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The City of Mebane's Standard Specifications and Details are separated out to allow for easier access and downloading from the City's website but the Standards Details and Specifications are to be used as a complete product. It is the users responsibility to download the entire document.



**STREET AND SITE IMPROVEMENTS: DETAILED SPECIFICATIONS FOR INSTALLATION**

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1. General Provisions. The following Specifications cover work which is to be furnished and installed under STREET IMPROVEMENTS and SITE IMPROVEMENTS. Applicable subsections of MATERIAL SPECIFICATIONS apply to all work.

The alignment and grade shall be checked by the City's representative prior to placement of ABC, curb and gutter, and pavement.

2. Scope of Work. The work to be performed under this document includes the Street Improvements.

3. Excavation for Storm Sewers. All trenches shall be excavated in open cut from the surface and in close conformity to the lines on approved plans.

In order that there be sufficient room for properly laying and jointing the pipe, trench widths shall be a minimum of 24" plus the outside pipe diameter. In order to safeguard the pipe, however, the maximum trench width shall not exceed 36" plus the outside pipe diameter. Trench widths shall be measured between faces of the cut at the top of the pipe.

All pipe shall be laid on a bedding of 6" of No. 67 stone. If HDPE Pipe is installed, provide bedding stone to springline of pipe.

Length of trench open ahead of pipe laying shall be no more than 300 feet, and no less than 20 feet.

Wet trenches shall be stabilized by the use of No. 67 stone.

The Contractor shall keep all trenches free from water during excavation for pipelines. The water shall be pumped out of the ditch or dams built to keep it out of the ditch in such a manner as not to cause injury to the public health, private property, or the work in progress.

Portable bridges shall be erected across trenches to permit the passage of vehicular and/or pedestrian traffic.

The local Fire Department and 911 shall be notified at least 24 hours before any street is blocked by the opening of a trench. The Fire Department and 911 shall also be notified when the street is once again open to traffic.

Sheeting or bracing shall be used wherever necessary to prevent caving of the trench banks. The removal of sheeting shall be done in such a manner as to minimize the loss of friction between the trench walls and the backfill. Sheeting shall be cut off and left in place where its removal will adversely affect the pipeline installation.

4. Rock Excavation in Trenches. Should rock be encountered in the trenches, the excavation shall be carried to a depth of 6" below the body of the pipe and the trench shall be brought back to grade with No. 67 Stone properly compacted. Suitable backfill material shall be defined as stabilization stone, sand, or native material free from rocks of optimum moisture content in order to obtain a compaction of 95% standard proctor. The use of native material shall be subject to the sole approval of the Engineer or his representative.

Should rock be encountered in the trenches and blasting is required for its removal, then all blasting operations shall be conducted in strict accordance with existing ordinances and accepted safe practices relative to the storage and use of explosives.

No rock excavated from trenches larger than 3" diameter shall be used to backfill such trenches and no rock is allowed in the first 24" above the top of the pipe. The items named for the various sizes and classifications of pipe to be installed shall include the removal and disposal off site of such excavated rock material. The contractor shall secure, haul, and place in the trench sufficient suitable backfill material.

The use of native material shall be subject to the sole approval by the Engineer or his representative.

5. Backfilling Trenches. Trenches shall be filled in layers six inches (6") deep and thoroughly compacted with mechanical compactors to attain 95% standard proctor. Dry material used in refilling shall be sufficiently moistened so that after compacting future settlement will be at a minimum. Flooring will not be permitted and excess water from any cause shall be removed from the ditch. Material left over from the trench shall be hauled away and no extra compensation will be allowed for such disposal. If native soils from the trench are unsuitable to attain a stable, unyielding trench; the contractor shall provide suitable backfill material as defined in paragraph 4. Compaction testing of the backfill shall be provided by a certified testing firm and paid by the contractor. See additional requirements as indicated under Section 10 and 27 of the Street and Site Improvements specifications.

The top twelve inches (12") of all trenches where pavement has been cut, and where directed by the City, shall be backfilled with crushed stone placed in layers six inches (6") deep and thoroughly compacted. This stone shall be Aggregate Base Course stone meeting the requirements of the N. C. State Highway Commission's "Standard Specifications for Roads and Structures", January 1, 2012 (as amended). It shall be the Contractor's responsibility to maintain all pavement cuts until paved or accepted by the Owner.

Wherever pipelines are laid in the shoulders of paved roads, backfilling shall be accomplished in the same manner as hereinbefore described for trenches in paved roads or streets except that the trench shall be filled to its full depth with earth.

6. Pipe Laying - General Provisions. The Contractor shall be responsible for all material which may become a part of the finished work until it is finally in place and accepted by the City, and shall remove from the lines any cracked or defective pipe and shall replace them with new pipe without extra compensation therefor.

Should any pipe be cracked or defective, the Contractor may cut off the cracked or defective portion and lay the remainder of the pipe if, in his opinion, the cutting off of the cracked or defective end will not injure the balance of the pipe. Permitting such cutting off of cracked or defective ends, however, shall not absolve the Contractor from any of his responsibility toward the work.

All pipe will be laid on lines and grades as shown on the approved Drawings. All pipe shall be placed on a firm foundation so as to prevent subsequent settlement.

Upon completion of the work, all lines shall present a clean and unbroken barrel, true to line and grade, and any defective lines shall be repaired and any deposits removed by the Contractor. The Contractor shall provide a video inspection of all storm pipes at completion of construction and provide a copy of such to the City in DVD format. Any defects detected by such video inspection shall be repaired by the contractor.

7. Pipe Laying - Storm Sewers. All materials for laying and jointing the pipe in the trench shall conform to the specifications for such materials hereinbefore given, and shall be furnished by the Contractor.

Pipe shall have full bearing for its full length. RCP Joints shall be sealed with a flexible joint sealant and wrapped with silt tight fabric. Except as modified herein, the installation of the storm sewers shall comply with the requirements of the Department of Transportation's "Standard Specifications for Roads and Structures". HPDE joints shall be silt free type and HPDE Pipe shall be installed in accordance with ASTM D 2321.

8. Manholes. Manholes shall be made of precast concrete, and shall conform to the Construction Details that are a part of the standard details.

Manholes shall be provided with plastic coated steps set in the walls 12" apart, and all manholes shall be capped with cast iron manhole frames and covers. The frames shall be furnished and set in mortar with even bearing.

Concrete precast manholes, as specified in material specifications, shall meet ASTM Designation C-478. Joints shall be sealed, parged with a non-shrink grout, and water tight at completion.

9. Catch Basins. Catch basins shall be built where shown on the approved Plans or where directed by the Engineer, and shall conform to the Construction Details that are a part of the Plans. Precast reinforced concrete (4000 psi) structures of size equal to the built in place basins are also acceptable.

Catch basins shall be constructed of concrete and brick masonry. Bottoms shall be constructed of Class B Concrete; the walls of brick masonry; and the reinforced concrete top shall be constructed of class A Concrete. The top may be precast or cast in place. Should precast concrete structures be used, no adjustment will be allowed for cutting or sawing the tops of the

structures, but masonry can be used for adjustment if needed. Boxes are to be parged with a non-shrink grout and bottoms are to be a minimum 6" thick.

10. Grading and Trenching. Scope: All areas designated on site to be either excavated or filled shall be included under this section, including all trenchlines for all purposes.

Excavation. All areas shall be graded to subgrade elevations or finish grade (as appropriate) as shown on plans. All excess material shall be removed from the site unless areas for such disposal are designated on the plans.

Backfill and Fill Material. All backfill and fill material shall be suitable to acquire the following density:

Building Areas: ASTM-D-698 98% Standard Proctor  
Density - minimum of 3,000 psf. (includes 5' outside building)  
Road and Parking and trenches in roads: ASTM-D-698 95% Standard Proctor Density  
except top 12" - 100% Standard Proctor.  
ASTM-D-698 100%. Stone base compacted to 100% Standard Proctor.  
SF 9.5A shall be compacted to a minimum of 90% of maximum specific gravity ( $G_{mm}$ )  
S 4.75A shall be compacted to a minimum of 85% of maximum specific gravity ( $G_{mm}$ )  
All other asphalt mixes shall be compacted to a minimum of 92% specific gravity ( $G_{mm}$ )  
General Site Areas (non-structural): ASTM-D-698 90% Standard Proctor Density.

The Contractor will be responsible for testing of site during grading. All areas that do not meet the hereinbefore density test shall be removed and recompacted with acceptable materials at contractors expense. Copies of compaction test reports shall be provided to the City prior to placement of stone base and prior to pavement placement. See compaction testing requirements under Section 27.

Should any areas require excavation under subgrade as determined by the soil testing firm, the contractor shall undercut such areas to a depth or bearing determined by the soils engineer.

Clearing and Grubbing. All areas to be excavated or backfilled shall be completely cleared and grubbed of all shrubs, trees, stumps, etc. before excavating and backfilling begins. All debris shall be removed from site in accordance with local codes.

Top Soil. Top soil shall be stripped from areas to be excavated or backfilled. Excess topsoil can be placed in the slopes outside the shoulders in non-structural areas.

Boulders and Rock Disposal. Boulders and rock, if encountered, will not be permitted to be buried on site unless locations for such disposal have been designated on the plans by the Engineer. All spoil area shall be covered with a minimum of two (2) feet of earth to grades as set by the engineer.

Embankment. Only suitable material approved by the Design Engineer shall be used in the formation of embankments. Prior to construction of embankments, all brush, roots, rubbish, sod, weeds, topsoil and other unsuitable material shall be removed from the natural ground within the limits of the fill. All surfaces upon which an embankment is to be placed shall be thoroughly scarified prior to its placement. Embankment materials shall be deposited and spread in uniform horizontal layers not more than 8" deep. Each layer shall be thoroughly compacted by rolling with approved equipment before starting the next layer. All embankments

shall have 95% Standard Proctor compaction to a point five feet beyond edge of pavement or curb and gutter unless shown otherwise on plans. All fill shall be track placed prior to seeding. All embankments shall be protected with temporary slope drains or diversions. Provide guard rails on all roadway embankments higher than 8' in height.

Proofrolling. The subgrade shall be proofrolled with a 25-ton dual axle truck loaded to the 25-ton specified weight and verified by certified scale measurements. The contractor shall proofroll the subgrade and ABC in the presence of the testing firm and city representative. Any soft areas shall be repaired by the contractor.

11. Adjusting Existing Manholes and Valve Boxes to Grade. All existing manholes and valve boxes within the project limits will be located by the City and shown to the contractor. It shall be the Contractor's responsibility to preserve and protect all manhole tops and boxes. The tops and boxes shall be held in place by a concrete collar poured around the castings as detailed on plans. (18" from ring and 8" deep)

12. Concrete Curb and Gutter. All materials required in the construction of the concrete curb and gutter shall conform to the specifications for such materials as hereinbefore given. Class A concrete shall be used and shall be air entrained.

The dimensions and sizes of the concrete curb and gutter shall conform to the details shown in the Construction Details which are a part of the accompanying Plans. The curb and gutter shall be constructed where shown on the Plans. The contractor shall provide expansion joints, construction joints, and handicap access per City requirements.

Except as herein modified, the methods used in the construction of the concrete curb and gutter shall comply with the N.C. State Highway Commission's "Standard Specifications for Road Structures", dated July, 2006 (as amended).

13. Concrete Driveway Entrances. All materials required in the construction of the concrete driveway entrances shall be the same as that specified for concrete curb and gutter.

14. Aggregate Base Course. All materials and methods of construction shall conform to Section 520 of the N.C. State Highway Commission's Standard Specifications for Road Structures, dated July, 2006 (as amended). The compacted thickness of the base course shall be 8" minimum (for residential streets only) unless shown otherwise or required by actual field conditions considering soil type and pavement design analysis prepared by a professional engineer. Copies of all base course delivery tickets shall be made available to the City and the Contractor shall certify that the material has been used in the construction of this project.

