URBAN ENGINEERS, INC.

SUMMIT TOWNSHIP
STREET AND STORM SEWER
SPECIFICATIONS

Summit Township, Erie County, Pennsylvania

Prepared for:

Summit Township
1230 Townhall Road West, Suite 100
Erie, Pennsylvania 16509

October 2013

Urban Project No. 2012280030.003

SPECIFICATION

SUMMIT TOWNSHIP STREET SPECIFICATIONS

Street construction shall be governed by the following specifications and as delineated in the Summit Township Street Specifications Ordinance.

A. Clearing and Grubbing

Clearing and grubbing shall be performed for the full right-of-way width for streets in accordance with PennDOT Publication 408, latest edition, Section 201. Exceptions to this requirement must be applied for and approved by the Township.

B. Grading and Earthwork

1. All streets shall be graded to the full width of the street right-of-way and the adjacent side slopes graded to blend with the natural lay of the land, or in accordance with the approved cross section. Where fill material is necessary to establish uniform grades, compaction of fill materials shall be required in accordance with the standards established by the Township. A slope of three horizontal feet to one vertical foot (3h:1v) beyond the street right-of-way line in cut or fill shall ordinarily be required. Excavation shall be performed in accordance with PennDOT Publication 408, latest edition, Sections 203, 204 and 205. Embankments and fill areas shall be constructed in accordance with PennDOT Publication 408, latest edition, Section 206.

2. Street cross sections shall be in accordance with the standards established by Township. Where alternatives are available, the Board of Supervisors may designate the cross sections to be used on the advice of the Township Engineer. All details of the cross section, including crowns, curbs, pavement, subgrade, subdrains, and roadside drainage, swales and ditches, shall conform to the designated cross section.

3. Grade stakes shall be placed on each side of the street at maximum intervals of fifty (50) feet and so located as to remain in place until the completion and approval of the bituminous base course. Grade stakes removed prior to the completion of the bituminous base course shall be replaced before any further construction work is performed on the street.

C. The Subgrade

1. Description:

The bottom of the excavation and/or the top of embankment between the outer limits of the street's base course, or subbase, is considered subgrade and shall conform to specified line, grades, and cross sections. Mainly the area that is prepared to receive the placement of the base course, or subbase, is defined as subgrade.

2. Construction Methods:

In general, the subgrade shall be prepared in accordance with PennDOT Publication 408, latest edition, Section 210, and these specifications.

The subgrade shall be shaped to true lines and elevations and shall have a minimum width of the width of the pavement plus two feet. Adequate drainage facilities shall be installed to provide for the disposition of underground seepage and the percolation of surface water. The subgrade shall be thoroughly compacted at optimum moisture content by power rollers with a minimum weight of ten tons to insure satisfactory densification and stabilization. The finish surface shall be uniformly shaped to facilitate drainage, and any irregularities from theoretical grade shall be corrected prior to placing the subbase.

If the material encountered in the normal excavation has a California Bearing Ratio (C.B.R.) value of less than 2.5 and is not of proper quality to develop the required stability and provide for adequate drainage, other material shall be installed to a minimum depth of 12 inches. Material used shall be preferably of granular character, and brought to a firm and thoroughly compacted and uniformly shaped surface.

Prior to placing the subbase, the Township Engineer shall visually inspect the subgrade area. The entire subgrade shall be proof rolled with a 10 ton roller or a fully loaded triaxle truck (loaded with gravel or approved equal) in the presence of the Township Engineer. Areas that are soft, wet or pumping shall be excavated, backfilled with dry material and compacted. The area shall then be proof rolled again, in the presence of the Township Engineer. If unstable areas are found and identified, the material in them shall be removed and replaced with suitable material and thoroughly compacted as described previously. Other unsuitable areas shall be excavated and undercut to the required depth for accommodating the placing of sufficient granular or other suitable subgrade material. In areas of unstable subgrade if designated by the Township Engineer, blind drains and/or a Class 4 geotextile, as specified in PennDOT Form 408, Section 735, latest edition, shall be properly placed on the prepared subgrade.

From visual inspection, the Township Engineer will designate where subdrains and blind drains shall be installed. See Section D.

The prepared subgrade shall be protected by the contractor to prevent undue rutting from trucks or other equipment and if such damage does occur, the subgrade shall be reshaped and compacted prior to placing the subbase material.

The Township Engineer shall provide written approval of the subgrade prior to placement of the subbase.

3. The Sidewalk Area:

The sidewalk area shall be graded out to proper grade and section. The subgrade shall be mechanically compacted. Sidewalks shall be constructed in accordance with the Summit Township Sidewalk Ordinance.

4. For streets in Business and Industrial (Zoning) Districts, a Pavement Design shall be

submitted by the developer, reviewed by the Township Engineer, and approved by the Board of Supervisors.

5. For temporary turnarounds in residential subdivisions, the turnaround shall be paved in accordance with the requirements of local and residential streets.

D. Blind Drains and Subdrains Under Pavement

1. Blind Drains:

a. Blind drains shall be laid along the entire length of all streets at a location to be approved in each case by the Township Engineer. Blind drains, spaced at intervals as required by the Township Engineer, shall be installed to drain into the main subdrain. The required interval for blind drains shall be related to ground water conditions and soil type, but in no case shall this interval be greater than 100 feet. If conditions require, six-inch HDPE perforated pipe, wrapped in a geotextile, shall be installed in the blind drains. Blind drains shall extend a minimum of 14.5 ft. from the center of the pavement or to the curb lines.

Blind drains shall be used exclusively for street pavement areas only. Tie-ins to any blind drains from development areas shall be strictly prohibited.

b. In a relatively small part of the Township where the natural soils consist of a well-drained gravel, a waiver from the standard blind drain requirements will be considered by the Township upon written request. Each request will be considered independently and reviewed by the Township Engineer.

2. Subdrains:

a. After the subgrade has been shaped and proof rolled, and blind drain spacing has been established by the Township Engineer, the subdrain shall be installed.

b. The trench for the subdrain shall be a minimum of 15 inches wide and shall be excavated to a minimum depth of 30 inches below the bottom of the proposed subbase. Subdrains shall be kept as deep as possible at all locations.

c. A three (3) inch layer of AASHTO #57 stone shall be placed in the bottom of the trench as bedding for the subdrain pipe. Six (6)-inch perforated HDPE pipe shall be placed in the center of the trench. In silty areas and as required by the Township Engineer, subdrains shall be wrapped in a geotextile fabric.

d. The entire trench to the subgrade shall be filled with AASHTO #57 stone.

e. Care must be taken to assure that the stone in the subdrain remains clean and in good contact with the stone or gravel in the subbase.

f. Subdrains shall generally empty into storm sewer inlets or manholes and shall enter at or above the spring line of the main storm sewer line at that location. The specified depth of subdrain may have to be modified at and near such inlets and manholes, but shall be brought to specified depths as quickly as practicable.

g. Where perforated storm sewer is installed along the side of the street, a subdrain is not required to be installed in that location provided the blind drains for the street are properly tied into the storm sewer.

E. The Pavement

1. The Subbase:

a. All utilities, including water, gas, sanitary sewers, storm sewers, buried conduits of any kind or any other structures or lines, shall be constructed and in place prior to the placement of the subbase. Utility trnches shall be filled to the subgrade with AASHTO #57 stone or other material as approved by the Township.

b. The subbase shall be PennDOT No. 2A aggregate and shall have a minimum thickness at any point of six (6) inches when compacted. A minimum six (6) inch depth at roadway centerline will require a greater thickness across the roadway section away from the centerline, as the crown on the roadway and crown on the subgrade are different, and the formation for a rolled gutter is made up in the subbase.

c. Subbase construction shall be performed in accordance with PennDOT Pub. 408, latest edition, Section 350 and these specifications. The subbase shall be thoroughly compacted and shaped to the proper grade and cross section. The Township Engineer shall visually inspect the subbase constructed and provide written approval prior to the placement of the bituminous base course.

d. In certain areas of the Township, the natural materials in place are of such a nature as to allow for a reduction in the depth of the subbase required. Upon written request, the Township Engineer shall make an inspection of the natural material and may give written authorization of such reduction in subbase depth if it is determined that such reduction is justified.

2. The Bituminous Base Course:

a. All excavation in the area of the pavement and for a distance of four feet out from the edge of the pavement, including that necessary for the installation of utilities, shall have been completed a minimum of 90 days prior to the placing of the bituminous base course.

b. The bituminous base course shall consist of materials, and be constructed, in accordance with PennDOT Pub. 408, latest edition, Section 309 "Superpave Asphalt Mixture Design, Standard Construction, HMA Base Course".

The base course shall be virgin mix asphalt only.

c. The bituminous base course shall consist of, and be placed to a minimum thickness when compacted, as follows:

(1) For local and residential streets – Superpave Asphalt Mixture Design, HMA Base Course, PG 64-22, 0.3 < 3 million ESALS, 25mm mix, 3" Depth.

(2) For industrial, commercial and arterial streets – Superpave Asphalt Mixture Design, HMA Base Course, PG 64-22, 0.3 < 3million ESALS, 25mm mix, 5" Depth.

If a pavement design has been provided and approved by the Township, minimum depths of bituminous base course shall be as per the approved pavement design.

d. The Township Engineer shall visually inspect and check the depth and temperature of the bituminous base course at the time of placement. The Township Engineer shall provide written approval of the bituminous base course prior to the placement of the bituminous binder course.

