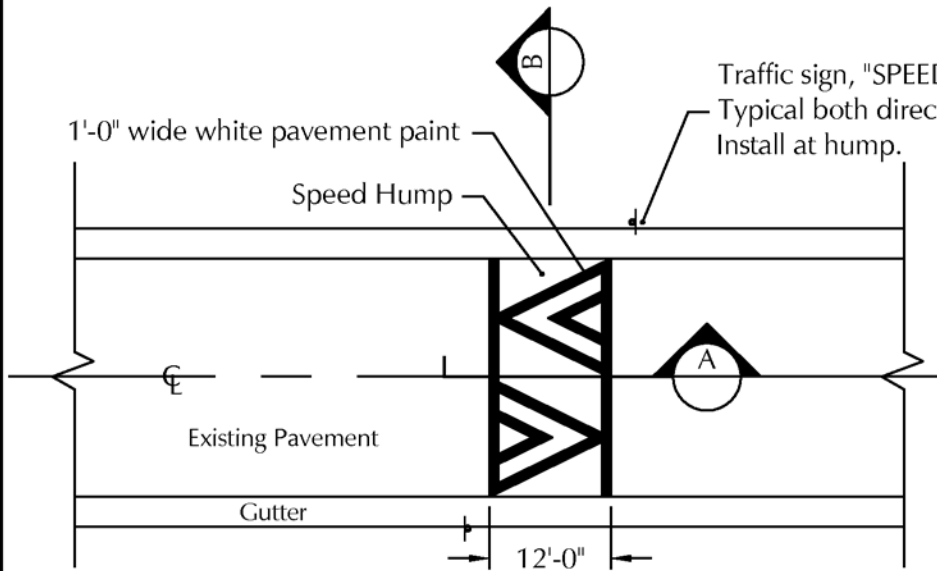
1. If required by Town, crushed stone subbase material shall be treated with a prime coat of Item 618.10 or 618.20 prior to placing the binder.
2. Surface of the existing pavement shall be thoroughly cleaned of mud and debris and tack-coated prior to placement of true and level and/or top layers in accordance with NYSDOT manual Sections 401-3.07 and 633.

H 2.4

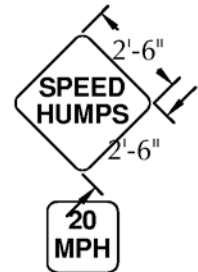
STANDARD SHEET H 2.5

Speed Control Hump

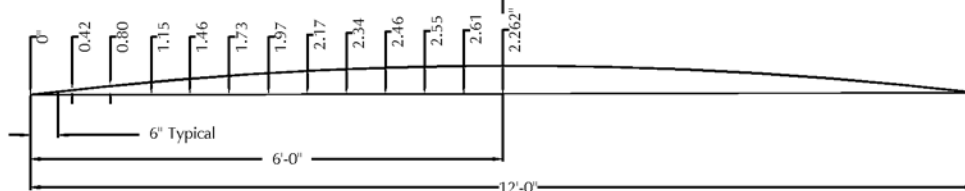
(N.T.S.)



N.T.S.



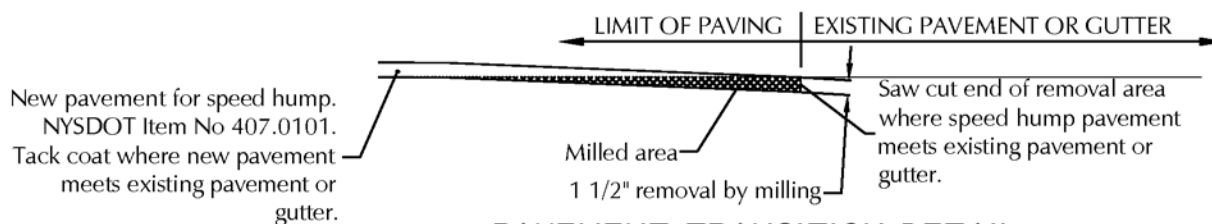
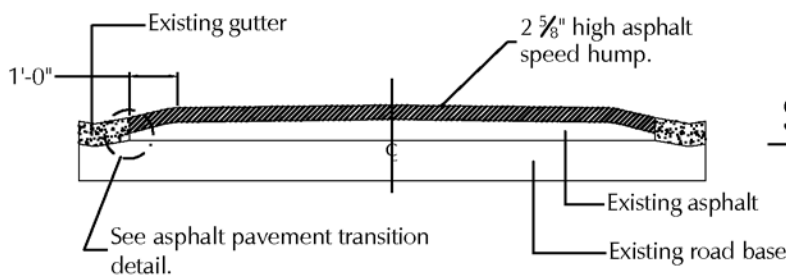
Traffic sign:
"SPEED HUMPS - 20 MPH"
Typical both directions, at least
175 feet before the first speed
hump.



SECTION A

HUMP GEOMETRY

N.T.S.



PAVEMENT TRANSITION DETAIL

N.T.S.

H 3

Granite Curb
See H4

7" Reveal

Underdrain Filter Material
Item No. 605.0901

Underdrain Pipe
ADS N-12 Smooth Interior HDPE
ASTM F-405
6" Diameter (minimum)

Geotextile Fabric
(See Note #3)

See Note #1

2'-0"

2'-0"

6"

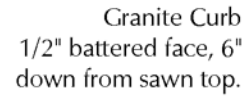
1:3

1:3

- 1) After placing pipe and backfilling, the wheels or tracks of any equipment shall not operate within this area until the sub-base courses have been placed to full depth.
- 2) See Standard Sheet H4 for curb detail.
- 3) Geotextile Fabric - Amoco Propex 2002 or Dupont Tytar 3601 shall be installed prior to stone backfill through the limits of the underdrain work.

H 4.1

(N.T.S)



3000 psi concrete backing
full length of curb. Force
concrete through back of joints.
Grout front and top of joints
flush with 1:2 mortar mix.

1:3:6 Dry Mix
Uniform piles at each end and on
3-foot centers beneath curb for full
length of curb.

- 1) Radius curbing shall be used on all radii less than 100 feet.
- 2) Minimum radius allowed is 35 feet.



3'-0" min. Transition Section

- Grouted Joint, 1/4" min.

← 5'-0" min. to next transition section.

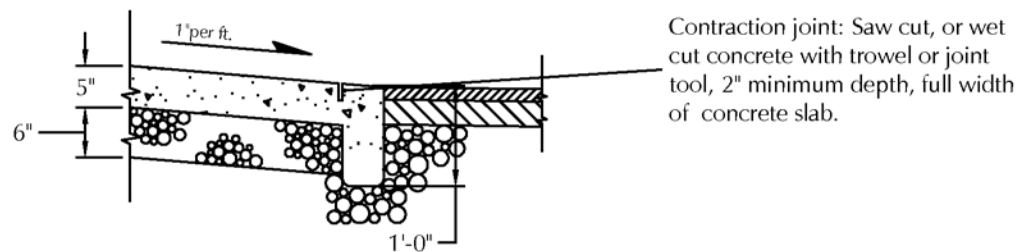
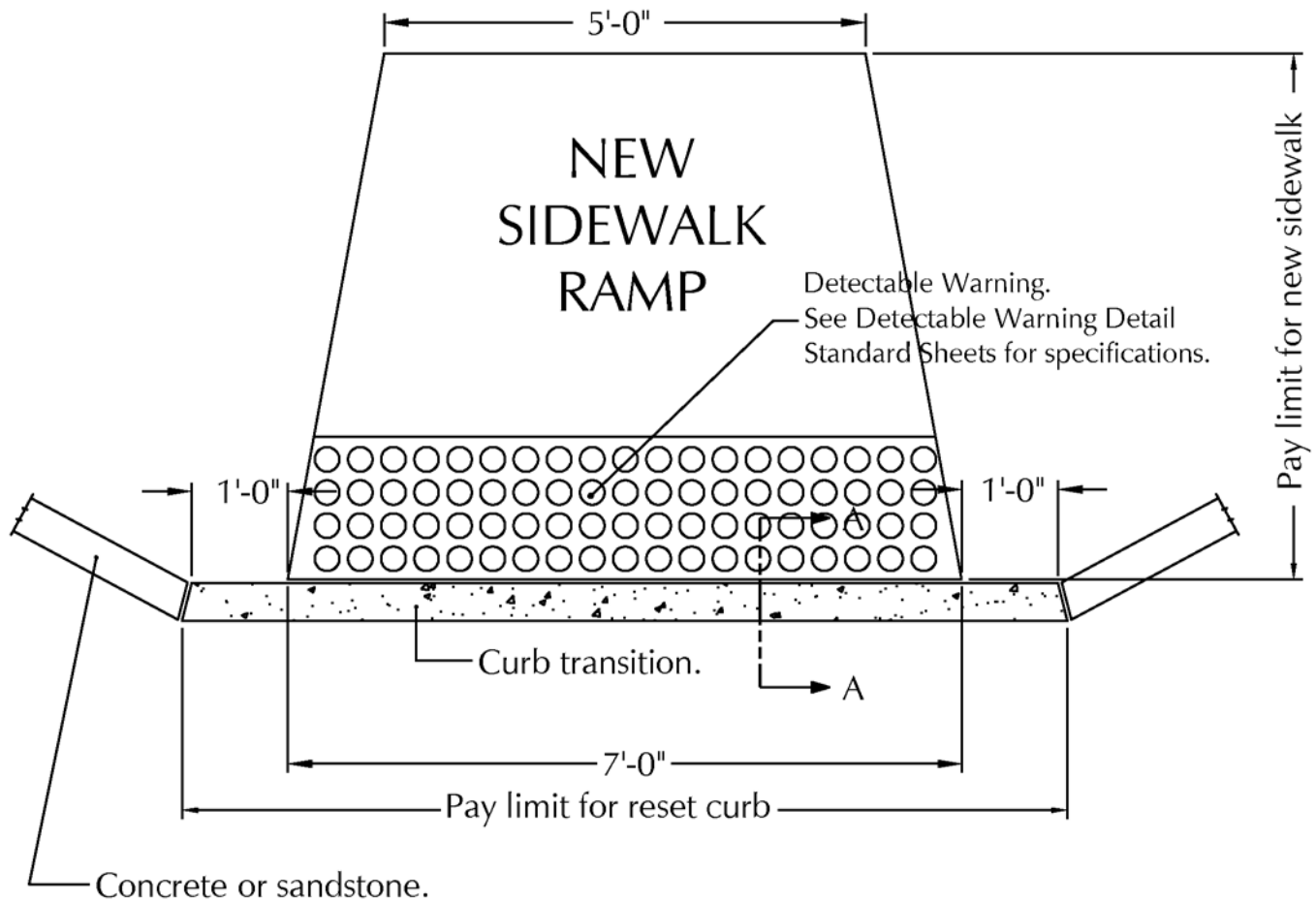
1 1/2" Reveal Through Driveway

16'

STANDARD SHEET H 4.2

Recessed Concrete Curb Detail

(N.T.S)



SECTION A-A

NOTES:

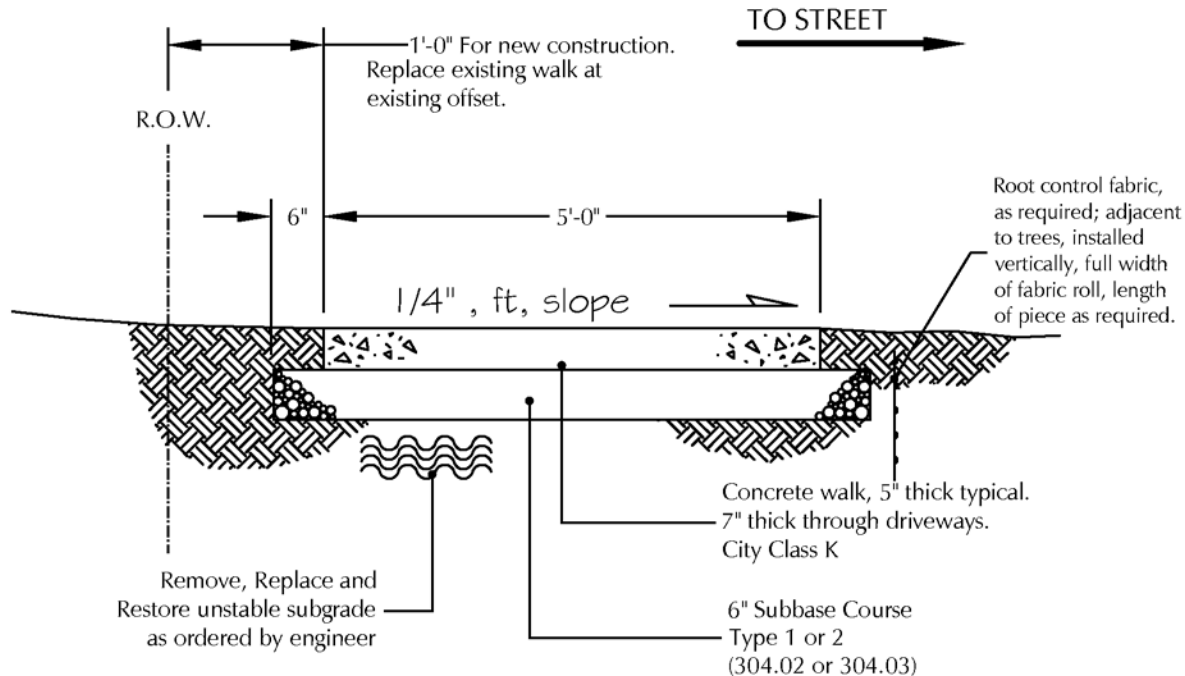
- 1) Remove existing curb as necessary to ramp curb to zero inches reveal at roadway and as necessary to provide smooth transition for curb to remain.
- 2) Repair asphalt, if necessary in accordance with Pavement Restoration Detail Standard Sheet.
- 3) All work shall comply with ADA requirements.

STANDARD SHEET H 5.1

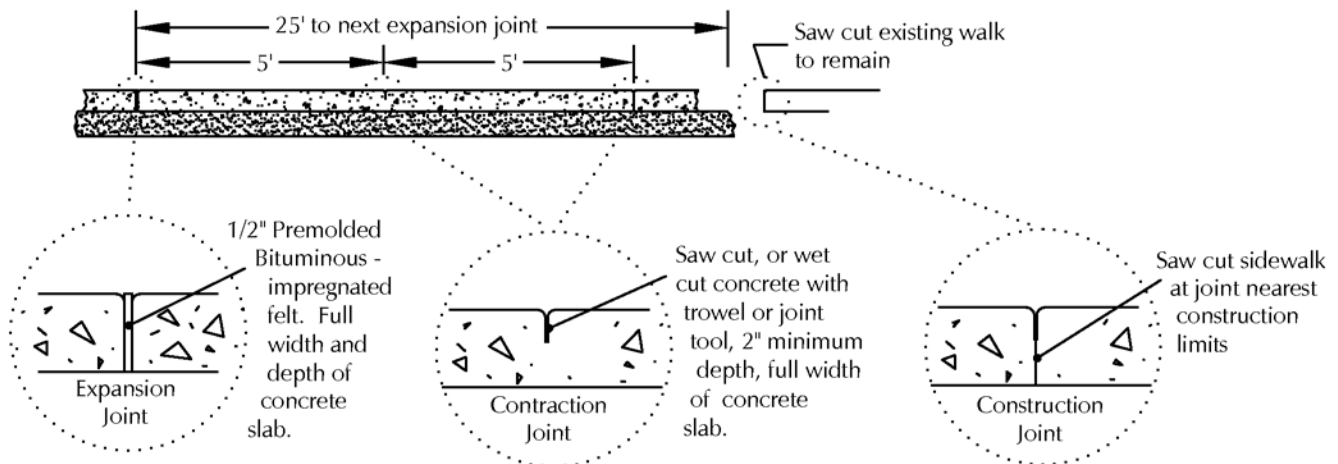
Typical Sidewalk Detail

(N.T.S)

CROSS-SECTIONAL VIEW



SIDE VIEW



NOTES:

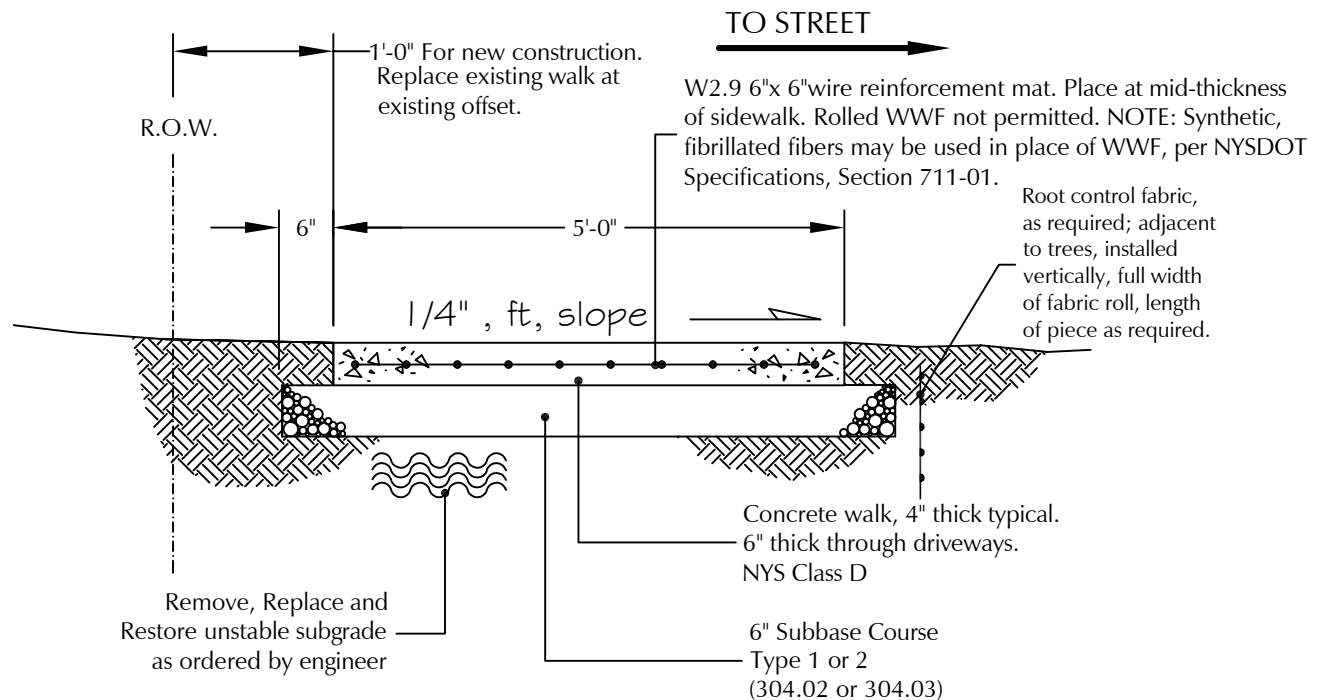
- 1) The gravel or stone base shall be placed on a well graded and compacted subgrade. The gravel or stone base shall be thoroughly compacted.
- 2) All exposed surfaces shall be broomed and edges finished with a 1.4" radius edging tool. The finished concrete surface shall be treated with a clear, non-yellowing curing compound.
- 3) No concrete shall be placed before April 20th, or after October 31st. No concrete shall be placed unless the ambient air surface temperature is above 40 degrees.
- 4) All work shall conform to Town of Brighton Specifications.
- 5) All work shall conform to ADA requirements.

