

Engineering Design and Construction Standards within County Right of way (ROW)

The following design and construction standards must be followed when working within any Charlotte County ROW. A variance request can be made to any of the provisions included in the design manual. The County Engineer has the right to approve a variance request if the request meets the intent of the code.

I. DRAINAGE SWALES

- A. A culvert must be installed under all driveways at the time of construction or repair.
- B. All unpaved areas within the County ROW or easements must be stabilized with sod unless otherwise approved by the County Engineer. All sodding will require grades to be set by the County Engineering Department if not called out on the approved plans. Sod must be sloped to drain away from the roadway pavement with a slope of at least 3/8 inch per foot or 3% and in no instance, will sod be placed above the finish elevation of the edge of pavement or driveway surface and not exceed more than one (1) inch below the edge of pavement. The side slopes (front and back) of the swale shall be no steeper than four (4) foot horizontal to one (1) foot vertical unless approved by the County Engineer because of special circumstances. Minimum swale flow line gradient is 0.2%. Minimum right-of-way swale depth is six (6) inches below edge of pavement. Maximum right-of-way swale depth is two and one half (2.5) feet below edge of pavement but shall not be constructed below the water table. Swale grading shall have a tolerance of +0.00/-0.10 foot of final design grade, except for the swale driveway surface which shall have a tolerance of +0.00/-0.50 inch of final design grade. All roadways shall conform to County Engineering Department grade requirements.
- C. The purpose for inspecting the sod, pipe, drive approach, and other appurtenances is to verify compliance with the standards specified in paragraph B (i.e. construction specifications and tolerances).
- D. When an adjacent outfall easement is actively used for local storm drainage, it shall be the responsibility of the developer of the contiguous property to grade the swale in accordance with the approved drainage plans on file with the County. This usually requires the side slopes to be graded at four (4) foot horizontal to one (1) foot vertical slope on both sides within the limits of the easement and six (6) foot horizontal to one (1) foot vertical on the property. If the design of the site does not allow these slopes to be maintained, through the use of extra deep footings, relocation of building, retaining wall, etc., then the owner must pipe the outfall to the specifications of the Engineering Department.
- E. Positive drainage must be maintained throughout construction. It should be noted that a temporary driveway pipe is needed in most cases to achieve positive flow.

II. PIPE

- A. Applicant is required to use pipe of the diameter and materials specified below by the Engineering Department, or as specified on an approved plan unless prior approval for a substitution is obtained. Said substitution may require a re-stake at the applicant's expense.
- B. All pipe shall be set to line and grade approved by the County Engineering Department. Pipe lengths shall be determined by providing a maximum slope from the edge of driveway to the pipe invert of 2:1 for residential and 3:1 for commercial. If used, mitered end section must conform to current Florida Department of Transportation specifications and indices. It shall be the obligation of the pipe installer to provide the correct length of pipe according to the above specification. No headwalls perpendicular to the traveled way will be allowed within the clear zone area and where permitted shall be a minimum of two (2) feet from edge of driveway and shall not extend above the finish elevation of the driveway over the pipe.
- C. Allowable pipe materials are:
 - 1. Aluminum (AASHTO M-196 or M-211).
 - 2. Reinforced concrete (AASHTO M-170 or ASTM C-76, Class III, Wall B).

3. Asphalt coated corrugated metal pipe (AASHTO M-36 or M-190) up to eighteen (18) inches in diameter and where inverts are above four (4) feet NGVD.
 4. Others, as approved in writing by the County Engineer.
 5. No HDPE pipe shall be allowed in the Rights-of-Way. Contech-2000 will be allowed under driveways only.
- D. Lot pipes can be approved by the County Engineer if slopes cannot be met when a secondary swale is provided to drain the adjacent roadway, and a minimum of six (6) inches of cover is provided over the pipe. One or more catch basins will be required by the County Engineer and shall be constructed at the applicant's expense. Any pipe greater in length than the minimum driveway culvert pipe plus ten (10) feet shall be construed as a full lot pipe and be subject to compliance with the standard governing lot pipes. A minimum of five (5) feet must be left open between culverts unless enclosed with a catch basin. Temporary pipe extensions shall be allowed for builder's model parking, but must be restored to standard configuration by the builder when initial model use is discontinued.
 - E. Mitered end sections per Florida Department of Transportation (FDOT) specifications shall be required on all road and bridge roadways with a posted speed limit over thirty (30) miles per hour or any state maintained road transferred to the County or constructed with Federal funds.
 - F. Pipe joints shall be watertight. The joints shall be sealed by the proper method for that particular pipe per FDOT specifications or a method approved by the County Engineering Department.
 - G. Minimum pipe diameter for any County Rights-of-Way or easements is fifteen (15) inch round or thirteen (13) inch by seventeen (17) inch oval for aluminum pipe and fifteen (15) inch round or twelve (12) inch by eighteen (18) inch oval for concrete pipe. Asphalt coated CMP shall be fifteen (15) inch round or eleven (11) inch by eighteen (18) inch minimum and eighteen (18) inch round or sixteen (16) inch by twenty-five (25) inch maximum.
 - H. Final pipe elevation must be set at grade or no greater than +0.00"/-.10" from design elevation. Concrete pipe shall not be inspected or backfilled for a minimum of twenty-four (24) hours after concreting the seams.
 - I. Bends in pipes – Curved pipeline installations must receive prior approval from the Engineering Department and asbuilts of the pipe must be provided and approved by the County before permit is closed out.

III. DRIVEWAYS

- A. Driveways are required for all improved properties having access to public roads. A detailed driveway plan must be submitted to the County Engineering Department for approval prior to permit issuance for driveways within two hundred (200) feet of a bridge approach, or entering on a major or minor arterial road as shown on the ROADWAY FUNCTIONAL CLASSIFICATION MAP of the Charlotte County Comprehensive Plan. The driveway plan shall illustrate the proposed location and dimensions of the drive approach and its relationship with existing pavements to determine the appropriate improvements to existing facilities. A driveway shall not enter onto roadways near bridge approaches, if alternative locations are available. The County Engineer reserves the right to deny the permit application or require a modification to the proposed design when deemed appropriate in the interest of public safety. Permits for drive approach construction within this category must be obtained prior to the issuance of a building permit. All temporary construction access entrances shall have an issued permit separate from all other permits issued for the same site. This is to ensure drainage is maintained while construction is ongoing, and the proper removal and restoration of right-of-way and all drainage is done at completion. At no time, will drainage within the Rights of Way be blocked and when found to be blocking drainage, an immediate stop work order will be issued for the entire project and not removed until issue is corrected. If not immediately corrected the County reserves the right to have their Maintenance and Operations personnel remove the blockage and charge the permit holder for the costs involved.
- B. Temporary access driveway permits can be approved; however is not approved for permanent access to a property. Driveways will only be considered permanent when constructed with a project that has

been approved. Driveways shall be built per the following specifications and in accordance with the Charlotte County Standard Details R-3, sheets 1-4:

1. Residential- Single Family and Duplex- 10' minimum 24' maximum
 - a. Circular or Double- 10' each minimum 16' each maximum providing drainage between each drive is open swale and has a minimum 20' of separation between drives. Piping between drives is allowed if approved by the County Engineer by variance request and a catch basin is installed centrally located between drives with grated top.
 - b. Culvert Cover shall be 4" (inches) if driveway is to be concrete. Cover required for an asphalt driveway is to be 12" (inches) and can be reduced if armored with 4" (inches) of 3000 PSI Fiber Mesh Reinforced concrete.
2. Commercial- Single- 20' minimum 35' maximum, with a minimum radius of 35'
 - a. Double- 16' each minimum 30' each maximum providing drainage between each drive is open swale and has a minimum 20' of separation between drives. Piping between drives is allowed if approved by the County Engineer by variance request and a catch basin is installed centrally located between drives with open grated top.
 - b. Culvert Cover shall be 6" (inches) if driveway is to be concrete. Cover required for an asphalt driveway is to be 12" (inches) and can be reduced if armored with 6" (inches) of 3000 PSI Fiber Mesh Reinforced concrete.
 - c. Driveway radius must be contained on site and cannot extend past the projection of the subject property line.

C. Material specifications within Rights-of-Way

1. Residential
 - a. Asphalt driveways shall have a minimum six (6) inch shell base (minimum 100 LBR, 98% compaction by AASHTO T-180), and two (2) inches of type S-III asphalt concrete surface minimum.
 - b. Concrete driveways shall have a minimum four (4) inch shell base (minimum 70 LBR, 98% compaction by AASHTO T-180), and shall have the required footer and rebar where it terminates at the edge of pavement and four (4) inches of three thousand (3000) PSI concrete with fiber mesh and require a broomed finish and joints.
2. Commercial
 - a. Asphalt driveways shall have a minimum eight (8) inch shell base (minimum 100 LBR, 98% compaction by AASHTO T-180), and two (2) inches of type S-III asphalt concrete surface minimum.
 - b. Concrete driveways shall have a minimum six (6) inch shell base (minimum 70 LBR, 98% compaction by AASHTO T-180), and shall have the required footer and rebar where it terminates at the edge of pavement and six (6) inches of 3000 PSI concrete with fiber mesh and require a broomed finish with joints.

- D. The algebraic difference in grades of front and rear drive slopes shall not exceed 12% as computed between the edge of pavement and the right-of-way line. If achievable, the slope of the driveway within County ROW should be less than 2% to meet ADA requirements for future sidewalks. The pipe may be sumped (invert of pipe below swale flow line) up to 50% the vertical diameter to provide the required cover by design of the Engineering Department.
- E. All driveways must be hard surface asphalt or concrete within County maintained ROWs.
- F. All driveway locations shall be in accordance with Charlotte County Standard Detail R-3, sheet 4. All driveways shall be constructed so that no part of the driveway, excluding the transition, is closer than twenty-five (25) feet to the intersection of the right-of-way lines of any nearby roadway intersection. All driveways shall be constructed so that no part of the driveway (excluding the transition between

the edge of the roadway pavement and the right-of-way line) is closer than five (5) feet from a side lot line extended perpendicular to the centerline of the road. Transitions (flares) shall be limited to an additional three (3) feet in width on each side of the driveway.

- G. Charlotte County shall not be responsible for the repair, replacement, or refurbishing of any driveway, or walkways, which has a specialized surfacing, coloring, design, or other decorative treatment. Of those driveways, the County needs to complete the project in the ROW, and shall be put back concrete. The home owner can however replace these types of driveways at their own expense after the completion of the construction project.

IV. CATCH BASINS

- A. Catch basins are required for the following conditions

1. Change in pipe direction.
2. Change in pipe size.
3. Change in flow line elevation.
4. Ground surface low points.
5. Secondary swale interception.
6. Points of change in pipe material, such as metal to concrete, or aluminum to steel.
7. All points of maximum pipe runs up to one hundred sixty (160) feet.
8. No catch basins will be allowed within a residential driveway.

- B. Catch basins should be constructed on common property lines whenever possible.

- C. The grates or slots of all completed catch basins shall be at least six (6) inches below the edge of road pavement. All catch basins shall be constructed in accordance with the Florida Department of Transportation Standard Specifications and Standard Index. A relief opening shall be provided when a pipe terminates in a catch basin without any other outflow provision. Reinforcing bars are required in all catch basins; in addition, block basins shall have holes filled with mortar.

V. RECLAMATION AND REPAIR OF JOB SITE

- A. It shall be the responsibility of the permit holder to make proper repairs of all negligent damage to road pavement, swales, or adjacent properties prior to issuance of final approval.