All materials shall be as hereinbefore specified.

15. Prime Coat. All materials and methods of construction shall conform to Section 1020 of the N.C. State Highway Commission's "Standard Specifications for Road Structures", dated July, 2006 (as amended). The prime coat shall be applied at the rate of 0.18 - 0.45 gallons per square yard.

16. Tack Coat. All materials and methods of construction shall conform to Section 605 of the N.C. State Highway Commission's "Standard Specifications for Road Structures", dated January, 2012 (as amended). The tack coat shall be applied at the rate of 0.04 - 0.08 gallons

per square yard. Tack shall be applied to existing asphalt or concrete surfaces prior to installation of all asphalt concrete courses.

17. Asphalt Concrete Binder Course. All materials and methods of construction shall conform to Section 663, Type I-19OB of the N.C. State Highway Commission's "Standard Specifications for Road Structures", dated July, 2006 (as amended). The compacted thickness shall be as on approved plans.

Copies of all binder course delivery tickets shall be made available to the City and the Contractor shall certify that the material has been used in the construction of this project.

18. Asphalt Concrete Surface Course. All materials and methods of construction shall conform to Section 663, Type SF 9.5A of the N.C. State Highway Commission's "Standard Specifications for Road Structures", dated July, 2006 (as amended). The compacted thickness of the surface course shall be as shown on approved plans.

Copies of all surface course delivery tickets shall be made available to the City and the Contractor shall certify that the material has been used in the construction of this project.

Prior to the construction of the surface course, a tack coat shall be applied to the binder course. This tack coat shall be applied at the rate of 0.04 to 0.07 gallons per square yard.

19. Stabilization Stone for Ditches. The stone used for the stabilization of ditch bottoms shall be as hereinbefore specified. All storm sewers shall be laid on 6" of No. 67 Stone for the full trench width.

20. Erosion Control.

A. Reference to Other Documents. The General Conditions, Supplementary Conditions, Material Specifications, and Detailed Specifications for Installation contain requirements relevant to the work covered by this Section. Clearing and Grubbing, Site Grading, Clearing of rights of ways, excavating and backfilling, and Spoil Disposal will be subject to the applicable requirements of this Section.

B. General Requirements. Control of erosion and sedimentation resulting from land disturbing activities is subject to the requirements of the North Carolina Sedimentation Control Commission. Any authorized representative or agent of the commission shall be granted entry or access for purposes of inspection; he shall not be obstructed, hampered, or interfered with while he is in the process of carrying out his official duties. The requirements for erosion and sedimentation control apply to areas which are involved in borrow, waste disposal, and topsoil storage activities; and to areas which are directly involved with the construction of buildings, paving, curb, gutter, and to areas where storm drainage, water, and sewer lines and structures are installed. No Construction shall take place until erosion control permit is in hand and erosion control devices are installed.

Land disturbing activities shall be planned and carried out to achieve the following objectives:

- 1) Expose minimum sized areas at any one time
- 2) Limit exposures of areas to the shortest possible time
- 3) Control surface water run-off to reduce erosion and sediment loss
- 4) Hold off-site erosion and sedimentation damage to a minimum

With reference to requirement No. 2, portions of the site on which land disturbing activities have been undertaken, but upon which no further active construction takes place for a period of 15 working days, shall be planted or otherwise provided with a ground cover sufficient to restrain erosion.

The Contractor shall be responsible for maintaining all temporary and permanent erosion and sedimentation measures and facilities until the project is accepted by the City, or until removal of facilities and cessation of control measures is authorized by the Engineer.

C. Work Included. This Section includes the labor, materials, equipment, and related services required for the installation of berms, drainage structures, storm water drains, straw barriers, vegetative covers, and other devices or methods for control of erosion and sedimentation shown on the Drawings or specified herein.

D. Facilities and Measures for Erosion and Sedimentation Control.

1) Phased Construction. The installation of improvements shall be done in phases as specified on the construction drawings.

This phasing of construction will help limit erosion caused during the installation of the improvements, and will act as an erosion control measure.

2) Clearing and Grubbing. The Contractor is to clear the entire width of the permanent easement of trees, stumps, shrubs, and brush. The natural vegetative cover is to remain intact until the installation of the line begins, except that which has to be removed during the clearing and grubbing operation. Stumps, brush, and rubbish resulting from the clearing operation shall not be disposed of by placing on adjoining privately owned property unless the Contractor has a written instrument from the property owner. All other spoil is expected to be trucked off to the sanitary landfill for disposal.

3) Rip Rap. Rip Rap shall be installed at locations as shown on plans or as directed by the Engineer, per the NCDENR erosion control manual.

4) Berms. Drainage berms and ditches shall be installed as shown on the Drawings per the NCDENR erosion control manual.

5) Silt Fence. Silt fences shall be installed as shown on the Drawings or when directed by the Engineer, per the NCDENR erosion control manual.

6) Excelsior Matting. Matting shall be installed at location shown on the Drawings and shall be in compliance with "Standards and Specifications for Soil Erosion and Sediment Control" by the Land Quality Section of NCDENR, per the NCDENR erosion control manual.

7) Permanent Vegetative Cover. Prepare seedbed by ripping, chiseling, harrowing or plowing to depth of six inches so as to produce a loose, friable surface. Remove all stones, boulders, stumps or debris from the surface which would prohibit germination or plant growth, per the NCDENR erosion control manual.



Incorporated into the soil 800 to 1,000 pounds of 10-10-10 fertilizer plus 500 pounds of twenty percent (20%) Superphosphate per acre and two tons of dolomitic lime per acre unless soil tests indicate that a lower rate can be used.

Mulch after seeding with 2.0 tons of grain straw per acre and either crimp straw into soil or tack with liquid asphalt at 400 gallons per acre or emulsified asphalt at 300 gallons per acre.

<u>PERMANENT SEEDINGS</u>		
<u>PLANTS &amp; MIXTURE</u>	<u>PLANTING RATE/ACRE</u>	<u>PLANTING DATES</u>
TALL FESCUE (LOW MAINTENANCE)	100-150 LBS.	AUG. 15 - OCT. 15 FEB. 15 - MAY 1
TALL FESCUE WATERWAYS AND LAWNS (HIGH MAINTENANCE)	200-250 LBS.	AUG. 15 - OCT. 15 FEB. 15 - MAY 1
BLEND OF TWO TURF-TYPE TALL FESCUES (90%) AND TWO OR MORE IMPROVED KENTUCKY BLUEGRASS VARIETIES (10%) (HIGH MAINTENANCE)	200-250 LBS.	AUG. 15 - OCT. 15 FEB. 15 - MAY 1
TALL FESCUE AND KOBE OR KOREAN LESPEDEZA	100 LBS. & 20-25 LBS.	FEB. 15 - MAY 1 AUG. 15 - OCT. 15
TALL FESCUE AND SERICEA LESPEDEZA	50 LBS. 60 LBS./ACRE	NOV. 1 - FEB. 1 (UNSCARIFIED)
TALL FESCUE AND GERMAN MILLET OR SUNDANGRASS	70 LBS. AND 40 LBS.	JULY AND AUGUST
TALL FESCUE AND RYEGRAIN	70 LBS. AND 25 LBS.	NOV. 1 - JAN. 30
COMMON BERMUDAGRASS	8 LBS. (HULLED) 15-20 LBS. (UNHULLED)	APRIL 15 - JUNE 30 FEB. 1 - MARCH 30

Permanent Seeding Notes:

1. For spring seedlings, use scarified lespedeza seed. For late fall and winter seedings, use unscarified seed.
2. Annuals such as millet, sundangrass and ryegrain must be kept at 10-12" maximum height. The use of annual rye grass is not permitted.

The preceding permanent cover requirements pertain to all areas disturbed during the project construction including road shoulders, temporary access roads, spoil areas, building sites, rights-of-way, easements and line work.

**21. Relocation of Hydrants, Water Services and Sewer Services.** The Contractor shall be responsible for and shall move all hydrants, water services and sewer services that require

relocation. All relocated utilities shall be inspected by the Engineer unless specified otherwise on plans.

22. Existing Pipes, Conduits, and Cables - Care of. Special care must be exercised by the Contractor, in the installation of all improvements and in passing under or over existing storm sewers, sanitary sewers, water lines, gas lines, and telephone or power conduits or cables. All aforementioned pipes, cables, lines, or structures broken or ruptured by the Contractor must be immediately repaired or replaced by him. Contractor shall contact the appropriate utility locating service or personnel prior to initiating construction.

23. Responsibility for Damages. The Contractor shall be held responsible for all damages claimed, as a result of the installation of this project, to all utility poles, driveways, yards, shrubbery and plantings, drain ditches, and pipes, pavement, sidewalks, water lines, gas lines, telephone or power conduits or cables, buildings, fences, etc.

24. Signs and Barricades. The Contractor shall at his cost provide, erect, maintain, and illuminate, where necessary, all barricades, warning signs and local detour signs required.

25. Cleanup. Upon completion of the work the Contractor shall remove all excess materials, earth, debris, etc., along the line of his work and shall cleanup and leave, in its original condition, all affected private property.

26. Guarantee. The Contractor shall guarantee that if any materials, equipment or workmanship covered by these Specifications and the accompanying Drawings proves defective within one year after final acceptance, such defects shall be made good by him. The Engineer shall provide a letter to the City indicating the start of the 12-month guarantee period. Provide State required certifications and "As Builts" with guarantee letter.

27. Compaction Testing Requirements. Section 10 provides the standards for compaction in all streets and trenches. The following is the minimum testing schedule for compaction tests, additional test may be required at Engineer's request:

A. Sanitary and Storm Sewer Line trenches

- i. If trench 0-8 ft. deep, provide one (1) test at half depth and at subgrade.
- ii. If trench over 8 ft. deep, provide one (1) test for each 8 ft. or fraction over and at subgrade. Tests shall be taken at the depths based on the trench depth divided by the number of required tests plus 1. As an example, for a 12 ft. trench, tests are required at the 4 ft. and 8 ft. depths ( $12/2+1 = 4$ ) plus at subgrade.
- iii. Services- provide one (1) compaction test for every 5 services.
- iv. Manholes or curb inlets-provide compaction tests for every 5th MH(CI) within 2 ft. of the manhole based on the trench depth as described above.