STANDARD SHEET H 5.1.1

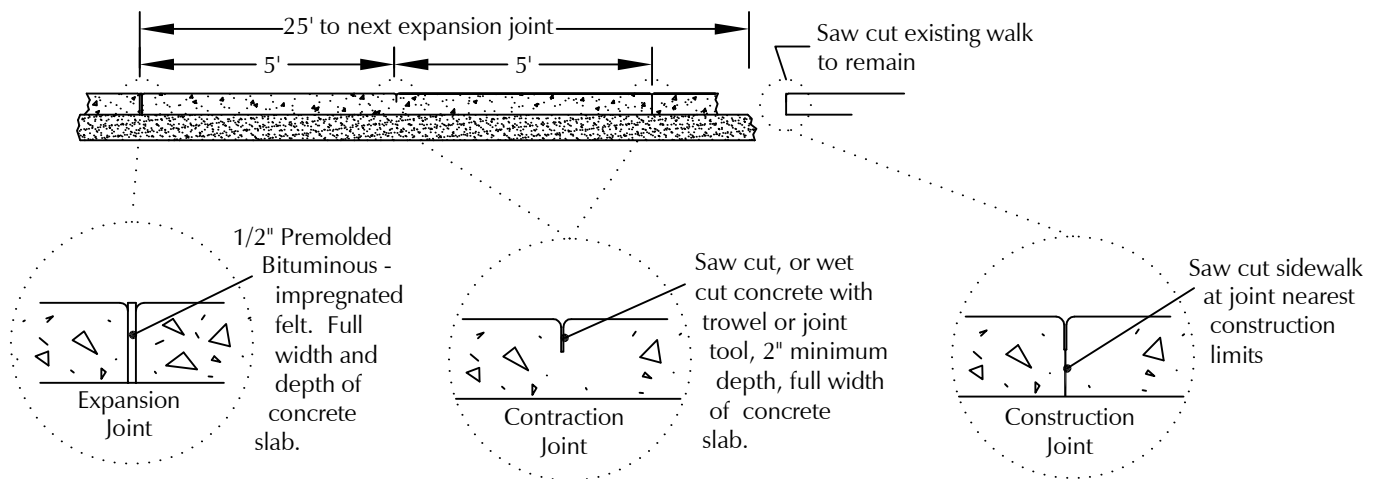
Sidewalk Within NYS Right of Way

(N.T.S)

CROSS-SECTIONAL VIEW



SIDE VIEW



NOTES:

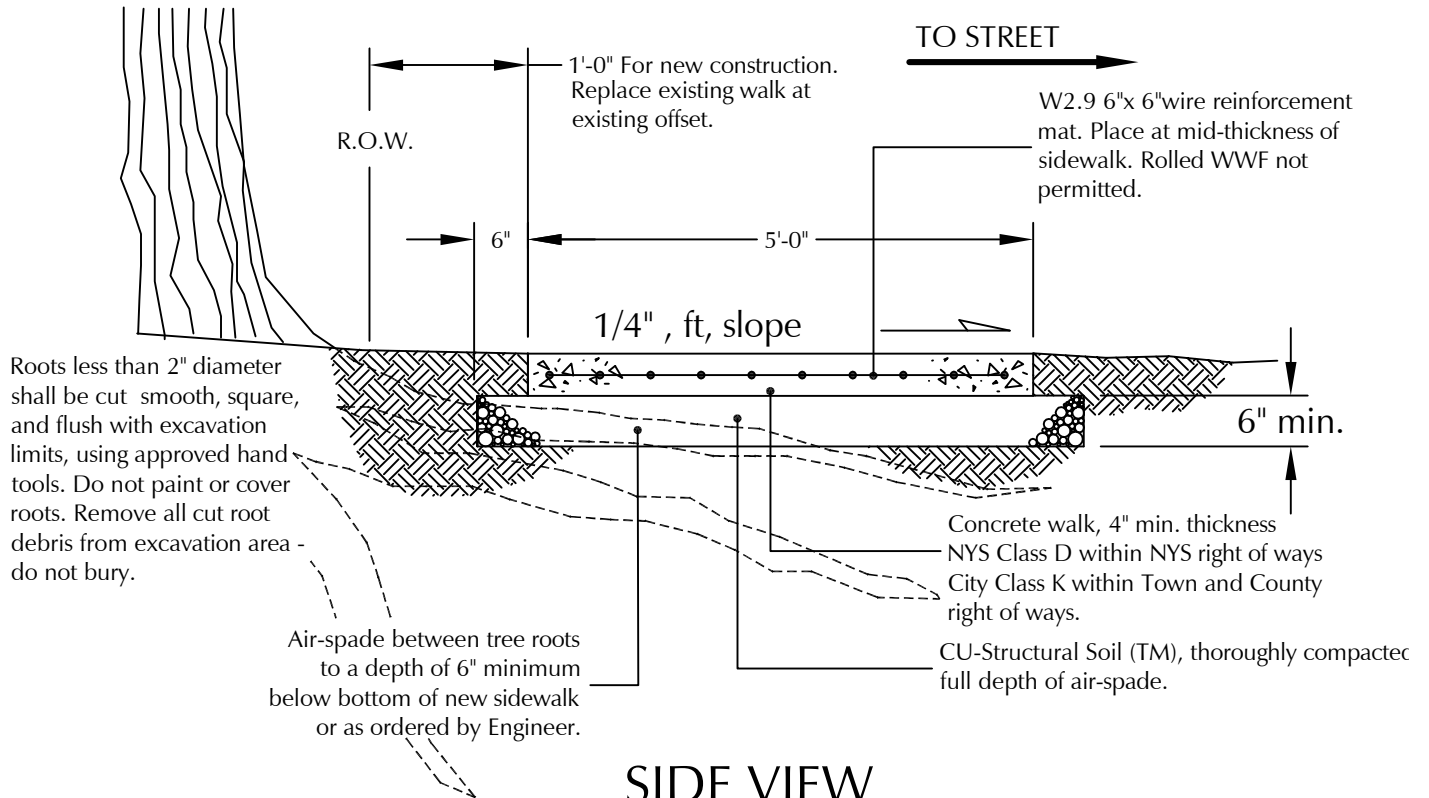
- 1) The gravel or stone base shall be placed on a well graded and compacted subgrade. The gravel or stone base shall be thoroughly compacted.
- 2) All exposed surfaces shall be broomed and edges finished with a 1.4" radius edging tool. The finished concrete surface shall be treated with a clear, non-yellowing curing compound.
- 3) No concrete shall be placed before April 20th, or after October 31st. No concrete shall be placed unless the ambient air surface temperature is above 40 degrees.
- 4) All work shall conform to NYSDOT or Town of Brighton Specifications.
- 5) All work shall conform to ADA requirements.

STANDARD SHEET H 5.1.2

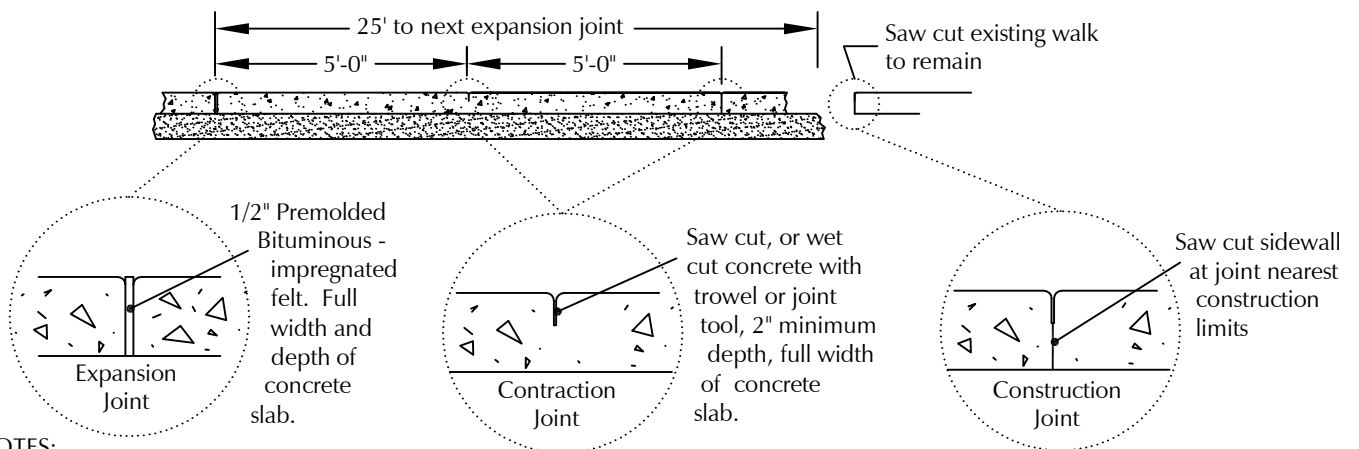
Thin-Form Sidewalk Installation Detail

(N.T.S)

CROSS-SECTIONAL VIEW



SIDE VIEW



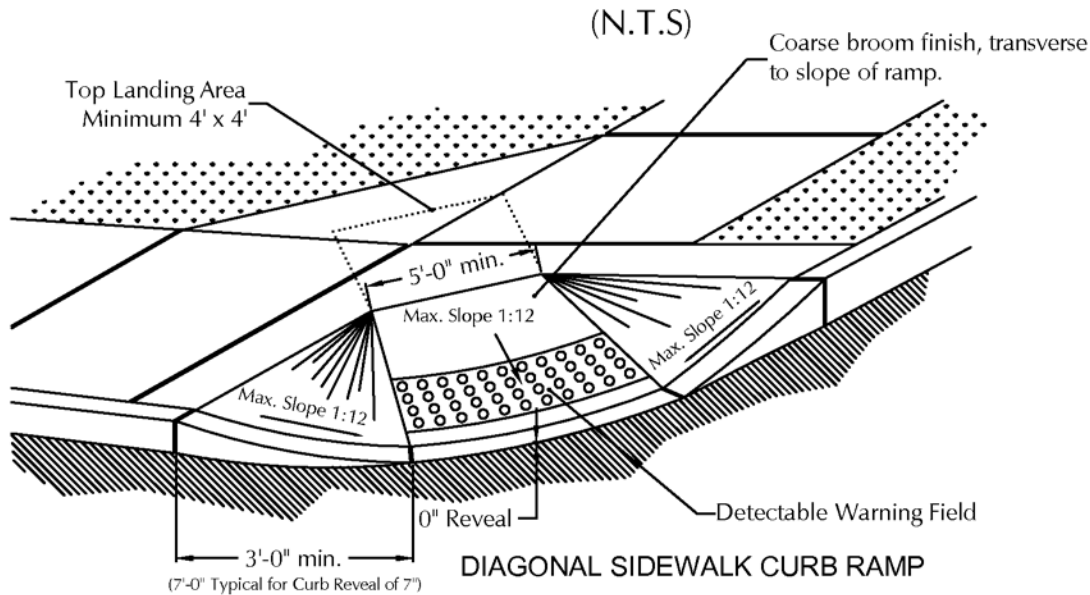
NOTES:

- 1) This method of sidewalk construction shall be used where tree roots are larger than 2" in diameter.
- 2) Sidewalks flags within ten (10) feet of the trunk of trees shall be removed by use of hand tools only. Roots within this same area that are less than 2" diameter shall be cut using hand tools only, and only when necessary to clear the proposed sidewalk.
- 3) Tree roots 2" diameter or greater shall not be cut, but must be left whole. Sidewalk grade shall be adjusted as ordered by Engineer to clear the root structure.
- 4) The CU Structural Soil base shall be placed on the undisturbed subgrade within the root zone. The soil base shall be thoroughly compacted, taking care not to damage the tree root structure. NOTE: Root control fabric is **not** required for this method of sidewalk installation.
- 5) All exposed surfaces shall be broomed and edges finished with a 1.4" radius edging tool. The finished concrete surface shall be treated with a clear, non-yellowing curing compound.
- 6) No concrete shall be placed before April 20th, or after October 31st. No concrete shall be placed unless the ambient air surface temperature is above 40 degrees.
- 7) All work shall conform to ADA requirements. All work shall conform to Town of Brighton or NYSDOT specifications.

STANDARD SHEET H 5.2.1

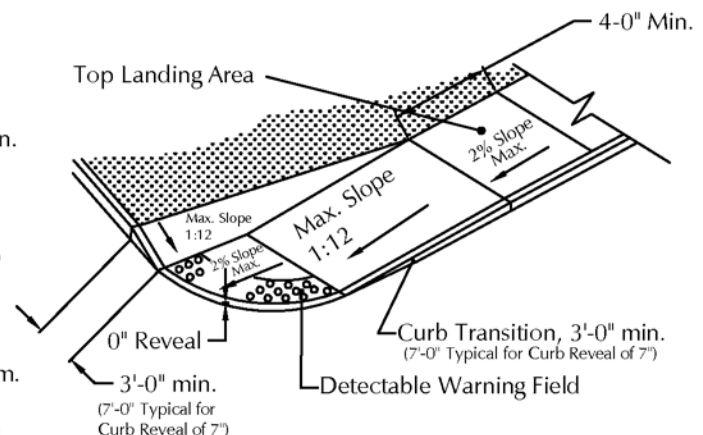
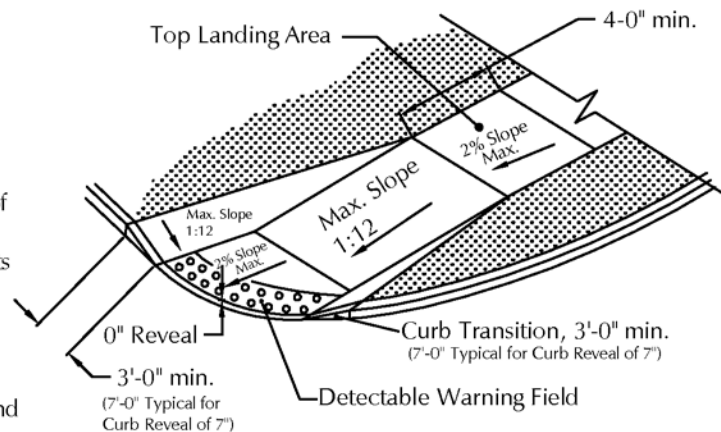
Typical Sidewalk Access Transitions

Sheet 1 of 2



GENERAL NOTES:

1. The standards depicted here may not be appropriate for all locations. Field conditions at individual locations may require specific designs. Designs must be consistent with the provisions of this sheet to the maximum extent feasible on alteration projects and when structurally practicable on new construction projects as required by the American Disabilities Act accessibility guidelines.
2. There shall be a landing at the top of each curb ramp. There shall be a landing at the top and at the bottom of each parallel and parallel/perpendicular ramp.
3. Landings shall have a minimum clear dimension of 4 feet by 4 feet square. Landings may overlap with adjacent landings or a single landing may serve multiple curb ramps or parallel or parallel/perpendicular ramp.
4. The maximum cross slope of curb ramps shall be 2 percent. The maximum cross slope at landings is 2 percent in any direction. Surfaces shall generally lie in continuous planes with a minimum of surface warp.
5. The maximum running grade of any portion of any curb ramp or side flare shall be 1:12 (8.33%).
6. Detectable warning fields shall be used as required. See Standard Sheets H5.5.1 and H5.5.2 for detectable warning system.
7. See Standard Sheets H4.1 and H5.1 for sidewalk construction details.

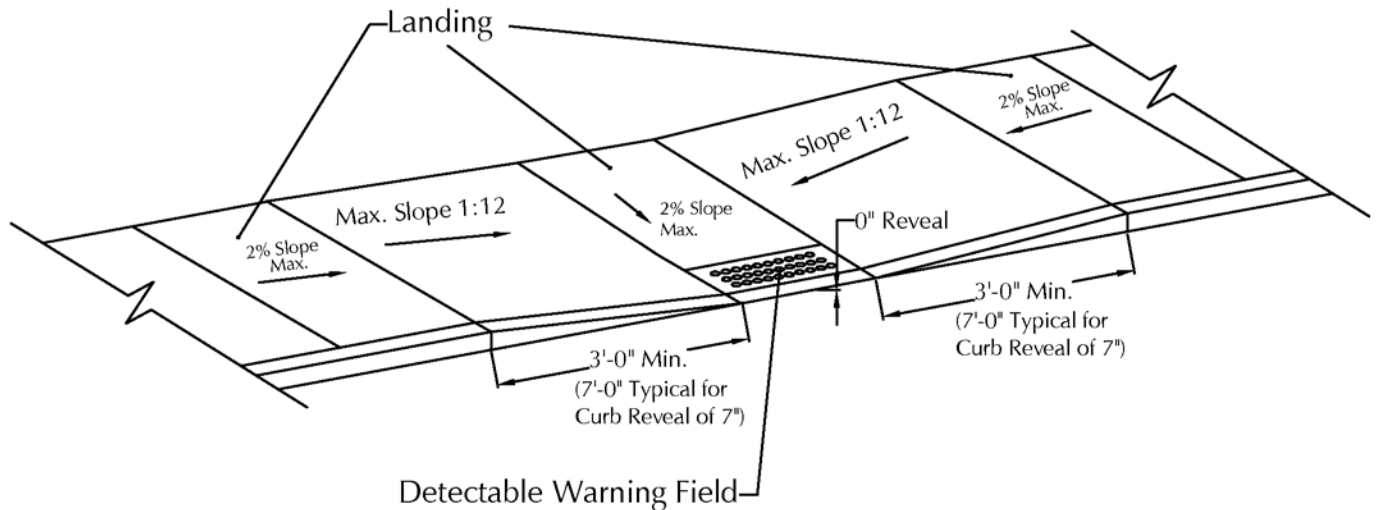


STANDARD SHEET H 5.2.2

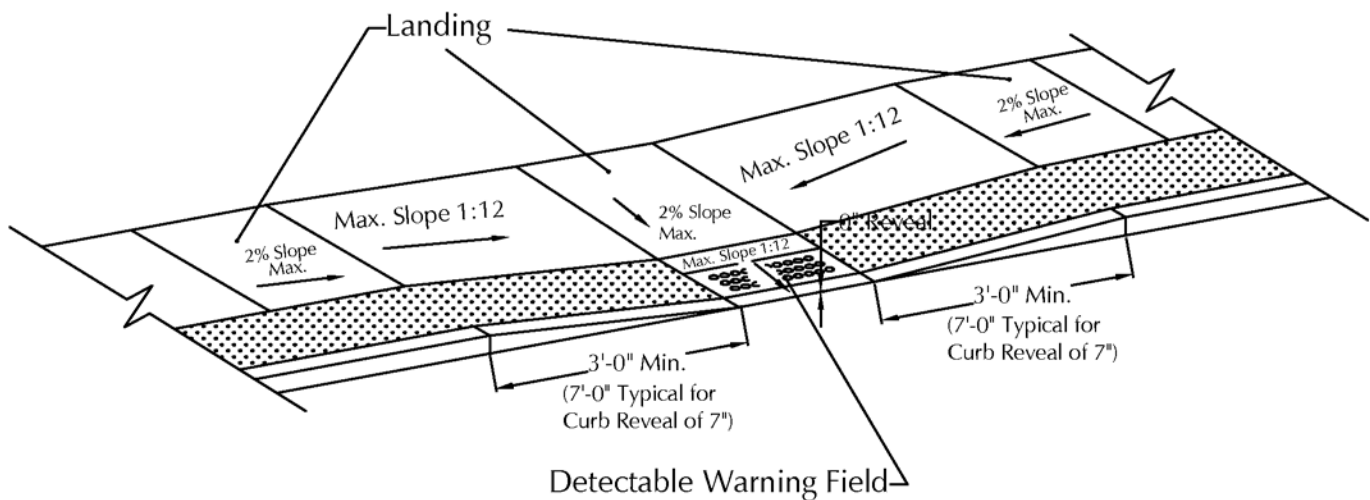
Typical Sidewalk Access Transitions

Sheet 2 of 2

(N.T.S)



PARALLEL CURB RAMP

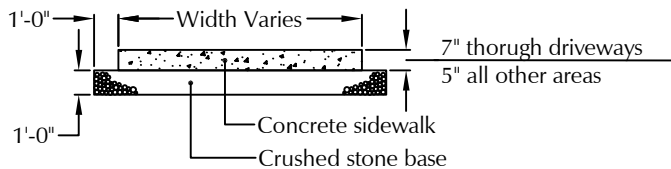
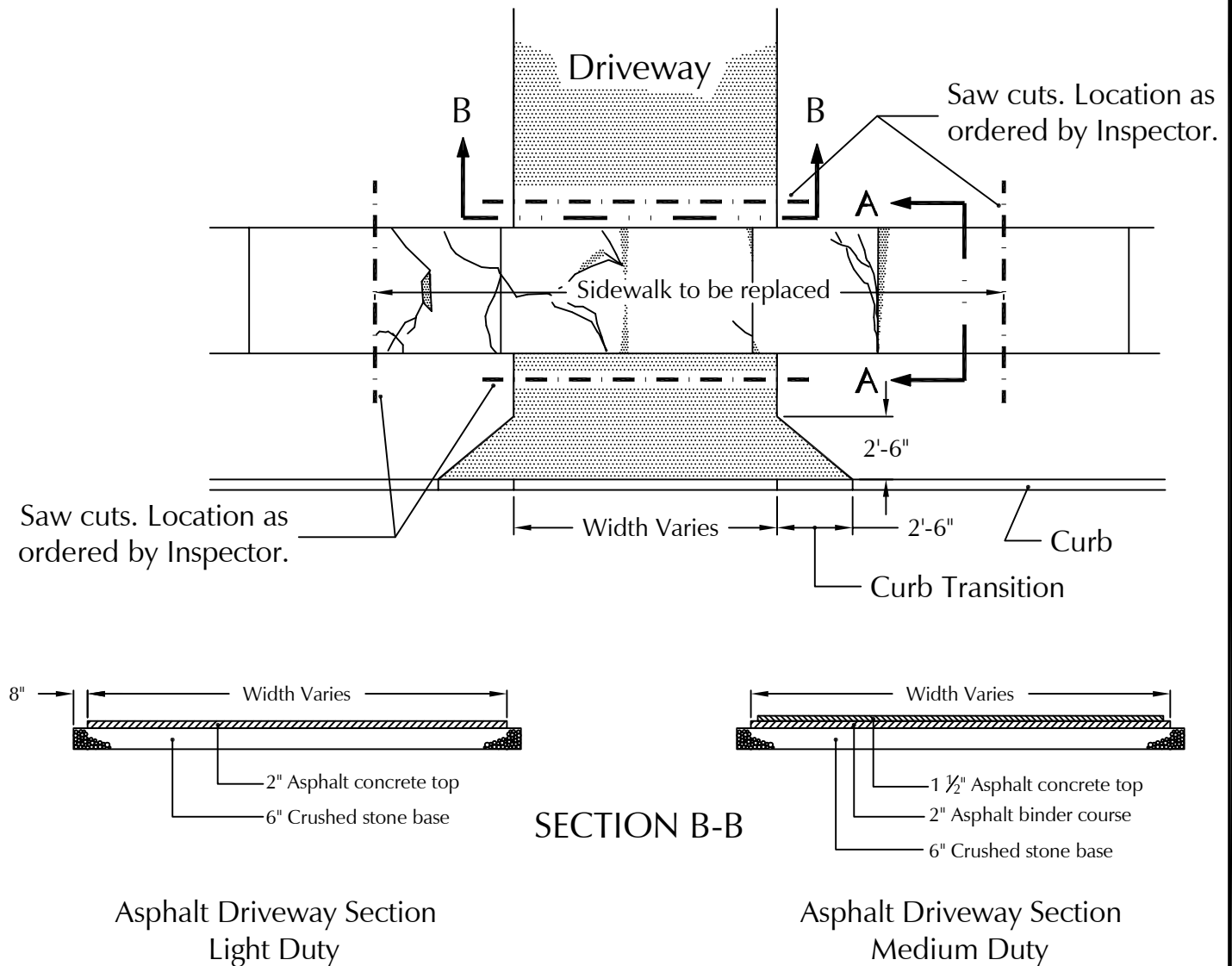


COMBINED
PARALLEL/PERPENDICULAR
CURB RAMP

STANDARD SHEET H 5.3

Driveway Detail

(N.T.S)



See Typical Sidewalk Detail
Standard Sheet for details.