1. Areas of Responsibility

- a. Primary Area – The contractor/builder/permit holder shall be responsible for the repair and restoration of the right-of-way between the property lines, and the roadway area as defined by the center line and the extension of the side lot lines.
- b. Secondary Area – The contractor/builder/permit holder shall be responsible for the repair and restoration of damage to all roadways, swales, drainage facilities, utilities, mail boxes, signs, vegetation, etc. in the immediate vicinity, resulting from negligent construction activities, but not limited to, adjoin or abutting properties, siltation of drainage structures of facilities immediately downstream, wind strewn debris and any damage resulting from construction.
- c. All work within the right-of-way, unless otherwise directed by Charlotte County, shall conform to the Florida Department of Transportation, most current Standard Specifications for Road and Bridge construction, Manual of Uniform Traffic Control Devices and County Ordinances.
- d. Restoration shall return these areas to equal or better than original condition and to the satisfaction of the Charlotte County Engineer.
- e. NO equipment, building materials, including, but not limited to fill, base material, building trash, and tools shall be left within ten (10) feet (or within the Clear Zone as stated in the FDOT Standard Design Manual, 600 index) of edge of pavement.
- f. Charlotte County shall be given timely notice of any repair or restoration work. If any work or existing condition is covered or otherwise hidden from view, without approval or consent of the County Engineer, it shall, if required by the County Engineer, be uncovered for examination.

2. Pavement Repairs – This item shall include the restoration, repair, or replacement of all negligently damaged pavement, base, curbs, curb inlets, sidewalks, pathways, or bike paths. All roadway restoration shall be completed in accordance with the Charlotte County Roadway Restoration Details R-5, Sheets 1-7.
 - a. Base – Disturbed or damaged areas shall be removed and replaced with material of the same type material removed. Soil cement base material shall be replaced with a minimum six (6) inches of three thousand (3000) PSI concrete. Finished surface shall be uniform and follow the contours of existing roadway, two (2) inches below asphaltic surface. Marl or shell material shall have a minimum 100 LBR, free of deleterious matter, a minimum six (6) inch depth, compacted to 98% AASHTO T-180, with a uniform surface, following the contours of existing roadway, one (1) inch below asphaltic surface.
 - b. Prime/Tack Coat – This work consists of applying bituminous materials as a tack coat between the specified asphalt surface courses including existing pavements to be resurfaced. All items and all work shall conform to the lines, grade, dimensions, and notes as specified on the plans.
 - c. Cleaning the Base – Before any bituminous material is applied, all loose material, dust, caked clay, and foreign materials, which might prevent proper bond with the existing surface, shall be removed. Where the prime or tack coat is applied adjacent to driveways, curb and gutter, or valley gutter, such concrete surfaces are to be protected and kept free of bituminous material. The Contractor shall utilize dust abatement measures at all times.
 - d. Application of Prime Coat – The surface to be primed shall be cleaned and shall not contain more than 90% of the optimum moisture content. Any glazed finish shall be removed as specified for shell bases. Bituminous material shall be applied at the rate of one tenth (.10) lbs. per square yard and shall be sufficient so as to coat the surface thoroughly. Bituminous material shall not be applied in excess to pool or run off the base material. The base shall be sufficiently moist to obtain maximum penetration of the bituminous. In all cases, upon application of bituminous material, the primed base shall be covered by a light uniform application of sand or screenings for protection prior to opening the primed base to vehicular travel. The sand or screening shall be lightly dragged with a drag broom, after which the entire area shall be rolled with a traffic roller. If approved by the County and traffic conditions are warranted, the application may be made on one-half (1/2) of the width of the base at a time; care shall be taken to apply the correct amount of bituminous material at the joint.
 - e. Application of Tack Coat – Where a bituminous surface is to be laid and tack coat is required, both shall be applied as herein specified. On the existing asphalt course, application of the tack coat shall follow the application of 0.06 gallons per square yard. The bituminous material shall be heated to a suitable consistency as designated by the County Engineer or his/her representative. Bituminous material shall not be applied in such a way that it is exposed to dust or other foreign material that may impact its adhesiveness. The tack coat shall be kept free from traffic until the asphalt course is laid.
 - f. Pavement – All pavement repair material shall be a minimum two (2) inch Type III Hot Mix Asphalt. (Cold mix will be allowed as a temporary repair only.) All edges shall be saw cut in straight lines; the vertical edges and entire area to be patched shall be free of any dust, sand, or other loose material and shall be tacked with a minimum of 0.10 gallons per square yard of liquid asphalt. Compacted surface shall be uniform, and conform to the contours of existing asphaltic surface.

3. Repairs to Roadway with Rigid Base Construction – At the discretion of Charlotte County Engineer or his/her designated representative shall be as follows:
 - a. Badly deteriorated asphaltic surfaces over Rigid Base Construction Roadways (i.e. soil cement) may be repaired by the use of six (6) inch minimum three thousand (3000) PSI concrete with fibermesh. Edges shall be vertically saw cut, old asphalt and soil cement base removed to a minimum depth of six (6) inches and replaced with concrete, flush with and conforming to the contours of existing asphaltic surface. Leading edge of driveways shall have a one (1) inch lip or rise at, and in line with, existing edge of pavement where applicable. All roadway restoration shall be completed in accordance with the Charlotte County Roadway Restoration Details R-5, Sheets 1-5. **CAUTION!! THIS METHOD APPLIES ONLY TO RIGID BASE ROADWAYS, AND MAY NOT BE USED FOR FLEXIBLE BASE DESIGN ROADWAYS.** (i.e. Marl, Shell, Limerock, etc.)
4. At no time shall the swale be filled, or altered in any way which would obstruct drainage. Except at the high point, a temporary pipe shall be installed, and remain in service until the permanent installation.
5. The edge of pavement on all roadways shall be protected by the use of fill material as follows:
 - a. Depth of protective pad shall not exceed six (6) inches.
 - b. Width of protective pad shall not exceed five (5) feet.
 - c. Protective pad must be removed before nightfall each day if road is heavily used.
6. In the event the permit holder elects not to make pavement repairs himself, he may advise the Engineering Department of this choice prior to final inspection and post a fee, determined by the Inspector, for which the County will make the pavement repairs. This only applies to pavement damage; all other areas of restoration are still the responsibility of the permit holder.

VI. Repaving or Overlay Required

- A. All widening of existing roadways or construction of new or additional turn lanes, acceleration or deceleration lanes shall be accompanied by complete overlay of both the existing roadway pavement and widened or newly constructed area, to ensure the correct profile of improvements and to obliterate any existing roadway markings.
- B. In addition to the standards and criteria contained in [section VI. A](#), the following criteria shall be met:
 1. Overlay pavement thickness shall be one (1 ½) inches minimum.
 2. Profile deficiencies or the shifting of the existing crown of the roadway shall be accomplished by the application of asphaltic concrete paving. This process shall be accomplished prior to any excavation for widening. Milling of the existing surface will not be allowed. Paving to correct profile deficiencies shall be brought to finish grade, minus one (1 ½) inches.
 3. Existing roadway markings will be obliterated by the application of asphalt pavement only. Abrading, grinding, painting or blacking out will not be allowed.

VII. SIDEWALKS

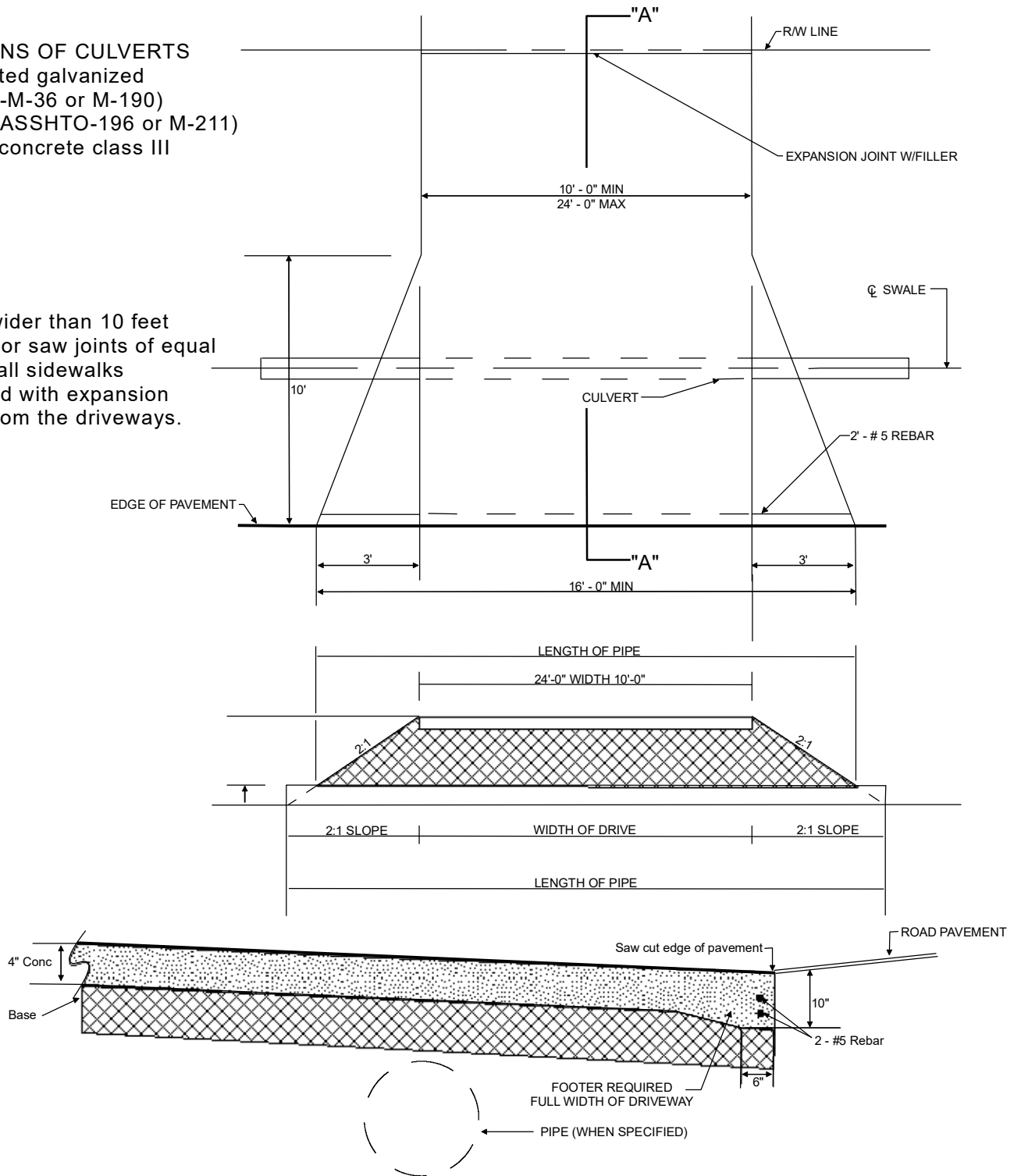
- A. Sidewalks within Charlotte County ROW shall be constructed in accordance with the following specifications and the Charlotte County Standard Details for Sidewalks R-6 sheet 1.
 1. Minimum sidewalk width shall be eight (8) feet. If approved by the County Engineer the width may be reduced to six (6) feet in exceptional circumstances, and five (5) feet in extreme circumstances, where insufficient space exists to construct the standard width.
 2. All sidewalk ramps, curb ramps, and detectable warnings shall be constructed to meet the requirements of the latest edition of the Americans with Disability Act (ADA).