3. Bituminous Binder Course:

a. A bituminous tack coat as specified in PennDOT Pub. 408, latest edition, Section 460, shall be required in all cases where the bituminous base course has been in place for a period in excess of 96 hours prior to the placing of the bituminous binder course or in any case where the use of such tack coat is determined to be necessary by the Township Engineer.

b. The bituminous binder course shall consist of materials, and be constructed, in accordance with PennDOT Pub. 408, latest edition, Section 409, "Superpave Mixture Design, Standard and RPS Construction of Plant – Mixed HMA Courses".

The bituminous binder course shall be standard virgin mix asphalt only.

c. The bituminous binder course shall consist of, and be placed to a minimum thickness when compacted, as follows:

(1) For local and residential streets – Superpave Asphalt Mixture Design, HMA Binder Course, PG 64-22, 0.3 < 3million ESALS, 19mm mix, 2" Depth.

(2) For industrial, commercial and arterial streets – Superpave Asphalt Mixture Design, HMA Binder Course, PG 64-22, 0.3 < 3 million ESALS, 19mm mix, 2 ½" Depth.

d. Special note is made of PennDOT Pub. 408, Section 409.3(g), "Preparation of Existing Surface." The bituminous base course shall be thoroughly cleaned and all defects remedied prior to the placement of the bituminous binder course.

e. The bituminous binder course shall be placed within one week of the placement of bituminous base course, weather permitting.

f. The Township Engineer shall visually inspect and check the depth and temperature of the bituminous binder course at the time of placement. The township Engineer shall provide written approval of the bituminous binder course prior to the placement of the bituminous wearing course.

4. The Bituminous Wearing Course:

a. The bituminous wearing course shall consist of materials, and be constructed in accordance with the following:

(1) For industrial, business and arterial streets:
follow PennDOT Pub. 408, latest edition, Section 409, "Superpave Mixture Design, Standard and RPS Construction of Plant - Mixed HMA Courses."

Wearing course shall be Superpave Asphalt Mixture Design, HMA Wearing Course, PG 64-22, 0.3 < 3 million ESALS, 9.5mm mix, 1 ½" Depth SRL-H.

(2) For local and residential streets:
follow PennDOT Pub. 408, latest edition, Section 410, "Superpave Mixture Design, Standard and RPS Construction of Plant - Mixed HMA Fine-Graded Courses".

The fine-graded wearing course shall be Superpave Asphalt Mixture Design, HMA Wearing Course, PG 64-22, 0.3 < 3 million ESALS, 9.5mm mix, 1 ½" Depth, SRL-H.

(3) The bituminous wearing course shall be placed to a minimum thickness when compacted of one and one (1 ½) half inches. The bituminous wearing course shall be virgin mix asphalt only.

b. The Township Engineer shall visually inspect and check the depth and temperature of the bituminous wearing course at the time of placement. The

Township Engineer shall provide written approval of the bituminous wearing course.

F. Pavement of Higher Grade

1. Should it be desired by the developer or required by Summit Township to install a pavement of a higher grade than covered by these specifications, such higher grade of work will be considered upon receipt of plans and specifications to cover such work. The plans and specifications shall be approved by the Township prior to the installation of such work.

G. Curbing

1. Concrete curbs or concrete curb/gutter shall be used for all development in all areas of the Township and shall be constructed in accordance with PennDOT Pub. 408, latest edition, Section 630. Curb dimensions shall be in accordance with the standards as established by Summit Township.

2. Grade stakes shall be placed on each side of the curb line at maximum intervals of 25 feet and shall be located so as to remain in place until the completion and approval of the curbs.

3. The space behind the curb shall be filled and graded to drain to the street at a maximum slope of three-fourths inch per foot.

4. Concrete rolled or vertical curbs shall be provided in the Residential Zoning Districts as designated in the Summit Township Zoning Ordinance, or when considered necessary by the Planning Commission and approved by the Board of Supervisors for the protection of the public, or wherever it is determined that the potential volume of pedestrian traffic or safety consideration requires.

   Concrete integral curb/gutter or rolled curb shall be provided in all other Zoning Districts.

SPECIFICATIONS

SUMMIT TOWNSHIP STORM SEWER SPECFICATIONS

For sewers 12 inches to 30 inches in diameter

In accordance with the Summit Township Subdivision Ordinance, plans for all storm sewers shall be submitted for approval before any construction work is begun. At the conclusion of the work, an "as built plan" shall be submitted to the Township for file.

Pipe

A. Size: The minimum size of any storm sewer shall be twelve (12) inches in diameter. The pipe shall be sized in accordance with standard engineering practice. In all cases, the area in acres to be drained by the pipe shall be shown on the plan.

B. Type: All pipe to be used for storm sewers shall be either double wall smooth interior HDPE pipe or reinforced concrete pipe. For storm sewers to be installed along a street to be dedicated to the Township, the pipe shall be perforated.

C. Installation:

1. The pipe shall be installed in straight lines and constant grades between manholes and inlets.

2. Pipe shall be installed on a firm base consisting of AASHTO No. 57 coarse aggregate with a minimum depth of three (3) inches thoroughly tamped. Additional material may need to be removed and replaced with select fill to give a firm base.

3. The pipe shall be installed at such a minimum depth as will provide a minimum cover of twelve (12) inches below the pavement subgrade for paved areas and twelve (12) inches below finished grade in grass areas.

D. Backfill:

1. The backfill around the pipe and for a depth of at least one (1) foot above the pipe shall be AASHTO No. 57 coarse aggregate or other approved material.

2. For pipe installed under pavement areas, backfill the remaining depth with B-19 limestone and/or crushed concrete meeting the gradation requirements of PennDOT 2A in six (6) inch maximum loose lifts, and brought to a firm and thoroughly compacted and uniformly shaped surface.

3. In other locations, backfill remaining depth with suitable material approved by the Township compacted as required.

Manholes

A. Location: Manholes shall be located in the line as required for proper use and maintenance of the line. Manholes shall be located at the end of a line, at all breaks in grade or alignment in a line, and at a maximum interval of 350 feet where inlets are not provided. Manholes shall not be used as inlets.

B. Construction:

1. Manhole sections shall be reinforced precast concrete in accordance with ASTM C478, with resilient connectors complying with ASTM C923.

2. Manhole steps shall be formed galvanized steel rungs; ¾" inch diameter. Formed integral with manhole sections.

3. Manholes shall be constructed with an eccentric cone 42 to 48 inches high with a bottom inside diameter of 48 inches and a top inside diameter of 24 inches with steps as indicated on the detail when required.

4. A formed flow channel shall be constructed on the bottom of the manhole to preclude standing water within the manhole.

C. Frame and Cover:

1. Cast iron frame and cover shall be similar and equal to those manufactured by East Jordon Ironworks.

2. The frame shall be pattern 1975Z.

3. The cover shall be solid type, pattern 1975B.

D. Drop in Manhole: The maximum difference in elevation between the inlet and outlet of the manhole shall be two (2) feet unless a standard drop manhole is provided.

Inlets

E. Location:

1. Inlets shall be located at street intersections at the center of the radius of the curb line and not interfere with pedestrian accessible route. See Inlet Location Detail for a typical corner installation.

2. Inlets located between intersections shall be located as follows:

    a. At the face of curb for vertical curb roadway sections using a "Type M" inlet top, or within the curb using a "Type C" inlet top.

    b. At the center of the gutter line for rolled curb roadway sections.

    c. Within the integral curb gutter using a "Type C" inlet top.

3. Inlets shall be spaced in accordance with standard engineering practice to minimize the water spread within the roadway. The maximum spacing of inlets shall not exceed 300 feet.

F. Construction:

1. Inlets shall be constructed from precast concrete in accordance with the standard detail and the latest edition of the Pennsylvania Department of Transportation Publication 72M, "Roadway Construction Standards".

2. Grade ring shall be either precast or cast-in-place concrete. Bricks and masonry shall not be permitted for use as grade rings. When the wearing course of a street is not immediately applied, the elevation of the inlets shall be set such that the inlet will collect runoff until such time as the wearing course is applied. At such time as the wearing course is applied, risers shall be installed to adjust the inlet to the final elevation.