SECTION A-A

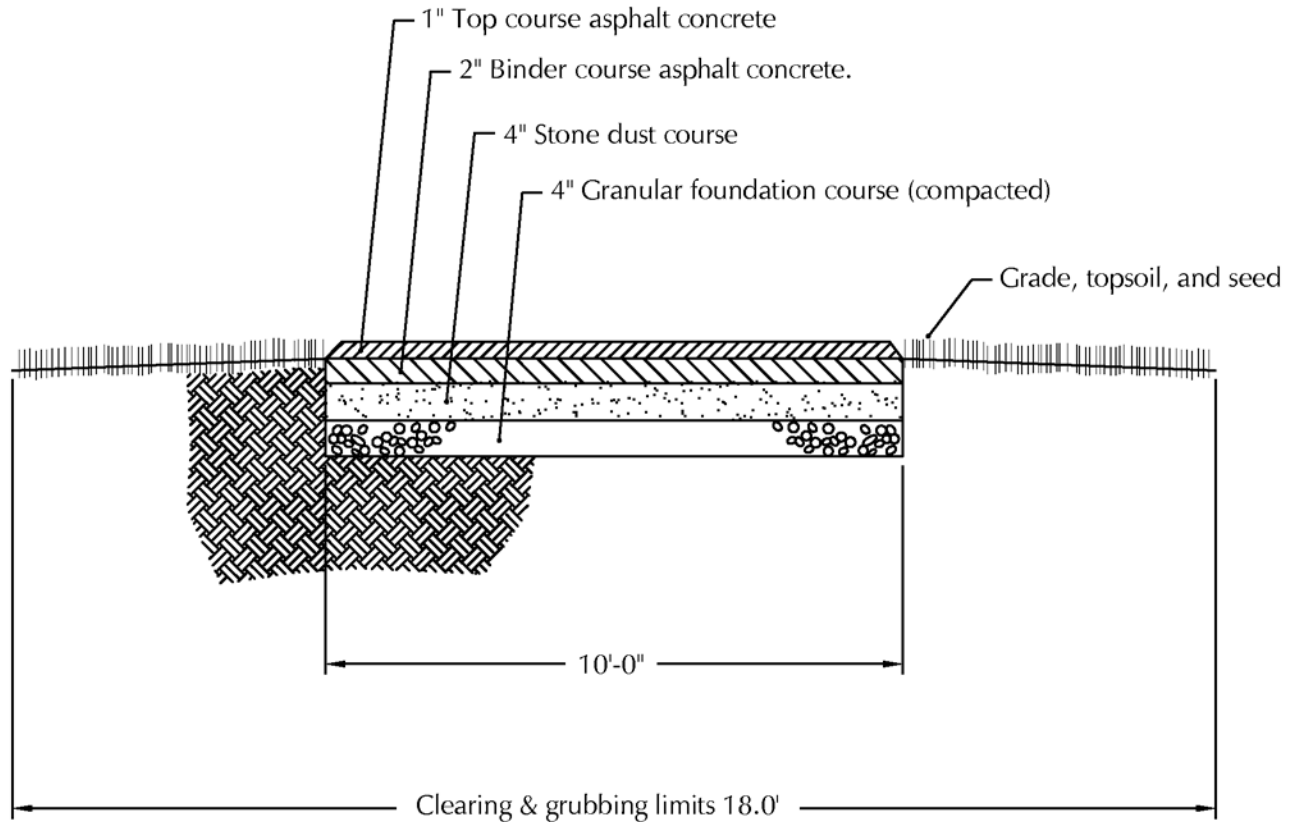
NOTES:

- 1) Heavy duty driveways will require special design and approval prior to installation.
- 2) Gravel base shall be placed where fill is required to obtain proper subgrade elevation, to replace unsuitable subgrade material, or to the dimensions shown above.

STANDARD SHEET H 5.4

Asphalt Park Trail

(N.T.S)

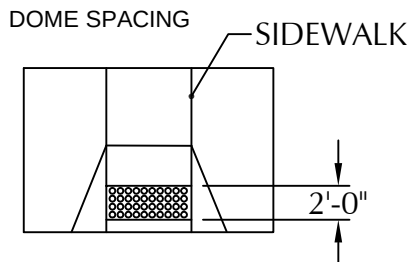
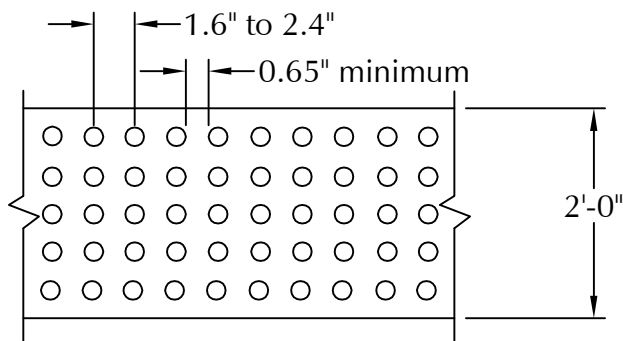
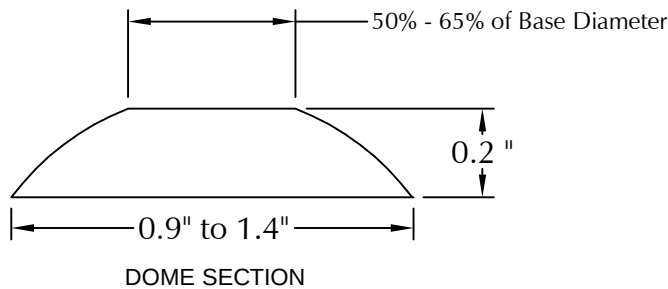


STANDARD SHEET H 5.5.1

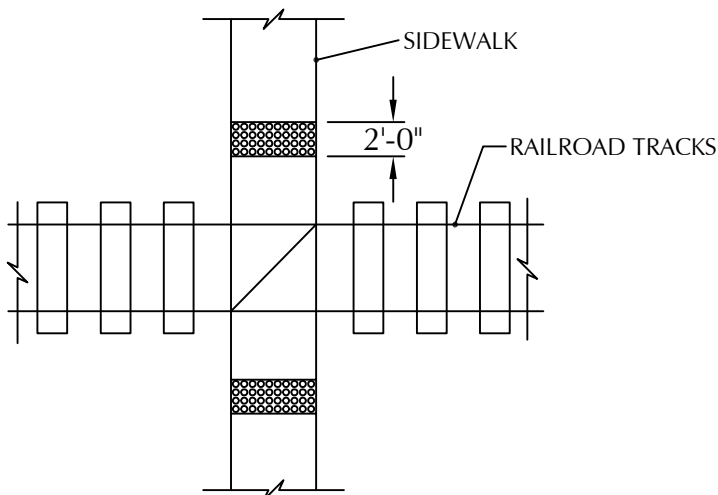
Detectable Warning Details

Sheet 1 of 2

(N.T.S)



DETECTABLE WARNING AT CURB RAMP



DETECTABLE WARNINGS AT RAILROAD CROSSING

General Notes:

1. Scale: The details provided are not drawn to scale. The quantity of domes depicted on the details is for illustration only, and do not depict actual scale or number.

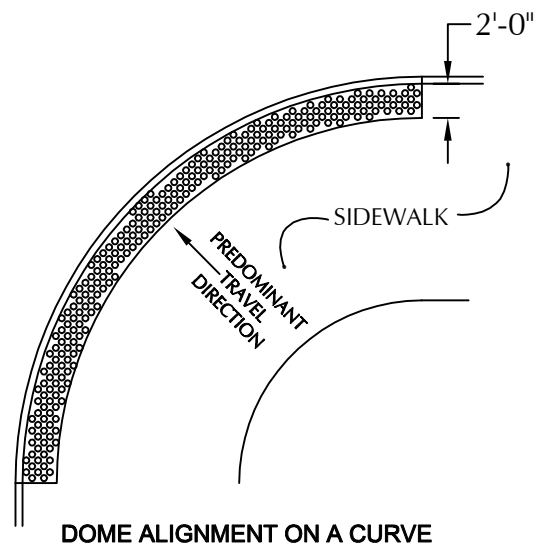
2. Curb Ramps and Blended Transitions: Detectable warnings shall be located so that the edge of the warning field nearest to the roadway or street surface is 6 inches minimum and 8 inches maximum from the curb line. The detectable warning shall extend the full width of the curb ramp or flush surface.

3. Rail Crossings: Detectable warnings shall be located so that the edge of the warning field nearest to the railroad crossing is 17 inches to 19 inches from the face of the gate arm. Where there is no gate, the edge of the warning field nearest to the railroad crossing shall be 15 feet from the centerline of the nearest track.

4. Dome Alignment: Domes shall be aligned on a square grid in the predominant direction of travel.

5. Color: The detectable warning field shall be "charcoal" in color, unless otherwise specified in the contract documents, or AOB E.

6. Minimum Standards: Please refer to NYSDOT Standard Drawing Nos. M608-10 to M608-13, latest revisions, for additional details and geometry. Where discrepancies exist between the Town's and NYS standards, the stricter standards shall apply.

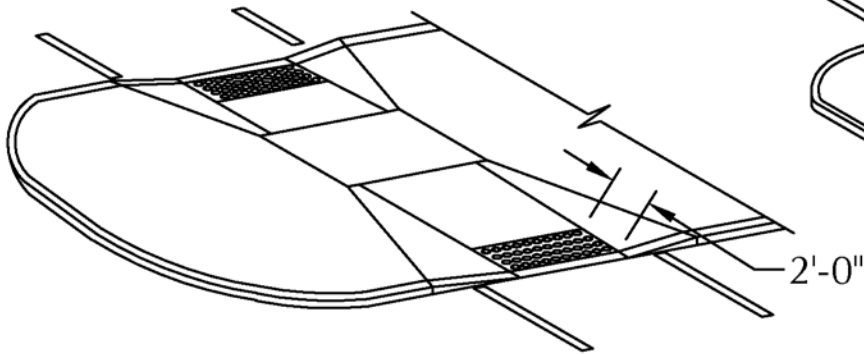


STANDARD SHEET H 5.5.2

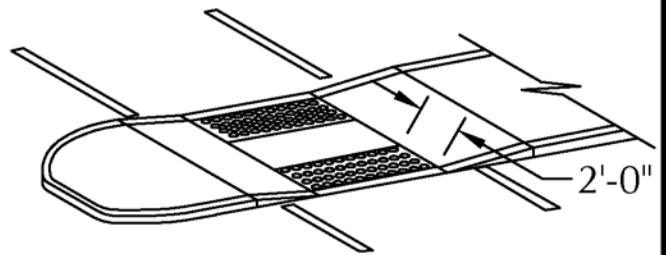
Detectable Warning Details

Sheet 2 of 2

(N.T.S)

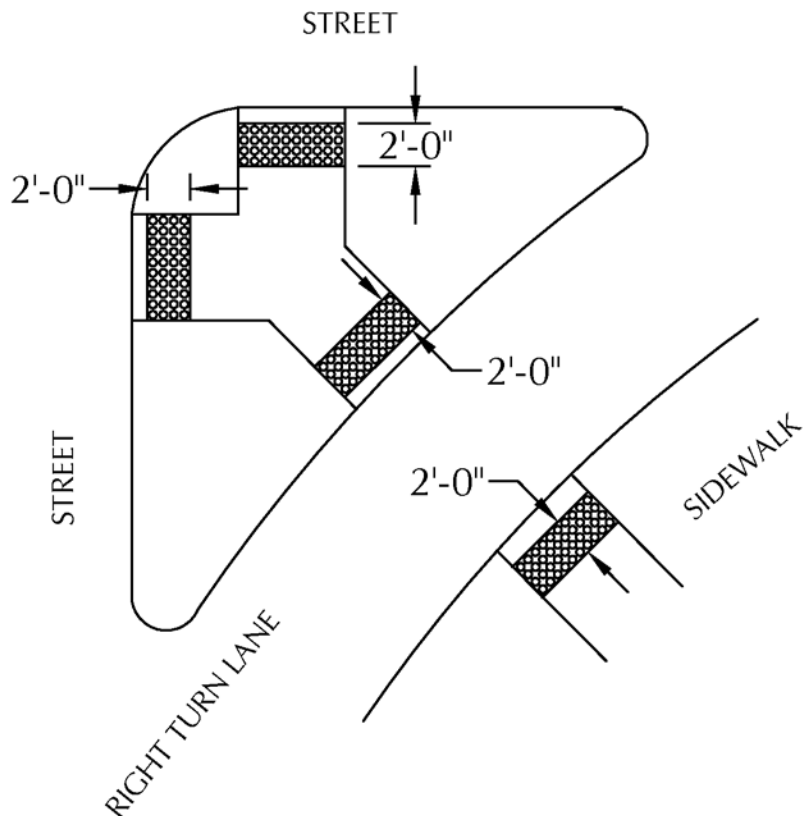


ELEVATED CROSSING



NON-ELEVATED CROSSING

DETECTABLE WARNINGS AT MEDIAN ISLANDS

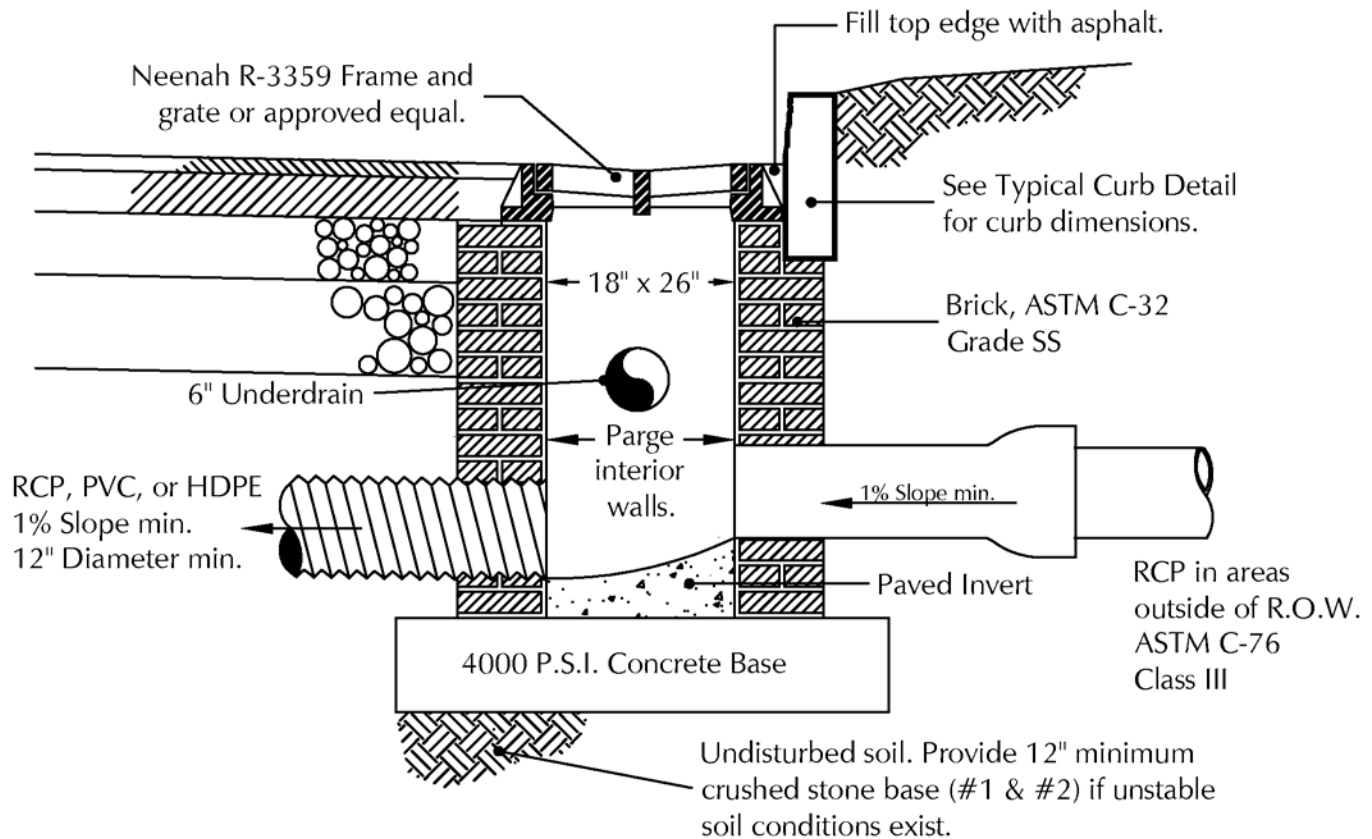


DETECTABLE WARNING AT ISLANDS

H 6.1

Granite Curb

(N.T.S)



Mortar Mix:
2 parts portland cement (type II)
4 parts sand
or approved premixed product.

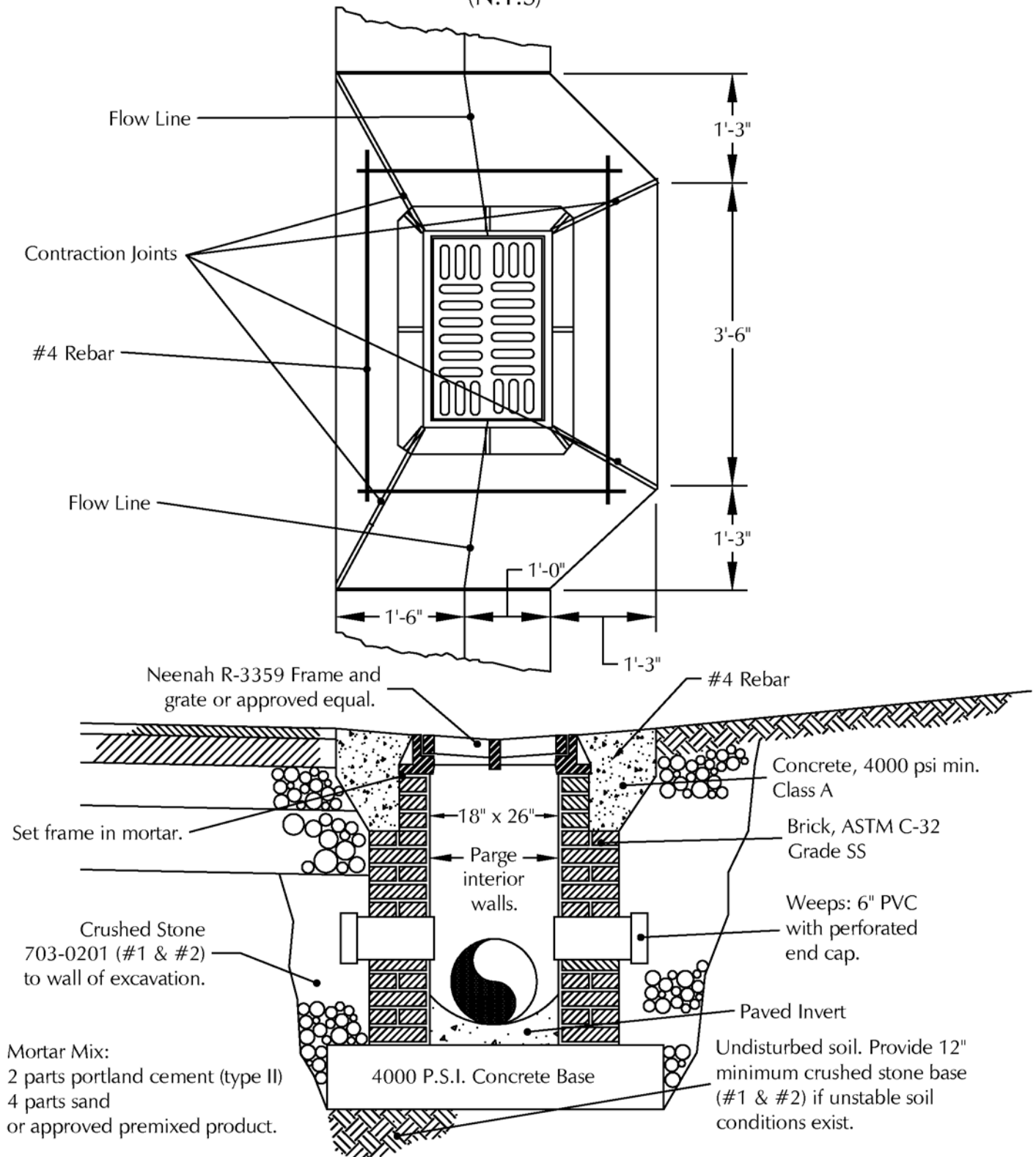
NOTES:

- 1) See Standard Sheet H 6.2 for precast basin detail.
- 2) Distance between inlets shall be 150' typical or as ordered by the Commissioner of Public Works.