3. Prior to placing concrete sidewalk, the subgrade shall be stabilized with commercial stabilizing material to a depth of eight (8) inches to provide a firm and unyielding base, achieving a minimum Limerock Bearing Ratio (LBR) of seventy (70) unless otherwise specified in the plan set. The stabilized subgrade shall extend six (6) inches beyond the sidewalk on either side. No sidewalk concrete shall be placed until the subgrade has been accepted by the County.
4. Concrete sidewalks shall be constructed to a minimum thickness of four (4) inches, except across commercial accesses, where they shall be a minimum thickness of six (6) inches, using Portland Cement Concrete with a minimum twenty-eight (28) day compressive strength of 3,000 p.s.i. with fibermesh additive.
 - a. The concrete shall be reinforced with fibermesh.
 - b. Fibermesh fibers will be mixed in accordance to standards set forth in ASTM C-1116. Reinforcing fibers shall be used in strict accordance with the manufacturer's instructions and recommendations as to the type and amount for uniform distribution. Only fibers specifically designed and manufactured for use in concrete and so certified by the manufacturer shall be acceptable. If specifications are not met the work will not be accepted and shall be removed and replace at no additional costs to the County.
 - c. The contractor will be required to provide the County with the appropriate compressive strength test results.
5. Expansion joints shall be provided between existing sidewalks and curbs or driveways and at intersections between sidewalk and other fixed objects, at intervals at new pours, at all cold joints and at the intersection of the sidewalk. Expansion joints are not required to be installed at adjoining flexible asphalt pavements. The spacing for contraction/control joints shall be equivalent to the sidewalk width. Expansion joints shall be spaced no greater than 5 times the sidewalk width and at an even joint. Tooled joints shall be straight and perpendicular to the edge of the sidewalk. The Contractor shall use expansion joint caps with removable cap strips as manufactured by Vinylex Corporation. Expansion joint sealer shall be Sikaflex 1CSL as manufactured by Sika USA or equivalent approved. Expansion joint sealer shall not be placed in depths greater than 3/4" at any one (1) time. If the joint requires greater than 3/4" of joint sealer, the Contractor shall place the material in two (2) placements, only after the first placement has sufficiently cured. All removable cap strips shall be placed above the finished sidewalk surface and shall not be tooled over. The removable cap strips shall be pulled and filled with joint sealer within twenty-four (24) hours of the placement of the concrete.
6. Where the sidewalk meets pavement, including public roads and driveways, the Contractor shall saw cut edge of the existing pavement and provide a thickened surface and two (2) #5 rebar's separated four (4) inches apart vertically. All detail dimensions shall be in accordance with Florida Department of Transportation design standards and specifications.
7. The Contractor shall install tactile (detectable warning) surfaces per the details in the attachments at all street crossings and driveways over 24 feet in width and be compliant to the ADA Act.
8. Concrete shall be cured in accordance with the requirements of the most current edition of the FDOT Specifications.
9. All sidewalk surfaces shall be a broomed finish perpendicular to the direction of travel.

SPECIFICATIONS OF CULVERTS

- A. Asphalt coated galvanized steel (ASSHTO-M-36 or M-190)
- B. Aluminium (ASSHTO-196 or M-211)
- C. Reinforced concrete class III
- D. A-2000

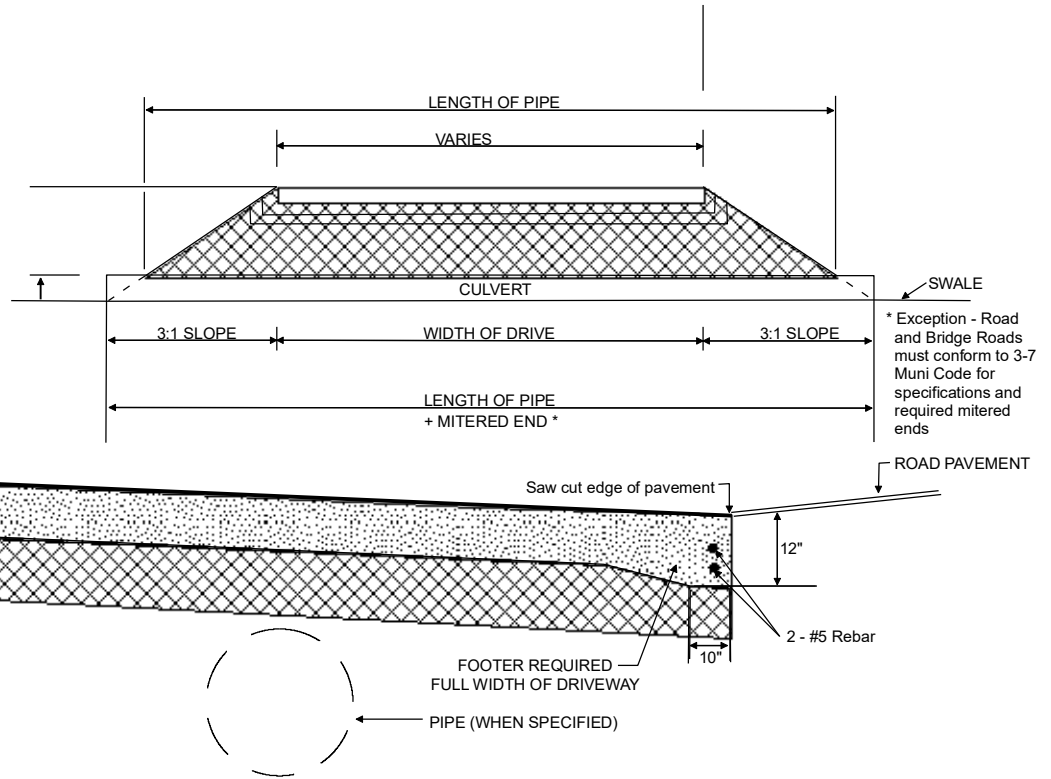
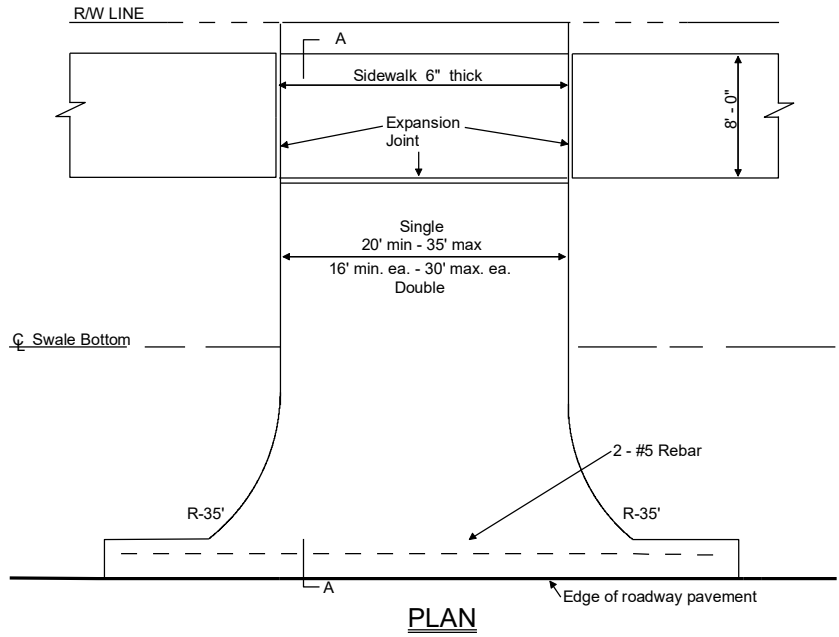
All driveways wider than 10 feet shall have tool or saw joints of equal segments and all sidewalks shall be isolated with expansion joint material from the driveways.



SECTION "A - A"
N.T.S.

NOTE:
1. THE CULVERT SIZE TO BE SPECIFIED BY THE COUNTY INSPECTOR.

CHARLOTTE COUNTY ENGINEERING DESIGN STANDARD

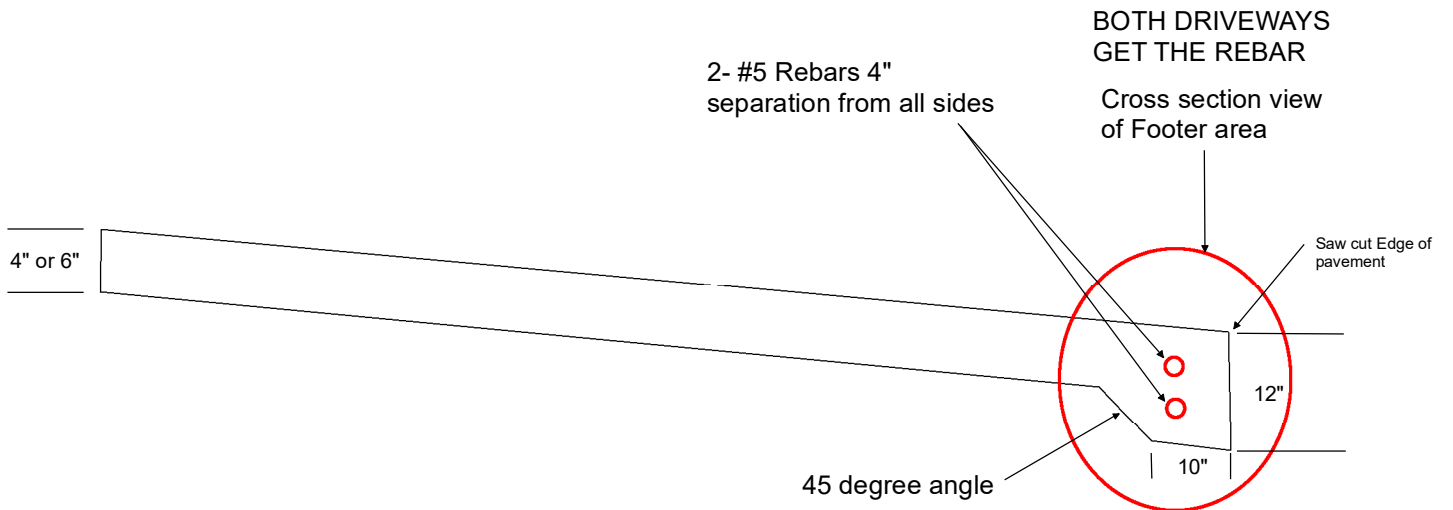


NOTE:
All expansion joints shall have zip strip and sika flex caulking

All driveways over 10' shall have tool or saw joints at equal segments not to exceed 10' intervals for all directions.

SECTION A - A

CHARLOTTE COUNTY ENGINEERING DESIGN STANDARD



Entire Driveway shall be 3000PSI Concrete with fiber mesh additive.