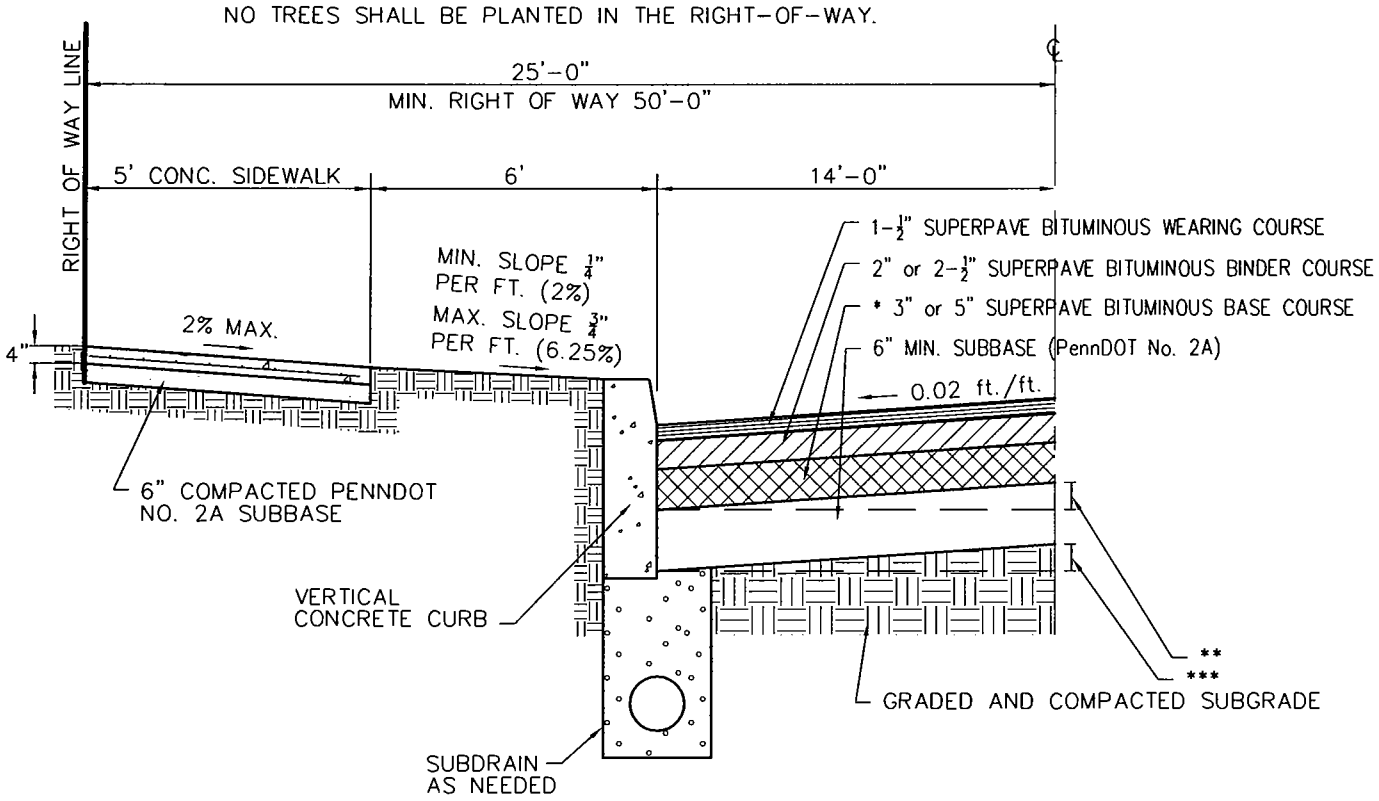
3. Pipe penetrations shall be located on the face of the inlet and be mortared both inside and outside of the inlet. No pipes shall penetrate the corners of a inlet.

4. The downstream invert of the inlet shall be one (1) inch lower than the upstream inverts.

G. Frame and Cover:

1. Steel "Type M" frame or Concrete "Type C" inlet top and structural steel bicycle safe grate in accordance with Pennsylvania Department of Transportation Publication 72M, "Roadway Construction Standards".

Specifications for storm sewers over thirty (30) inches in diameter shall be treated on a case by case basis.



* 3" BITUMINOUS BASE COURSE REQUIRED IN AREAS OF RESIDENTIAL OR AGRICULTURAL USES.

5" BITUMINOUS BASE COURSE REQUIRED IN AREAS OF COMMERCIAL OR INDUSTRIAL USES.

** 3" CROWN ON SUBBASE

*** 6" CROWN ON SUBGRADE

TYPICAL PAVEMENT CROSS-SECTION WITH VERTICAL CURB FOR USE IN RESIDENTIAL DISTRICTS (50 FT. RIGHT-OF-WAY)

N.T.S.

SUMMIT TOWNSHIP STANDARDS

URBAN ENGINEERS, INC.

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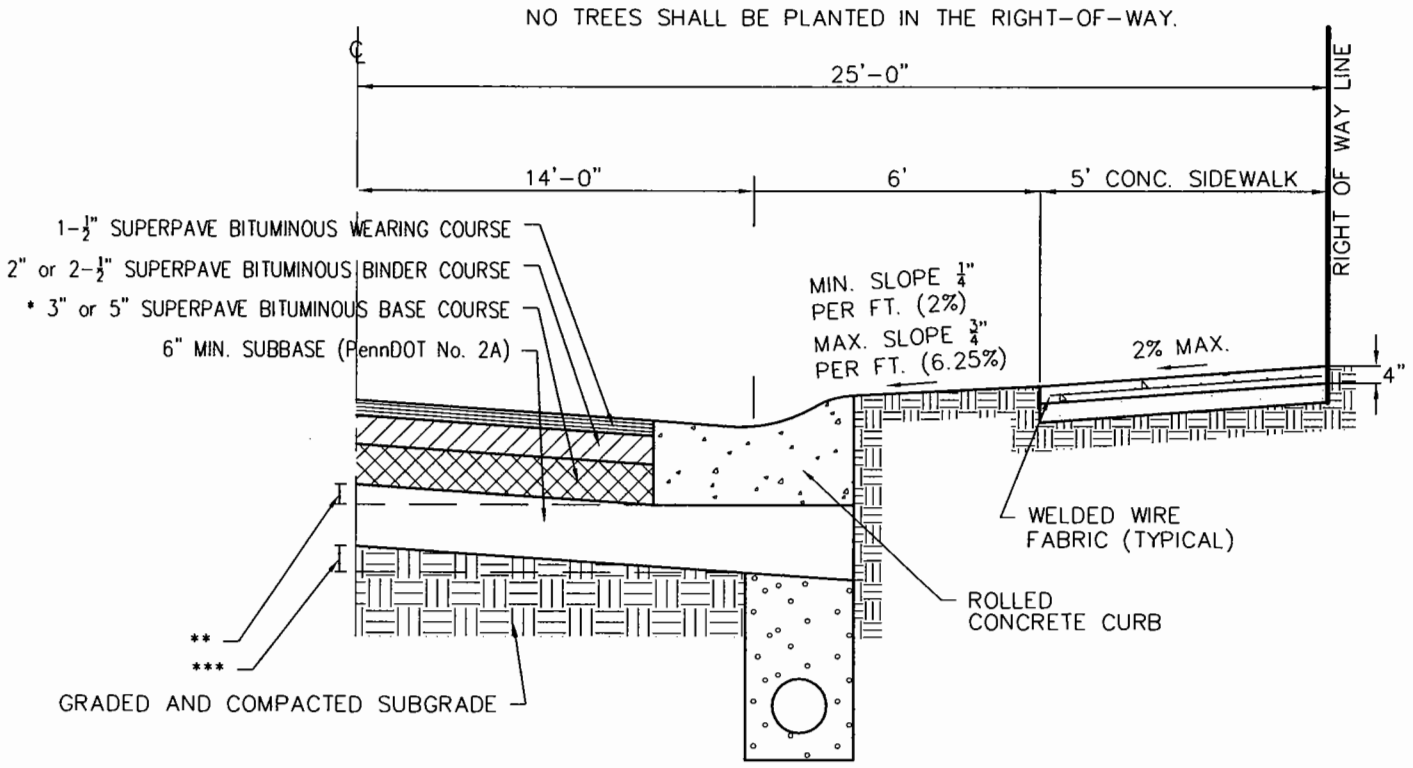


* 3" BITUMINOUS BASE COURSE REQUIRED IN AREAS OF RESIDENTIAL OR AGRICULTURAL USES.

5" BITUMINOUS BASE COURSE REQUIRED IN AREAS OF COMMERCIAL OR INDUSTRIAL USES.

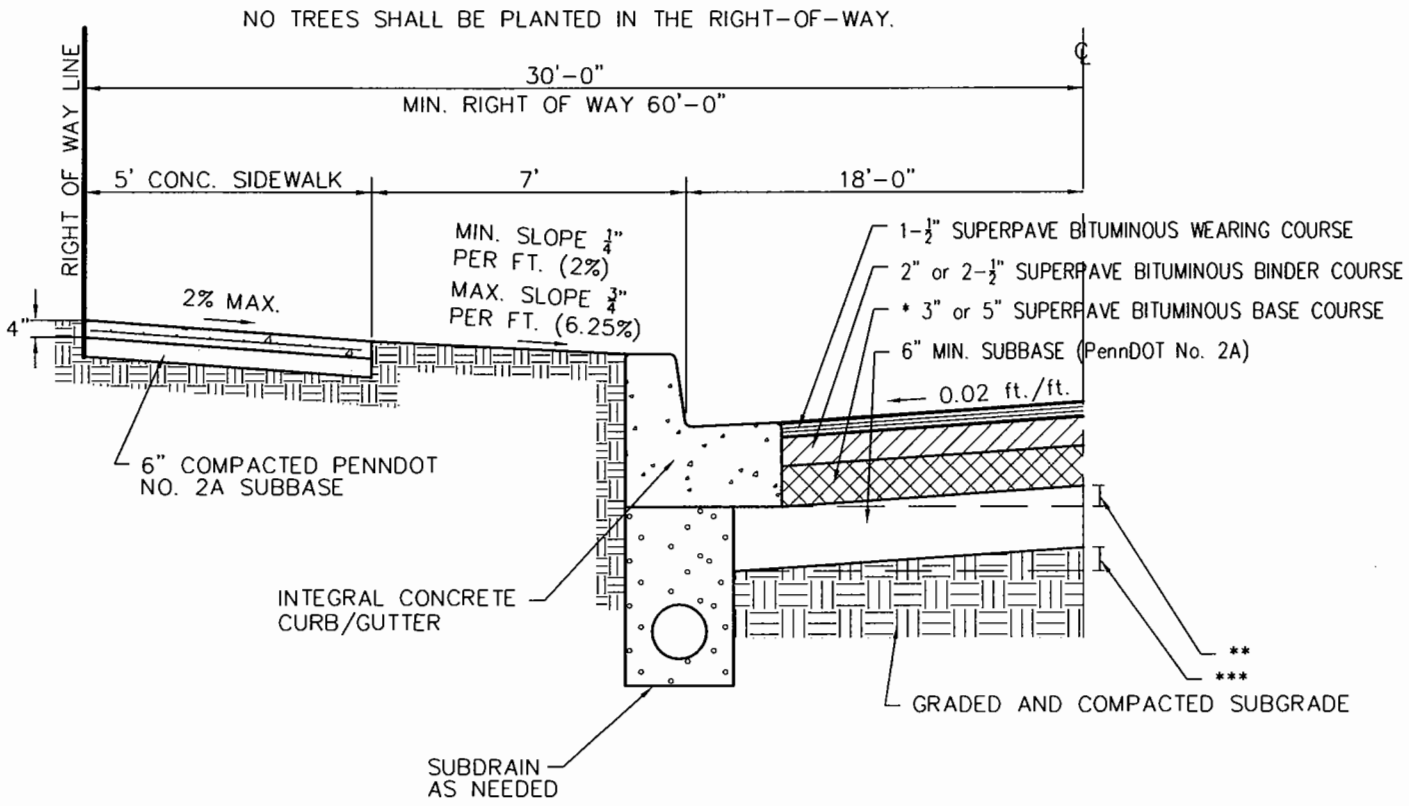
** 3" CROWN ON SUBBASE

*** 6" CROWN ON SUBGRADE

TYPICAL PAVEMENT CROSS-SECTION WITH ROLLED CURB FOR USE IN RESIDENTIAL DISTRICTS (50 FT. RIGHT-OF-WAY)

N.T.S.