STANDARD SHEET H 6.2

Typical Drop Inlet - Concrete Gutter

(N.T.S)



NOTES:

1) See Standard Sheet H 6.3 for precast basin detail.

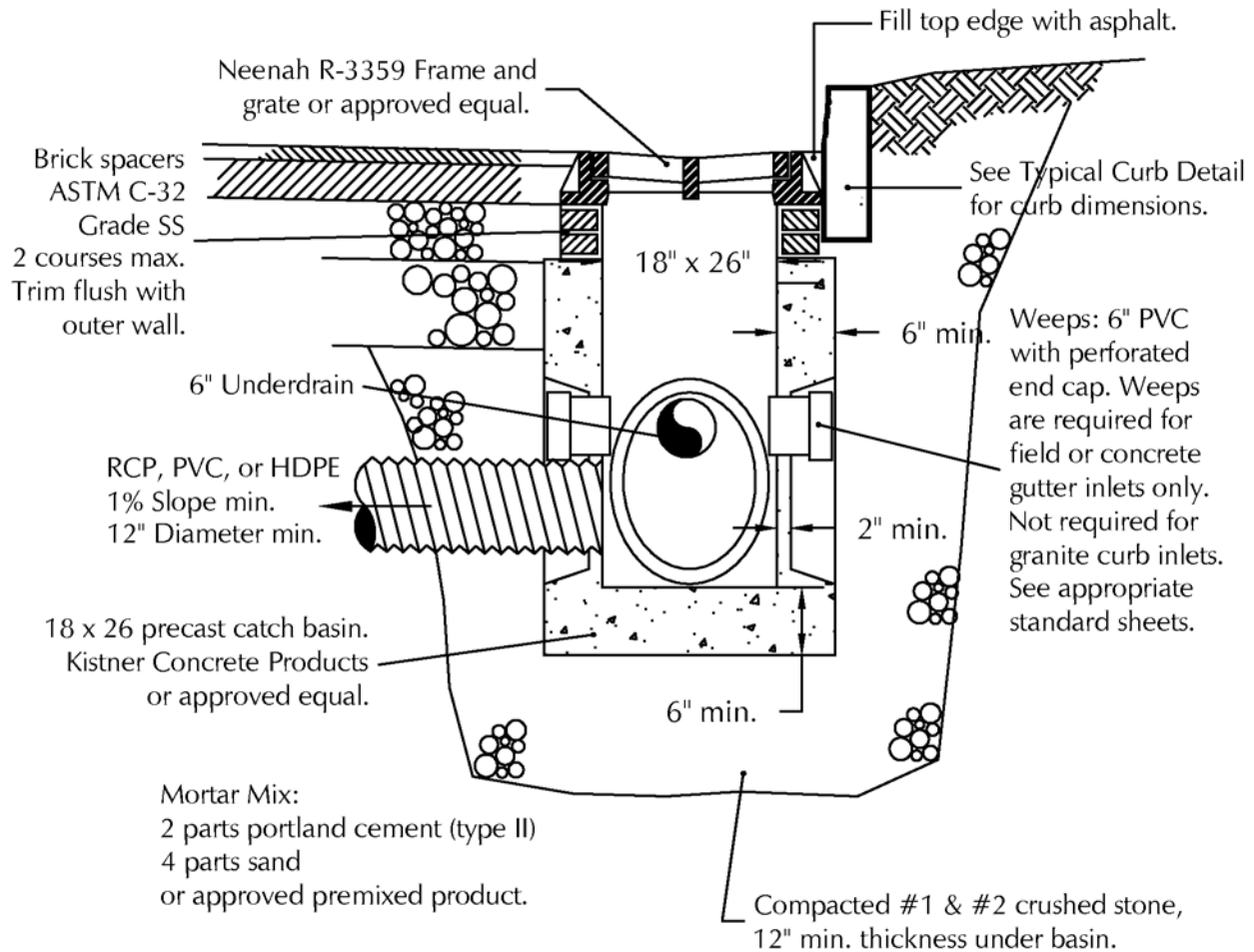
2) Distance between inlets shall be 150' typical or as ordered by the Commissioner of Public Works.

Town of Brighton Dept. of Public Works 02/24/2000 H06_2.DWG

STANDARD SHEET H 6.3

Typical Drop Inlet Precast Concrete

(N.T.S)



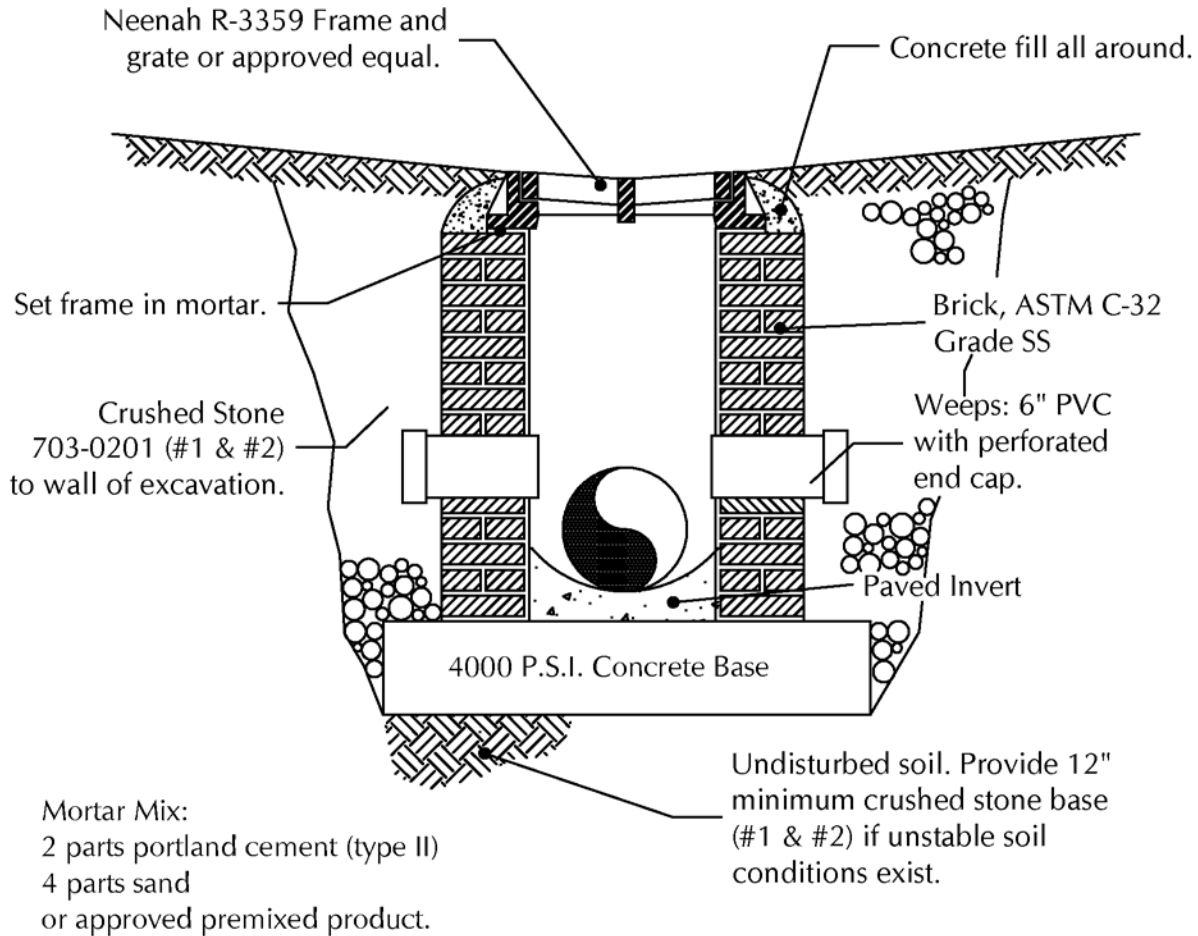
NOTES:

- 1) Distance between inlets shall be 150' typical or as ordered by the Commissioner of Public Works.

H 6.4

Typical Field Inlet

(N.T.S)



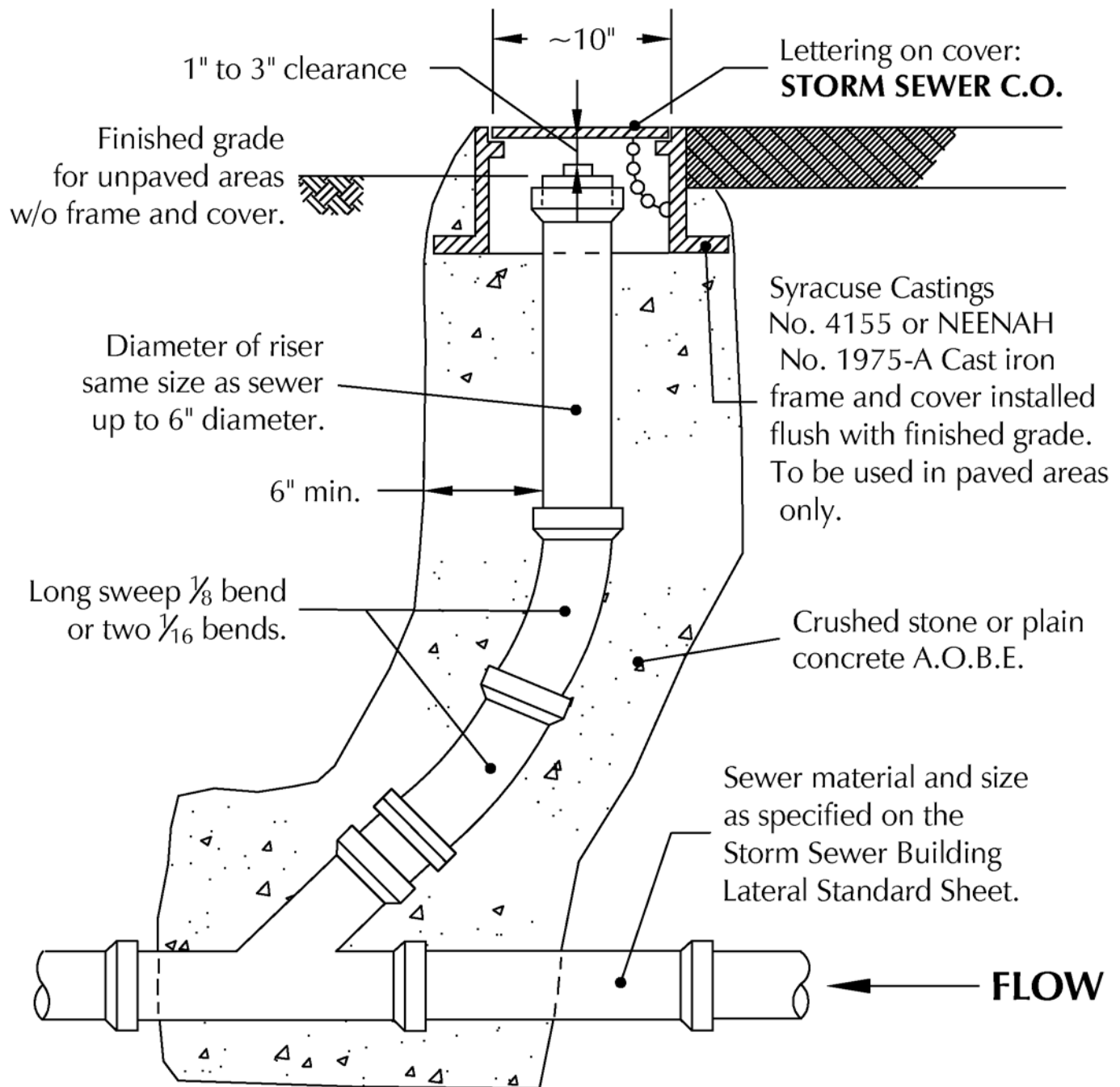
NOTES:

- 1) See Standard Sheet H 6.3 for precast basin detail.
- 2) Distance between inlets shall be 150' typical or as ordered by the Commissioner of Public Works.

STANDARD SHEET H 6.5

Storm Sewer Cleanout

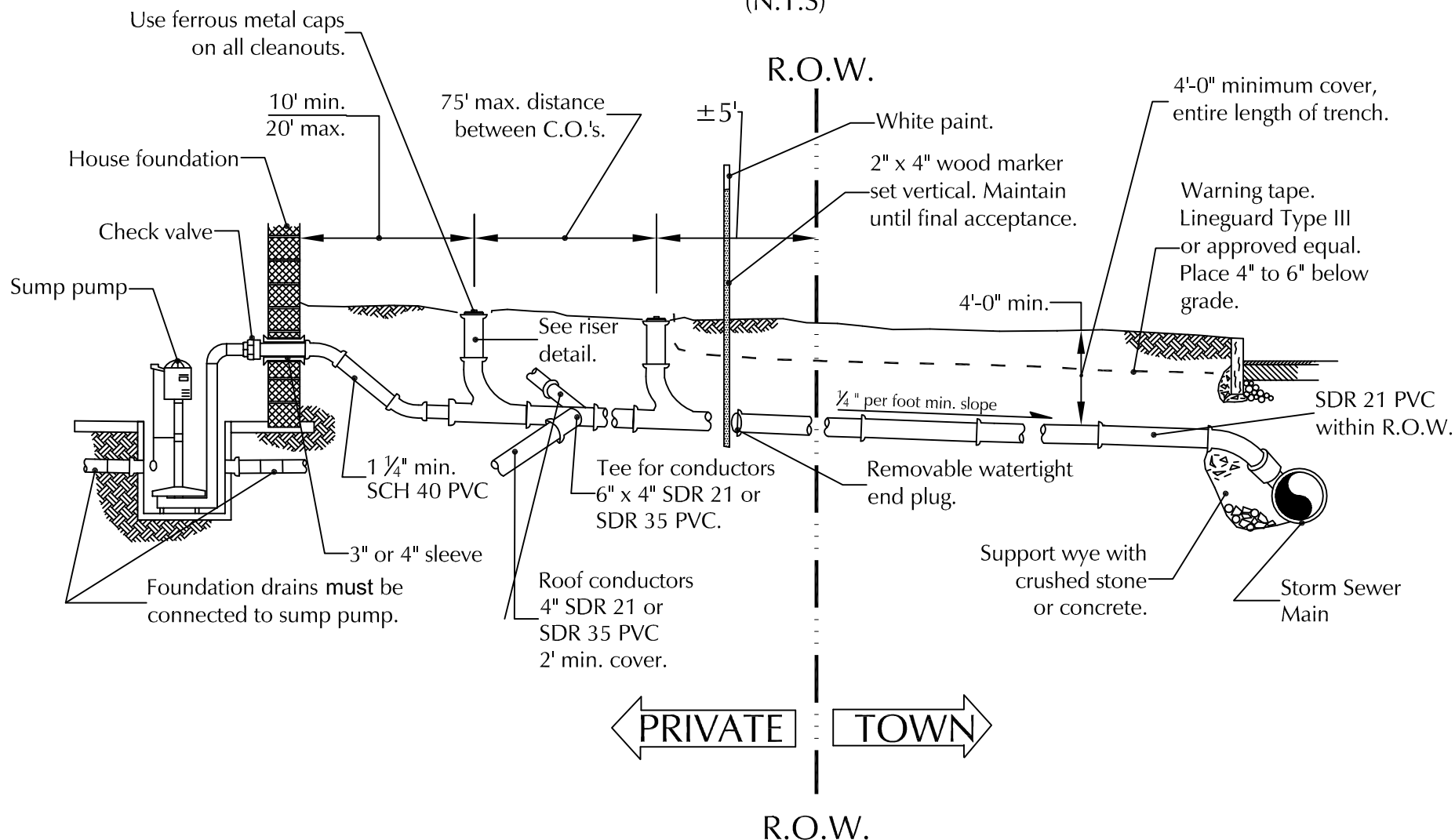
(N.T.S)



STANDARD SHEET

Storm Sewer Building Lateral

(N.T.S)



NOTES:

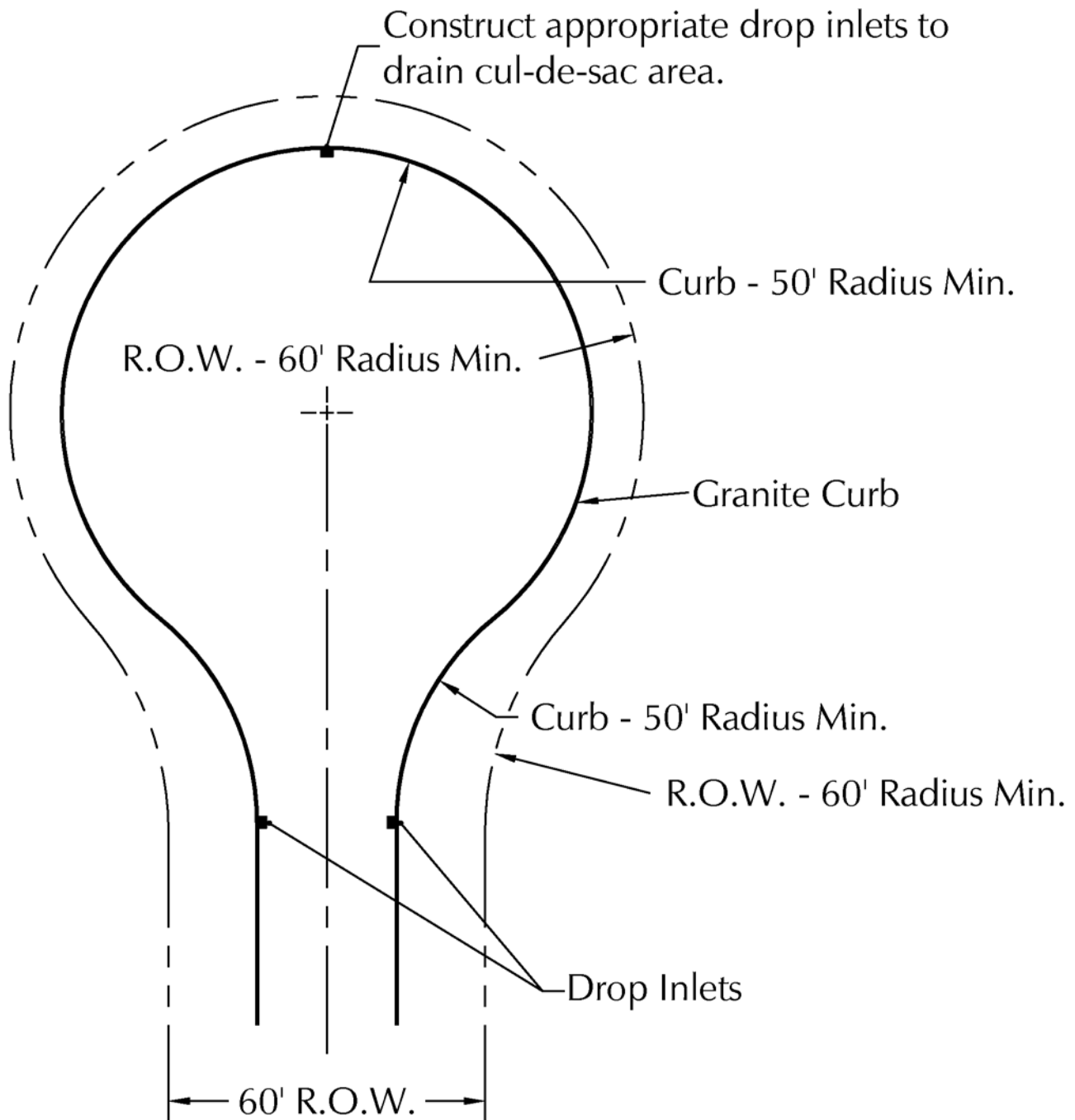
- 1) Lateral shall be SDR 21 PVC within R.O.W., SDR 21 or SDR 35 PVC outside of R.O.W., 6" min. diameter.
- 2) See appropriate Storm Sewer Bedding Detail Standard Sheet for pipe bedding and backfill.