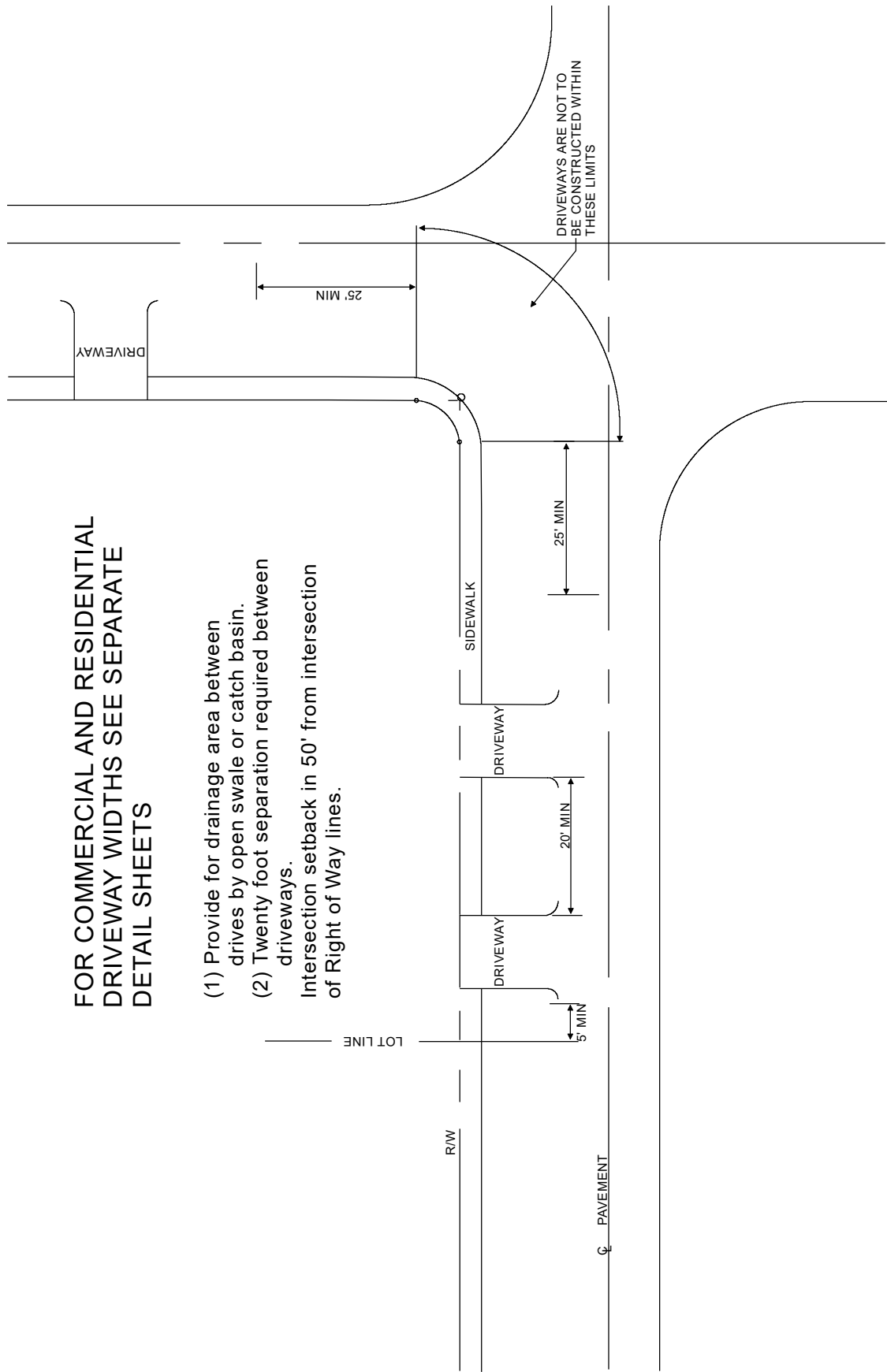
Commercial Driveway Footer dimensions as shown 12" by 10"

Residential Driveway Footer dimensions are 10" by 6"

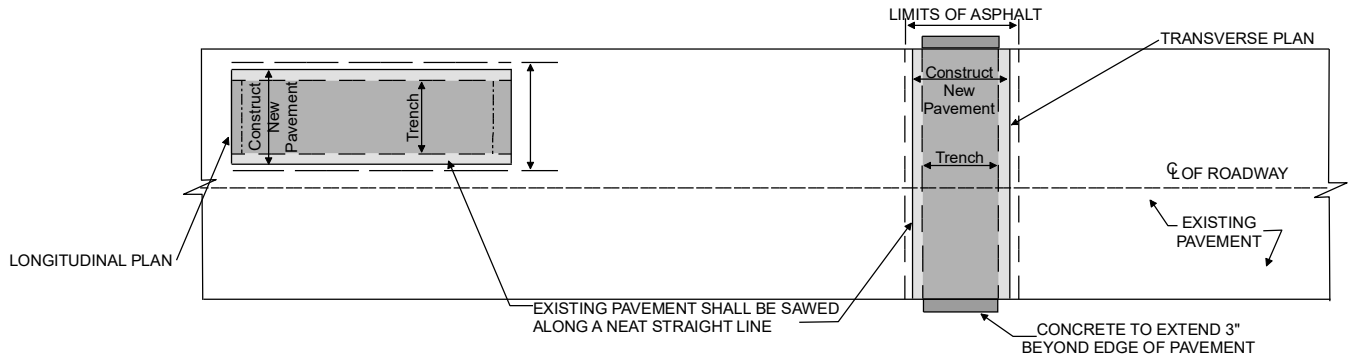
CHARLOTTE COUNTY ENGINEERING DESIGN STANDARD

FOR COMMERCIAL AND RESIDENTIAL DRIVEWAY WIDTHS SEE SEPARATE DETAIL SHEETS

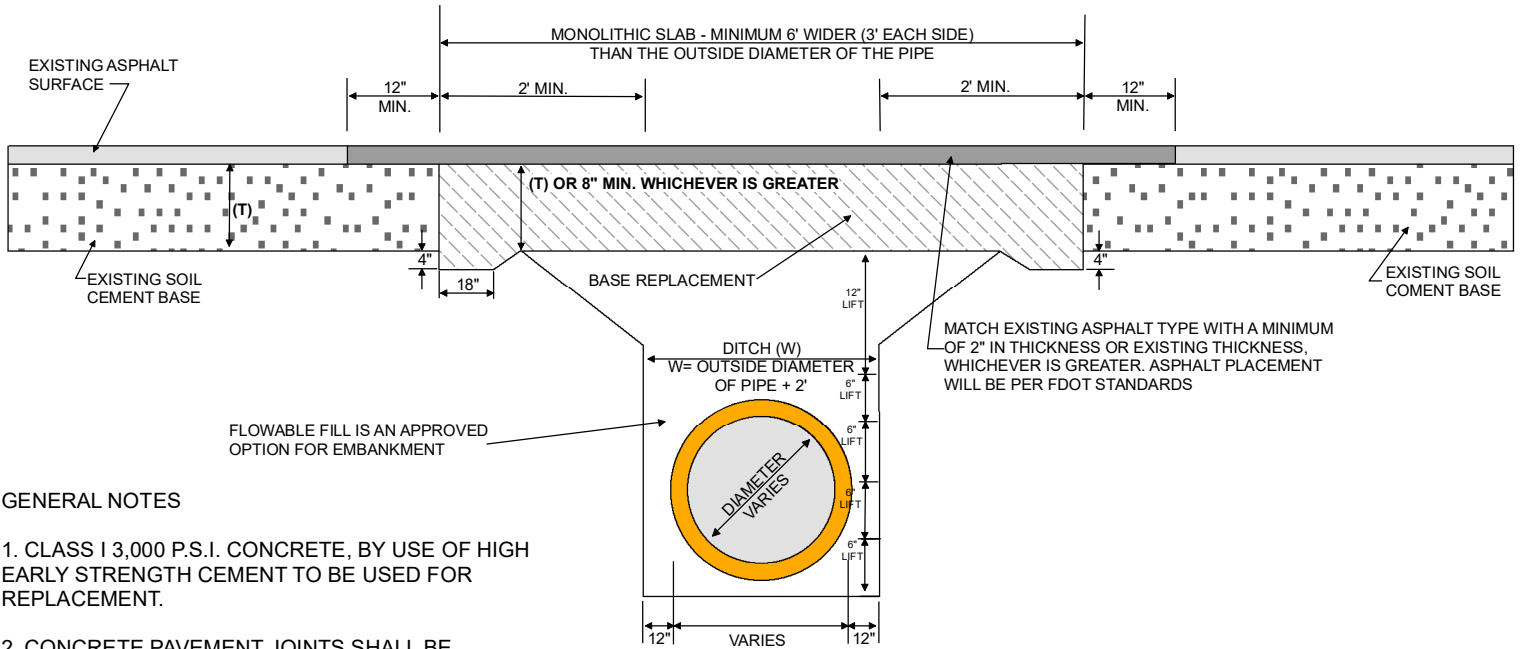
- (1) Provide for drainage area between drives by open swale or catch basin.
 - (2) Twenty foot separation required between driveways.
- Intersection setback in 50' from intersection of Right of Way lines.



CHARLOTTE COUNTY ENGINEERING DESIGN STANDARD



PLAN



SECTION A - A

GENERAL NOTES

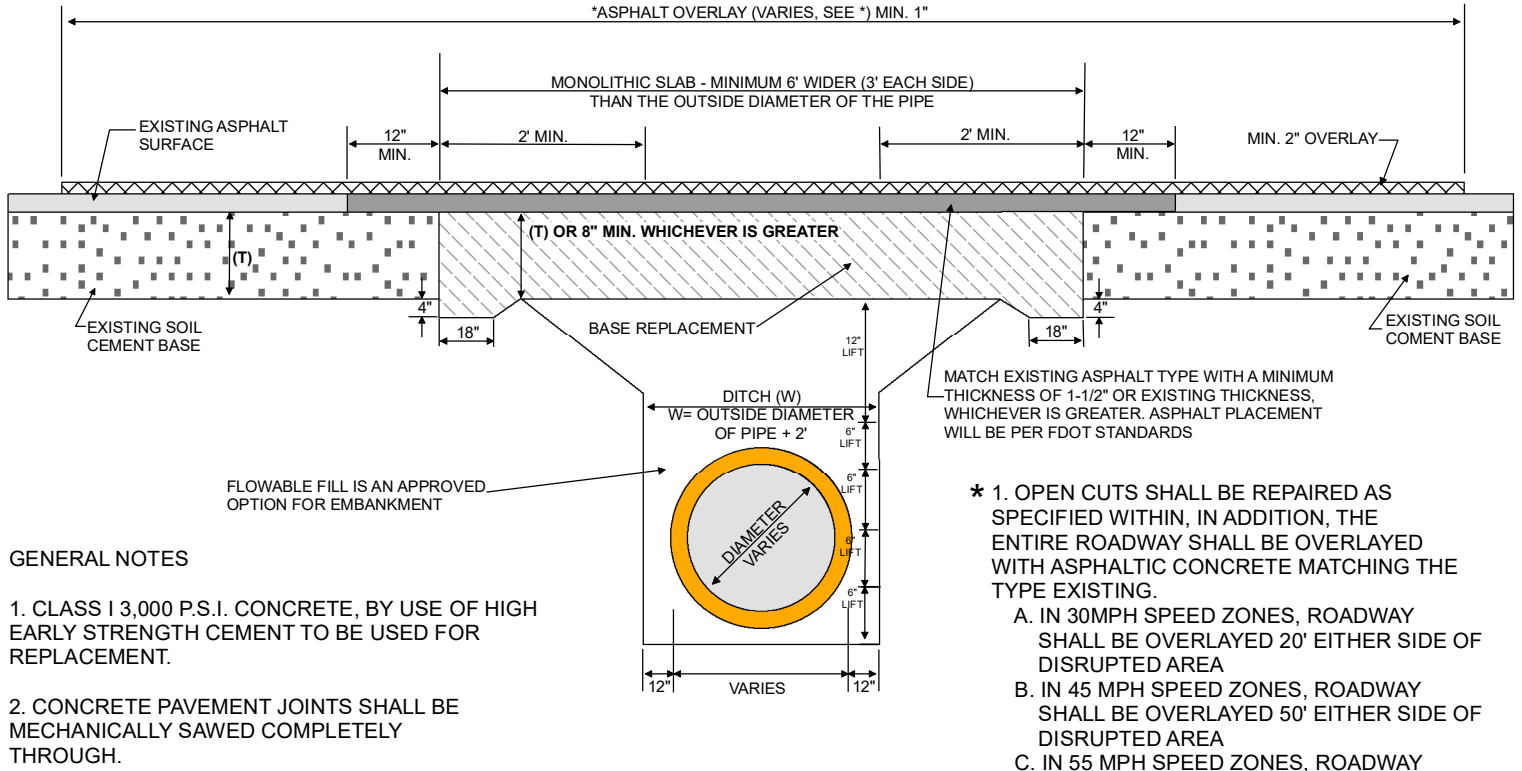
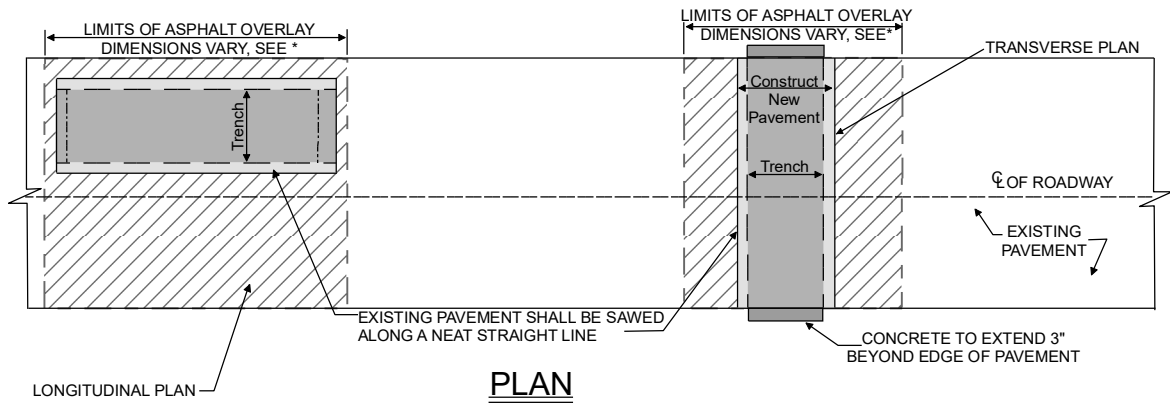
1. CLASS I 3,000 P.S.I. CONCRETE, BY USE OF HIGH EARLY STRENGTH CEMENT TO BE USED FOR REPLACEMENT.
2. CONCRETE PAVEMENT JOINTS SHALL BE MECHANICALLY SAWED COMPLETELY THROUGH.
3. PIPE SHALL BE BACKFILLED WITH SUITABLE MATERIAL IN 6" LIFTS TO 1' OVER TOP OF PIPE, LIFTS MAY THEN BE INCREASED TO 1' AT THE DISCRETION OF THE ENGINEER.
4. DENSITY TESTS WILL BE PREPARED AT THE RATE OF TWO (2) PER ALTERNATING LIFT PER TRAVEL LANE.
5. ASPHALTIC CONCRETE SHALL MATCH EXISTING TYPE AND SHALL BE A MINIMUM OF 2" IN THICKNESS UNLESS OTHERWISE DIRECTED BY THE COUNTY ENGINEER.
6. CONCRETE SHALL EXTEND 3" BEYOND EDGE OF PAVEMENT.
7. ALL STRIPING, REFLECTORS OR OTHER MARKING OBLITERATED OR DAMAGED BY OVERLAYING, SHALL BE RESTORED IN ACCORDANCE WITH FDOT STANDARDS AND TO THE SATISFACTION OF CHARLOTTE COUNTY.