SUMMIT TOWNSHIP STANDARDS
URBAN ENGINEERS, INC.



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5" BITUMINOUS BASE COURSE REQUIRED IN AREAS OF COMMERCIAL OR INDUSTRIAL USES.

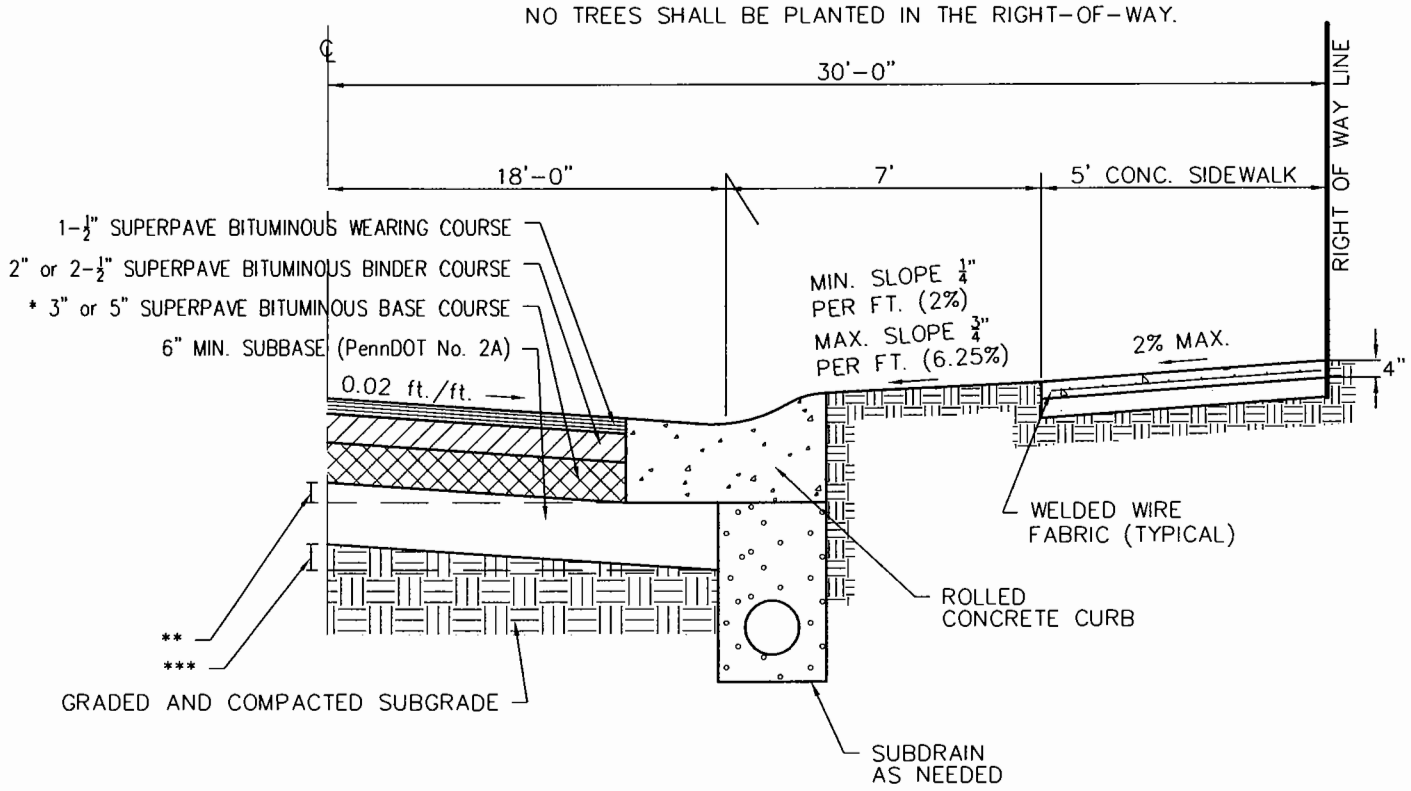
** 3" CROWN ON SUBBASE

*** 6" CROWN ON SUBGRADE

TYPICAL PAVEMENT CROSS-SECTION WITH INTEGRAL CURB/GUTTER FOR USE IN COMMERCIAL/INDUSTRIAL DISTRICTS (60 FT. RIGHT-OF-WAY)

N.T.S.

SUMMIT TOWNSHIP STANDARDS
URBAN ENGINEERS, INC.



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5" BITUMINOUS BASE COURSE REQUIRED IN AREAS OF COMMERCIAL OR INDUSTRIAL USES.

** 3" CROWN ON SUBBASE

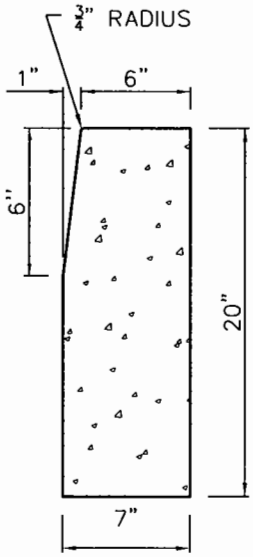
*** 6" CROWN ON SUBGRADE

TYPICAL PAVEMENT CROSS-SECTION WITH ROLLED CURB FOR USE IN COMMERCIAL/INDUSTRIAL DISTRICTS (60 FT. RIGHT-OF-WAY)

N.T.S.

SUMMIT TOWNSHIP STANDARDS

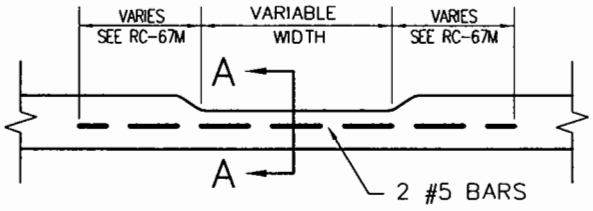
URBAN ENGINEERS, INC.



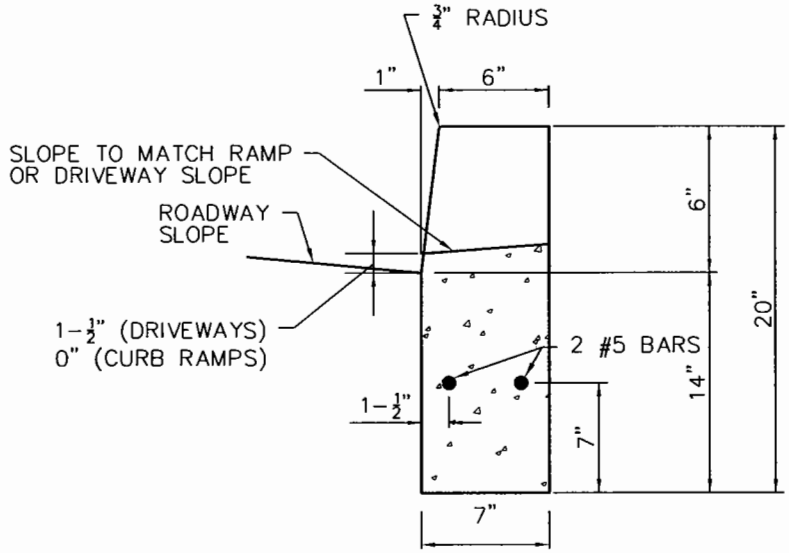
CURB SECTIONS WILL BE 10' LONG. EXPANSION JOINS OF ¼" PREMOLDED NON-EXTRUDING FILLER TO BE PLACED AT EACH END OF A CURVED SECTION AND AT INTERVALS OF NOT MORE THAN 120'. INTERMEDIATE JOINTS WILL BE 2" THICKNESS OF 1-PLY BITUMINOUS PAPER.

VERTICAL CONCRETE CURB FOR USE IN RESIDENTIAL DISTRICTS

N.T.S.



ELEVATION VIEW



SECTION A-A

DEPRESSED CURB

N.T.S.

SUMMIT TOWNSHIP STANDARDS

URBAN ENGINEERS, INC.