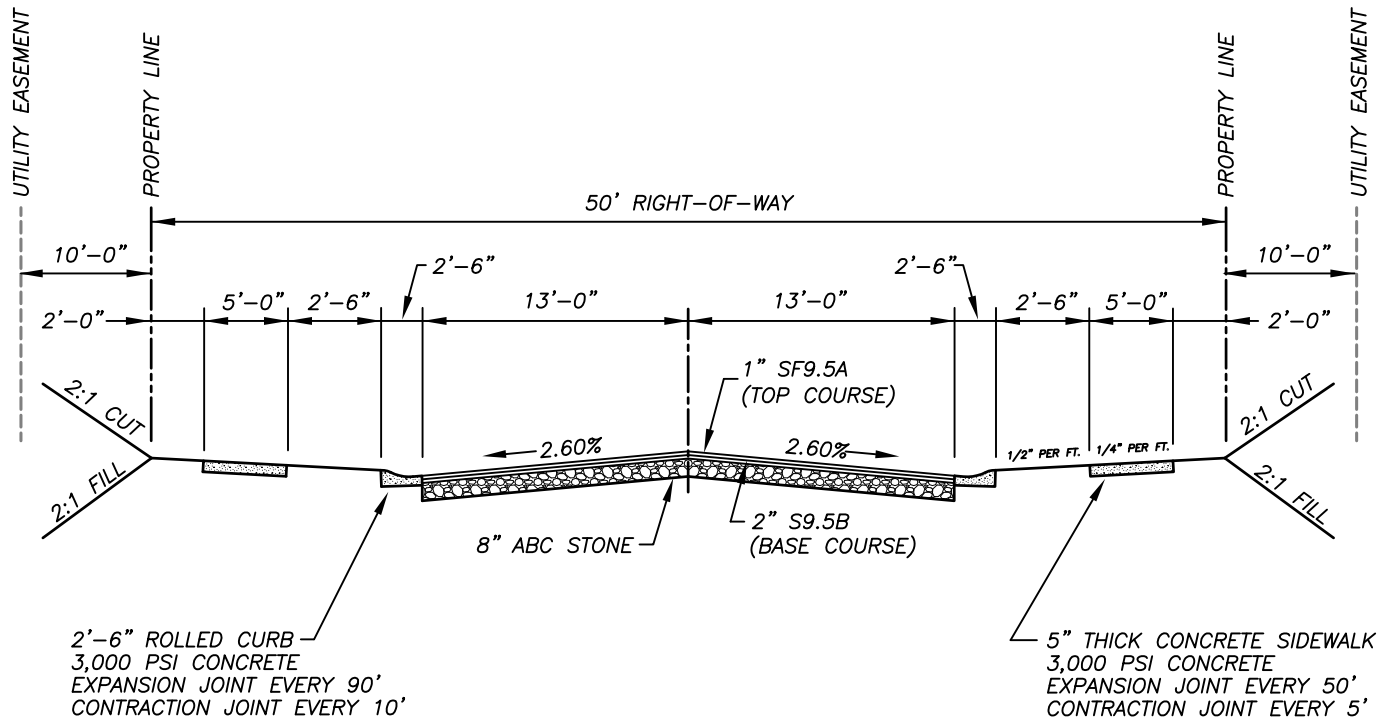
B. Water Line trenches

- i. One (1) compaction test for every 500 ft. of line at subgrade if water line is less than 4 ft. of cover.
- ii. Services- provide one (1) compaction test for every 5 services.

C. Street Compaction tests

- i. One per 500 ft. of street outside of trench lines. This includes the subgrade, stone testing, and asphalt testing.





**NOTES:**

1. ALL ASPHALT CEMENT PLANT MIX AND METHOD OF PLACEMENT SHALL COMPLY WITH N.C. DOT STANDARD SPECIFICATIONS.
2. ALL WORK SHALL COMPLY WITH N.C. DOT STANDARD SPECIFICATIONS.
3. TOP COURSE TO BE PLACED WITHIN 12 MONTHS OF ASPHALT BASE COURSE.
4. COMMERCIAL AND INDUSTRIAL STREET SECTIONS TO BE DETERMINED ON A CASE BY CASE BASIS.
5. WHERE NEW SIDEWALK CROSSES EXISTING GRAVEL DRIVEWAY, SIDEWALK NEEDS TO BE 6" THICK.
6. PROVIDE APPROVED NCDOT SEALANT OVER ALL EXPANSION JOINTS ALONG CONCRETE CURBS AND CONCRETE SIDEWALKS.

ST-1

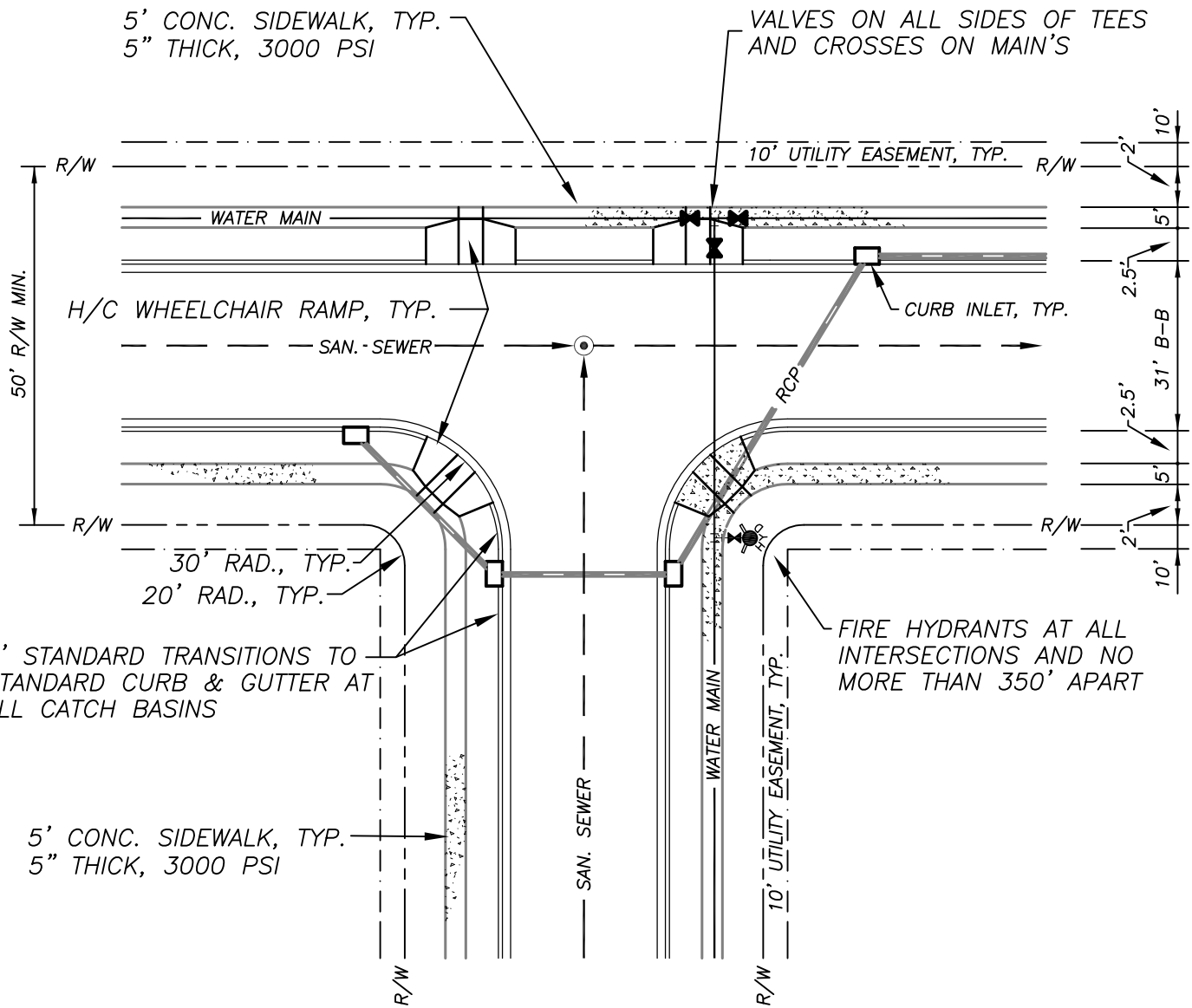
**CITY OF MEBANE  
STANDARD**

**RESIDENTIAL STREET SECTION**

SCALE : N.T.S.

DATE : 4/27/15

DRAWN BY: WDF



ST-2

# CITY OF MEBANE STANDARD

## GENERAL SUBDIVISION REQUIREMENTS FOR ROADWAYS AND UTILITIES

SCALE : N.T.S.	DATE : 4/27/15	DRAWN BY: WDF
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NOTES :

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1. UTILITY LOCATIONS

- WATER LINE UNDER THE SIDEWALK
- SEWER LINE MIDDLE OF STREET
- NATURAL GAS BETWEEN SIDEWALK AND CURB AND GUTTER
- ELECTRIC UNDERGROUND IN 10' UTILITY EASEMENT ADJACENT TO STREET R/W
- TELEPHONE IN 10' UTILITY EASEMENT ADJACENT TO STREET R/W
- CABLEVISION IN RIGHT OF WAY BEHIND SIDEWALK

2. WATER AND SEWER IMPROVEMENTS

- ALL WATER LINES ARE TO BE A MIN. OF 8" IN SIZE EXCEPT FOR CUL-DE-SACS WHERE 6" IS ALLOWED WHEN LESS THAN 600 FT. AND 4" IS ALLOWED WHEN LESS THAN 400 FT.
- WATER MAIN IS TO BE DUCTILE IRON PIPE CLASS 50
- SEWER MAINS ARE TO BE A MIN. OF 8" IN SIZE
- SEWER MAINS ARE TO BE VITRIFIED CLAY PIPE IN INDUSTRIAL AREAS
- FOR RESIDENTIAL AREAS, PVC SDR-35 CAN BE USED AS APPROVED BY THE PUBLIC WORKS DIRECTOR

3. STORM DRAINAGE

- ALL STORM DRAINS ARE TO BE A MIN. OF 15 INCH IN SIZE
- MATERIALS ARE TO BE REINFORCED CONCRETE PIPE OR HDPE EXCEPT WHEN LARGER THAN 72 INCH. ALTERNATIVE PIPE MATERIAL MAY BE USED AS APPROVED BY THE PUBLIC WORKS DIRECTOR
- CURB INLETS TO BE LOCATED WHERE NO MORE THAN 1.0 ACRE OF DRAINAGE CONTRIBUTES TO ANY INLET EXCEPT IN SAGS WHERE 6' WIDE BASINS CAN BE USED WHICH WILL BE ALLOWED TO DRAIN 1.5 ACRE SUB-BASINS.

4. CONCRETE SIDEWALKS

- 3,000 P.S.I.
- 5' WIDE AND 5" THICK
- SEE CURRENT CITY REQUIREMENTS

5. OTHER

- ANY CHANGES TO THE GENERAL REQUIREMENTS SHALL BE PRE-APPROVED BY THE PUBLIC WORKS DIRECTOR
- CITY OF MEBANE STANDARD SPECIFICATIONS AND DETAILS ARE TO BE USED
- NO BURNING ALLOWED INSIDE THE CITY OF MEBANE
- THE CITY HAS THE RIGHT TO REQUEST RELOCATION OF ANY UTILITY LINES OR CABLES NOT INSTALLED IN ACCORDANCE WITH THESE REQUIREMENTS, UNLESS PRIOR APPROVAL IS MADE FOR A VARIANCE.