CHARLOTTE COUNTY ENGINEERING DESIGN STANDARD



STANDARD ROAD DETAIL
RIGID BASE RESTORATION FOR LOW
TRAFFIC ROADWAYS WHERE
PAVEMENT IS OLDER THAN 10 YEARS

R-5
Sheet 1 of 7



GENERAL NOTES

1. CLASS I 3,000 P.S.I. CONCRETE, BY USE OF HIGH EARLY STRENGTH CEMENT TO BE USED FOR REPLACEMENT.
2. CONCRETE PAVEMENT JOINTS SHALL BE MECHANICALLY SAWED COMPLETELY THROUGH.
3. PIPE SHALL BE BACKFILLED WITH SUITABLE MATERIAL IN 6" LIFTS TO 1' OVER TOP OF PIPE, LIFTS MAY THEN BE INCREASED TO 1' AT THE DISCRETION OF THE ENGINEER.
4. DENSITY TESTS WILL BE PREPARED AT THE RATE OF TWO (2) PER ALTERNATING LIFT PER TRAVEL LANE.
5. ASPHALTIC CONCRETE SHALL MATCH EXISTING TYPE AND SHALL BE A MINIMUM OF 2" IN THICKNESS UNLESS OTHERWISE DIRECTED BY THE COUNTY ENGINEER.
6. CONCRETE SHALL EXTEND 3" BEYOND EDGE OF PAVEMENT.

SECTION A - A

- * 1. OPEN CUTS SHALL BE REPAIRED AS SPECIFIED WITHIN, IN ADDITION, THE ENTIRE ROADWAY SHALL BE OVERLAYED WITH ASPHALTIC CONCRETE MATCHING THE TYPE EXISTING.
- A. IN 30MPH SPEED ZONES, ROADWAY SHALL BE OVERLAYED 20' EITHER SIDE OF DISRUPTED AREA
 - B. IN 45 MPH SPEED ZONES, ROADWAY SHALL BE OVERLAYED 50' EITHER SIDE OF DISRUPTED AREA
 - C. IN 55 MPH SPEED ZONES, ROADWAY SHALL BE OVERLAYED 100' EITHER SIDE OF DISRUPTED AREA
2. ROADWAY SURFACE DISTORTIONS AS A RESULT OF JACK AND BORE (SETTLING), "PUSH" (HUMPING OF ROADWAY) OR ANY OTHER FORM OF DAMAGE WHICH WOULD REQUIRE PATCHING SHALL BE OVERLAYED WITH ASPHALTIC CONCRETE MATCHING THE TYPE EXISTING, OUTLINED IN 1A, 1B AND 1C.

ALL STRIPING, REFLECTORS OR OTHER MARKINGS OBLITERATED OR DAMAGED BY OVERLAYING SHALL BE RESTORED IN ACCORDANCE WITH FDOT STANDARDS AND TO THE SATISFACTION OF CHARLOTTE COUNTY.

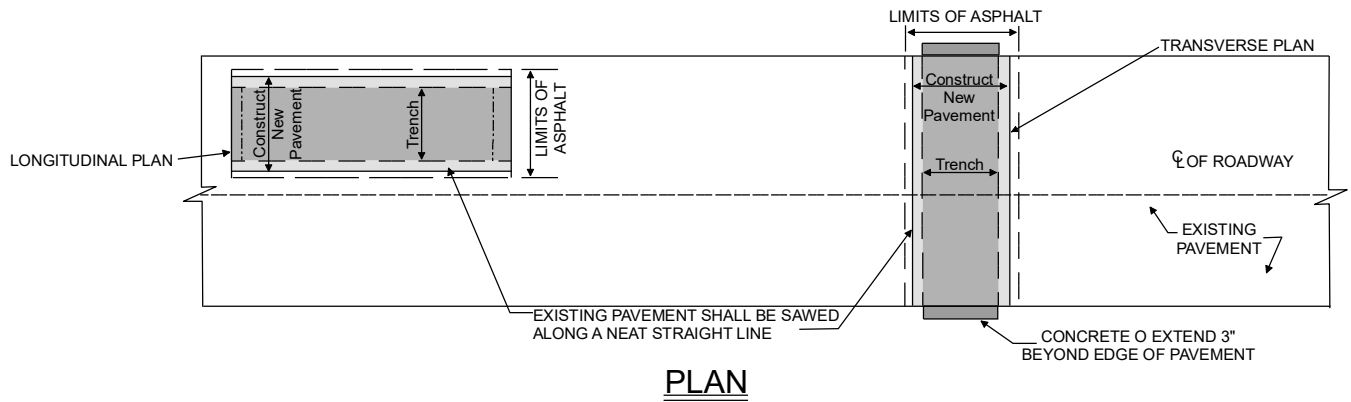
TYPICAL SHOWN IS FOR AVERAGE CONDITIONS, FIELD CONDITIONS MAY DICTATE VARIATIONS AS PER COUNTY ENGINEER

CHARLOTTE COUNTY ENGINEERING DESIGN STANDARD

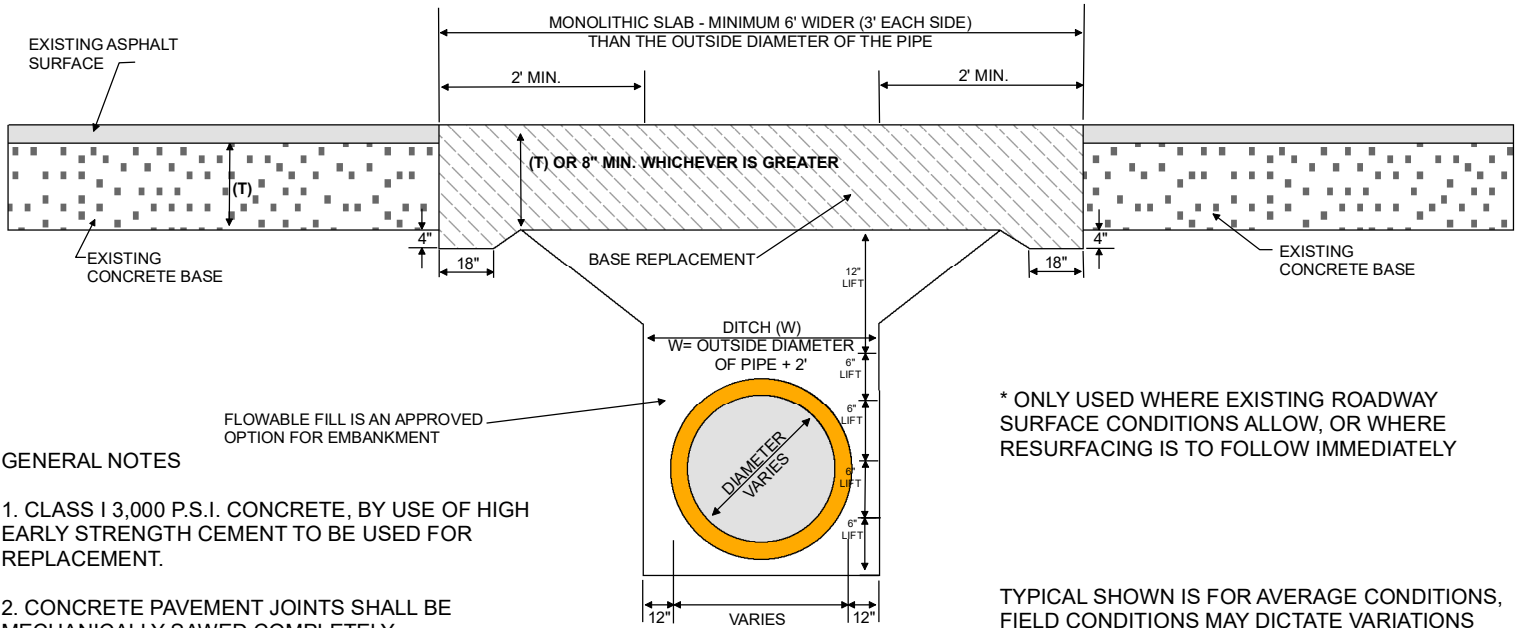


STANDARD ROAD DETAIL
RIGID BASE RESTORATION FOR HIGH TRAFFIC ROADWAYS, INTERSECTIONS, AND ACCELERATION/DECELERATION LANES