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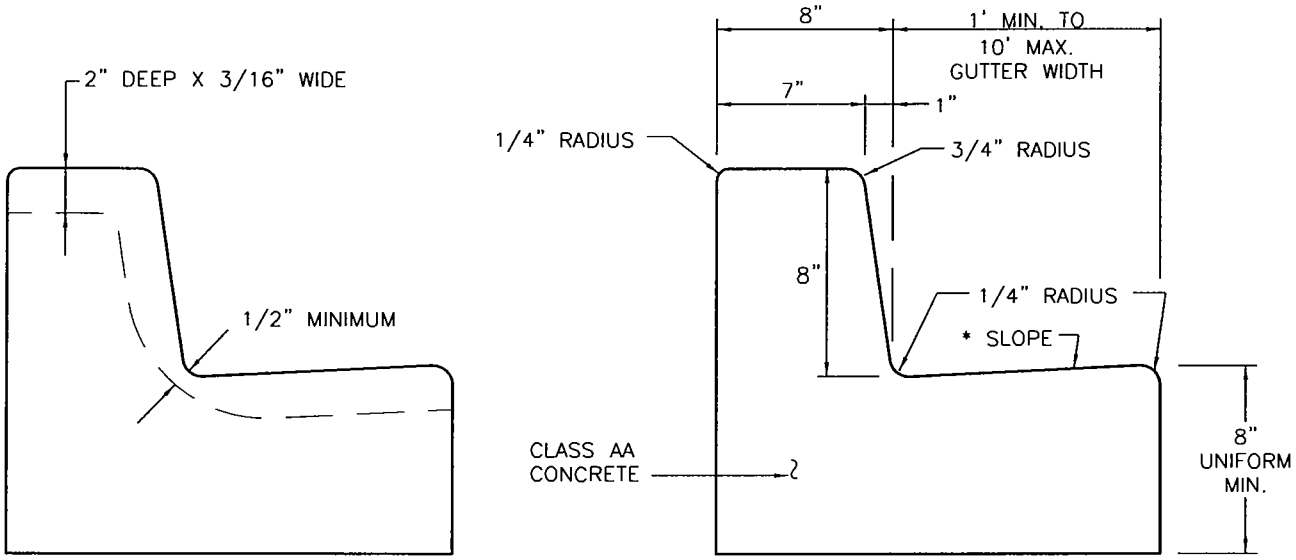
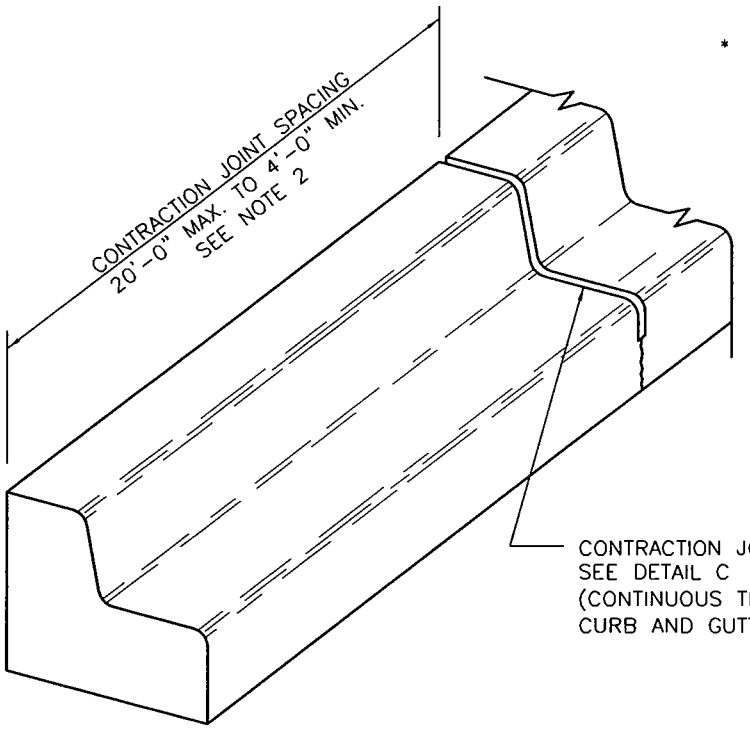


TYPICAL
CROSS SECTION

* UNDER 5' GUTTER WIDTH = 1" PER FT. MIN.



NOTES:

1. PROVIDE MATERIALS AND CONSTRUCTION MEETING THE REQUIREMENTS OF PUBLICATION 408, LATEST EDITION, SECTION 630 FOR PLAIN CONCRETE CURB AND DEPRESSED CURB, SECTION 640 FOR PLAIN CONCRETE CURB AND FOR PLAIN CONCRETE CURB GUTTER.
2. SPACE CONTRACTION JOINTS IN UNIFORM LENGTHS OR SECTIONS.
3. PLACE $\frac{3}{4}$" PREMOLDED EXPANSION JOINT FILLER MATERIAL AT STRUCTURES AND AT THE END OF THE WORK DAY. CUT MATERIAL TO CONFORM TO AREA ADJACENT TO CURB OR TO CONFORM TO CROSS SECTIONAL AREA OF CURB.

INTEGRAL CONCRETE CURB/GUTTER FOR USE IN RESIDENTIAL DISTRICTS

N.T.S.

SUMMIT TOWNSHIP STANDARDS

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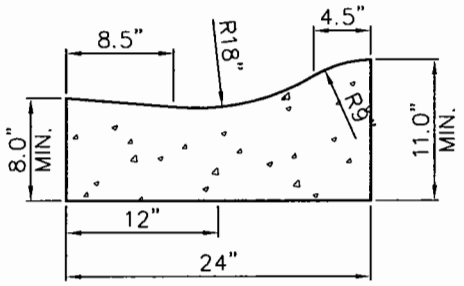

NOTES:

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2. SPACE CONTRACTION JOINTS IN UNIFORM LENGTHS OR SECTIONS.

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4. MECHANICAL SLIP FORM CURB MACHINE MAY BE USED TO CONSTRUCT CURB.

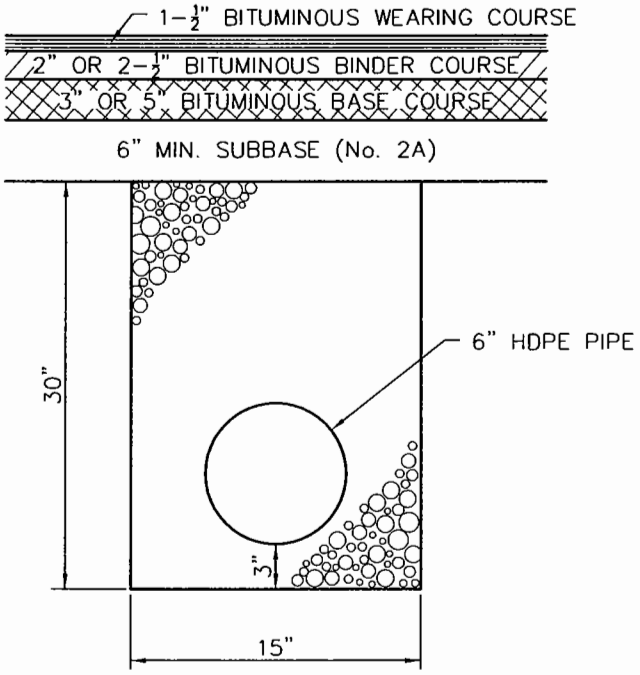
5. ROLLED CONCRETE CURB DETAIL ADAPTED FROM MILLCREEK TOWNSHIP CONSTRUCTION STANDARDS – STANDARD DESIGN MOUNTABLE CURB AS DESIGNED BY HILL ENGINEERING, INC.

ROLLED CONCRETE CURB FOR USE IN RESIDENTIAL AND COMMERCIAL/ INDUSTRIAL DISTRICTS

N.T.S.

SUMMIT TOWNSHIP STANDARDS

URBAN ENGINEERS, INC.



TYPICAL SUBDRAIN

N.T.S.

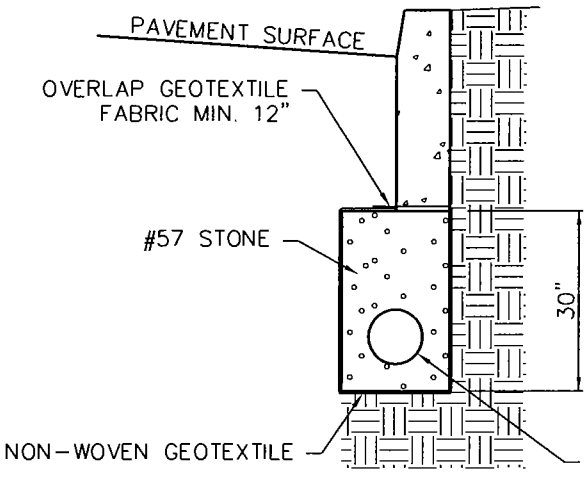
SUMMIT TOWNSHIP STANDARDS

URBAN ENGINEERS, INC.

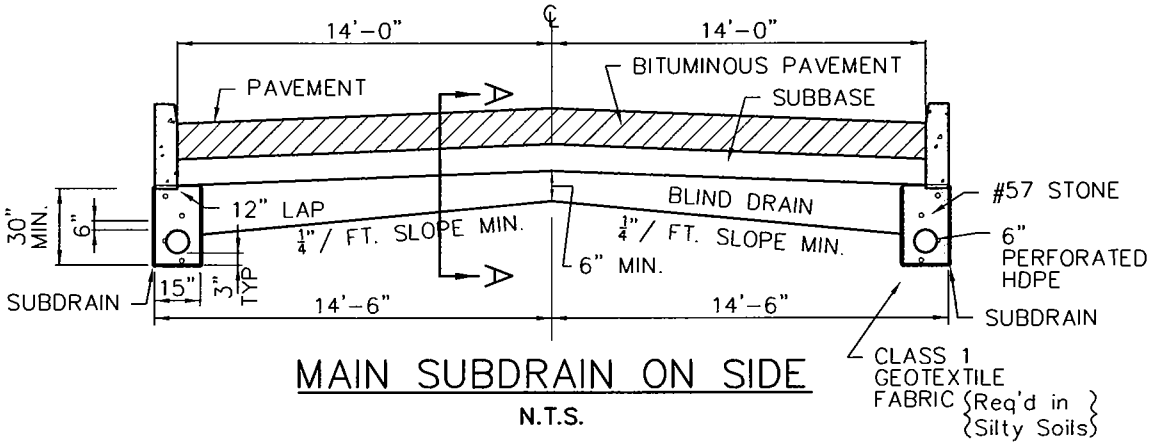
2012280030.003

NOTES:
1. 30" DEPTH HELD AS MINIMUM WHENEVER POSSIBLE. WHERE LOWER MINIMUM IS REQUIRED, INCREASE DEPTH BY USING A SLOPE LOWER THAN THE PAVEMENT DESIGN OR AS DIRECTED BY THE ENGINEER.