ST-3

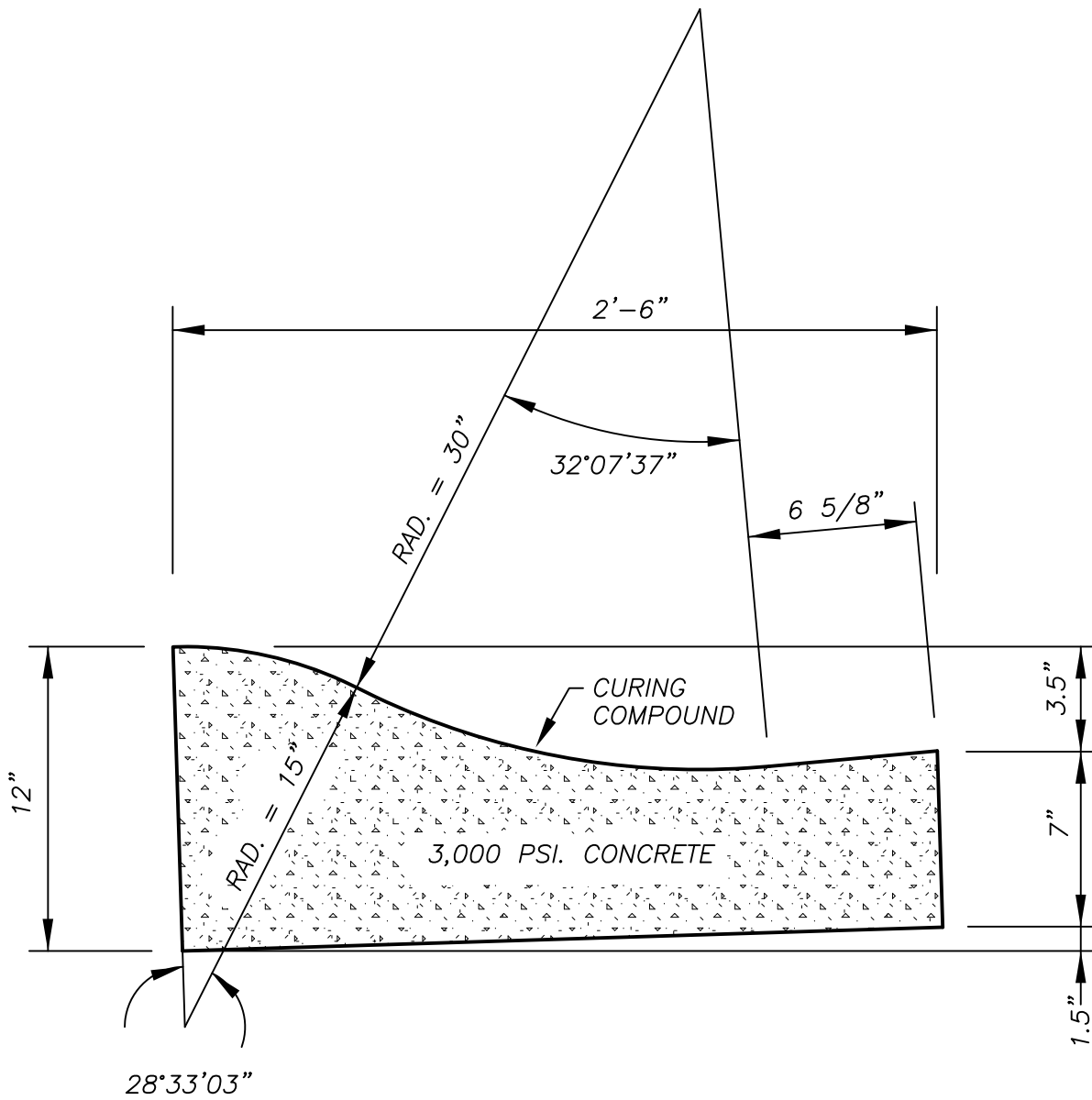
**CITY OF MEBANE  
STANDARD**

**GENERAL SUBDIVISION REQUIREMENTS  
FOR ROADWAYS AND UTILITIES**

SCALE : N.T.S.

DATE : 4/27/15

DRAWN BY: WDF



NOTES:

1. 3,000 PSI CONCRETE CURB.
2. EXPANSION JOINT EVERY 90' AND CONTRACTION JOINT EVERY 10'.
3. PROVIDE SEALANT OVER EXPANSION JOINTS AS PER NCDOT STANDARD SPECIFICATIONS.

ST-4

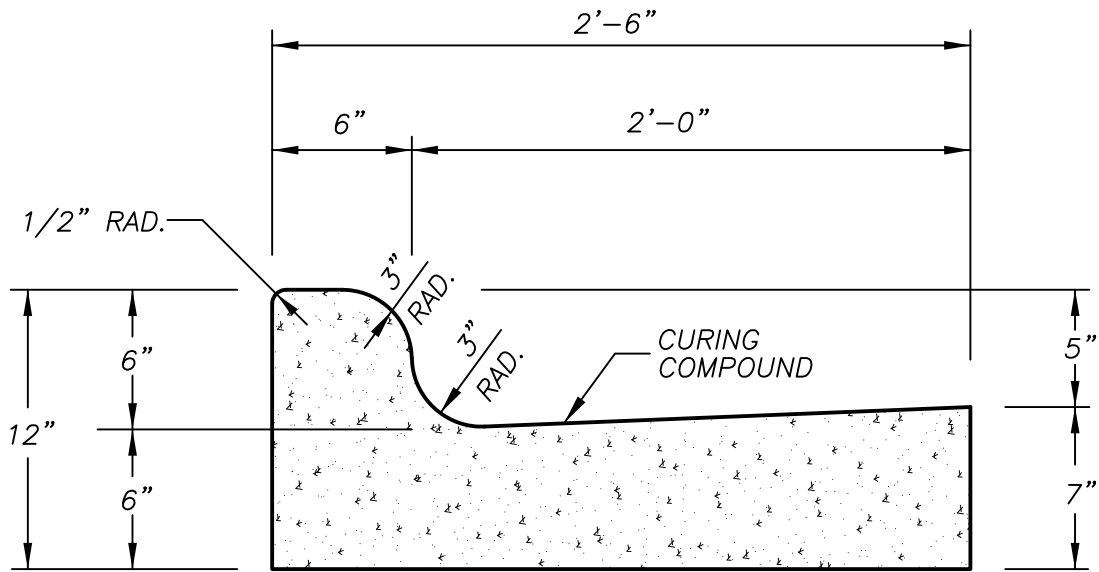
CITY OF MEBANE  
STANDARD

30" ROLLED CURB

SCALE : N.T.S.

DATE : 4/27/15

DRAWN BY: WDF



NOTES:

1. 3,000 PSI CONCRETE CURB.
2. EXPANSION JOINT EVERY 90' AND CONTRACTION JOINT EVERY 10'.
3. PROVIDE SEALANT OVER EXPANSION JOINTS AS PER NCDOT STANDARD SPECIFICATIONS.

ST-5

CITY OF MEBANE  
STANDARD

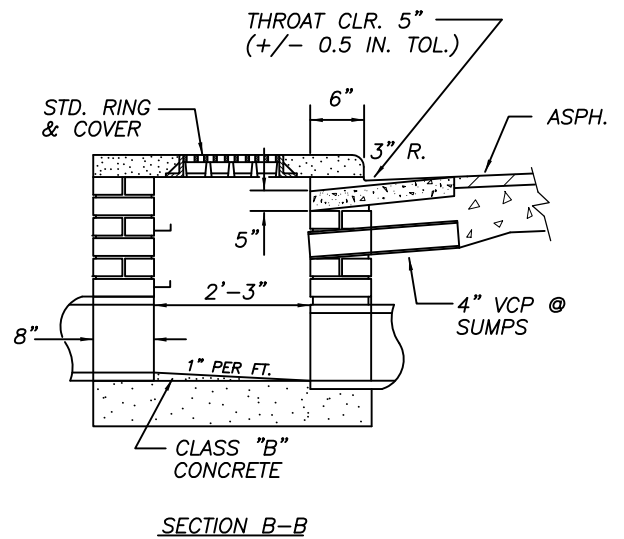
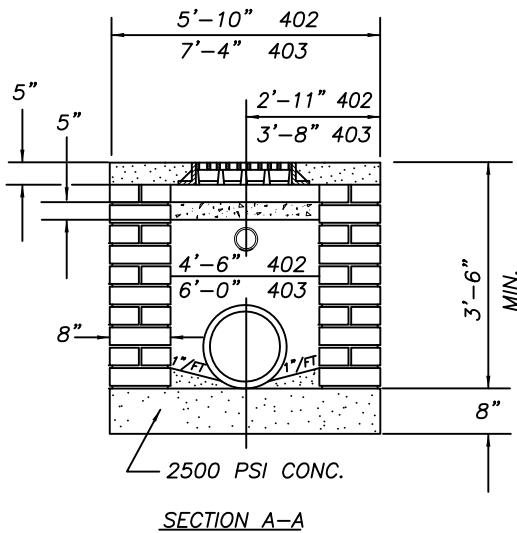
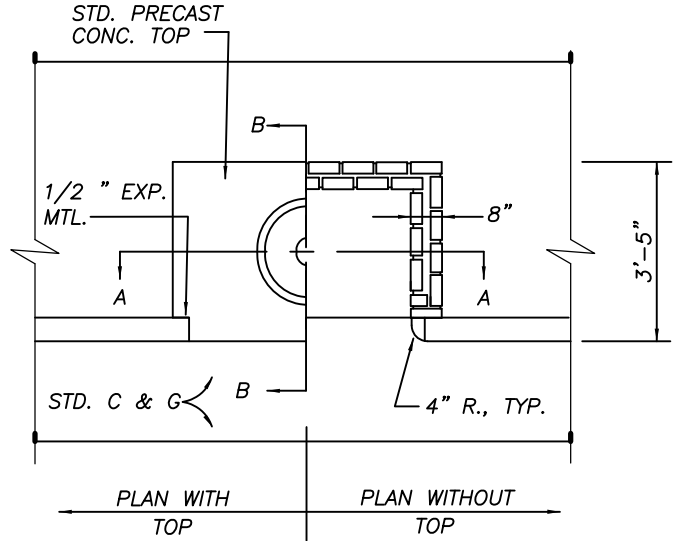
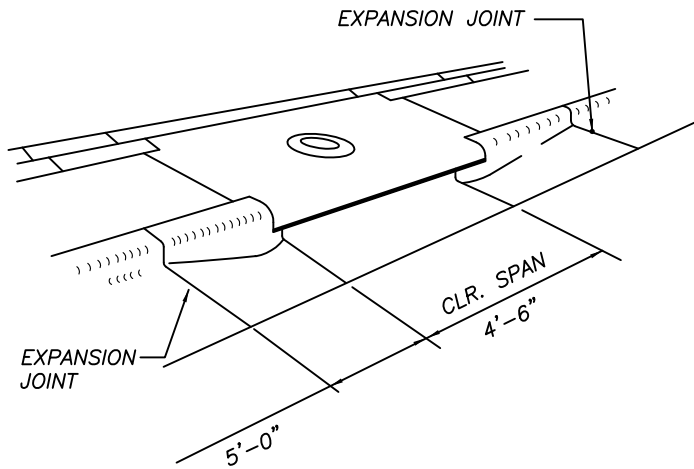
30" STANDARD CURB

SCALE : N.T.S.

DATE : 4/27/15

DRAWN BY: WDF





**NOTES:**

1. ALL MORTAR JOINTS ARE TO BE 1/2" / 1/8".
2. BRICK MASONRY CAN BE STANDARD CLAY BRICK, JUMBO BRICK, OR CONCRETE BRICK.
3. FOR DEPTHS OVER 4'-0" USE STEPS ON 12" CENTERS.
4. LOCATE STEPS ACCESSIBLE FROM MANHOLE, AND THE LOCATION OF THE STEPS SHOULD NOT INTERFERE WITH THE ACCESS INTO THE CURB INLET.