R-5
Sheet 2 of 7



PLAN



GENERAL NOTES

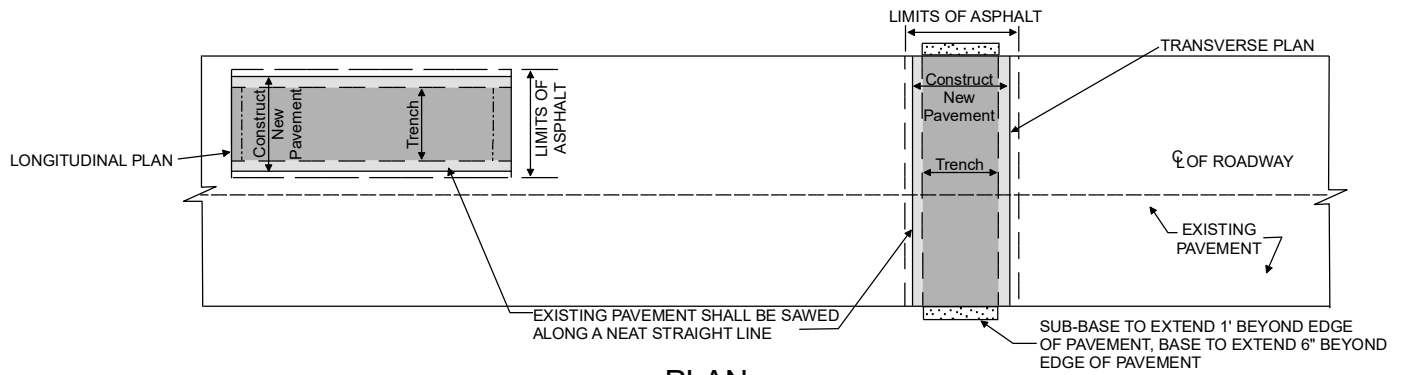
1. CLASS I 3,000 P.S.I. CONCRETE, BY USE OF HIGH EARLY STRENGTH CEMENT TO BE USED FOR REPLACEMENT.
2. CONCRETE PAVEMENT JOINTS SHALL BE MECHANICALLY SAWED COMPLETELY THROUGH.
3. PIPE SHALL BE BACKFILLED WITH SUITABLE MATERIAL IN 6" LIFTS TO 1' OVER TOP OF PIPE, LIFTS MAY THEN BE INCREASED TO 1' AT THE DISCRETION OF THE ENGINEER.
4. DENSITY TESTS WILL BE PREPARED AT THE RATE OF TWO (2) PER ALTERNATING LIFT PER TRAVEL LANE.
5. CONCRETE SURFACE SHALL RECEIVE A "BROOM FINISH" THAT WILL ADEQUATELY CONVEY WATER OFF THE ROADWAY AND PROVIDE A NON-SKID SURFACE.
6. CONCRETE SHALL EXTEND 3" BEYOND EDGE OF PAVEMENT
7. ALL STRIPING, REFLECTORS OR OTHER MARKING OBLITERATED OR DAMAGED BY OVERLAYING SHALL BE RESTORED IN ACCORDANCE WITH FDOT STANDARDS AND TO THE SATISFACTION OF CHARLOTTE COUNTY.

* ONLY USED WHERE EXISTING ROADWAY SURFACE CONDITIONS ALLOW, OR WHERE RESURFACING IS TO FOLLOW IMMEDIATELY

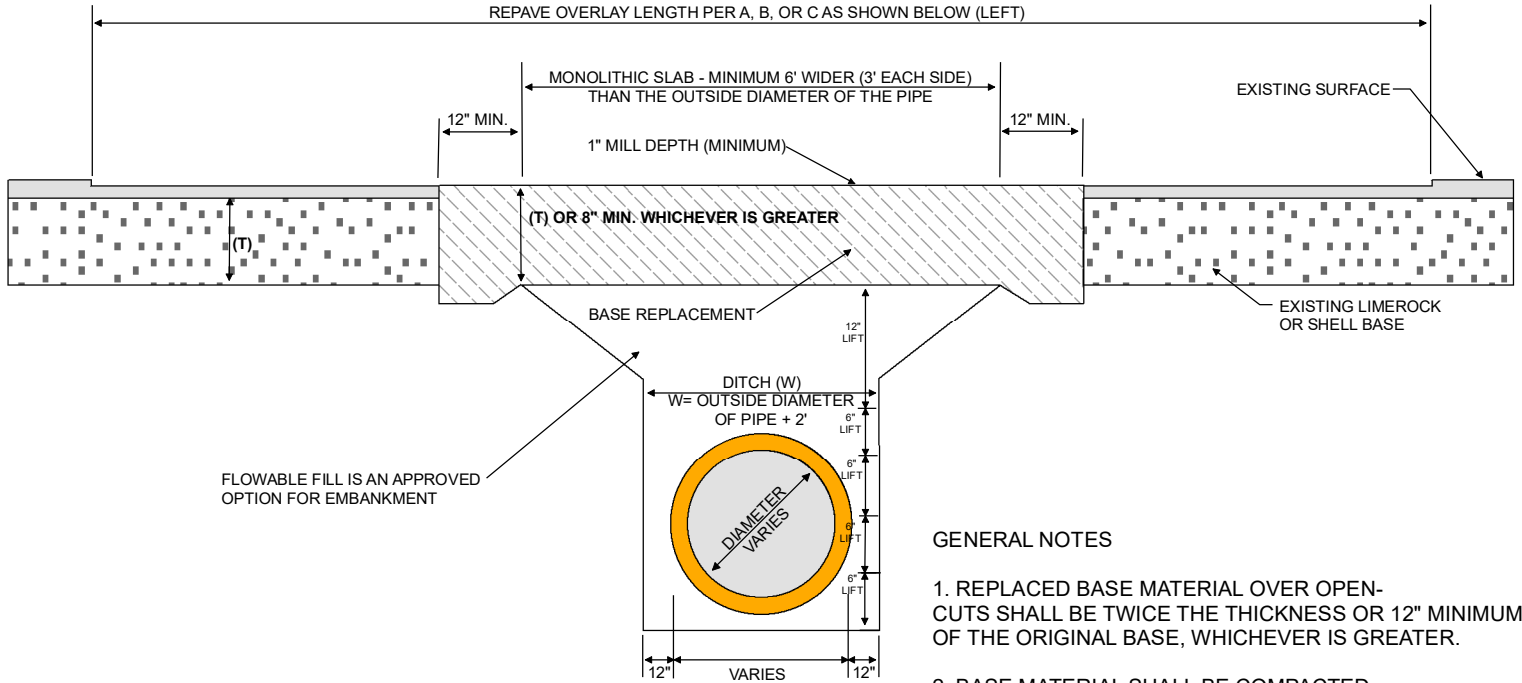
TYPICAL SHOWN IS FOR AVERAGE CONDITIONS, FIELD CONDITIONS MAY DICTATE VARIATIONS AS PER COUNTY ENGINEER

SECTION A - A

CHARLOTTE COUNTY ENGINEERING DESIGN STANDARD



PLAN



SECTION A - A

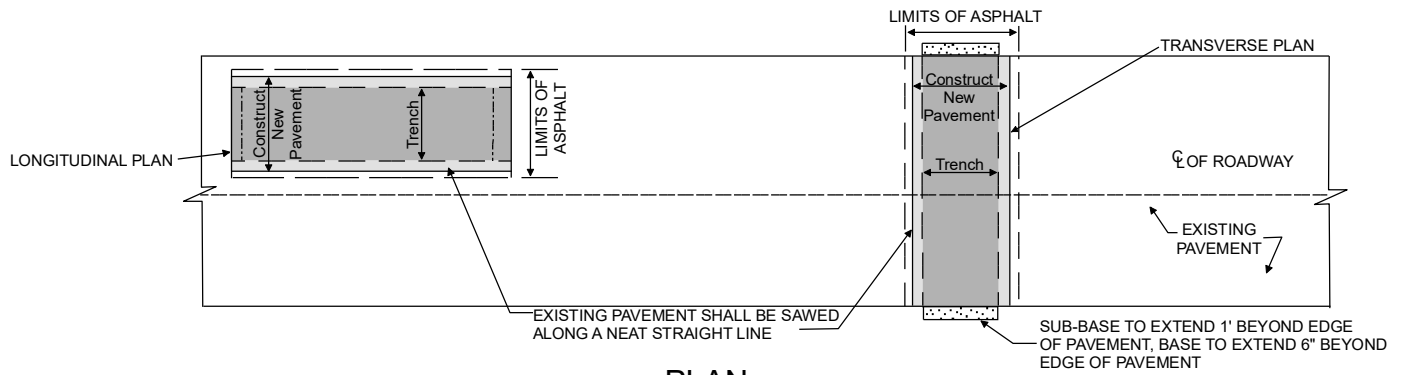
- A. IN 30MPH SPEED ZONES, ROADWAY SHALL BE OVERLAPPED 20' EITHER SIDE OF DISRUPTED AREA
- B. IN 45 MPH SPEED ZONES, ROADWAY SHALL BE OVERLAPPED 50' EITHER SIDE OF DISRUPTED AREA
- C. IN 55 MPH SPEED ZONES, ROADWAY SHALL BE OVERLAPPED 100' EITHER SIDE OF DISRUPTED AREA