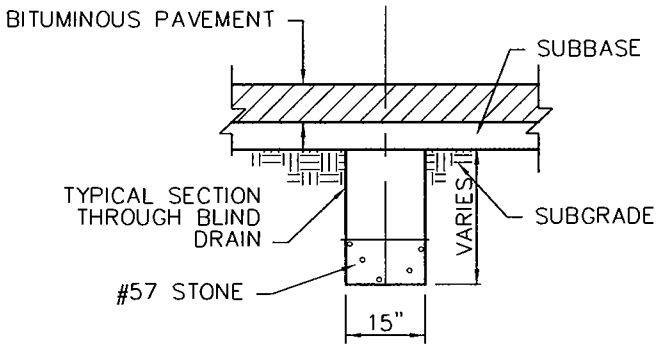
2. WHERE PERFORATED STORM SEWER IS INSTALLED ALONG THE SIDE OF THE STREET, A SUBDRAIN IS NOT REQUIRED TO BE INSTALLED IN THAT LOCATION PROVIDED THE BLIND DRAINS FOR THE STREET ARE PROPERLY TIED INTO THE STORM SEWER.



SUBDRAIN STANDARD
N.T.S.



MAIN SUBDRAIN ON SIDE
N.T.S.



SECTION A-A

BLIND DRAIN
N.T.S.

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URBAN ENGINEERS, INC.

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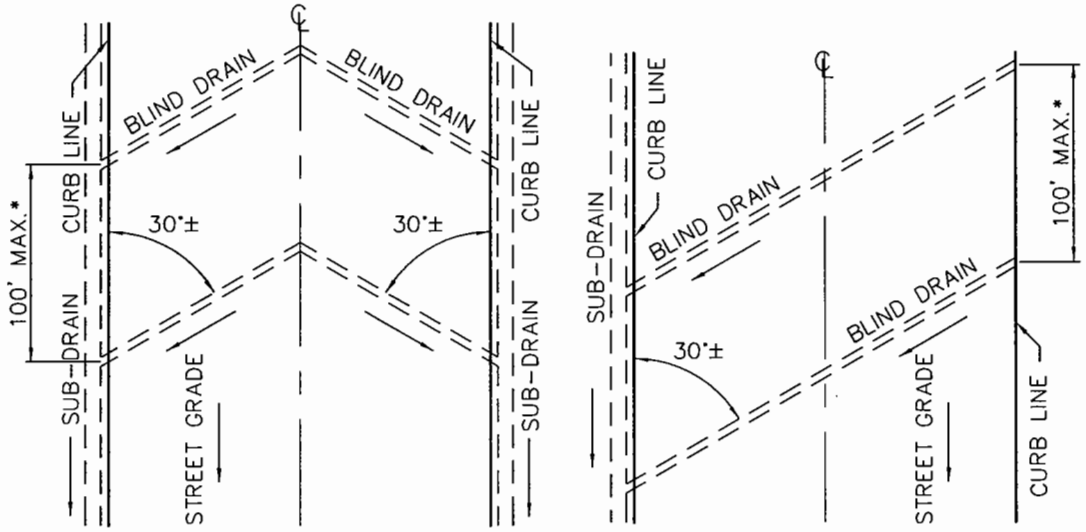

BOTH SIDES LOCATION

SIDE LOCATION

* THE REQUIRED INTERVAL FOR BLIND DRAINS SHALL BE RELATED TO GROUND WATER CONDITIONS AND SOIL TYPE, BUT IN NO CASE SHALL THIS INTERVAL BE GREATER THAN 100 FEET.

TYPICAL LOCATIONS FOR SUB-DRAINS AND BLIND DRAINS

N.T.S.

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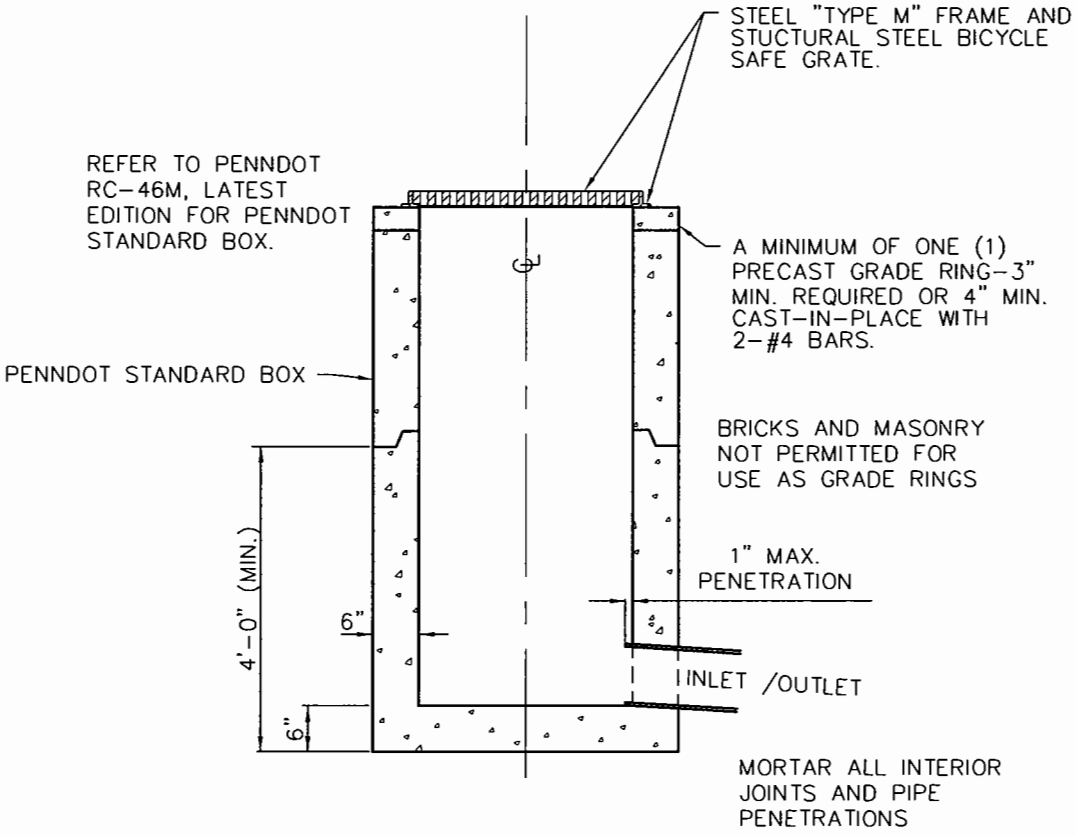

STANDARD INLET

N.T.S.

CONCRETE – 4000 PSI
REINFORCEMENT – ASTM A615 GRADE 60
ENTRAINED AIR – 5.0% – 8.0%

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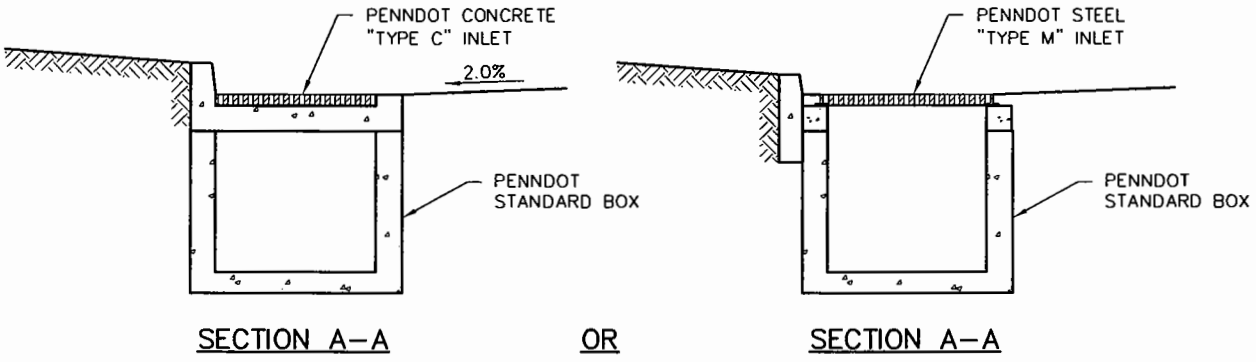
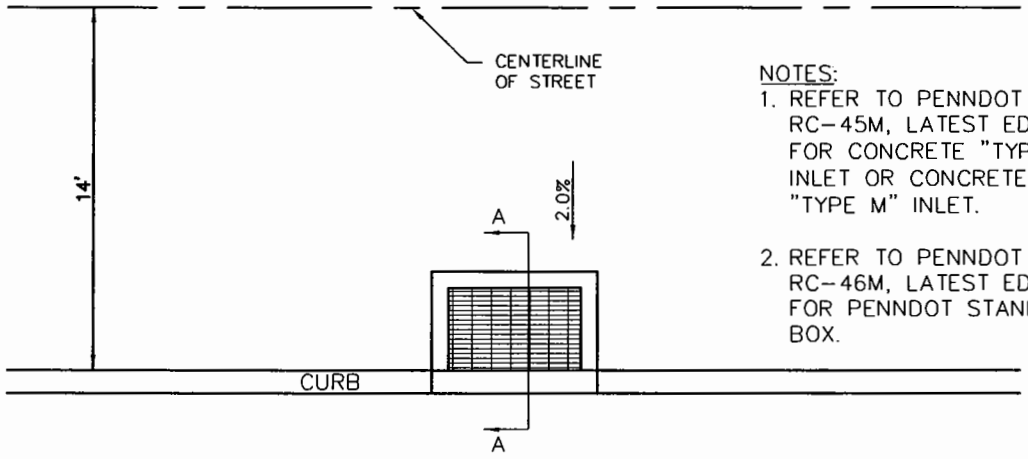


SECTION A–A OR SECTION A–A



NOTES:
1. REFER TO PENNDOT RC–45M, LATEST EDITION FOR CONCRETE "TYPE C" INLET OR CONCRETE "TYPE M" INLET.
2. REFER TO PENNDOT RC–46M, LATEST EDITION FOR PENNDOT STANDARD BOX.