H 6.6

STANDARD SHEET H 7.1

Typical Cul-de-sac Detail Granite Curbing

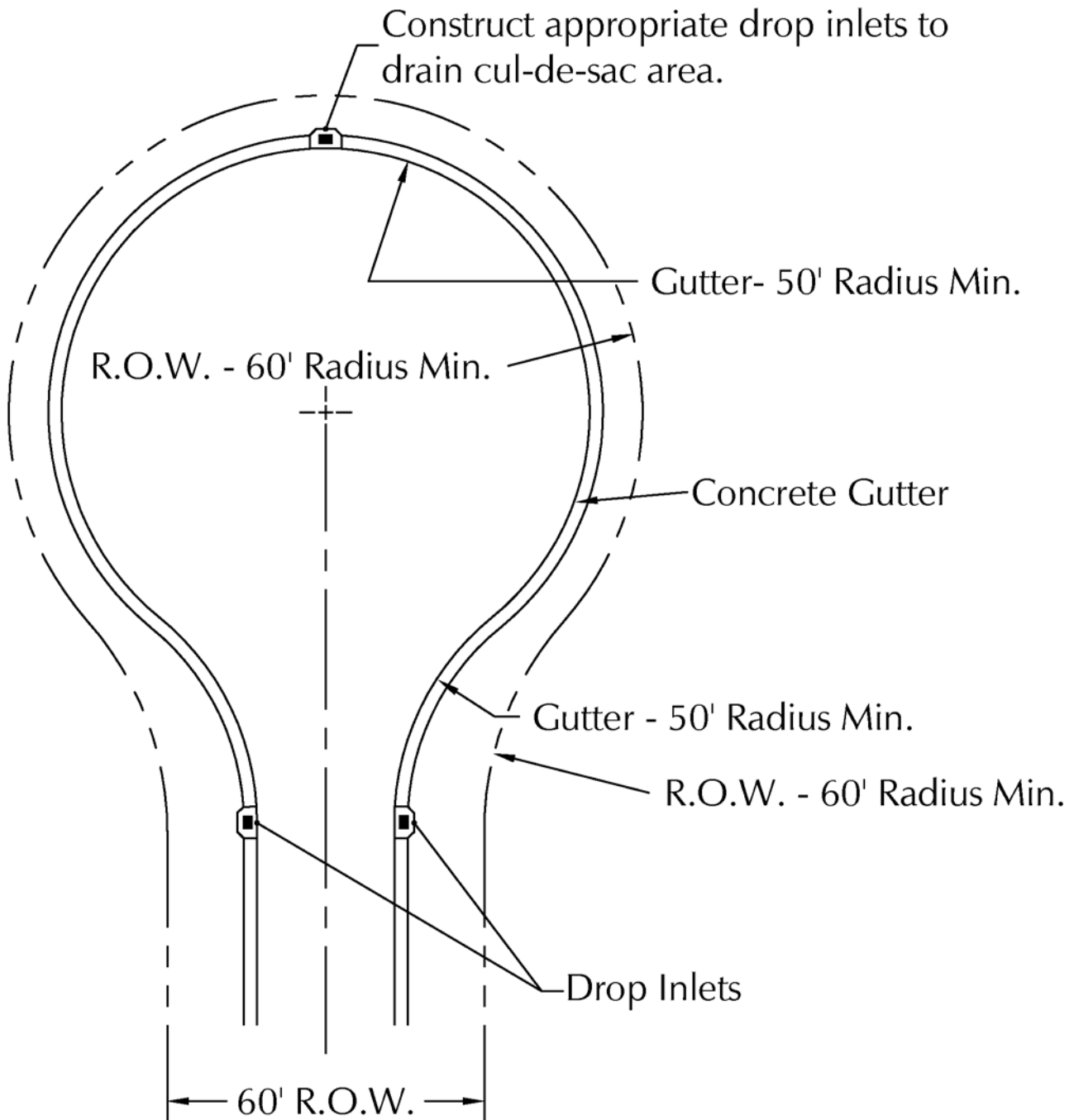
(N.T.S)



H 7.2

Typical Cul-de-sac Detail Concrete Gutters

(N.T.S)

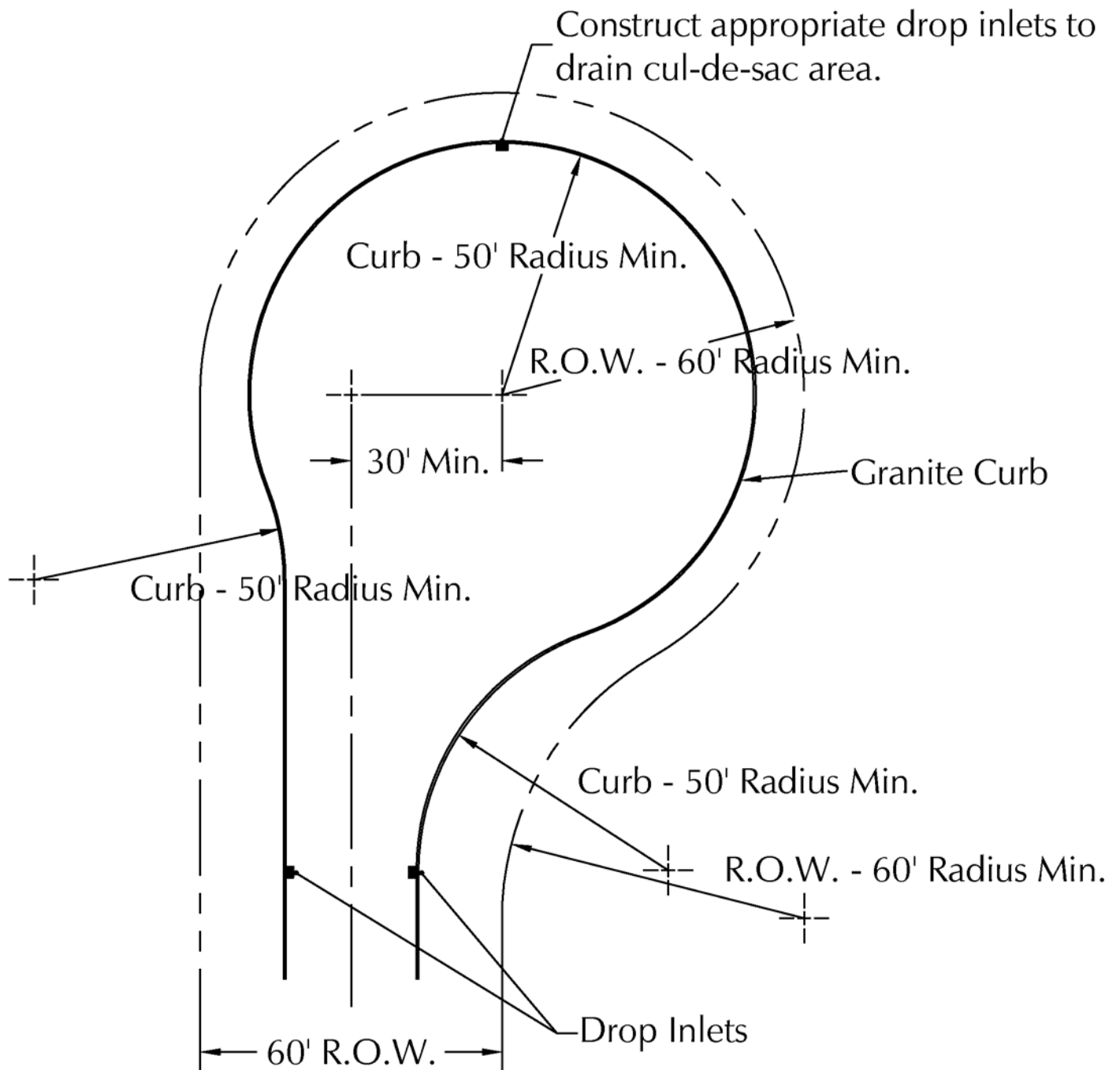


Minimum slope for machine-placed gutters shall be 0.5 %.

STANDARD SHEET H 7.3

Typical Offset Cul-de-sac Detail Granite Curbing

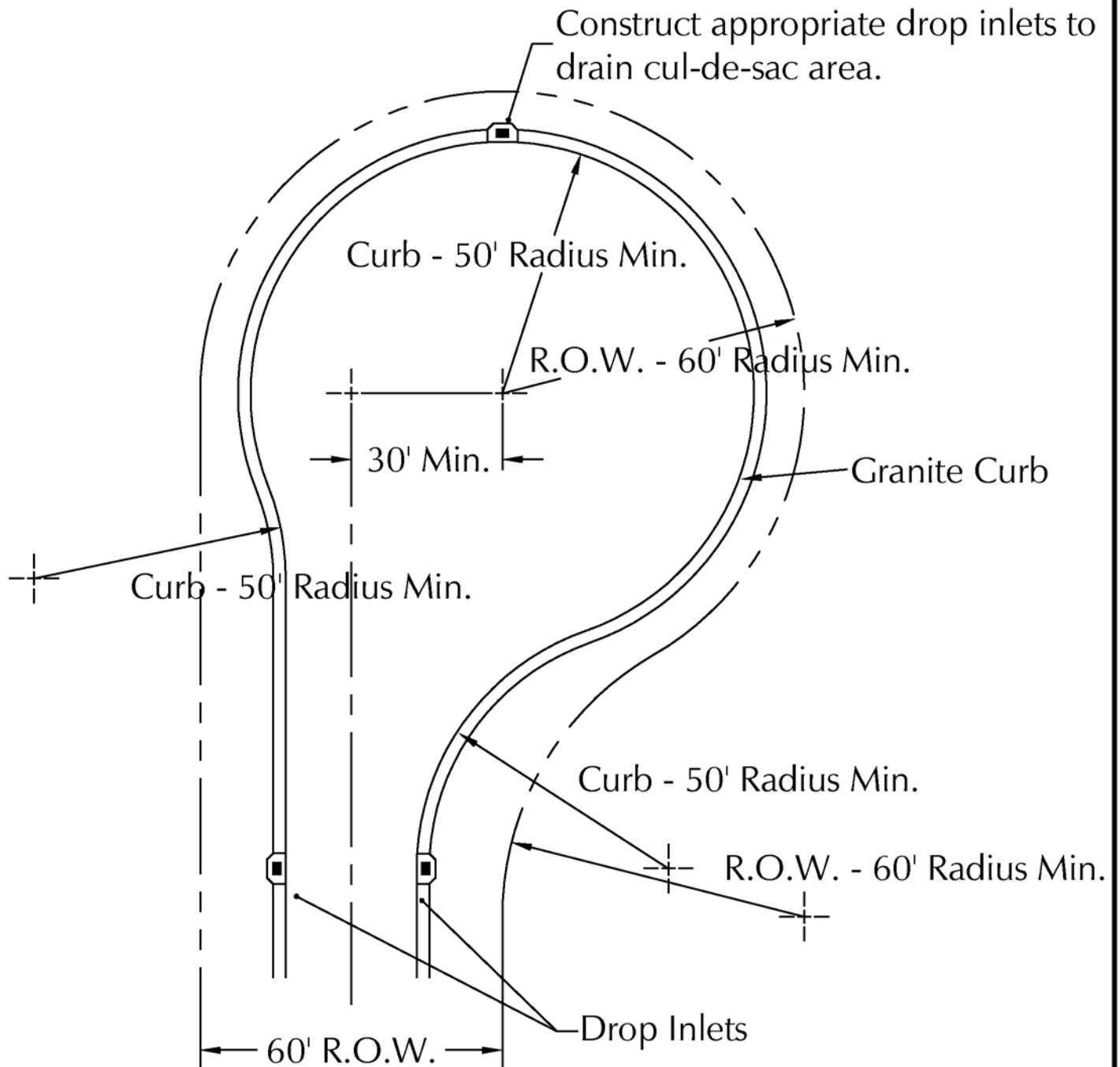
(N.T.S)



STANDARD SHEET H 7.4

Typical Offset Cul-de-sac Detail Concrete Gutter

(N.T.S)



STANDARD SHEET

H 8

Storm Sewer Manhole

(N.T.S)

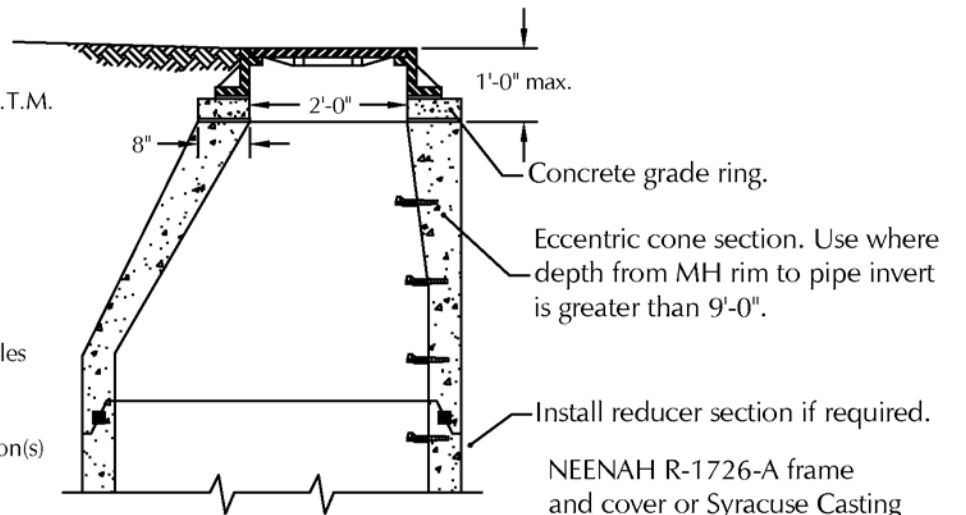
NOTES:

1) ALL brick masonry units shall be A.S.T.M. C-32, Grade SS.

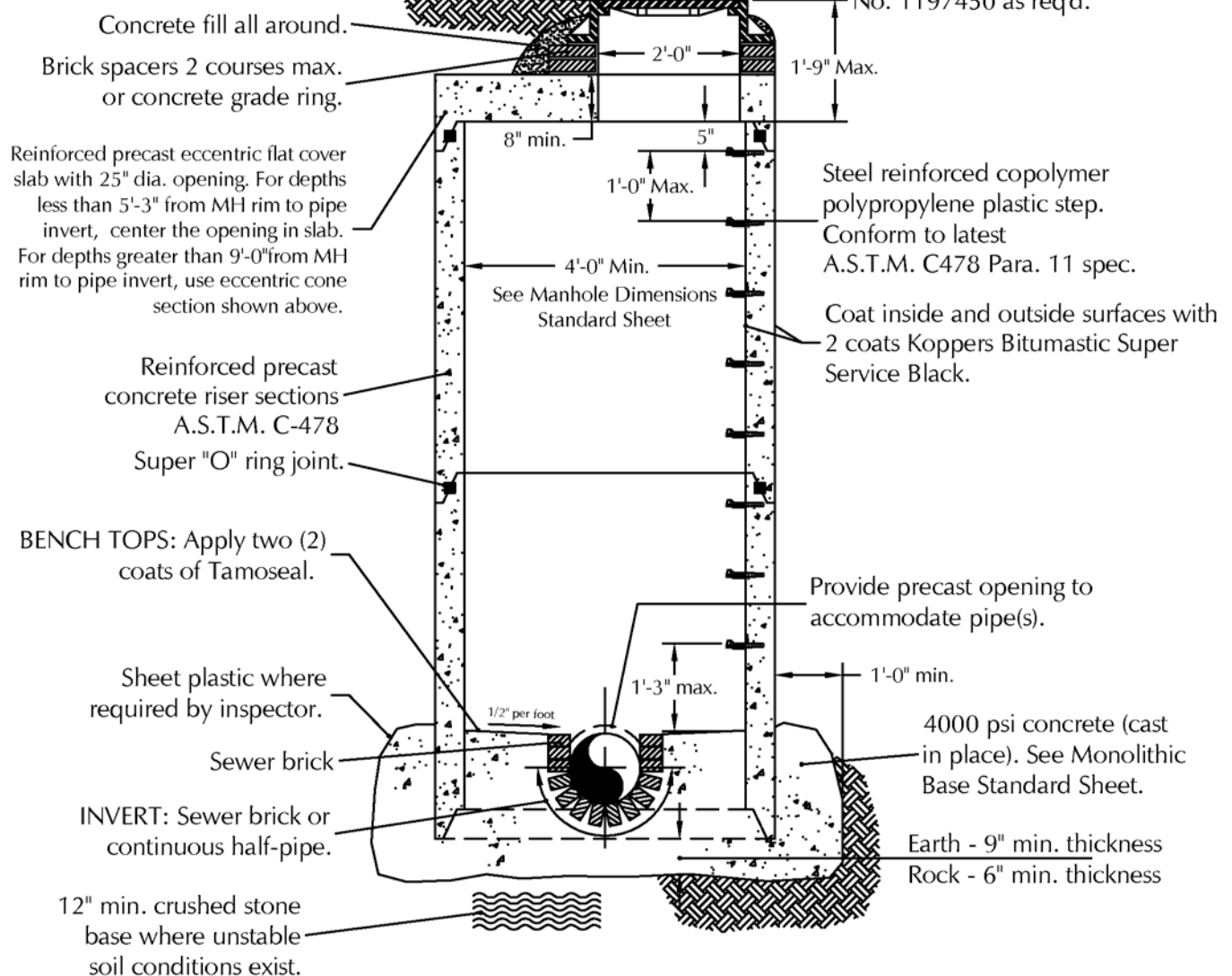
2) Mortar Mix:
2 parts portland cement (type II)
4 parts sand
or approved premixed product.

3) Maximum distance between manholes shall be 300 feet.

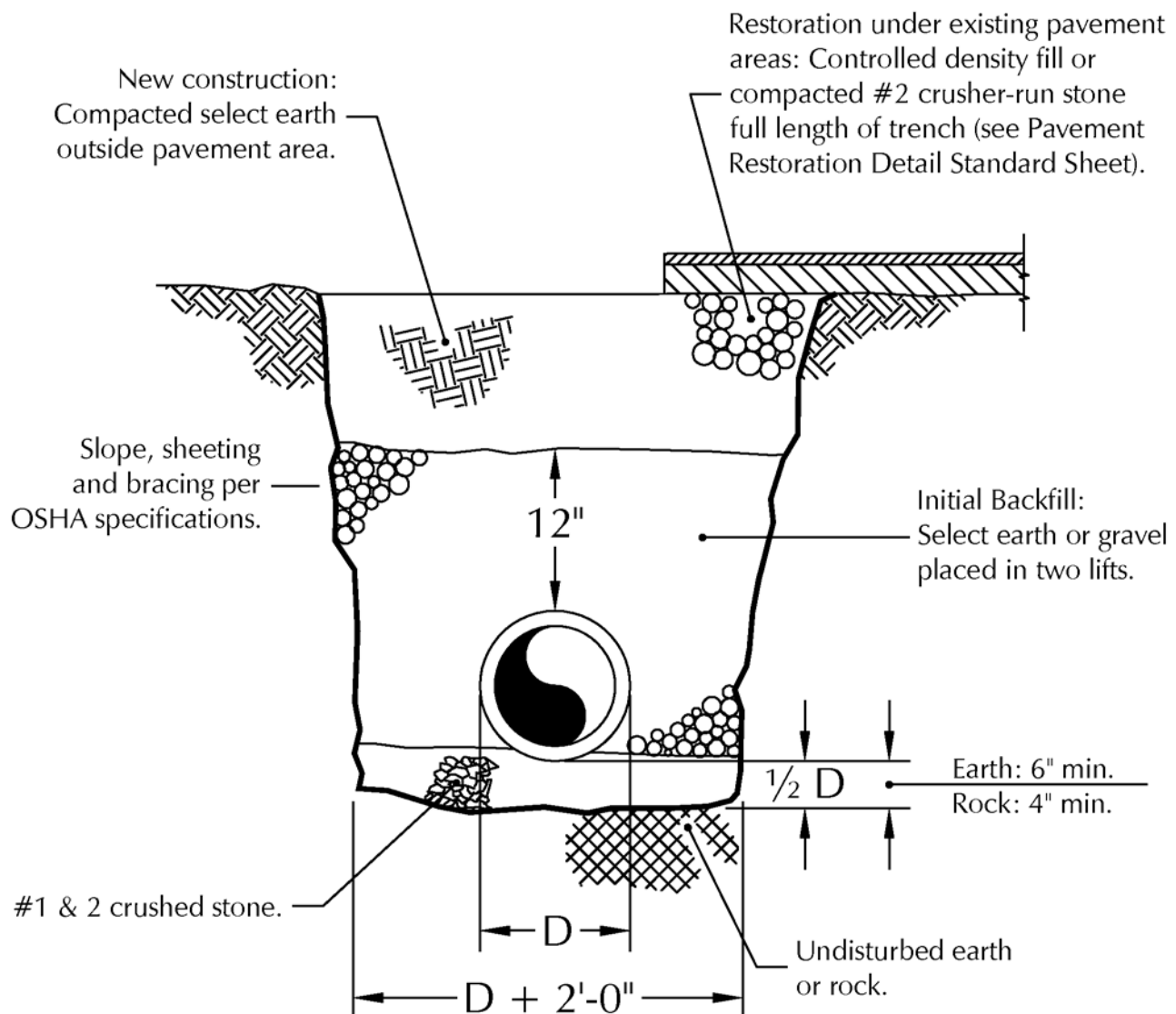
4) See Sheet S6 for new pipe connection(s) to existing manhole.



NEENAH R-1726-A frame and cover or Syracuse Casting No. 1032450; Syracuse Casting No. 1197450 as req'd.