TYPICAL SHOWN IS FOR AVERAGE CONDITIONS, FIELD CONDITIONS MAY DICTATE VARIATIONS AS PER COUNTY ENGINEER

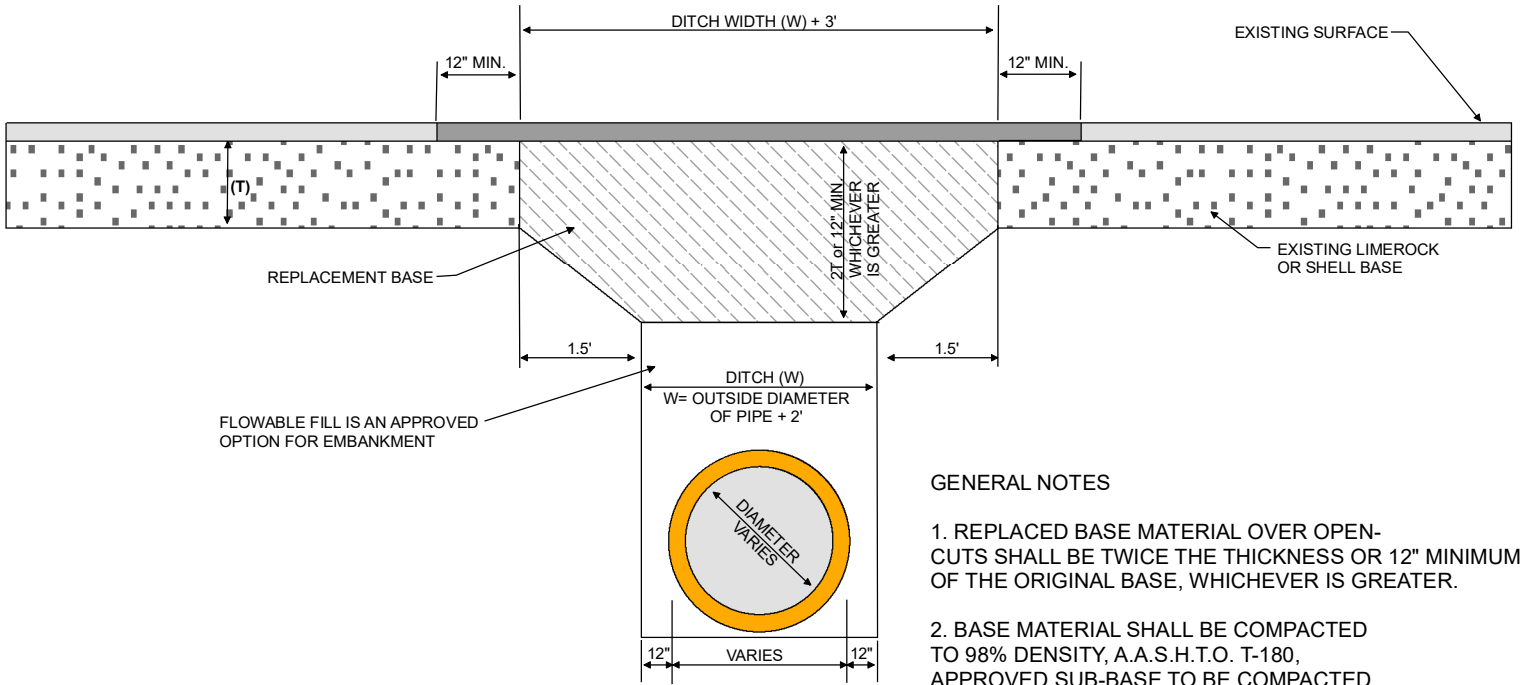
GENERAL NOTES

1. REPLACED BASE MATERIAL OVER OPEN-CUTS SHALL BE TWICE THE THICKNESS OR 12" MINIMUM OF THE ORIGINAL BASE, WHICHEVER IS GREATER.
2. BASE MATERIAL SHALL BE COMPACTED TO 98% DENSITY, A.A.S.H.T.O. T-180, APPROVED SUB-BASE TO BE COMPACTED IN 6" LAYERS - 98% DENSITY.
3. ASPHALT CONCRETE PAVEMENT JOINTS SHALL BE MECHANICALLY SAWED COMPLETELY THROUGH.
4. SURFACED TREATED PAVEMENT JOINTS SHALL BE MILLED AND BUTT-JOINED.
5. SURFACE MATERIAL WILL BE CONSISTENT WITH THE EXISTING SURFACE.
6. RESTORATION OF ALL PAVED AND UNPAVED ROADS SHALL BE RESTORED AS FOLLOWS:
 - A. ALL EXCAVATED MATERIALS TO BE REMOVED FROM THE SITE.
 - B. BACKFILL WITH VIRGIN MATERIALS OF THE SAME TYPE EXCAVATED IN MAXIMUM DEPTH LIFTS OF 6".
7. ALL STRIPING, REFLECTORS OR OTHER MARKING OBLITERATED OR DAMAGED BY OVERLAYING SHALL BE RESTORED IN ACCORDANCE WITH FDOT STANDARDS AND TO THE SATISFACTION OF CHARLOTTE COUNTY.

CHARLOTTE COUNTY ENGINEERING DESIGN STANDARD



PLAN



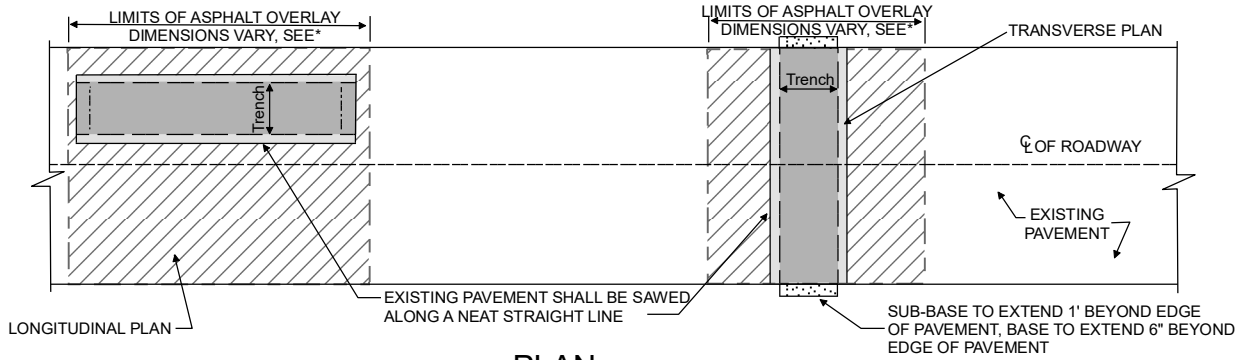
SECTION A - A

GENERAL NOTES

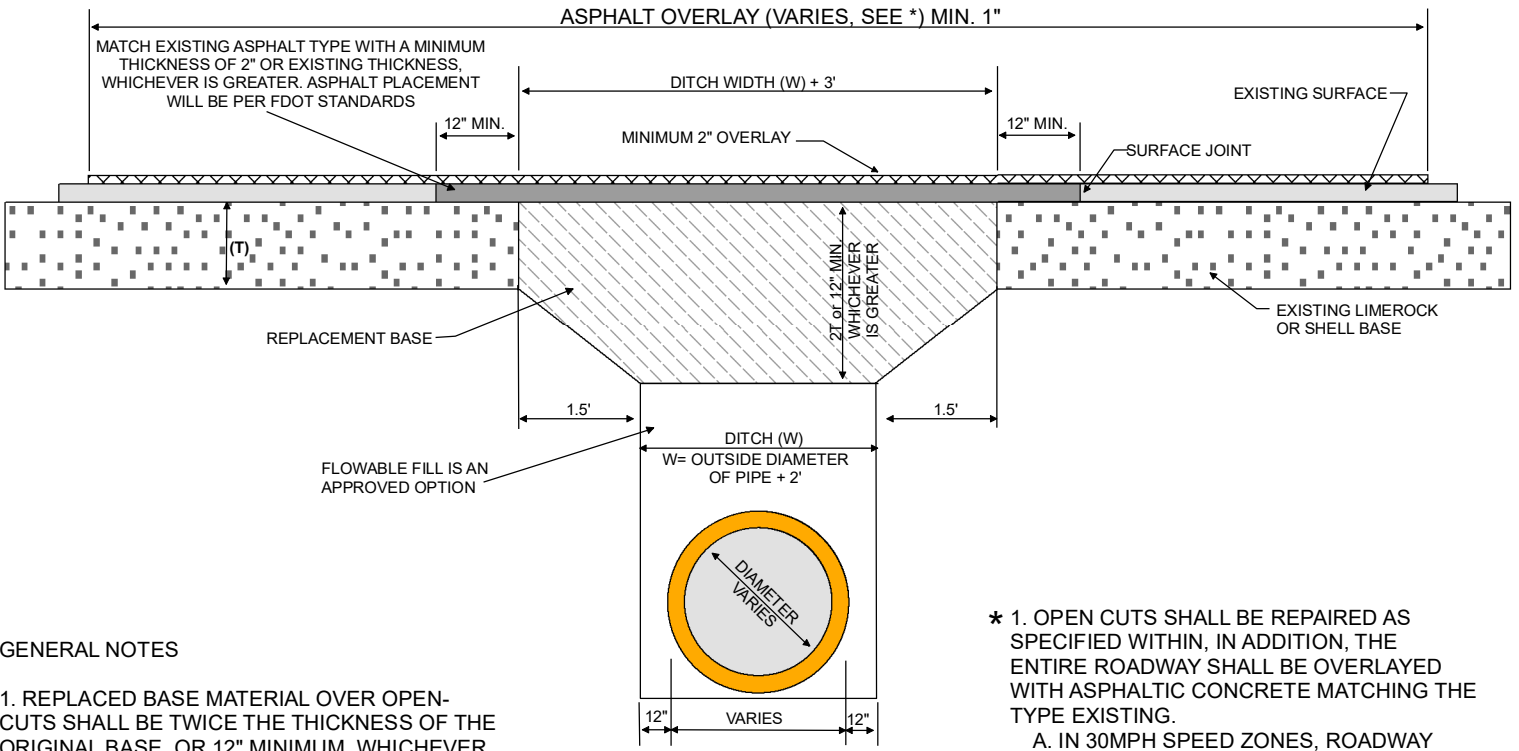
1. REPLACED BASE MATERIAL OVER OPEN-CUTS SHALL BE TWICE THE THICKNESS OR 12" MINIMUM OF THE ORIGINAL BASE, WHICHEVER IS GREATER.
2. BASE MATERIAL SHALL BE COMPACTED TO 98% DENSITY, A.A.S.H.T.O. T-180, APPROVED SUB-BASE TO BE COMPACTED IN 6" LAYERS - 98% DENSITY.
3. ASPHALT CONCRETE PAVEMENT JOINTS SHALL BE MECHANICALLY SAWED COMPLETELY THROUGH.
4. SURFACED TREATED PAVEMENT JOINTS SHALL BE MILLED AND BUTT-JOINED.
5. SURFACE MATERIAL WILL BE CONSISTENT WITH THE EXISTING SURFACE.
6. RESTORATION OF ALL PAVED AND UNPAVED ROADS SHALL BE RESTORED AS FOLLOWS:
 - A. ALL EXCAVATED MATERIALS TO BE REMOVED FROM THE SITE.
 - B. BACKFILL WITH VIRGIN MATERIALS OF THE SAME TYPE EXCAVATED IN MAXIMUM DEPTH LIFTS OF 6".
7. ALL STRIPING, REFLECTORS OR OTHER MARKING OBLITERATED OR DAMAGED BY OVERLAYING SHALL BE RESTORED IN ACCORDANCE WITH FDOT STANDARDS AND TO THE SATISFACTION OF CHARLOTTE COUNTY.

TYPICAL SHOWN IS FOR AVERAGE CONDITIONS, FIELD CONDITIONS MAY DICTATE VARIATIONS AS PER COUNTY ENGINEER

CHARLOTTE COUNTY ENGINEERING DESIGN STANDARD



PLAN



SECTION A - A

GENERAL NOTES

1. REPLACED BASE MATERIAL OVER OPEN-CUTS SHALL BE TWICE THE THICKNESS OF THE ORIGINAL BASE, OR 12" MINIMUM, WHICHEVER IS GREATER.
2. BASE MATERIAL SHALL BE COMPACTED TO 98% DENSITY, A.A.S.H.T.O. T-180, APPROVED SUBBASE TO BE COMPACTED IN 6" LAYERS - 98% DENSITY.
3. RESTORATION OF ALL PAVED AND UNPAVED ROADS SHALL BE RESTORED AS FOLLOWS:
 - A. ALL EXCAVATED MATERIALS TO BE REMOVED FROM THE SITE.
 - B. BACKFILL WITH VIRGIN MATERIALS OF THE SAME TYPE EXCAVATED IN MAXIMUM DEPTH LIFTS OF 6".
4. ASPHALT CONCRETE PAVEMENT JOINTS SHALL BE MECHANICALLY SAWED COMPLETELY THROUGH.
5. SURFACED TREATED PAVEMENT JOINTS SHALL BE MILLED AND BUTT-JOINED.
6. SURFACE MATERIAL WILL BE CONSISTENT WITH THE EXISTING SURFACE.

- * 1. OPEN CUTS SHALL BE REPAIRED AS SPECIFIED WITHIN, IN ADDITION, THE ENTIRE ROADWAY SHALL BE OVERLAYED WITH ASPHALTIC CONCRETE MATCHING THE TYPE EXISTING.
 - A. IN 30MPH SPEED ZONES, ROADWAY SHALL BE OVERLAYED 20' EITHER SIDE OF DISRUPTED AREA
 - B. IN 45 MPH SPEED ZONES, ROADWAY SHALL BE OVERLAYED 50' EITHER SIDE OF DISRUPTED AREA
 - C. IN 55 MPH SPEED ZONES, ROADWAY SHALL BE OVERLAYED 100' EITHER SIDE OF DISRUPTED AREA

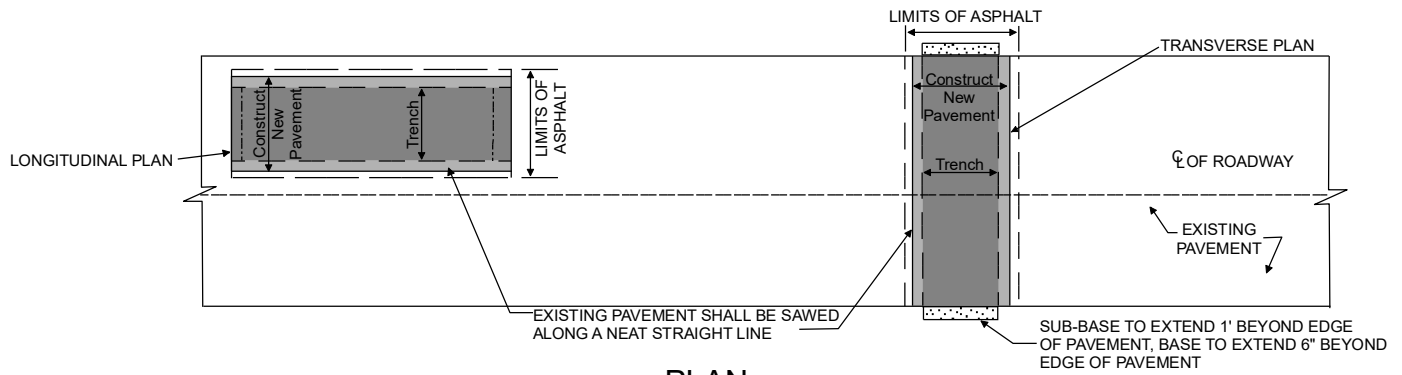
2. ROADWAY SURFACE DISTORTIONS AS A RESULT OF JACK AND BORE (SETTLING), "PUSH" (HUMPING OF ROADWAY) OR ANY OTHER FORM OF DAMAGE WHICH WOULD REQUIRE PATCHING SHALL BE OVERLAYED WITH ASPHALTIC CONCRETE MATCHING THE TYPE EXISTING, OUTLINED IN A1, 1B AND 1C.