VERTICAL CURB SIDE INLET DETAIL

N.T.S.

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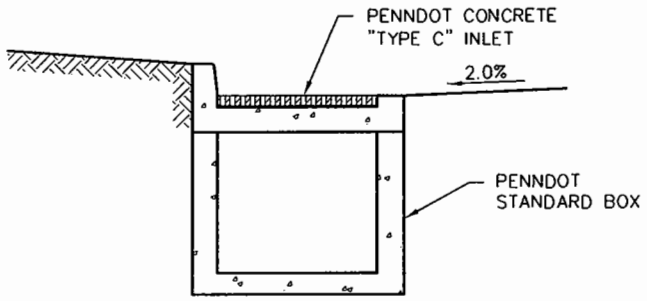
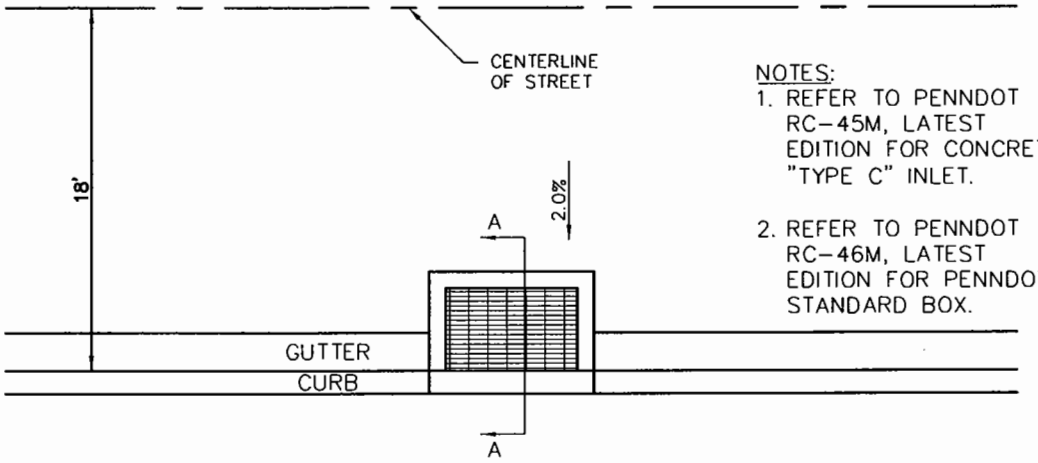


SECTION A–A



NOTES:
1. REFER TO PENNDOT RC–45M, LATEST EDITION FOR CONCRETE "TYPE C" INLET.
2. REFER TO PENNDOT RC–46M, LATEST EDITION FOR PENNDOT STANDARD BOX.

INTEGRAL CURB AND GUTTER SIDE INLET DETAIL

N.T.S.

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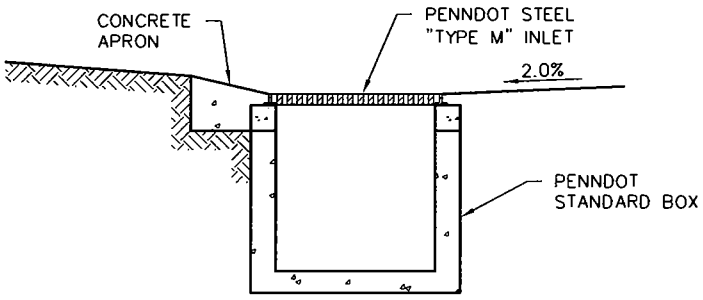
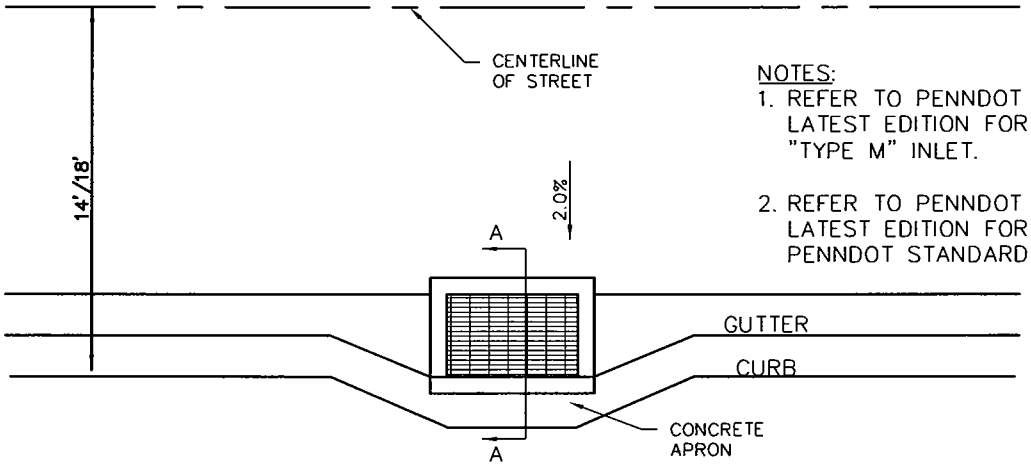


SECTION A–A



NOTES:
1. REFER TO PENNDOT RC–45M, LATEST EDITION FOR STEEL "TYPE M" INLET.
2. REFER TO PENNDOT RC–46M, LATEST EDITION FOR PENNDOT STANDARD BOX.

ROLLED CURB SIDE INLET DETAIL

N.T.S.

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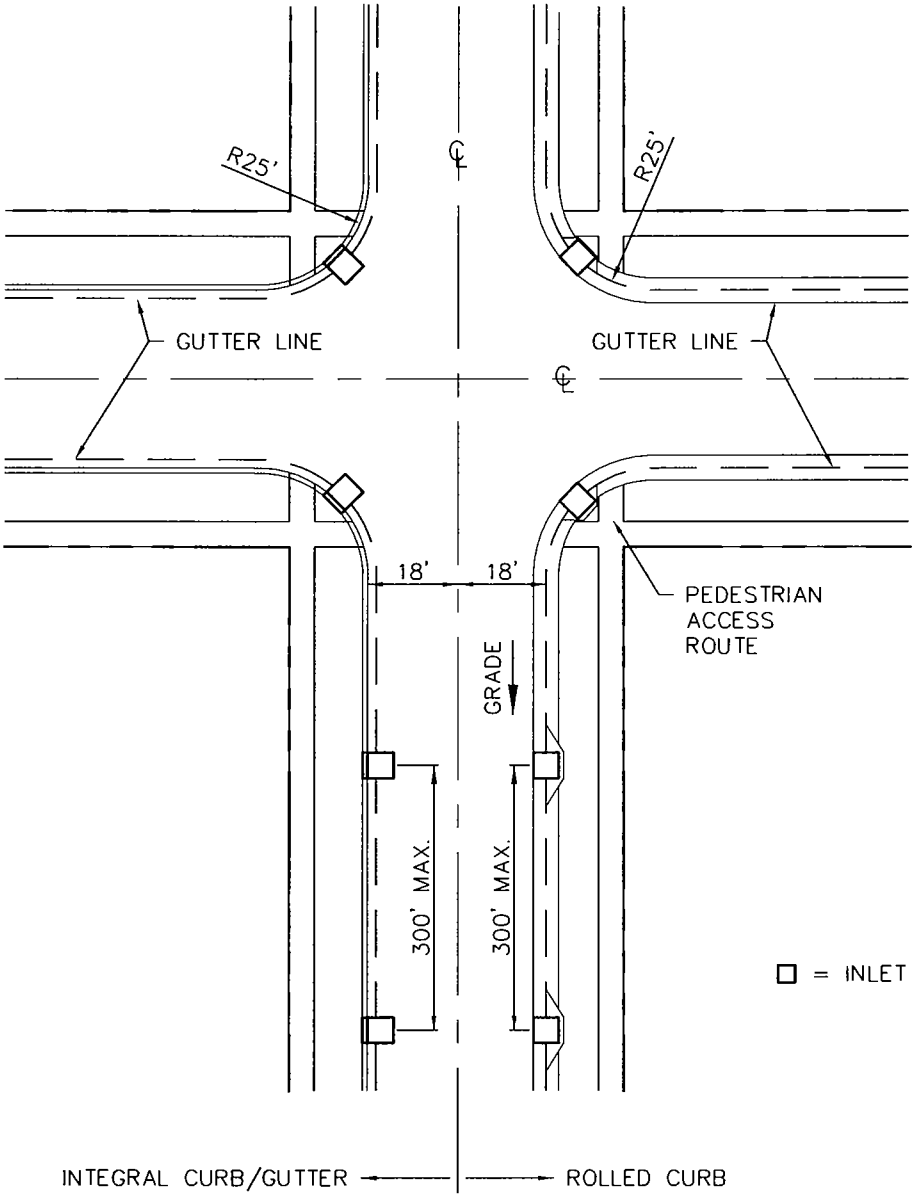

INLET LOCATIONS FOR USE IN COMMERCIAL/INDUSTRIAL DISTRICTS

N.T.S.