STANDARD BRICK MASONRY CURB INLET

C.O.M. STD.#402

C.O.M. STD.#403

ST-6

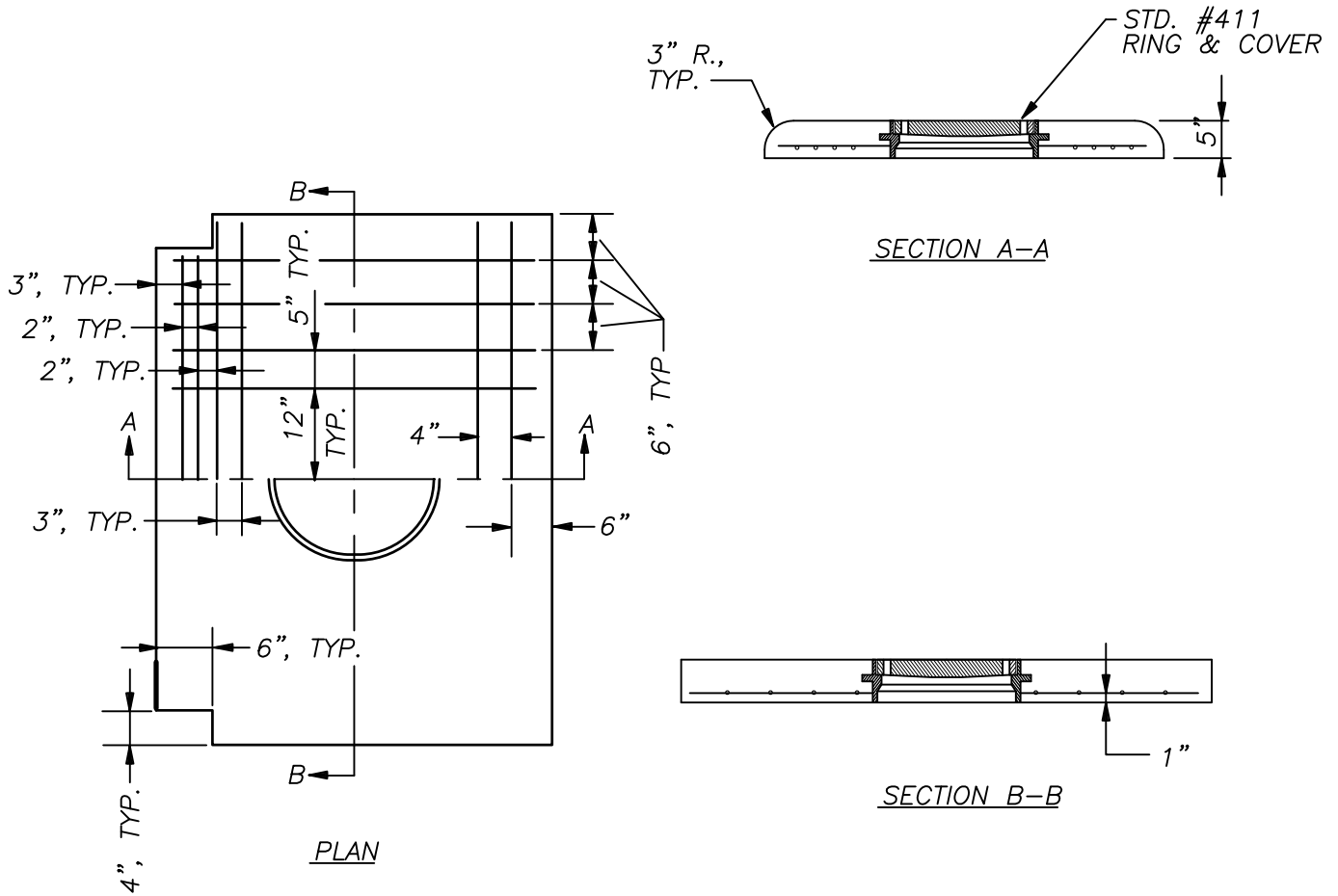
**CITY OF MEBANE  
STANDARD**

**CURB INLET  
DETAILS (402 & 403)**

SCALE : N.T.S.

DATE : 4/27/15

DRAWN BY: WDF



STD. 402 INLET TOP REQUIRES 4, #4 BARS IN STREET FACE.  
 STD. 403 INLET TOP REQUIRES 4, #5 BARS IN STREET FACE.  
 ALL OTHER REINFORCING STEEL IS #4 BARS.

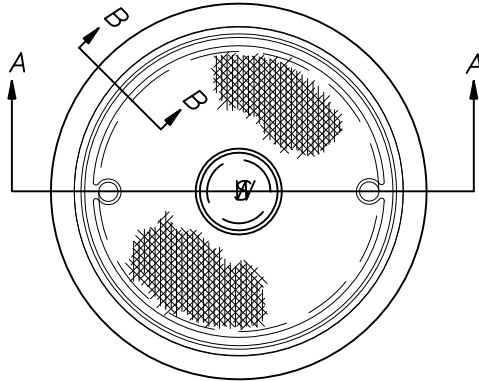
STANDARD PRECAST CONCRETE CURB INLET TOP  
 C.O.M. STD. #412

ST-7

**CITY OF MEBANE  
 STANDARD**

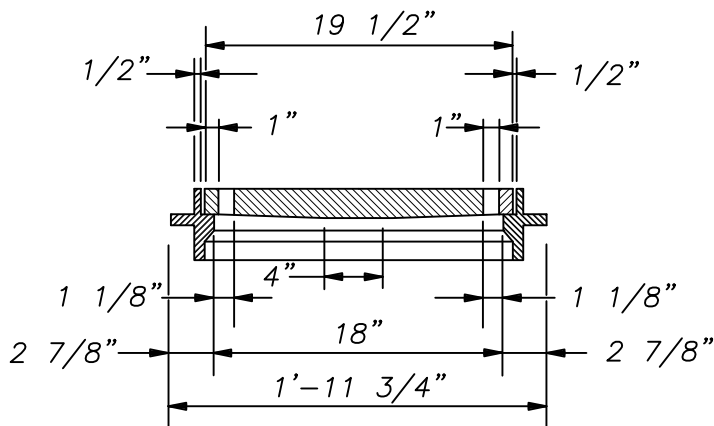
**CURB INLET TOP  
 DETAIL (412)**

SCALE : N.T.S.      DATE : 4/27/15      DRAWN BY: WDF

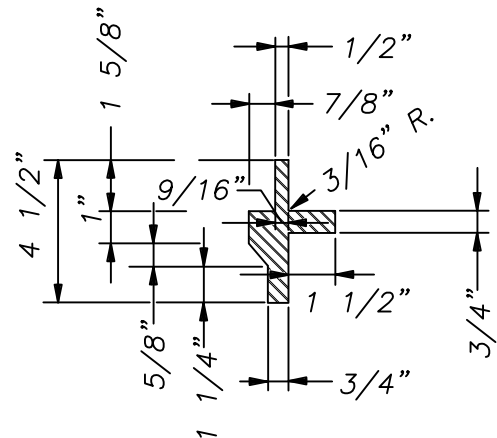


RING - 70 LBS.  
COVER - 118 LBS.

PLAN



SECTION A-A



SECTION B-B

STANDARD INLET RING & COVER

C.O.M. STD. #411

ST-8

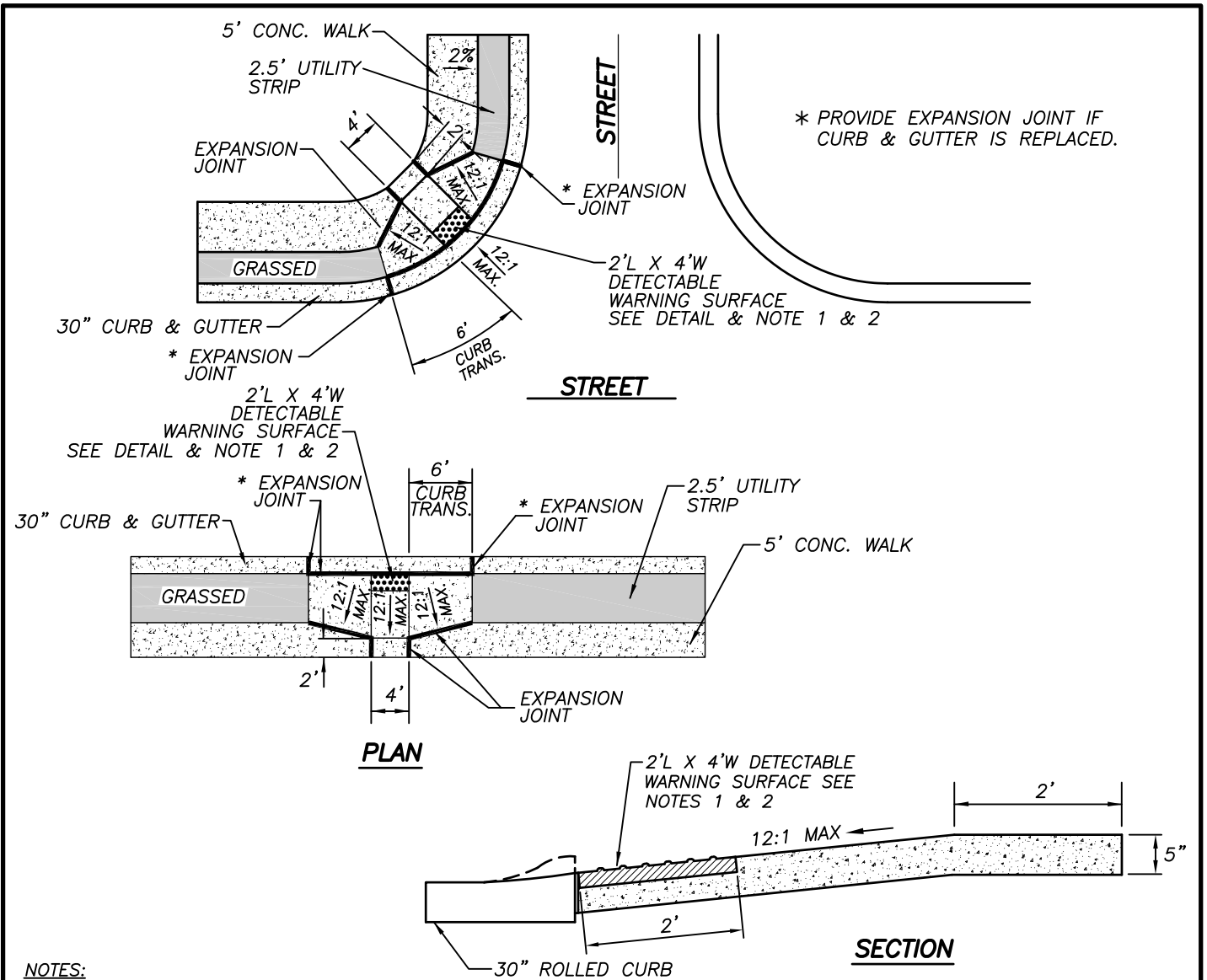
CITY OF MEBANE  
STANDARD

INLET RING & COVER  
DETAIL (411)

SCALE : N.T.S.

DATE : 4/27/15

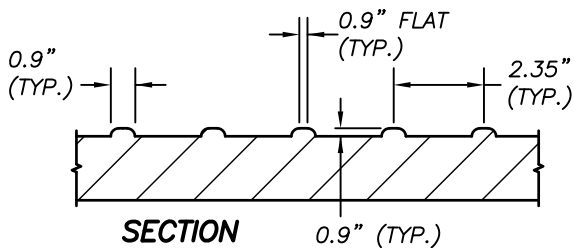
DRAWN BY: WDF



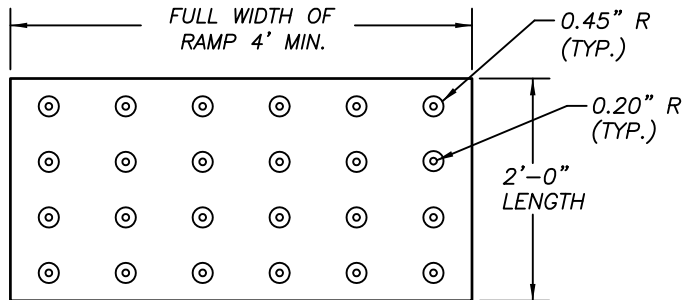
\* PROVIDE EXPANSION JOINT IF CURB & GUTTER IS REPLACED.

**NOTES:**

1. DETECTABLE WARNING DOMES SHALL COVER 2'-0" LENGTH AND FULL WIDTH OF THE RAMP FLOOR AS SHOWN ON THE DETAILS.
2. THE RAMP MAY BE YELLOW IN COLOR OR ANY COLOR WITH A 70% CONTRAST RATIO.
3. PROVIDE SEALANT OVER EXPANSION JOINTS AS PER NCDOT STANDARD SPECIFICATIONS.



**SECTION**



**PLAN**

**DETECTABLE WARNING DOMES DETAIL**

**ST-9**

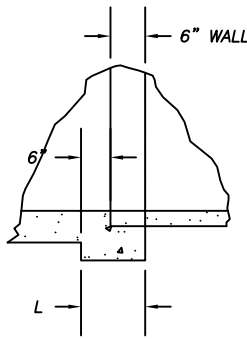
**CITY OF MEBANE STANDARD**

**HANDICAP WHEELCHAIR RAMP**

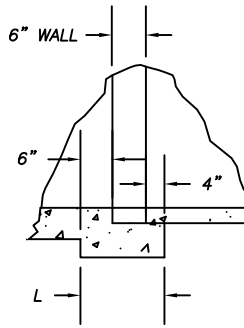
SCALE : N.T.S.