ALL STRIPING, REFLECTORS OR OTHER MARKINGS OBLITERATED OR DAMAGED BY OVERLAYING SHALL BE RESTORED IN ACCORDANCE WITH FDOT STANDARDS AND TO THE SATISFACTION OF CHARLOTTE COUNTY.

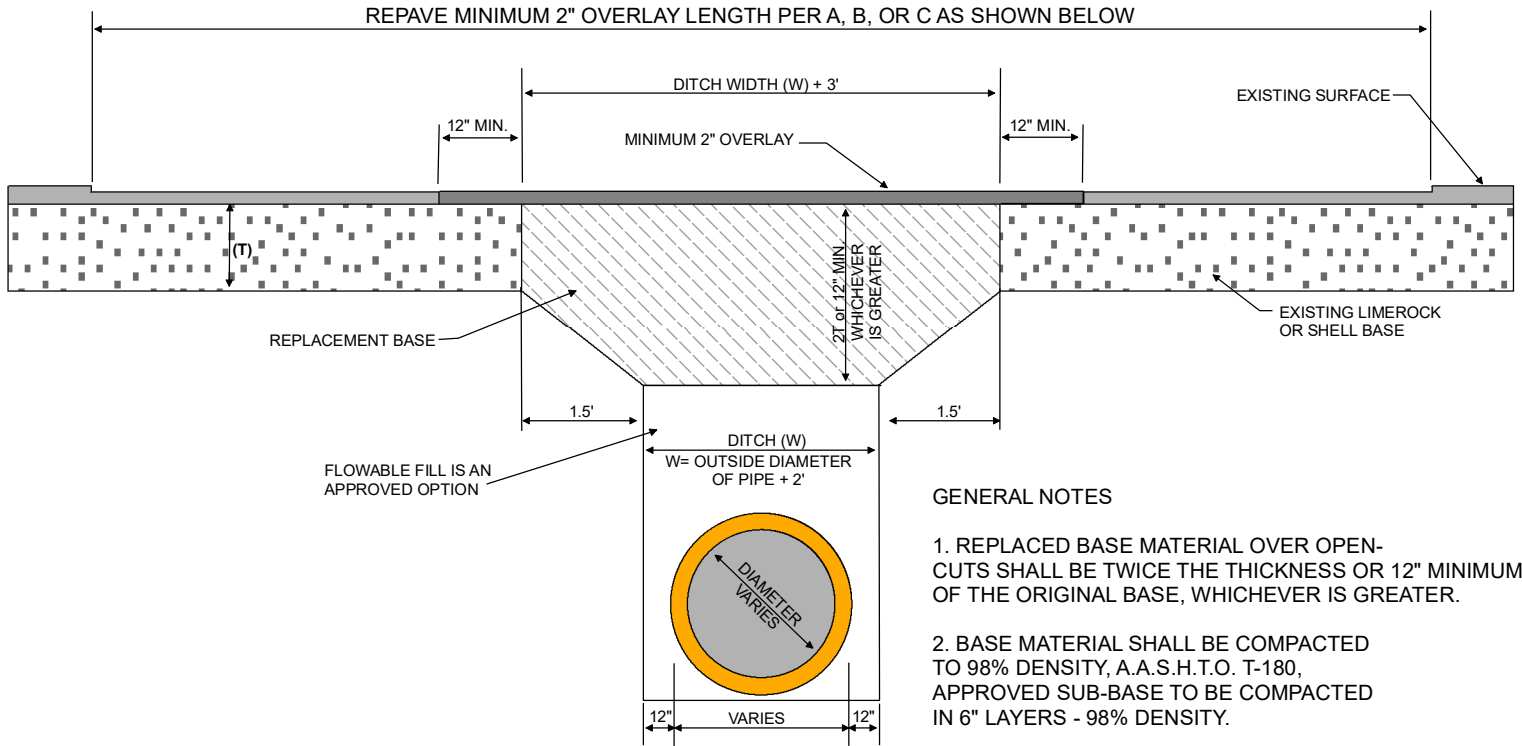
CHARLOTTE COUNTY ENGINEERING DESIGN STANDARD



STANDARD ROAD DETAIL
FLEXIBLE PAVEMENT RESTORATION
FOR ROADWAYS WITH
HEAVY TRAFFIC VOLUMES



PLAN



SECTION A - A

- A. IN 30MPH SPEED ZONES, ROADWAY SHALL BE OVERLAYED 20' EITHER SIDE OF DISRUPTED AREA
- B. IN 45 MPH SPEED ZONES, ROADWAY SHALL BE OVERLAYED 50' EITHER SIDE OF DISRUPTED AREA
- C. IN 55 MPH SPEED ZONES, ROADWAY SHALL BE OVERLAYED 100' EITHER SIDE OF DISRUPTED AREA

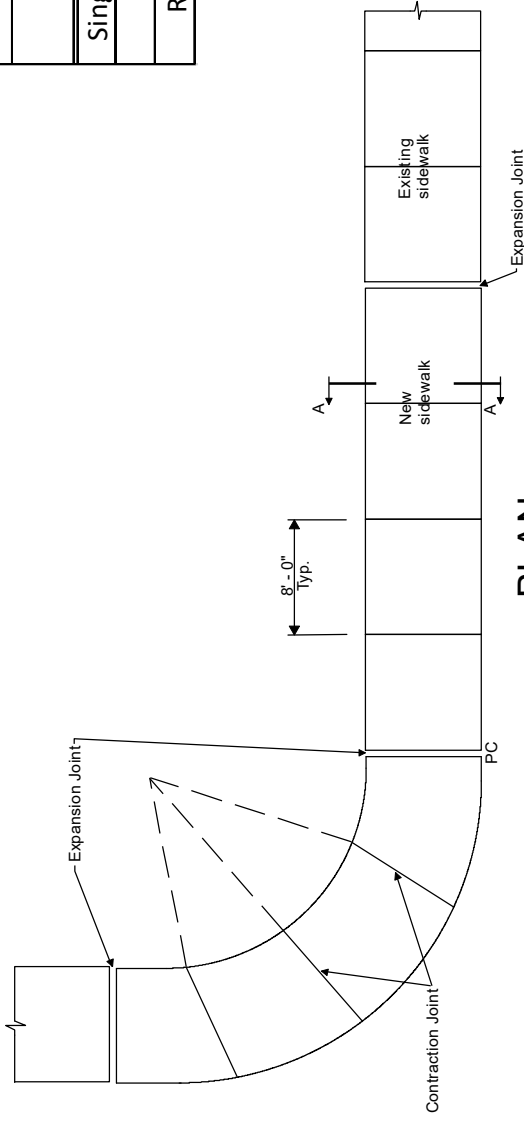
TYPICAL SHOWN IS FOR AVERAGE CONDITIONS, FIELD CONDITIONS MAY DICTATE VARIATIONS AS PER COUNTY ENGINEER

GENERAL NOTES

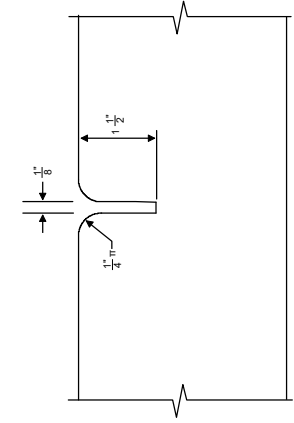
1. REPLACED BASE MATERIAL OVER OPEN-CUTS SHALL BE TWICE THE THICKNESS OR 12" MINIMUM OF THE ORIGINAL BASE, WHICHEVER IS GREATER.
2. BASE MATERIAL SHALL BE COMPACTED TO 98% DENSITY, A.A.S.H.T.O. T-180, APPROVED SUB-BASE TO BE COMPACTED IN 6" LAYERS - 98% DENSITY.
3. ASPHALT CONCRETE PAVEMENT JOINTS SHALL BE MECHANICALLY SAWED COMPLETELY THROUGH.
4. SURFACED TREATED PAVEMENT JOINTS SHALL BE MILLED AND BUTT-JOINED.
5. SURFACE MATERIAL WILL BE CONSISTENT WITH THE EXISTING SURFACE.
6. RESTORATION OF ALL PAVED AND UNPAVED ROADS SHALL BE RESTORED AS FOLLOWS:
 - A. ALL EXCAVATED MATERIALS TO BE REMOVED FROM THE SITE.
 - B. BACKFILL WITH VIRGIN MATERIALS OF THE SAME TYPE EXCAVATED IN MAXIMUM DEPTH LIFTS OF 6".
7. ALL STRIPING, REFLECTORS OR OTHER MARKING OBLITERATED OR DAMAGED BY OVERLAYING SHALL BE RESTORED IN ACCORDANCE WITH FDOT STANDARDS AND TO THE SATISFACTION OF CHARLOTTE COUNTY.
8. MINIMUM OF 2" OVERLAY.

CHARLOTTE COUNTY ENGINEERING DESIGN STANDARD

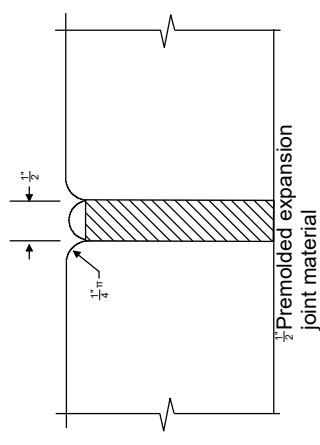
SIDEWALK SPECS		
LOCATION	WIDTH	THICK
Single family residential area	8'	4"
Multiple family areas	8'	4"
Retail Commerical areas	8'	6"



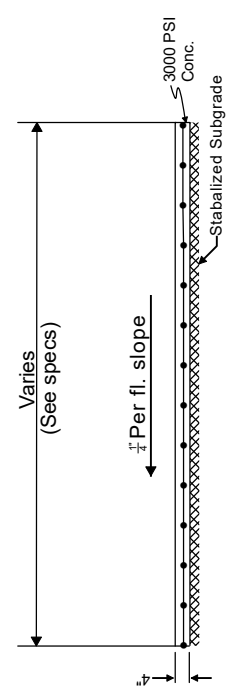
PLAN



Contraction Joint "B"



Expansion Joint "C"



- NOTE:**
1. All sidewalks shall be 8' in width unless otherwise approved by the County Engineer.
 2. All contraction joints are to be equal to the sidewalk width.
 3. Edges of sidewalk must be edged/rounded.
 4. All expansion joints should be zip strip and sika flex caulking.

CHARLOTTE COUNTY ENGINEERING DESIGN STANDARD