(N.T.S)



NOTES:

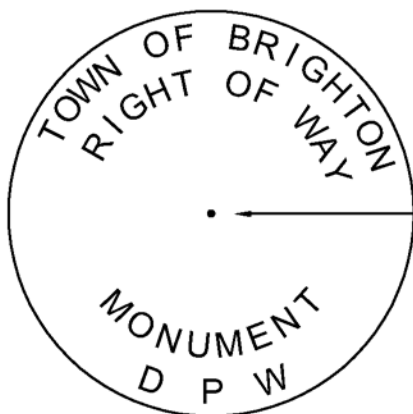
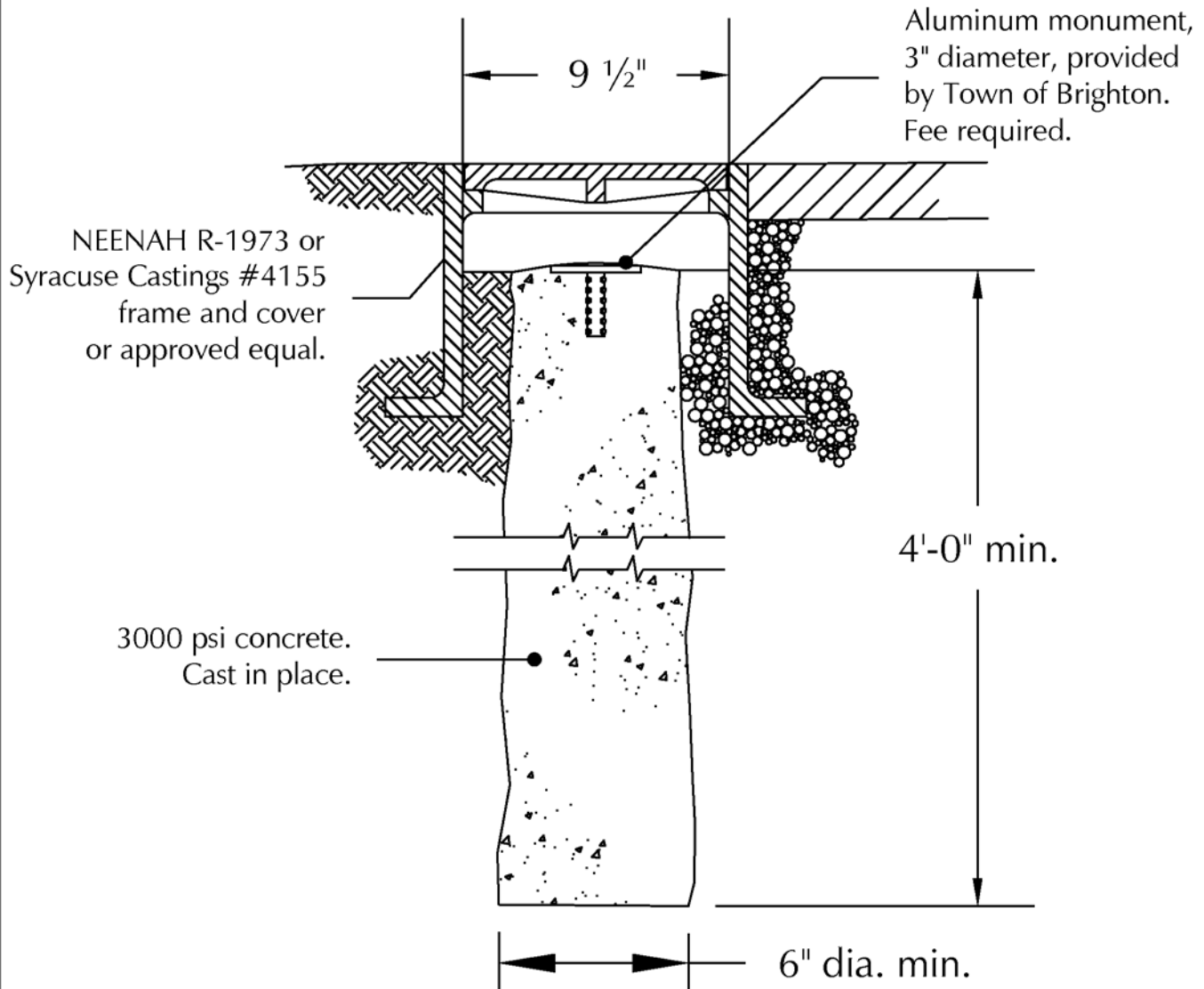
- 1) When pipe crosses under proposed new road construction where unstable soil conditions exist, select gravel compacted in 12" lifts shall be backfilled full depth of trench.
- 2) In new construction where storm and sanitary sewers cross each other, the trench shall be excavated down to the previously laid sewer and backfilled with compacted #2 crusher-run stone to insure adequate support.
- 3) 12" minimum pipe diameter is required for dedication of storm mains.

STANDARD SHEET

H 10

Right of Way Monument

(N.T.S)



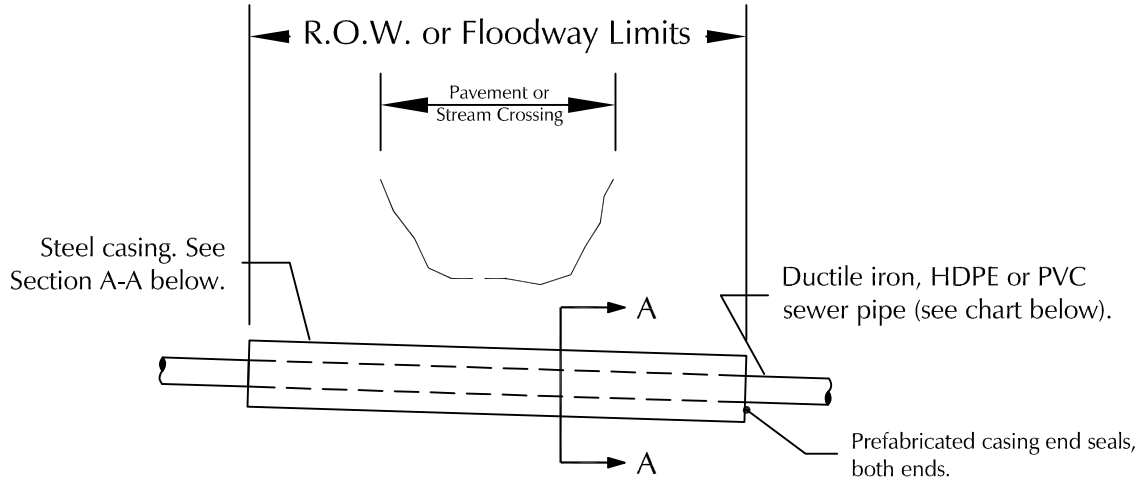
1/16" diameter drill hole, centered on property line, property corner, P.C., P.T., etc.

STANDARD SHEET H 11

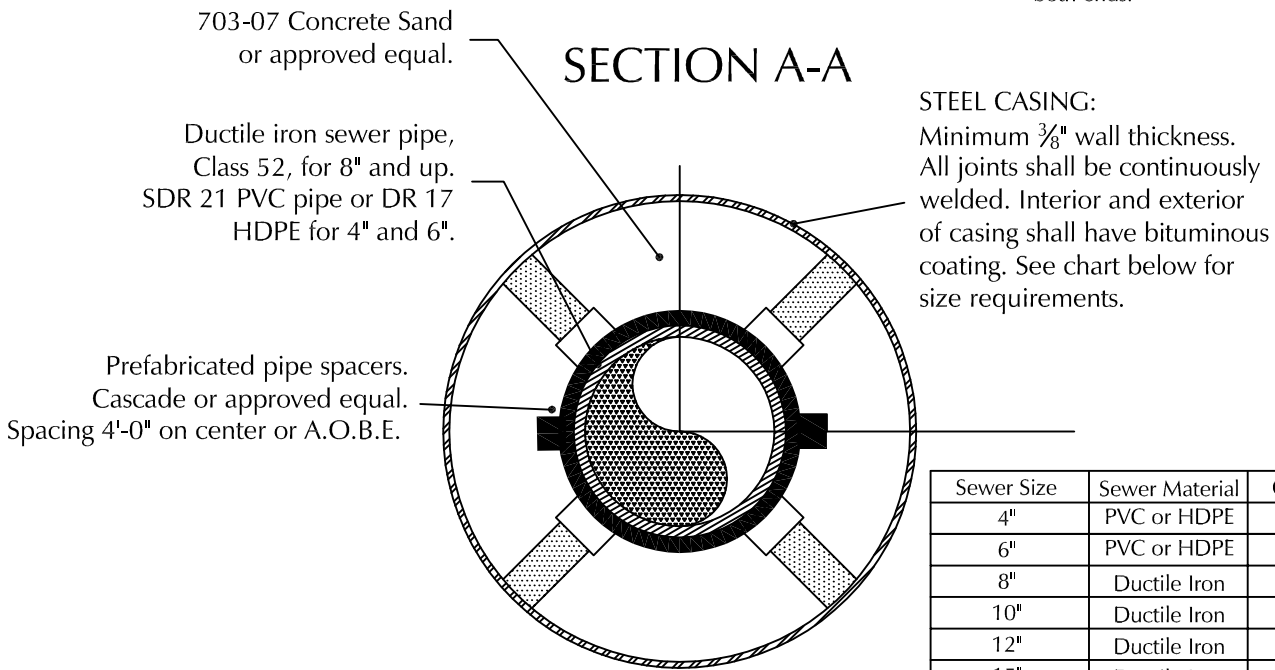
Right of Way Pipe Crossing

(N.T.S)

PROFILE



SECTION A-A



NOTES:

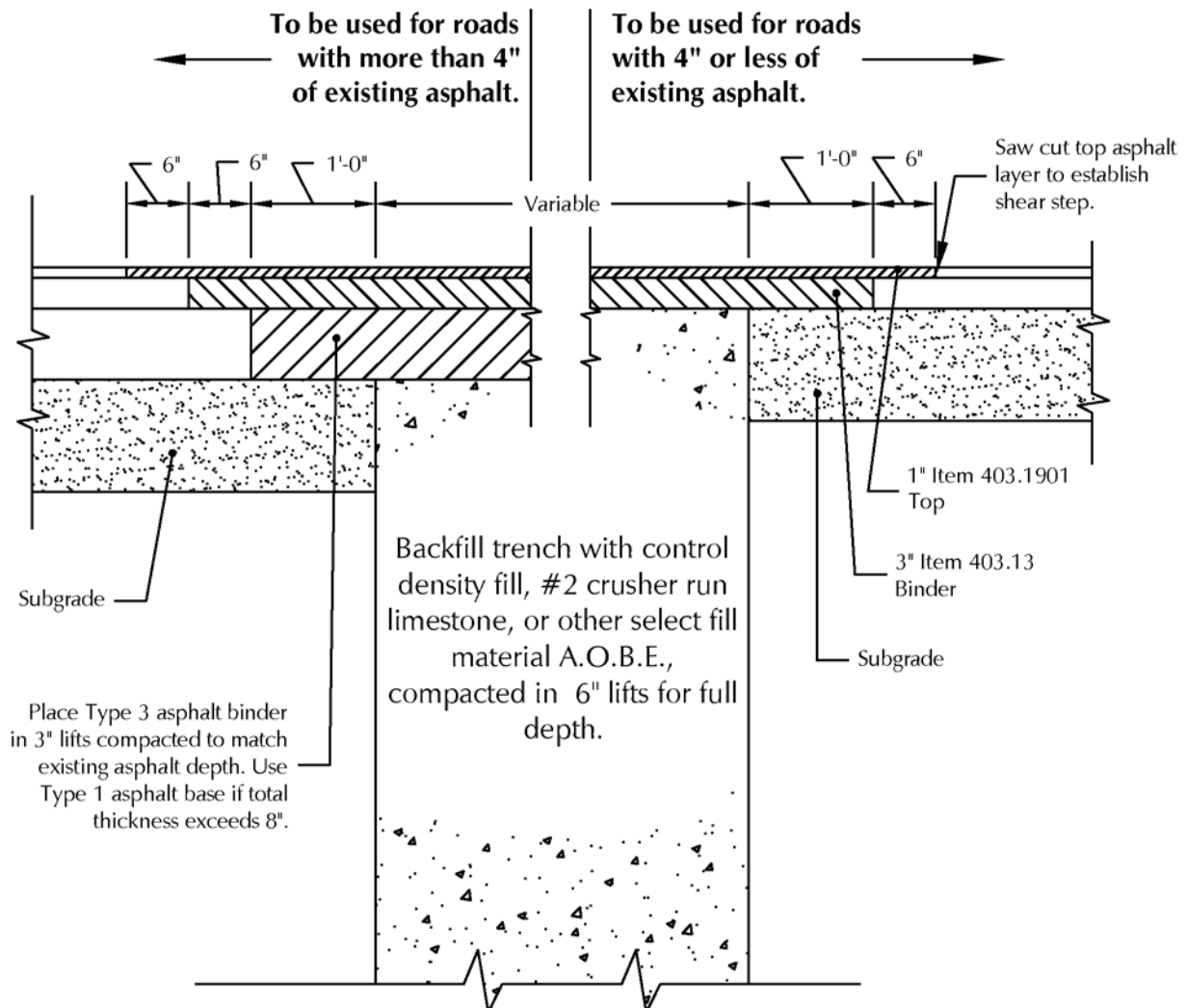
Casing spacers shall be used to install carrier pipe inside the encasement pipe, manufactured by Cascade Waterworks Manufacturing Company or approved equal. The spacers and any installation fasteners or other hardware shall be constructed stainless steel, PVC, or of other materials that are highly corrosion resistant.

Casing spacers shall be secured to the sewer pipe, per manufacturer's instructions, to fasten tightly onto the carrier pipe so that the spacers do not move during installation. Installation instructions shall be provided with each shipment. Casing spacers shall have a maximum span of 6-1/2 feet to prevent sagging of the carrier pipe. The maximum load shall not exceed the load limits per spacer listed by the manufacturer. Spacers shall have minimum height that clears the pipe bell or as otherwise indicated on plans.

STANDARD SHEET H 12

Pavement Restoration Detail

(N.T.S)



NOTE: ALL JOINTS SHALL BE SAW CUT AND TACK COATED

The contractor shall provide one traffic lane during working periods and two traffic lanes during non-working periods for the open-cut crossings. Work shall be limited to the hours of 8:00 A.M. to 4:00 P.M. for pavement crossing. Flag men, signs, lights, barricades, and other safety devices will be required as directed by the Commissioner of Public Works or Highway Superintendent. Contractor shall notify the Highway Department at least 48 hours prior to excavation. Phone the Highway Department at 784-5280 or Sewer Department at 784-5282.

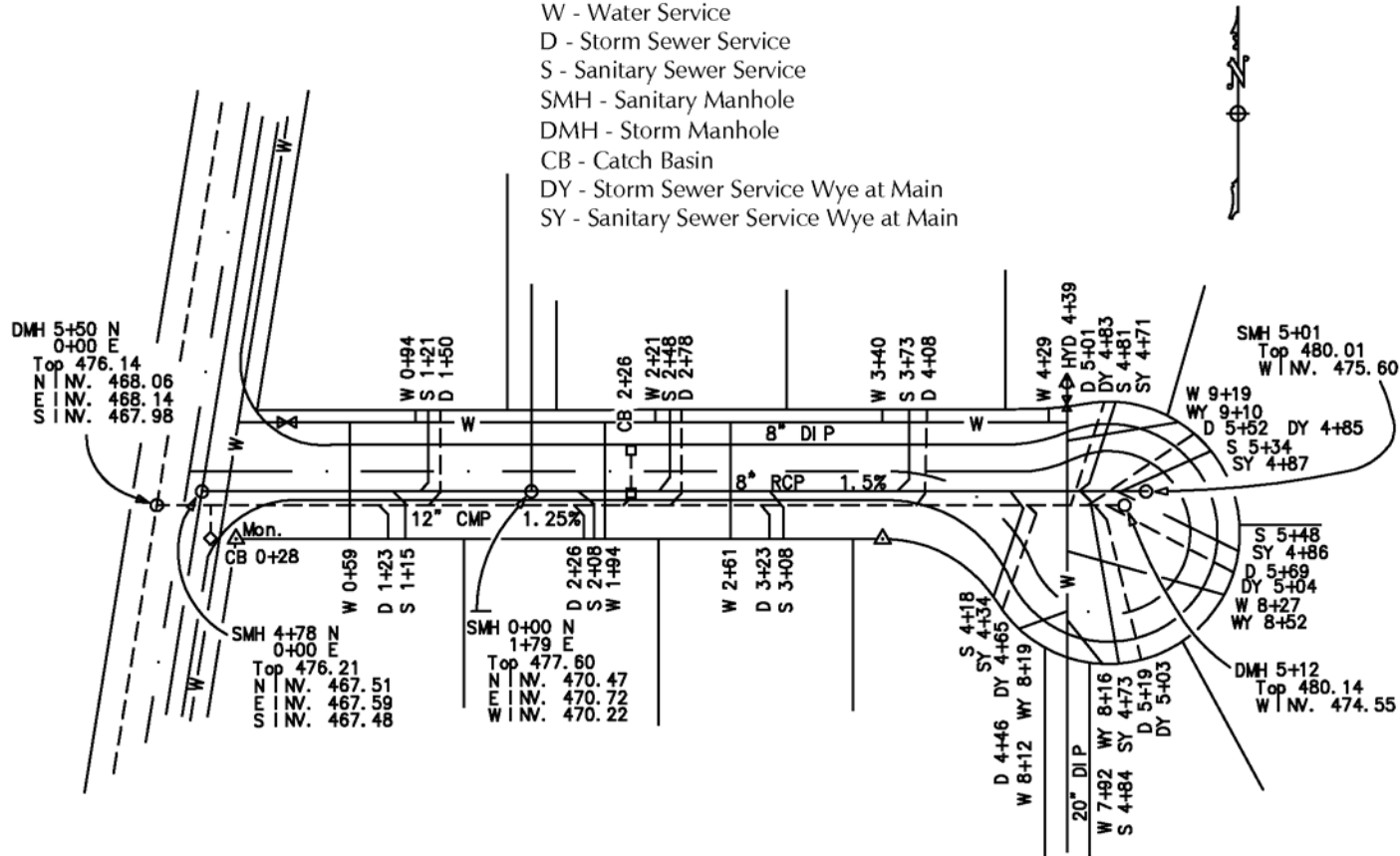
Application and permit forms can be obtained from the Highway Department at 1941 Elmwood Avenue from 8:00 A.M. to 4:00 P.M. Monday through Friday.

STANDARD SHEET

Typical Record Map

(N.T.S)

W - Water Service
D - Storm Sewer Service
S - Sanitary Sewer Service
SMH - Sanitary Manhole
DMH - Storm Manhole
CB - Catch Basin
DY - Storm Sewer Service Wye at Main
SY - Sanitary Sewer Service Wye at Main



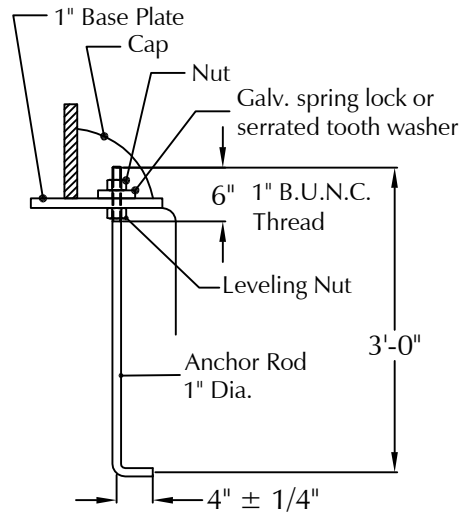
NOTE:

All stationing is derived from the centerline of the utility, not the centerline of road. Manhole stationing is based upon the center of the manhole opening, not the center of the manhole barrel. If the service laterals from the utility to the R.O.W. are not at a 90° angle to the utility main, two stations are required: one station at the wye (DY or SY), and one station at the R.O.W. (D or S), as shown above. Independent stationing shall be required for each utility. Show as-built manhole rim and invert elevations.

STANDARD SHEET

Metal Pole Base Foundation

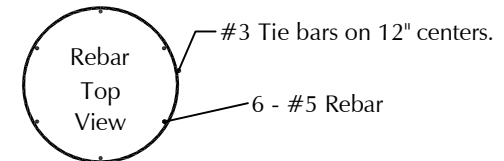
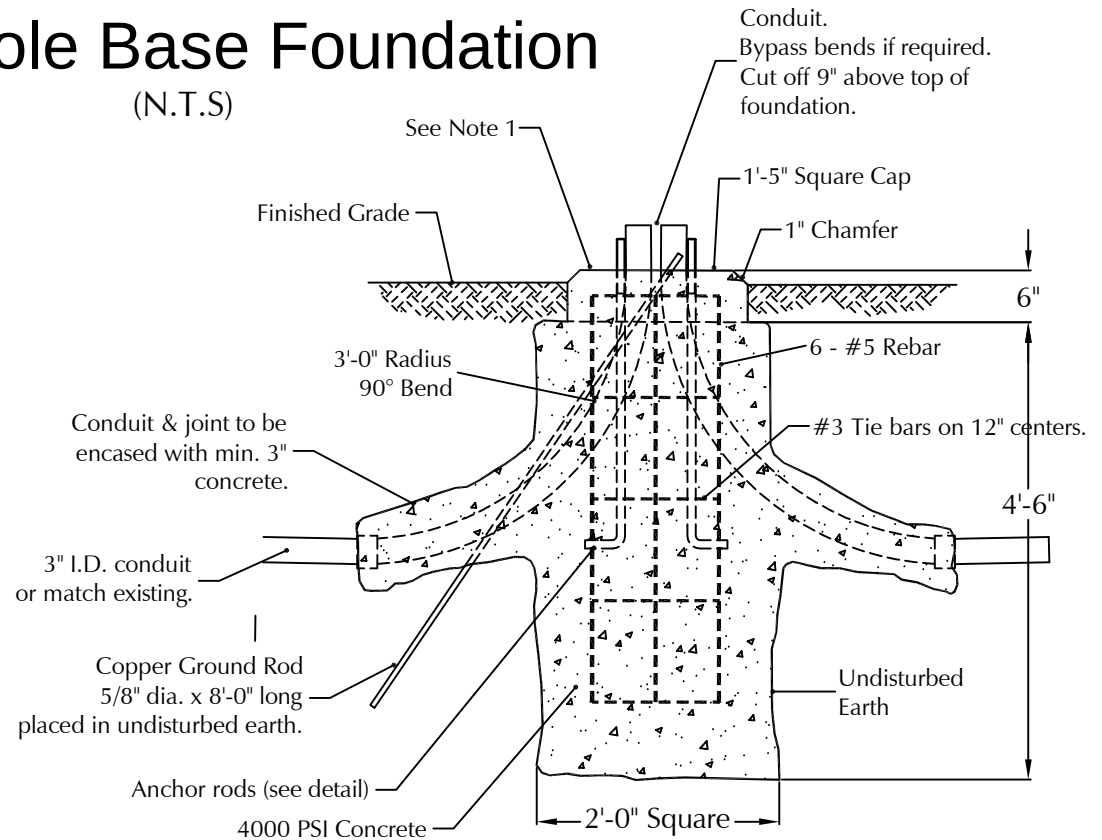
(N.T.S)



ANCHOR ROD

NOTES:

- 1) Top of foundation shall be 1" above finished grade in grass area and flush in paved or sidewalk area.
- 2) Ground rod shall be driven into undisturbed earth adjacent to foundation and bent into foundation top. Top of ground rod shall be minimum 4" above top of foundation for wire connection.
- 3) Anchor rod shall be low alloy, high tensile, corrosion resistant steel (USS-Corten, Beth-Mayari, Youngstown-Yoloy). Galvanize minimum 12" at threaded end. Top of anchor rod shall be 3" above top of foundation.
- 4) Rebar shall be grade 60. Provide min. 2" of cover for reinforcement.