DATE : 4/27/15

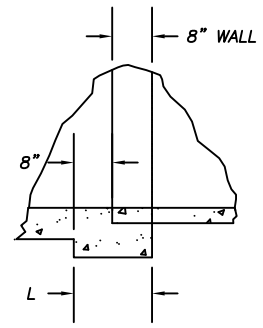
JOB NO. : WDF



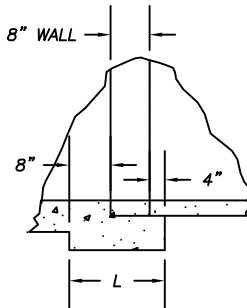
PART SECTION  
6" WALL



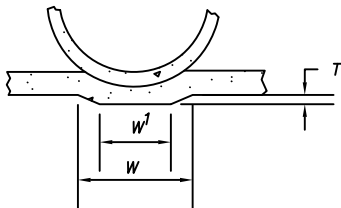
PART SECTION  
6" WALL/4" LIP



PART SECTION  
8" WALL



PART SECTION  
8" WALL/4" LIP



PART SECTION OF END ELEVATION

TABLES OF QUANTITIES FOR PIPE SET IN PAD

PIPE D	"W" DIM	"W1" DIM	"T" DIM	C.Y. QUANTITIES WHEN L IS		
				12"	16"	20"
12"	1'-1 7/8"	0'-7 7/8"	0'-1 3/4"	0.005	0.007	0.008
15"	1'-3 5/8"	0'-9 1/8"	0'-9 7/8"	0.006	0.008	0.010
18"	1'-5 1/4"	0'-10 3/8"	0'-2"	0.007	0.010	0.012
24"	1'-8 3/4"	1'-0 1/8"	0'-2 1/2"	0.011	0.014	0.018
30"	2'-0 1/4"	1'-2 3/4"	0'-2 3/4"	0.014	0.018	0.023
36"	2'-3 3/4"	1'-5 3/8"	0'-3"	0.017	0.023	0.025
42"	2'-7 1/8"	1'-7"	0'-3 1/2"	0.025	0.030	0.036
46"	2'-10 5/8"	1'-8 3/4"	0'-4"	0.028	0.038	0.047
54"	3'-2 1/8"	1'-10 1/2"	0'-4 1/2"	0.035	0.047	0.058
60"	3'-5 5/8"	2'-0 1/4"	0'-5"	0.042	0.056	0.071
66"	3'-9"	2'-2 1/4"	0'-5 1/2"	0.050	0.067	0.084
72"	4'-0 1/2"	2'-3 3/4"	0'-6"	0.058	0.078	0.098

GENERAL NOTES:

THIS STANDARD SHALL BE USED WITH ALL DRAINAGE STRUCTURES  
USING REINFORCED CONCRETE PIPE SET IN BASE SLAB.

ST-10

CITY OF MEBANE  
STANDARD

STD. CONCRETE BASE PAD  
FOR DRAINAGE STRUCTURES

SCALE : N.T.S.

DATE : 07/12/13

DRAWN BY: PLW

NOTES:

ALL DROP INLET OVER 3'-6" IN DEPTH TO BE PROVIDED WITH STEPS 1'-0" ON CENTERS. STEPS SHALL BE IN ACCORDANCE WITH STD. SS-1 AND SS-2

CLASS "A" CONCRETE TO BE USED (3000 PSI).

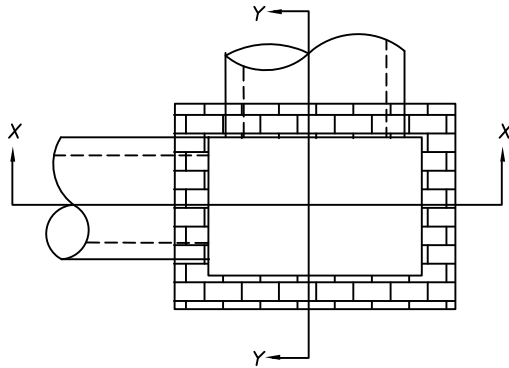
BRICK MASONRY DROP INLET TO BE USED IN LOCATIONS SUBJECT TO TRAFFIC ONLY UPON APPROVAL BY ENGINEER.

PRECAST CONCRETE DROP INLET WILL BE PERMITTED.

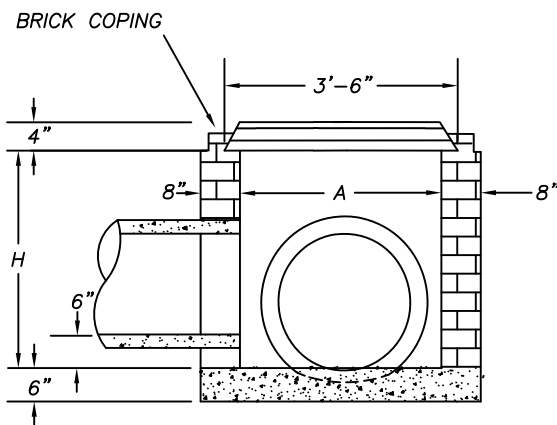
JUMBO BRICK WILL BE PERMITTED. CONCRETE BRICK OR PRECAST CONCRETE BLOCKS MAY BE USED IN LIEU OF CLAY BRICK.

FOR 8'-0" IN HEIGHT OR LESS USE 8" WALL. OVER 8'-0" IN HEIGHT, USE 12" WALL TO 6'-0" FROM TOP OF WALL. AND 8" WALL FOR THE REMAINING 6'-0".

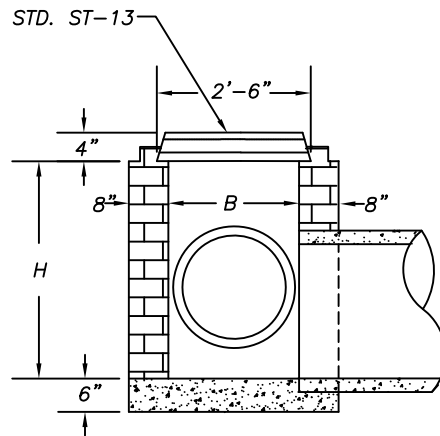
IF REINFORCED CONCRETE PIPE IS SET IN BASE OF SLAB BOX USE STANDARD SPEC. DRAWING ST-10.



PLAN WITH COPING REMOVED



SECTION-XX



SECTION -YY

DIMENSIONS AND QUANTITIES

DIMENSIONS OF BOX & PIPE				CONCRETE IN BASE CU. YDS.	TOTAL BRICK MASONRY			DEDUCTIONS FOR ONE PIPE	
PIPE D	SPAN A	WIDTH B	HEIGHT H(MIN)		PER FT. HEIGHT	BRICK COPING	MIN. H	C.M.	R.C
12"	3'-0"	2'-0"	2'-8"	0.267	0.313	0.037	0.871	0.020	0.032
15"			3'-0"				0.976	0.031	0.047
18"			3'-5"				1.106	0.044	0.065
24"			4'-0"				1.289	0.078	0.113
30"	3'-0"	2'-0"	4'-3"	0.267	0.313	0.037	1.367	0.122	0.170

ST-11

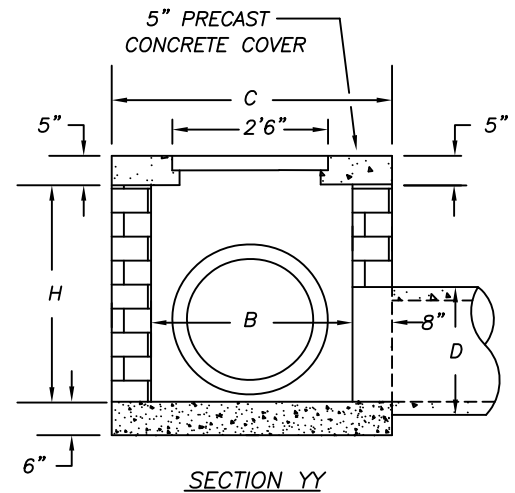
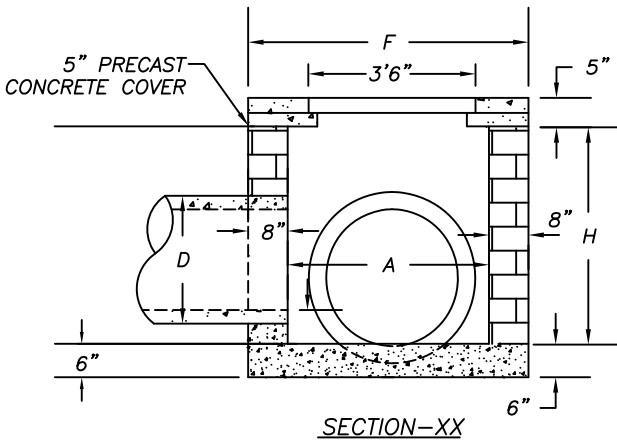
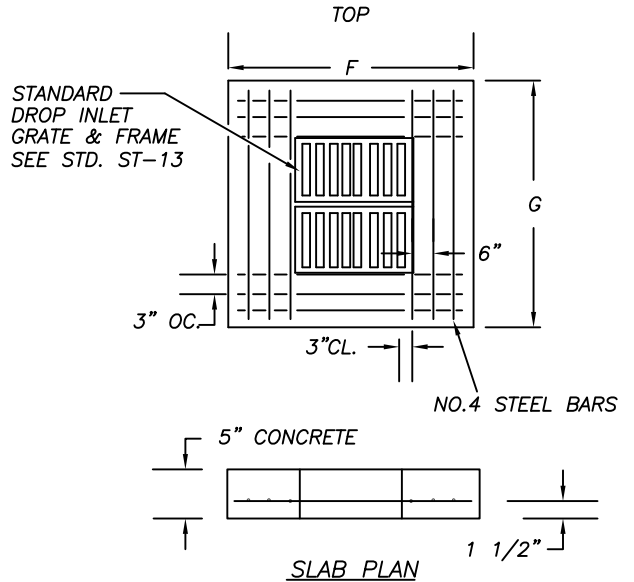
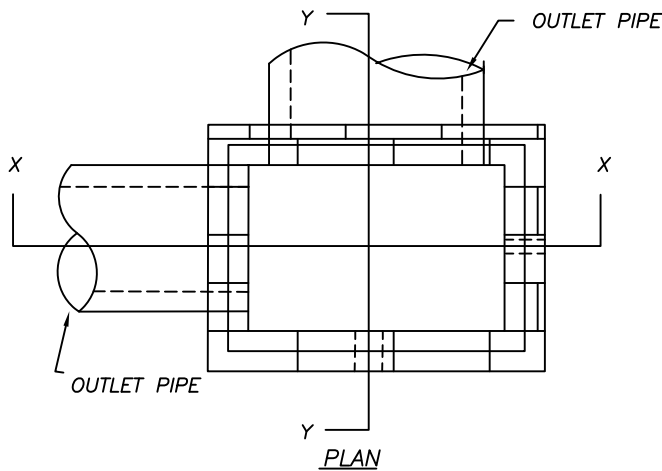
CITY OF MEBANE STANDARD

STANDARD BRICK DROP INLET 12" THRU 30" PIPE

SCALE : N.T.S.

DATE : 07/12/13

DRAWN BY: PLW



**NOTES:**

ALL CURB INLETS OVER 3'-6" IN DEPTH TO BE PROVIDED WITH STEPS 1'-0" ON CENTER. STEPS SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATION DRAWING SS-1 AND SS-2

CLASS "A" CONCRETE 3000 PSI TO BE USED.

PRECAST CONCRETE DROP INLET, JUMBO BRICK OR CONCRETE BRICK MAY BE USED IN LIEU OF CLAY BRICK.

FOR 8'-0" IN HEIGHT OR LESS USE 8-INCH WALL. OVER 8'-0" IN HEIGHT USE 12-INCH WALL TO 6'-0" FROM TOP OF WALL AND 8-INCH WALL FOR THE REMAINING 6'-0".