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URBAN ENGINEERS, INC.

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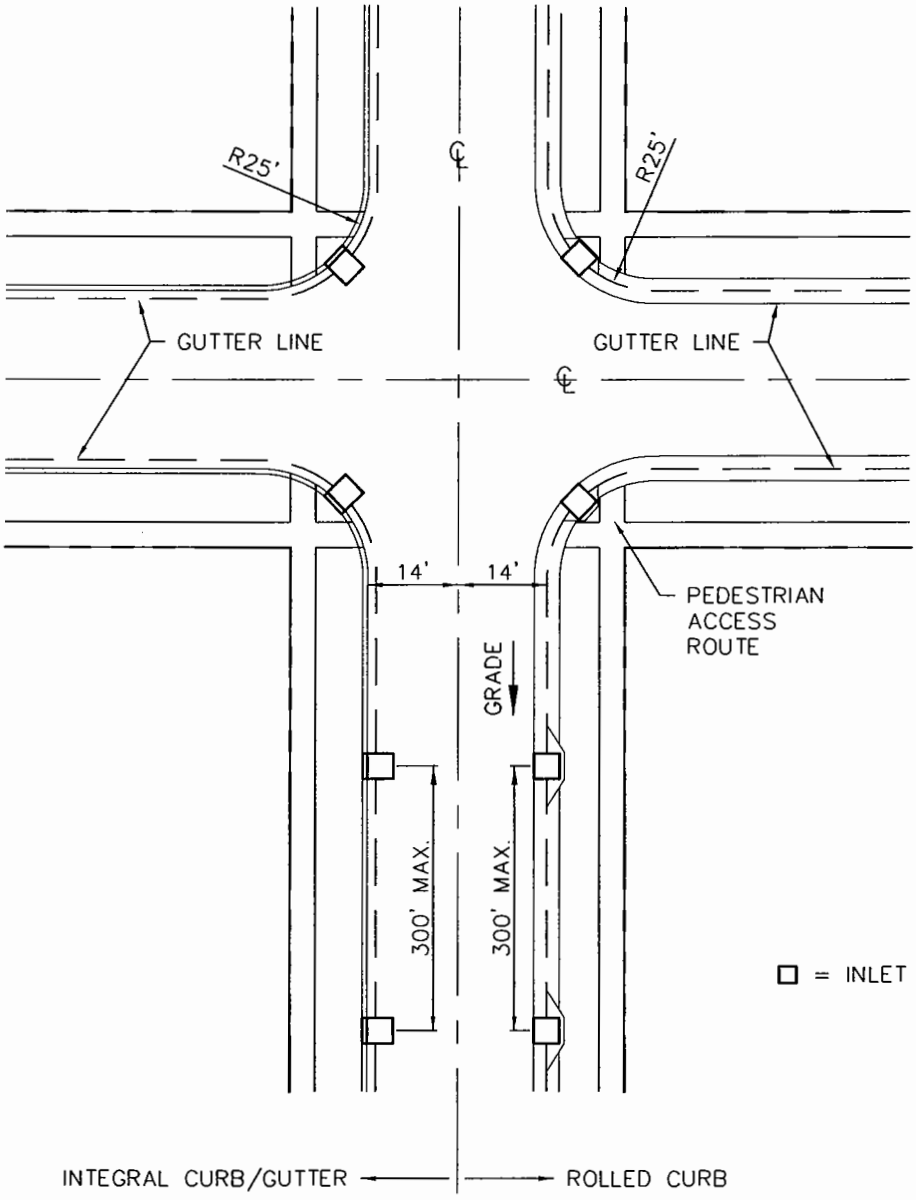


INLET LOCATIONS FOR USE IN RESIDENTIAL DISTRICTS

N.T.S.

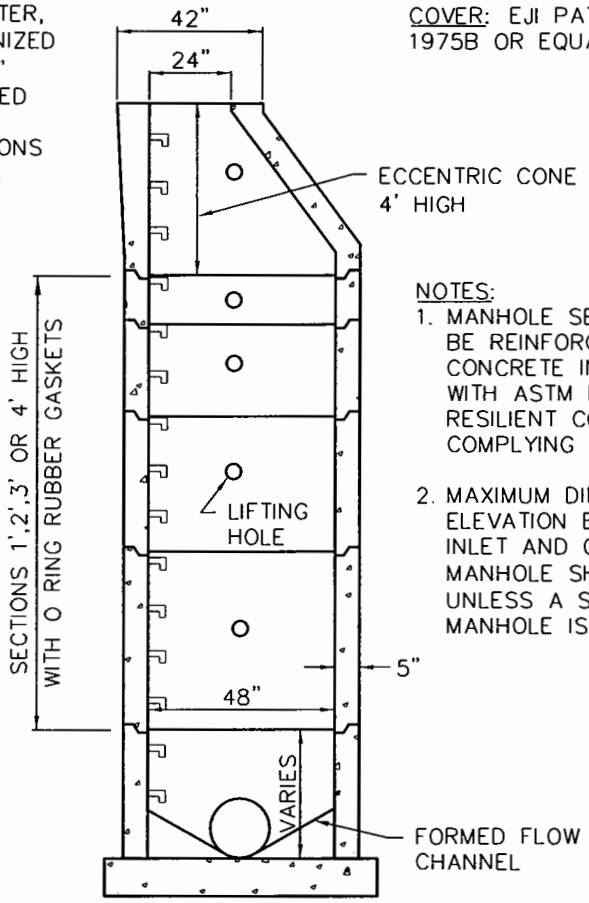
SUMMIT TOWNSHIP STANDARDS

URBAN ENGINEERS, INC.

FOR MANHOLE DEPTH OF 4' OR GREATER, INSTALL GALVANIZED STEEL RUNGS ¾" DIAMETER FORMED INTEGRAL WITH MANHOLE SECTIONS 12" ON CENTER.

FRAME: EJI PATTERN 1975Z OR EQUAL

COVER: EJI PATTERN 1975B OR EQUAL



NOTES:

1. MANHOLE SECTIONS SHALL BE REINFORCED PRECAST CONCRETE IN ACCORDANCE WITH ASTM L478 WITH RESILIENT CONNECTORS COMPLYING WITH ASTM L923.
2. MAXIMUM DIFFERENCE IN ELEVATION BETWEEN THE INLET AND OUTLET OF THE MANHOLE SHALL BE 2' UNLESS A STANDARD DROP MANHOLE IS PROVIDED.

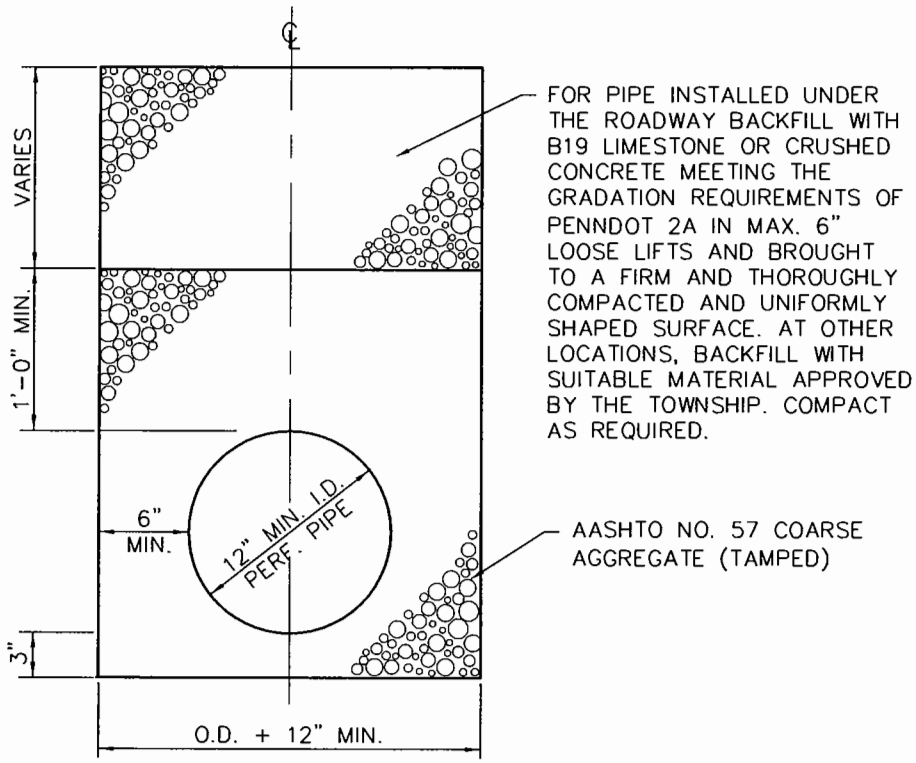
PRECAST CONCRETE MANHOLE

WITH "O" RING RUBBER GASKETS

N.T.S.

SUMMIT TOWNSHIP STANDARDS

URBAN ENGINEERS, INC.



STORMWATER PIPE INSTALLATION

N.T.S.

SUMMIT TOWNSHIP STANDARDS

URBAN ENGINEERS, INC.

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