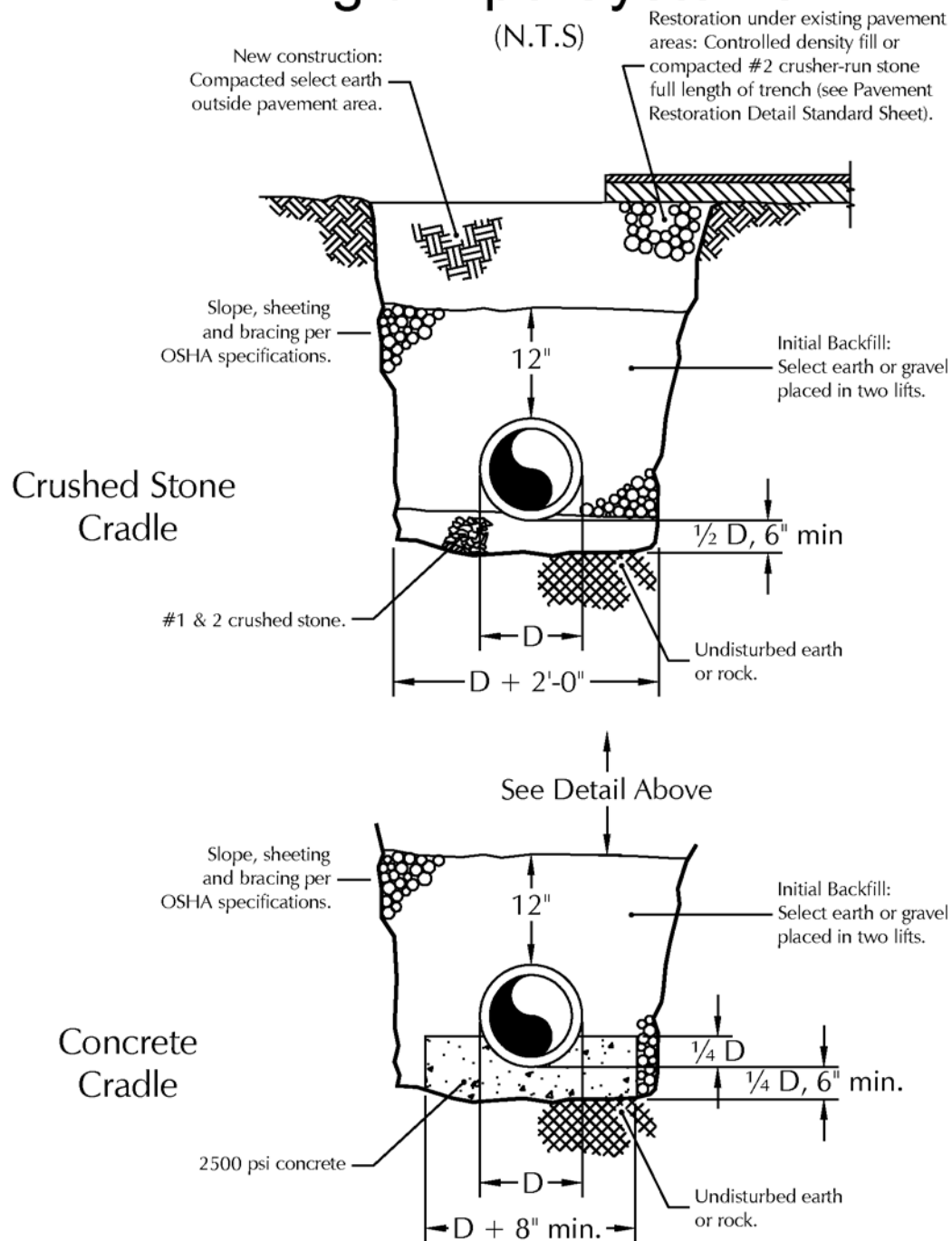


POLE BASE FOUNDATION

STANDARD SHEET S 1.1

Sanitary Sewer Bedding Detail

Rigid Pipe Systems



NOTES:

- 1) When pipe crosses under proposed new road construction where unstable soil conditions exist, select gravel compacted in 12" lifts shall be backfilled full depth of trench.
- 2) In new construction where storm and sanitary sewers cross each other, the trench shall be excavated down to the previously laid sewer and backfilled with compacted #2 crusher-run stone to insure adequate support.
- 3) 8" minimum pipe diameter is required for dedication of sanitary mains.

S 1.2

Restoration under existing pavement areas: #2 crusher-run stone compacted in 6" lifts, where cover is less than 3 feet, or for restoration under existing pavement areas (see Pavement Restoration Detail Standard Sheet).

Slope, sheeting
and bracing per
OSHA specifications.

Initial Backfill:
#1 & #2 crushed stone
backfill placed in two
lifts.

12" min.

12" min.

#1 & 2 crushed stone.

$\frac{1}{2}$ D	Earth: 6" min.
	Rock: 4" min.

Undisturbed earth
or rock.

1) When pipe crosses under proposed new road construction where unstable soil conditions exist, select gravel compacted in 12" lifts shall be backfilled full depth of trench.

2) In new construction where storm and sanitary sewers cross each other, the trench shall be excavated down to the previously laid sewer and backfilled with compacted #2 crusher-run stone to insure adequate support.

Town of Brighton Dept. of Public Works 08/18/2006 S01 2.DWG

STANDARD SHEET

Sanitary Sewer Manhole

(N.T.S)

S 2.1

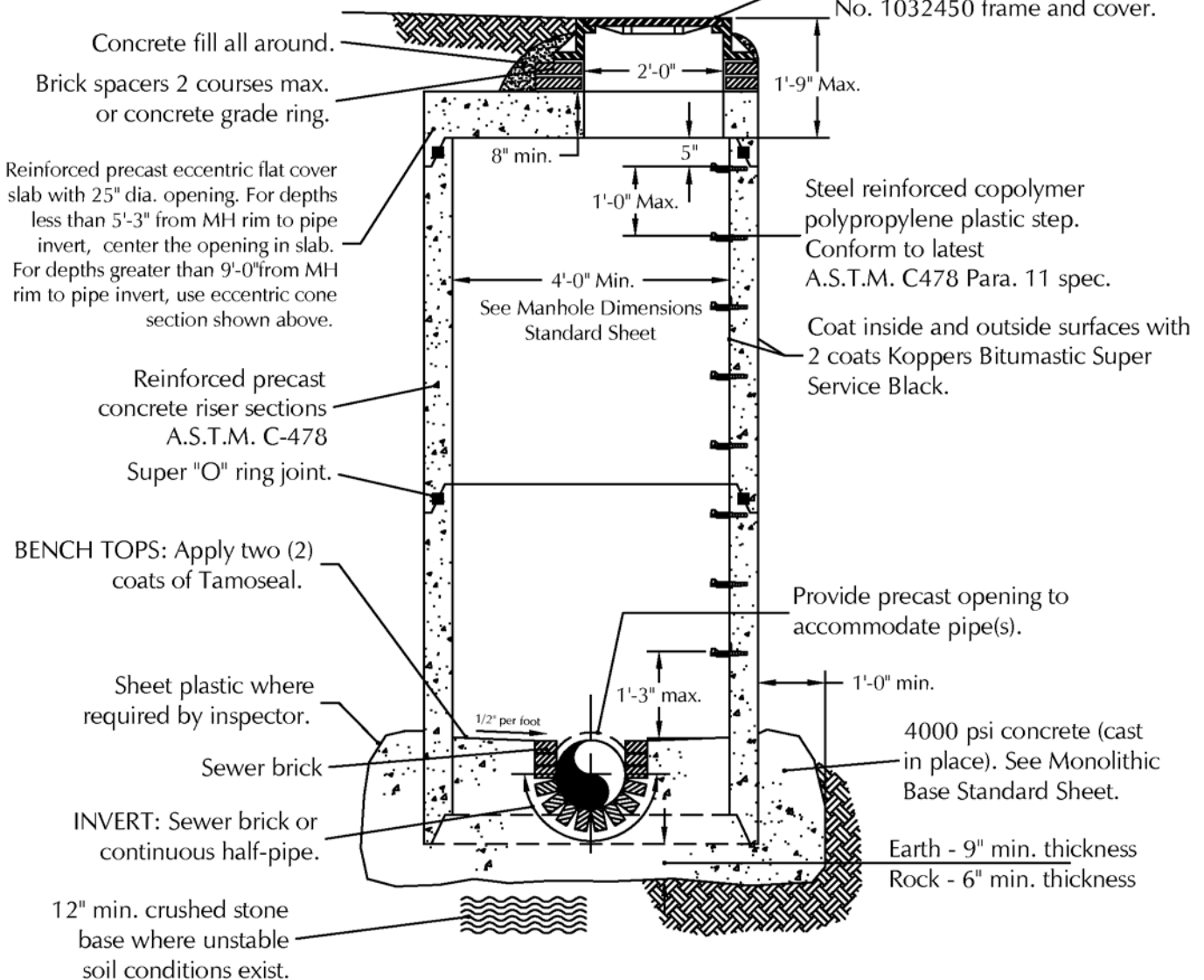
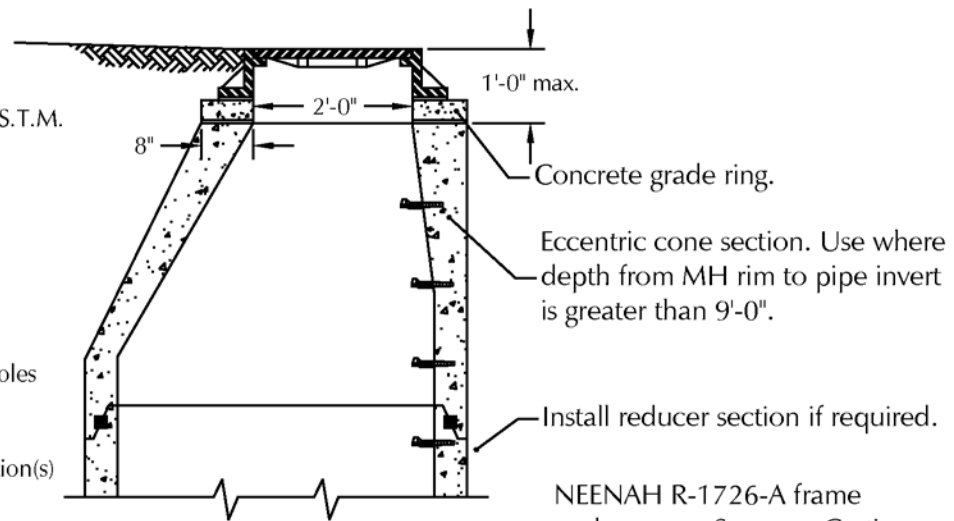
NOTES:

1) ALL brick masonry units shall be A.S.T.M. C-32, Grade SS.

2) Mortar Mix:
2 parts portland cement (type II)
4 parts sand
or approved premixed product.

3) Maximum distance between manholes shall be 300 feet.

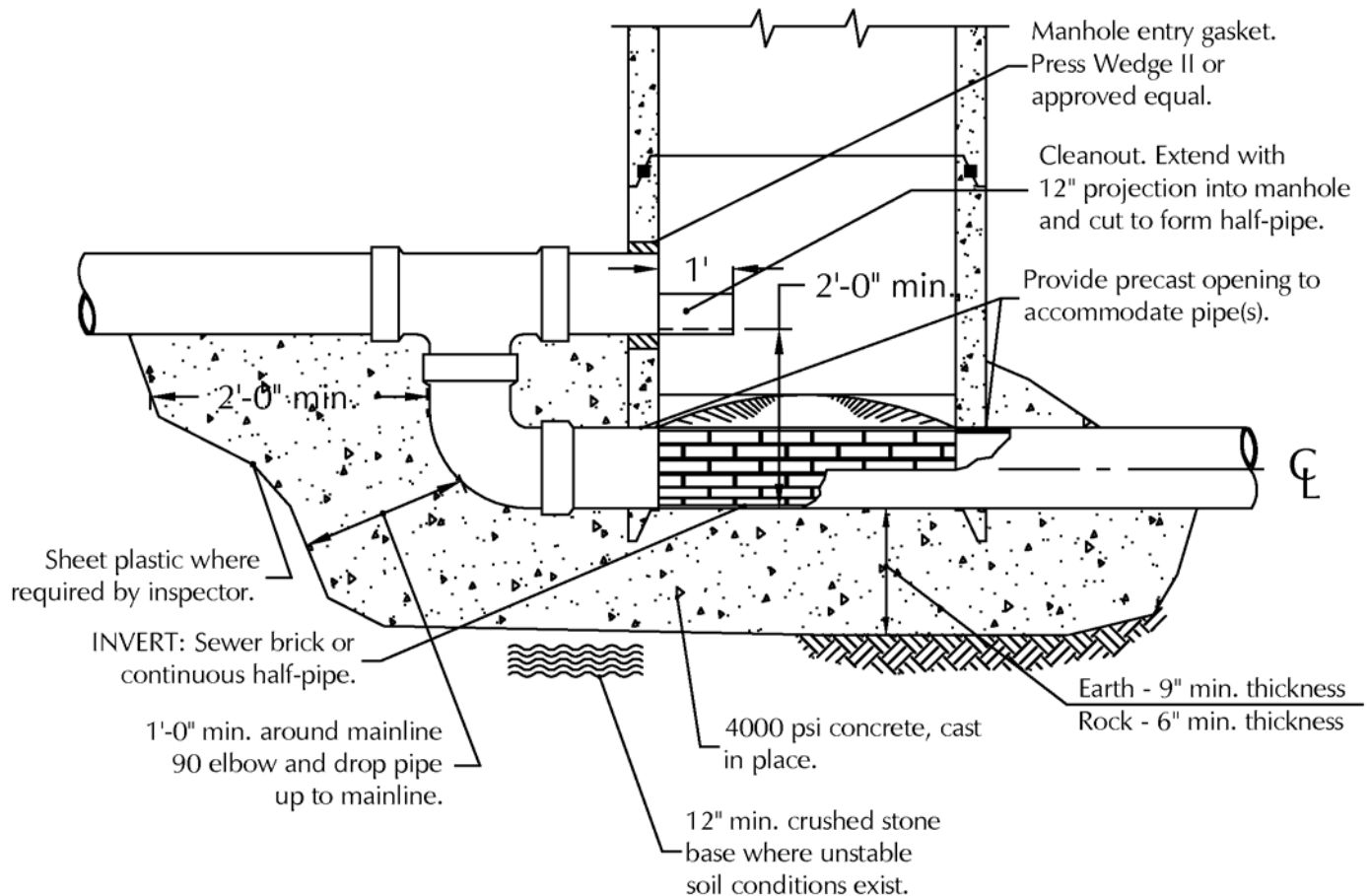
4) See Sheet S6 for new pipe connection(s) to existing manhole.



STANDARD SHEET S 3.1

Sanitary Sewer Outside Drop Manhole Cast Concrete Base

(N.T.S)



NOTES:

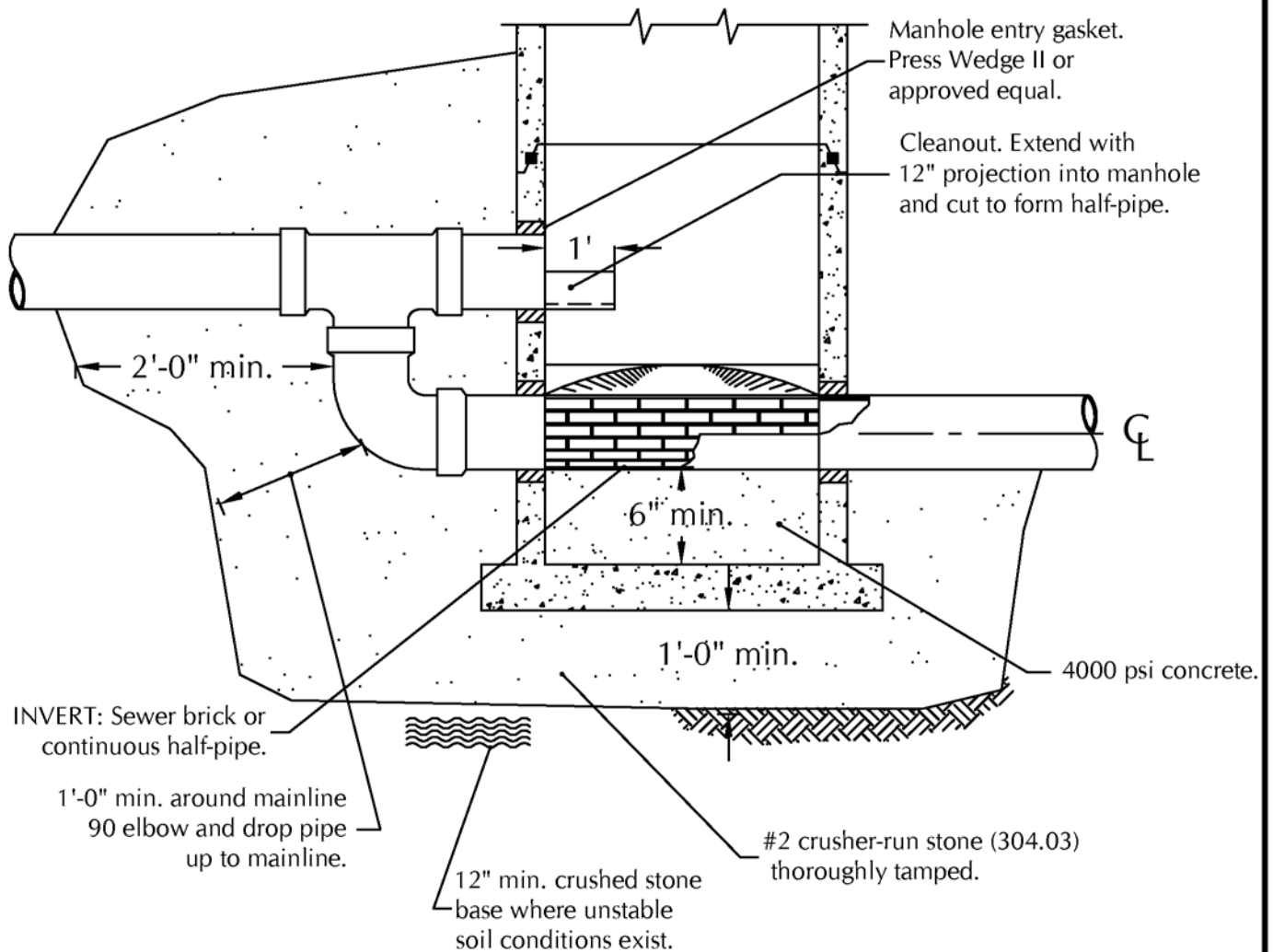
- 1) The drop manhole shall be constructed whenever the inlet invert is such that the 9" maximum slope is exceeded (See Manhole Dimensions Standard Sheet).
- 2) For outside drop manhole with monolithic base, see appropriate Standard Sheets. NOTE: Inside drop manholes are not allowed.
- 3) See Sheet S6 for new pipe connection(s) to existing manhole.
- 4) This detail is intended to show only items specific to drop manhole. Refer to Sanitary Sewer Manhole Standard Sheet for detailed specifications relating to the entire structure.