IF REINFORCED CONCRETE PIPE IS SET IN BASE OF SLAB OF BOX USE STANDARD SPECIFICATION DRAWING ST-10.

GRATE AND FRAME IN CONCRETE TOP SHALL CONFORM TO STANDARD SPECIFICATION DRAWING NO. ST-13.

REINFORCING STEEL SHALL CONFORM TO ASTH A-615 GRADE 60

DIM'S OF BOX & PIPE				COVER DIMENSION	
PIPE	SPAN	WIDTH	HEIGHT	F	G
D	A	B	H(MIN)		
30"	4'-0"	3'-6"	3'-11"	5'-4"	4'-10"
36"	4'-0"	3'-6"	4'-6"	5'-4"	4'-10"
42"	4'-0"	3'-6"	4'-11"	5'-4"	4'-10"
48"	4'-6"	4'-0"	5'-5"	5'-10"	5'-4"

**ST-12**

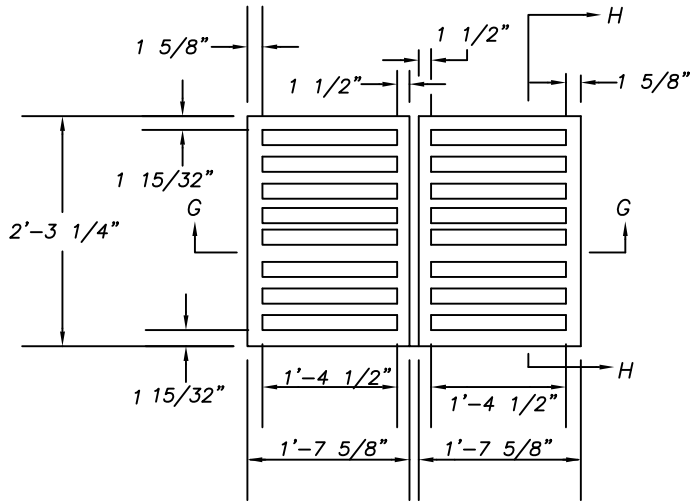
**CITY OF MEBANE STANDARD**

**STD. BRICK DROP INLET WITH SINGLE & MULTIPLE PIPES 30" THRU 48"**

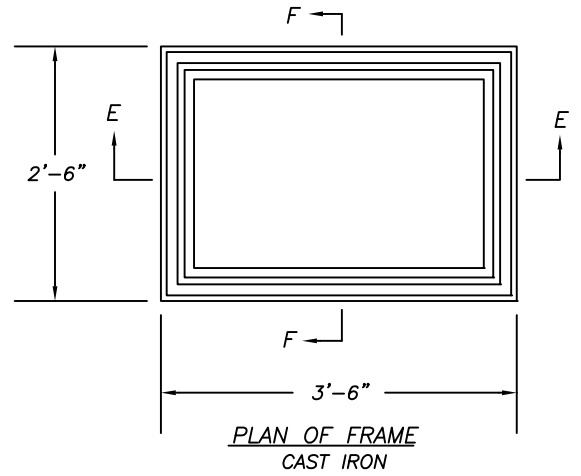
SCALE : N.T.S.

DATE: 07/12/13

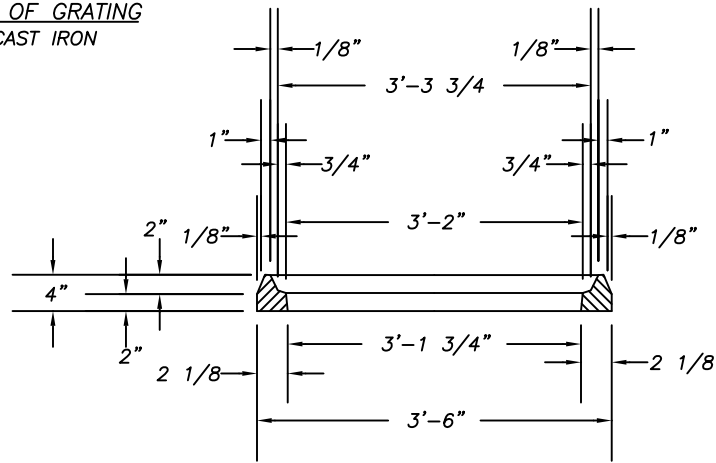
DRAWN BY: PLW



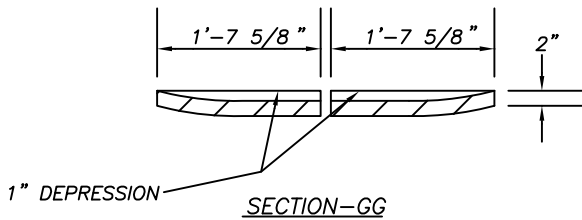
PLAN OF GRATING  
CAST IRON



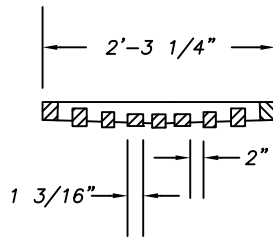
PLAN OF FRAME  
CAST IRON



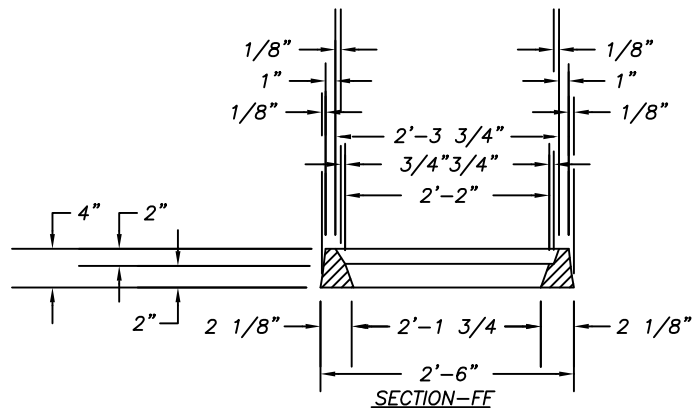
SECTION-EE



SECTION-GG



SECTION-HH



SECTION-FF

**NOTES:**

USE ON STANDARD DROP INLET SEE DRAWING ST-11/ST-12.

ST-13

CITY OF MEBANE  
STANDARD

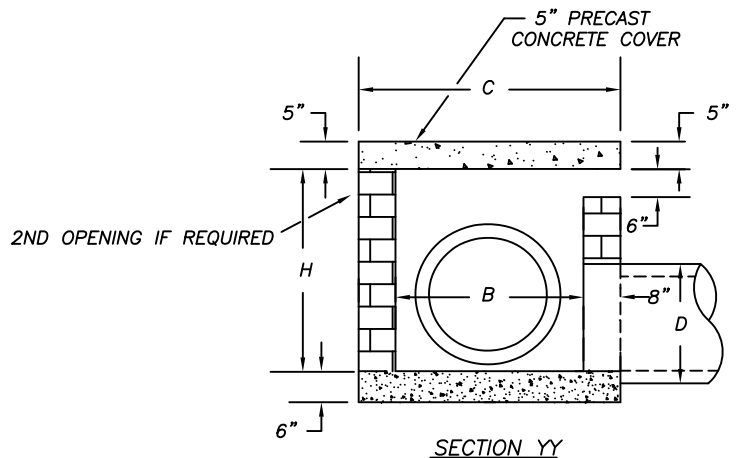
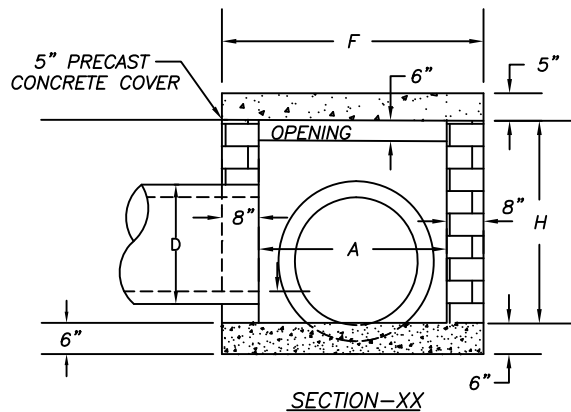
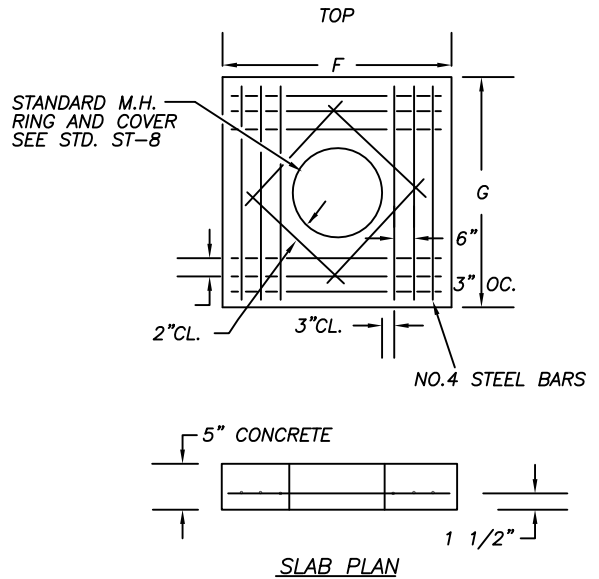
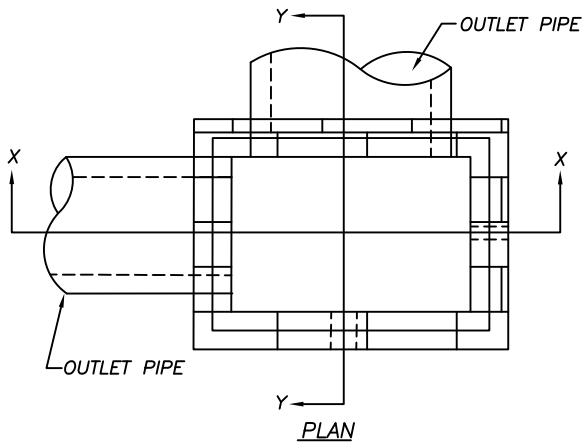
STANDARD DROP INLET  
GRATES AND FRAME

SCALE : N.T.S.

DATE : 07/12/13

DRAWN BY: PLW





**NOTES:**

ALL CURB INLETS OVER 3'-6" IN DEPTH TO BE PROVIDED WITH STEPS 1'-0" ON CENTER. STEPS SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATION DRAWING SS-1 AND SS-2.

CLASS "A" CONCRETE 3000 PSI TO BE USED.

PRECAST CONCRETE CATCH BASIN, JUMBO BRICK OR CONCRETE BRICK MAY BE USED IN LIEU OF CLAY BRICK.

FOR 8'-0" IN HEIGHT OR LESS USE 8-INCH WALL. OVER 8'-0" IN HEIGHT USE 12-INCH WALL TO 6'-0" FROM TOP OF WALL AND 8-INCH WALL FOR THE REMAINING 6'-0".

IF REINFORCED CONCRETE PIPE IS SET IN BASE OF SLAB OF BOX USE STANDARD SPECIFICATION DRAWING ST-10.

MANHOLE RING AND COVER IN CONCRETE TOP SHALL CONFORM TO STANDARD SPECIFICATION DRAWING NO. ST-8.

REINFORCING STEEL SHALL CONFORM TO ASTH A-615 GRADE 60 .

PIPE D	DIM'S OF BOX & PIPE			COVER DIMENSION	
	SPAN A	WIDTH B	HEIGHT H(MIN)	F	G
12"	3'-6"	2'-3"	2'-4"	4'-10"	3'-7"
15"	3'-6"	2'-3"	2'-7"	4'-10"	3'-7"
18"	4'-0"	2'-8"	2'-11"	5'-4"	4'-0"
24"	4'-0"	2'-8"	3'-5"	5'-4"	4'-0"
30"	4'-0"	3'-6"	3'-11"	5'-4"	4'-10"
36"	4'-0"	3'-6"	4'-6"	5'-4"	4'-10"
42"	4'-0"	3'-6"	4'-11"	5'-4"	4'-10"
48"	4'-6"	4'-0"	5'-5"	5'-10"	5'-4"

ST-14

CITY OF MEBANE  
STANDARD

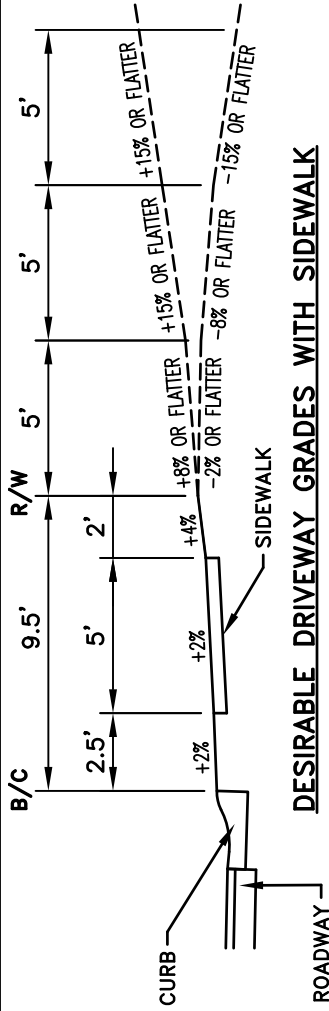
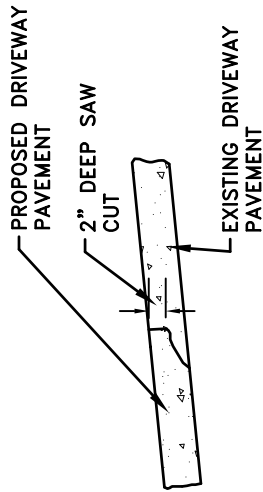
STD. BRICK CATCH BASIN WITH  
SINGLE & MULTIPLE PIPES 12" THRU 48"

SCALE : N.T.S.

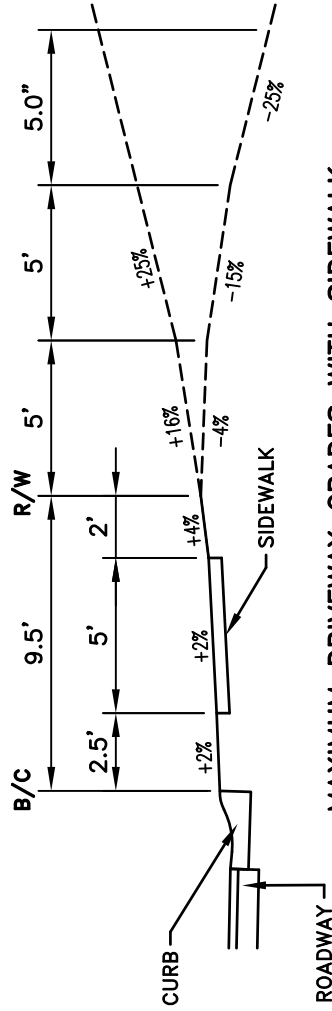
DATE : 4/27/15

DRAWN BY: WDF

**METHOD OF TIE IN**  
 WHEN EXISTING DRIVEWAY PAVEMENT IS CONCRETE A SAW CUT 2" DEEP SHALL BE REQUIRED AT THE POINT OF TIE IN WITH EXISTING DRIVEWAY GRADE. SAW JOINT TO BE PERPENDICULAR TO EDGE OF EXISTING DRIVEWAY PAVEMENT.

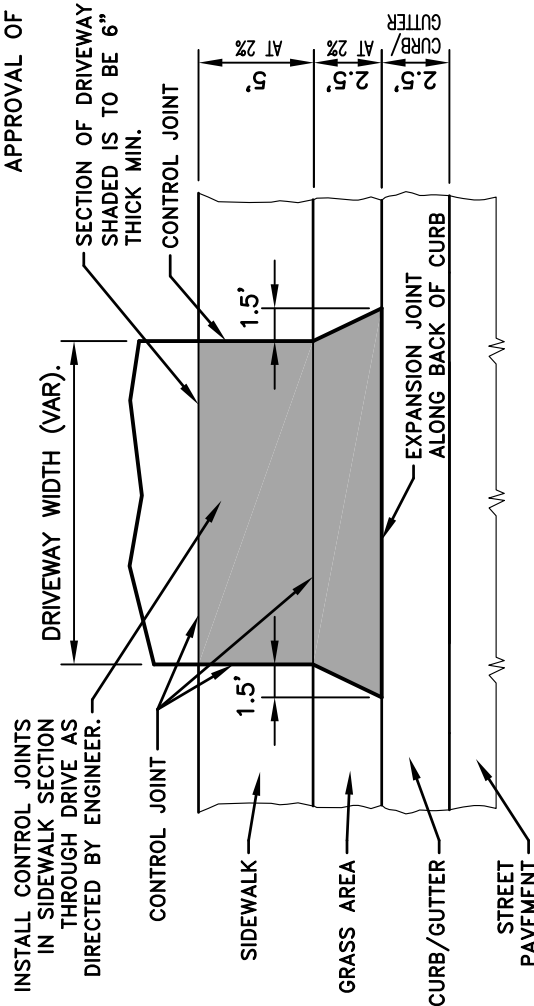


**DESIRABLE DRIVEWAY GRADES WITH SIDEWALK**



**MAXIMUM DRIVEWAY GRADES WITH SIDEWALK**

MAXIMUM DRIVEWAY GRADES PERMITTED ONLY WITH SPECIAL APPROVAL OF ENGINEER



**DETAIL OF PROPOSED DRIVEWAY W/ ROLLED CURB**

**GENERAL NOTES:**

1. INSTALL CAST IRON CLEAN-OUT FRAME & COVER OVER CLEAN OUT IF CLEAN-OUT IS IN DRIVEWAY. SEE MEBANE'S SPECIFICATIONS DETAIL SS-18 FOR DETAILS.
2. WATER METER BOX IS TO LOCATED A MINIMUM OF 2'-0" FROM EDGE OF DRIVEWAY.
3. DRIVEWAY APRON IS TO BE 3,000 PSI CONCRETE AND AIR ENTRAINED.

ST-15

CITY OF MEBANE  
 STANDARD

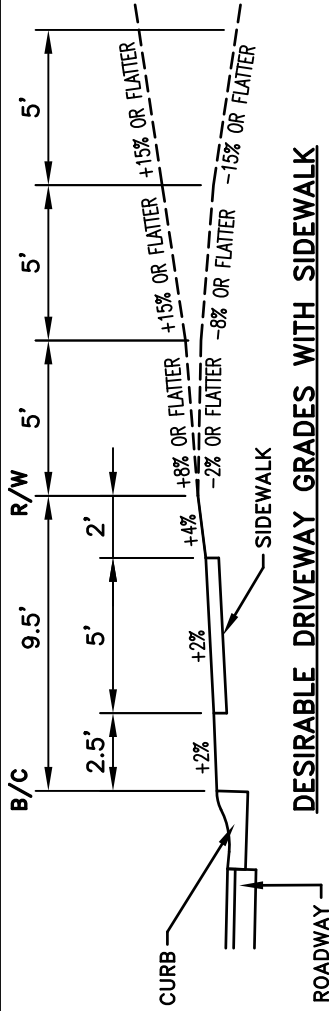
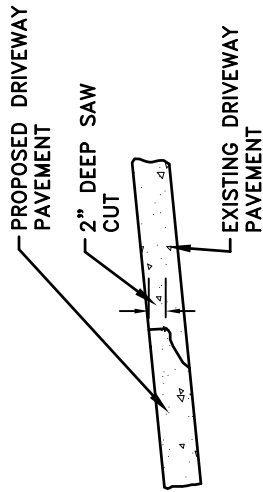
DRIVEWAY DETAIL  
 WITH 30" ROLL CURB

SCALE : N.T.S.

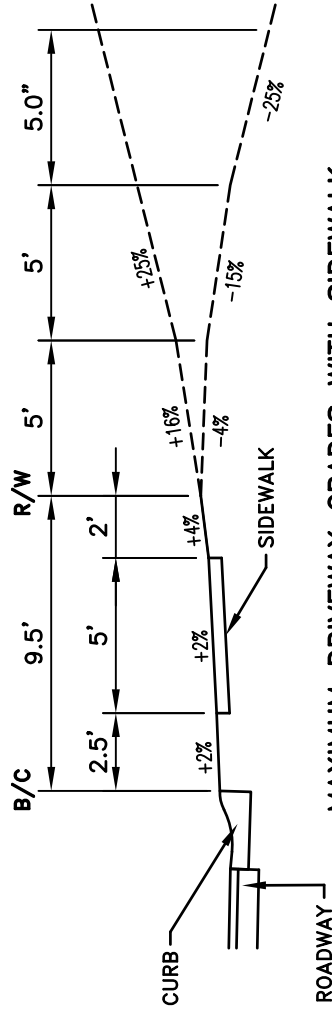
DATE : 4/27/15

DRAWN BY: WDF

**METHOD OF TIE IN**  
 WHEN EXISTING DRIVEWAY PAVEMENT IS CONCRETE A SAW CUT 2" DEEP SHALL BE REQUIRED AT THE POINT OF TIE IN WITH EXISTING DRIVEWAY GRADE. SAW JOINT TO BE PERPENDICULAR TO EDGE OF EXISTING DRIVEWAY PAVEMENT.

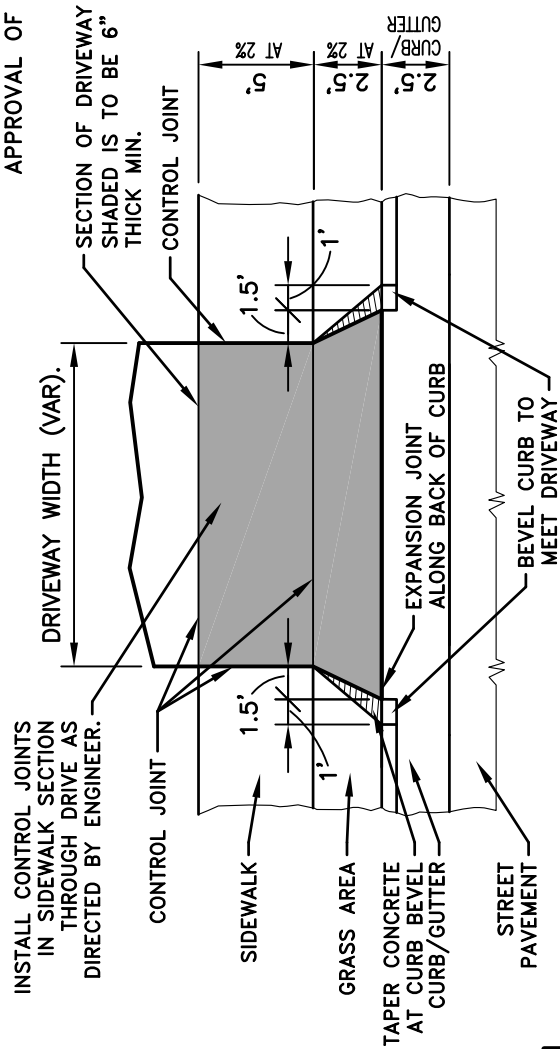


**DESIRABLE DRIVEWAY GRADES WITH SIDEWALK**



**MAXIMUM DRIVEWAY GRADES WITH SIDEWALK**

MAXIMUM DRIVEWAY GRADES PERMITTED ONLY WITH SPECIAL APPROVAL OF ENGINEER



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3. DRIVEWAY APRON IS TO BE 3,000 PSI CONCRETE AND AIR ENTRAINED.

ST-16