STANDARD SHEET S 3.2

Sanitary Sewer Outside Drop Manhole

Monolithic Base

(N.T.S)



NOTES:

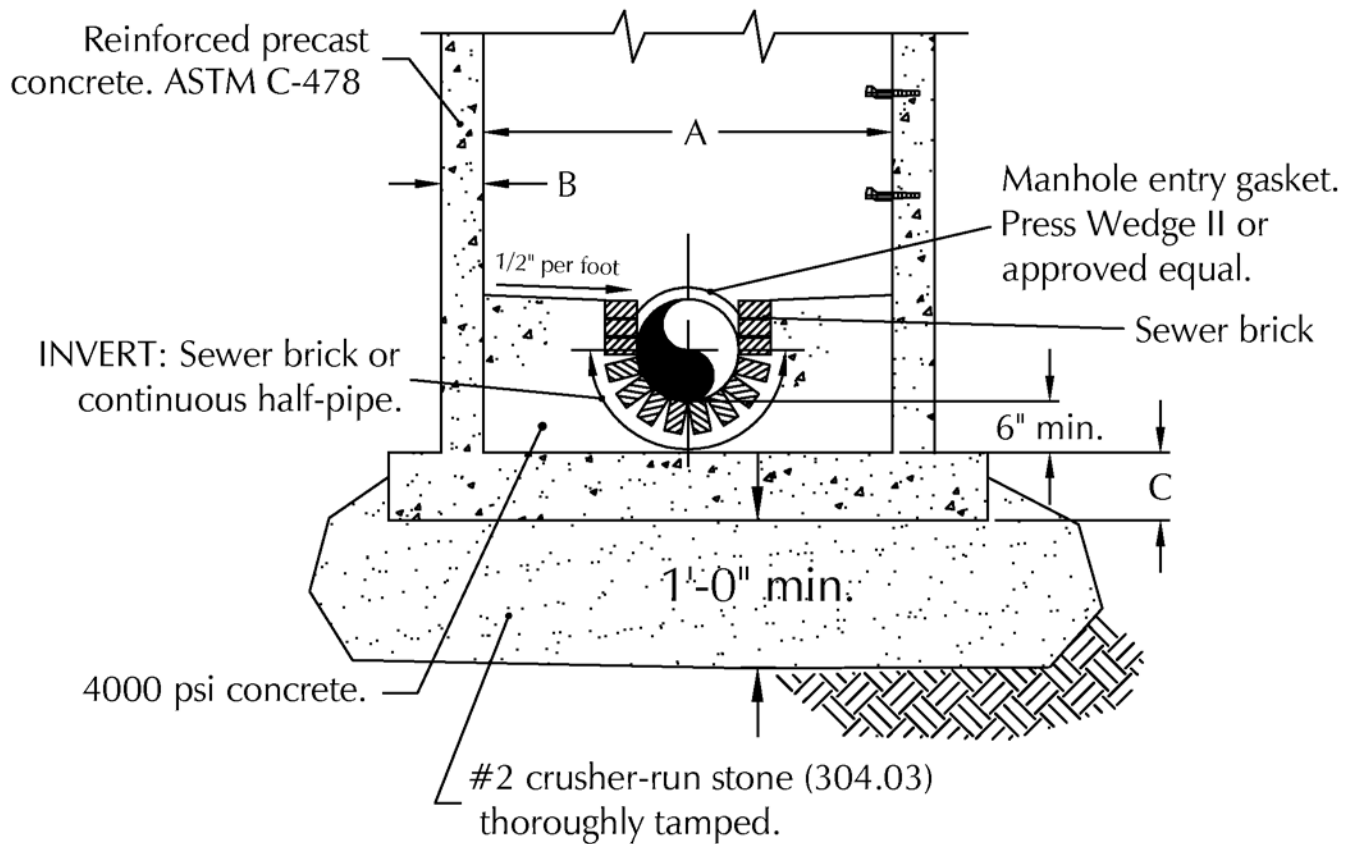
- 1) The drop manhole shall be constructed whenever the inlet invert is such that the 9" maximum slope is exceeded (See Manhole Dimensions Standard Sheet).
- 2) For outside drop manhole with monolithic base, see appropriate Standard Sheets. NOTE: Inside drop manholes are not allowed.
- 3) See Sheet S6 for new pipe connection(s) to existing manhole.
- 4) This detail is intended to show only items specific to drop manhole. Refer to Sanitary Sewer Manhole Standard Sheet for detailed specifications relating to the entire structure.

STANDARD SHEET

S 3.4

Monolithic Manhole Base

(N.T.S)



DIMENSIONS

A	4'-0"	5'-0"
B	5"	6"
C	6"	8"

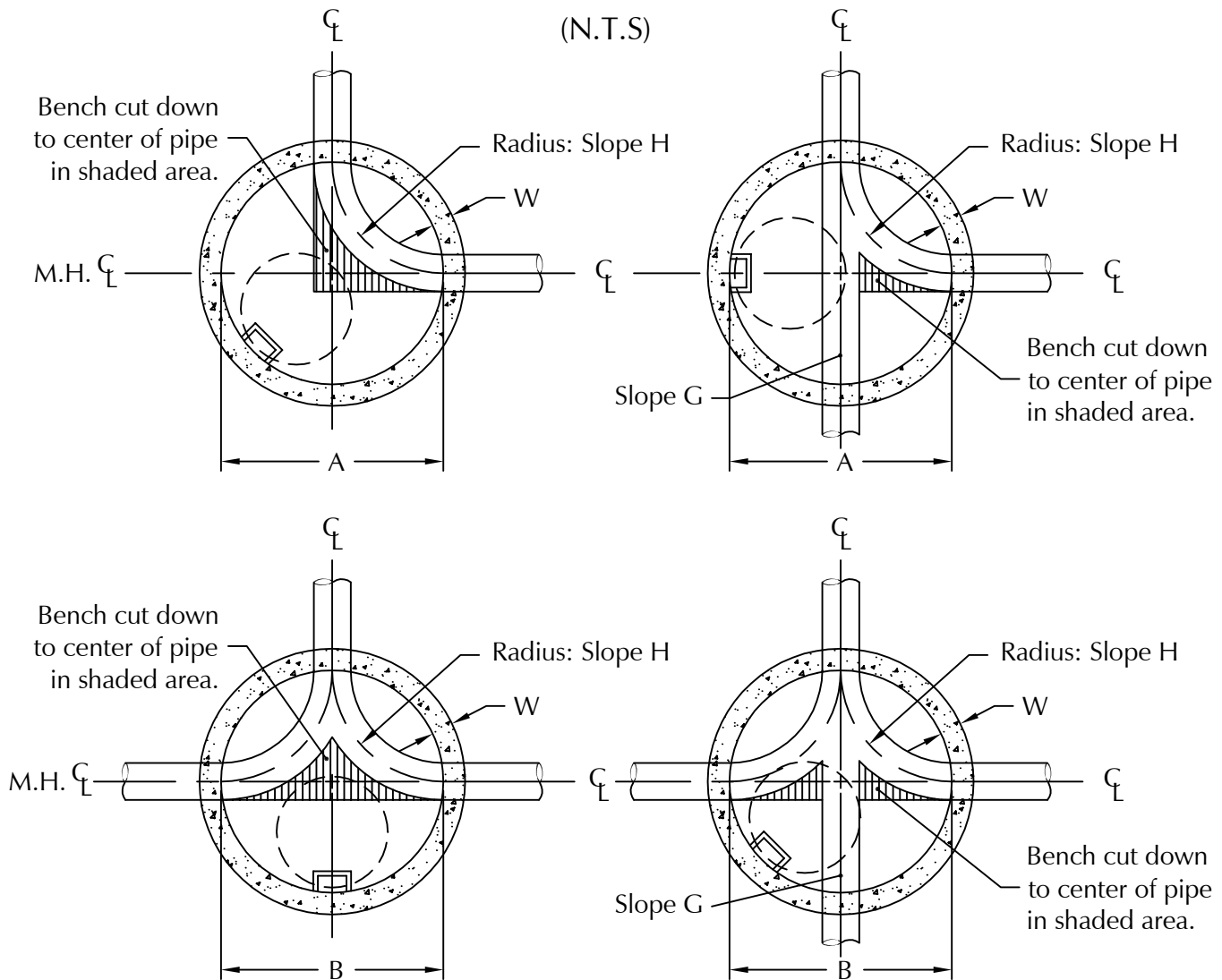
NOTES:

1) This detail is intended to show only items specific to monolithic manhole base. Refer to appropriate Manhole Standard Sheets for detailed specifications relating to the entire structure.

2) See Sheet S6 for new pipe connection(s) to existing manhole.

Manhole Dimensions

(N.T.S)



Sewer Pipe Dia.	8"	10"	12"	15"	18"	Greater than 18"	Manhole Barrel Wall Thickness	
Manhole Diameter	A	4'-0"	4'-0"	4'-0"	5'-0"	5'-0"	A	4'-0"
	B	5'-0"	5'-0"	5'-0"	5'-0"	5'-0"	B	5'-0"
Invert Difference	C	0.2'	0.2'	0.2'	0.2'	0.2'	W	5"
	H	0.5'	0.4'	0.4'	0.4'	0.4'		6"

NOTES:

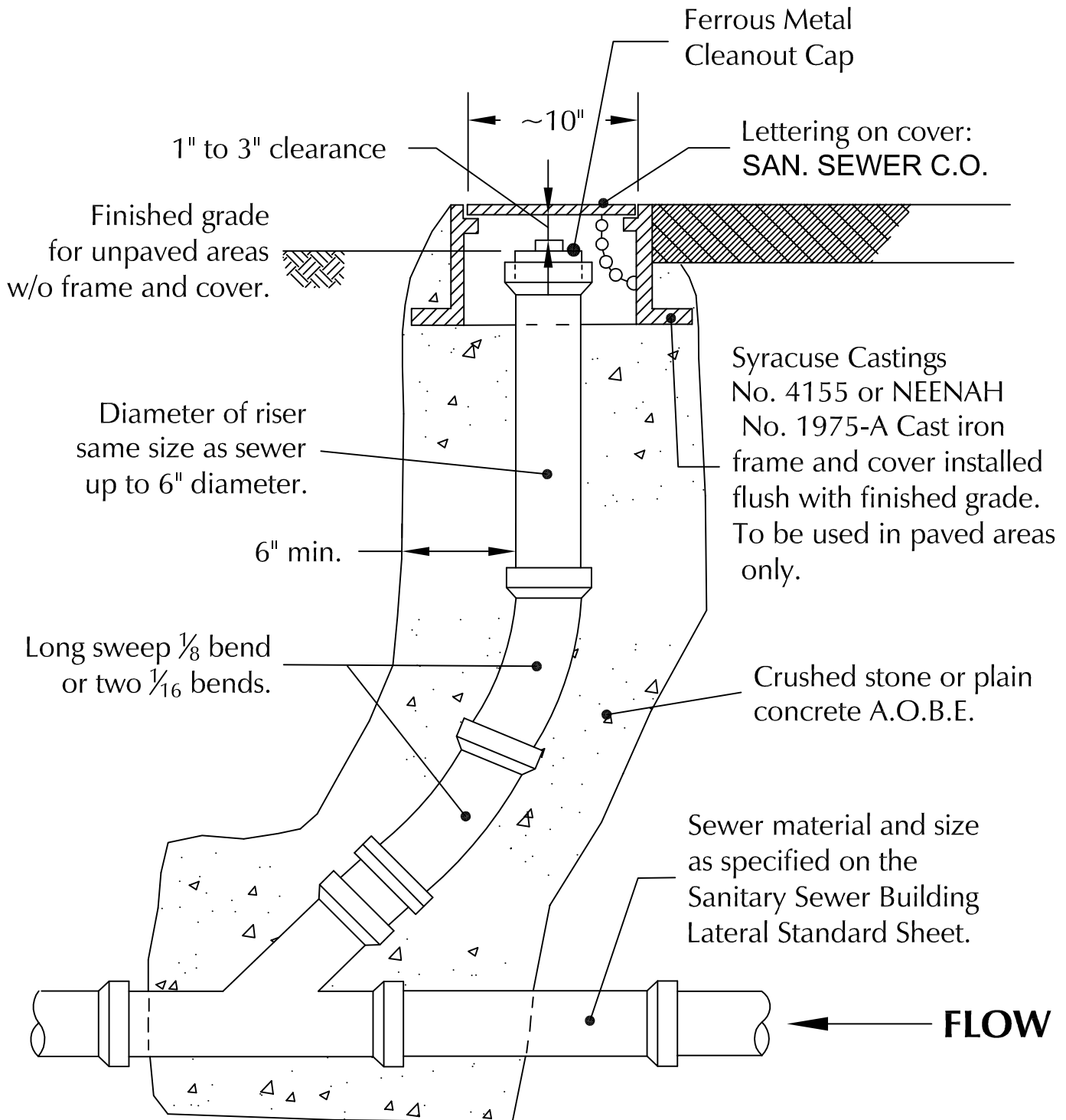
1) Where inlet and outlet pipes are different diameters, the slope must not be less than the difference in diameter or greater than 9 inches.

2) Refer to appropriate Manhole Standard Sheets for detailed specifications relating to the entire manhole structure.

STANDARD SHEET S 5.1

Sanitary Sewer Cleanout

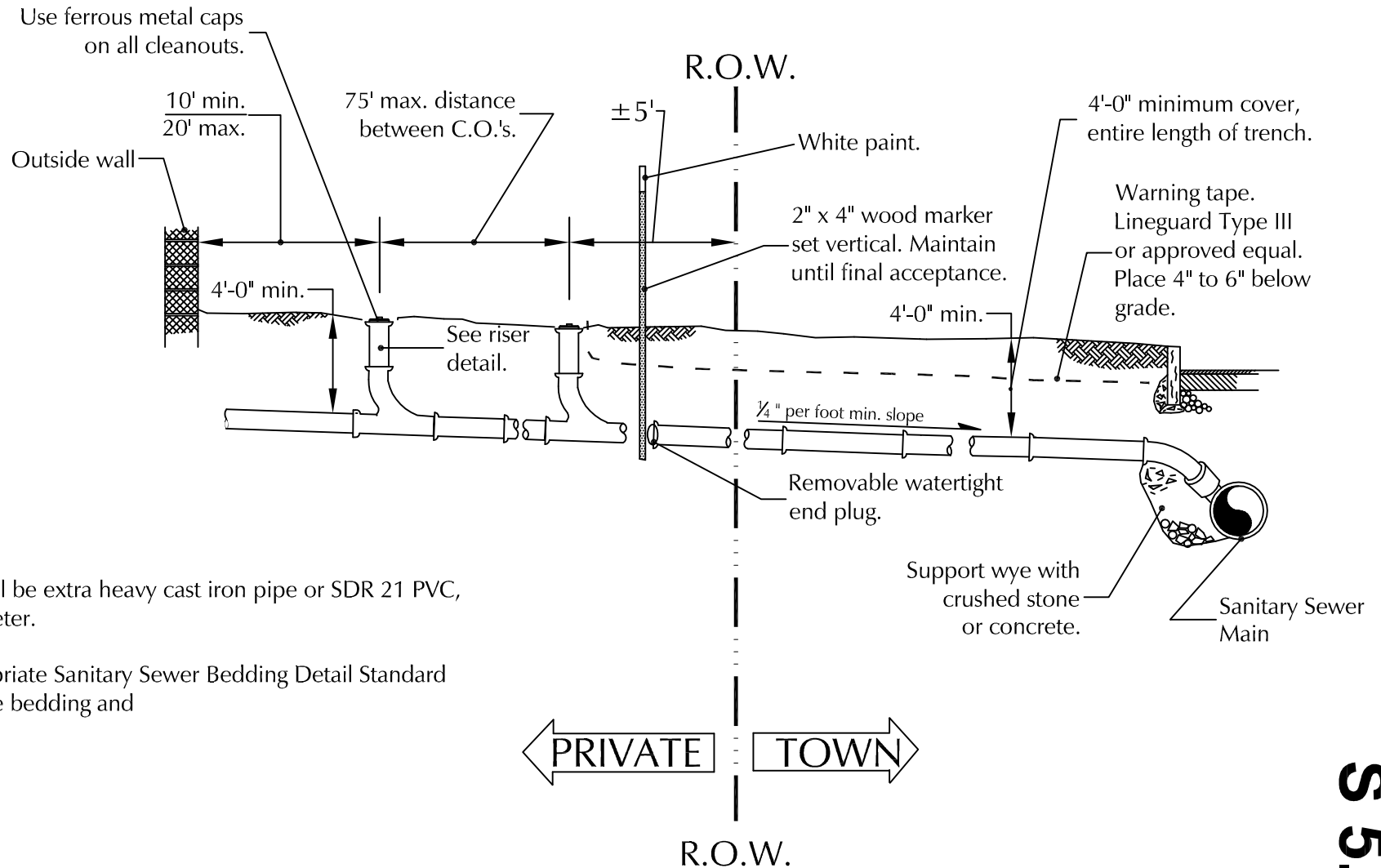
(N.T.S)



STANDARD SHEET

Sanitary Sewer Building Lateral

(N.T.S)



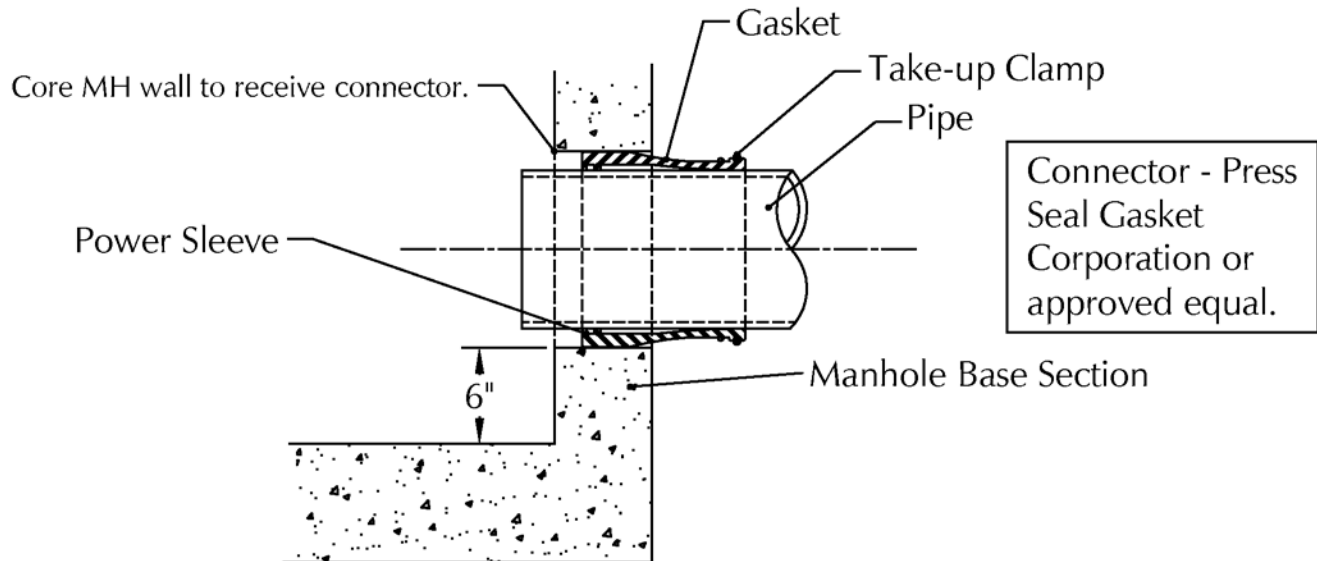
NOTES:

- 1) Lateral shall be extra heavy cast iron pipe or SDR 21 PVC, 4" min. diameter.
- 2) See appropriate Sanitary Sewer Bedding Detail Standard Sheet for pipe bedding and backfill.

STANDARD SHEET S 6

Pipe Connection to Existing Manhole

(N.T.S)



SPECIFICATIONS:

Gasket:

Minimum thickness of gasket material:

Psx 8" holes thru 16" hole sizes	.290" $\pm$.025
Psx-2 18" holes and larger hole sizes	.300" $\pm$.025
Minimum compound tensile strength of rubber	1800 psi
Elongation of rubber	450%-550%
Shore a durometer of rubber	42 + 5
Rubber compound shall meet or exceed ASTM C-923 requirements.	

Power sleeve:

Type 304 stainless steel.	
Tensile strength of steel	85,000 psi
Yield strength of steel	35,000psi
8" thru 26" hole sizes	1.5" wide 11 gauge
28" hole sizes and larger	1.5" wide 10 gauge
Power sleeve stainless steel shall meet or exceed all ASTM C-923 requirements.	

Take-up clamps:

All stainless steel clamp.
Band, saddle and housing made of type 302.
Screw made of type 305 stainless steel.
Stainless steel take-up clamps shall meet or exceed all ASTM C-923 requirements.

For pipes with O.D.'s less than 14.5" (PSX), a single clamp is standard; (PSX-2) double clamps is optional. For pipes with O.D.'s larger than 14.5" double clamps (PSX-2) is standard. For proper clamp sizing see PSX clamp accommodation chart.

INSTALLATION PROCEDURE:

- 1) After coring manhole to receive connection, clean and inspect the connector and the pipe end to be installed.
- 2) Insert pipe into connector until end of pipe breaks the plane of the inside manhole wall. Position pipe in the center of the connector.
- 3) Install take-up clamp(s) in groove(s) at pipe receiving end of gasket. Re-check the interior of connector and pipe barrel surfaces to insure they are clean.
- 4) Tighten take-up clamp(s) with ratchet or torque wrench to 60 in./lbs.
- 5) Adjust pipe to line and grade. Use proper bedding and backfill per Town Specifications.
- 6) Any pipe stubs installed in the manhole must be restrained from movement.