

AN ORDINANCE

AN ORDINANCE OF THE CITY OF GRIFFIN, GEORGIA, AMENDING THE DEVELOPMENT ORDINANCE (UNCODIFIED), ENACTED JANUARY 8, 2002, BY DELETING PRESENT CHAPTER 400 IN ITS ENTIRETY, AND ADOPTING IN LIEU THEREOF A REVISED CHAPTER 400; ESTABLISHING AN EFFECTIVE DATE; REPEALING CONFLICTING ORDINANCES AND PARTS THEREOF; AND FOR OTHER PURPOSES.

BE IT ORDAINED BY THE BOARD OF COMMISSIONERS OF THE CITY OF GRIFFIN, GEORGIA, AND IT IS ESTABLISHED AS FOLLOWS:

Section 1. The Development Ordinance (uncodified), adopted January 8, 2002, is hereby amended by deleting present Chapter 400 in its entirety, adopting in lieu thereof a revised Chapter 400 to read as follows:

“CHAPTER 400

ROADS, SITE & DRAINAGE DESIGN SPECIFICATIONS

401. Submittal Requirements.

401.1 **Traffic Analysis:** New developments that will generate a significant amount of traffic may be required to perform a traffic analysis. The City will review each proposed development on a case-by-case basis to determine if a traffic study is required. If the City deems the size of the project warrants a traffic study, then the developer’s design professional who is qualified to do this type of work will be required to perform a traffic study. The study must include traffic impacts on the existing road(s) adjacent to the project, improvements to the existing road(s), entrance requirements, number of entrances, traffic circulation within the project, width of proposed streets, etc.

401.2 **Hydrology Study:** Each new development will be required to perform a hydrology study by a qualified professional engineer registered in the State of Georgia. The study shall include a discussion of existing downstream conditions and impacts of the proposed development to downstream properties, measures taken to address increased runoff, concentrated discharges, etc.

401.3 **Plans:** All plans shall have sheet sizes no larger than 24" x 36".

A. Subdivisions

1. The preliminary plan shall show land lots, district and north arrow, existing and proposed roads with their names, lot layout. Existing roads shall show existing and proposed right-of-way, pavement widths and signs distances. The preliminary plan shall also show topography with contour lines at two-foot intervals, all existing streams, watercourses and storm sewers, and the discharge points for all existing drainage structures. Floodplain limits, if applicable, shall be shown on the plat.
2. The Final Site and Subdivision (construction plans) shall include the preliminary plan and in addition the proposed road system layout in plan and profile. The road layout shall include stations every 100 feet in plan and profile, horizontal and vertical curve data, intersection radii, width and section of proposed roads, entrance design, cul-de-sac dimensions, drainage structures and storm sewer locations, curb and gutter details, utility locations, street signs, etc. The storm sewer system shall be shown in plan (with easements) and profile. The storm sewers shall have proposed inverts at each drainage structure, lengths and slopes of pipes, pipe sizes, types of storm sewers and drainage structures, etc. Detention facilities with proposed grading shall be shown on the plans with the principal and emergency spillways shown in plan, profile and sections. The storm sewer system shall show drainage areas, runoff coefficients, intensity rates, peak flows, pipe capacities, headwater depths, etc. Details of road sections, curb and gutter, drainage structures, etc. shall be shown on the plans.
3. The Minor Site Plan shall comply in all aspects with the Georgia State Plat Act. The plan shall note land lots, Tax Map, Block and Lot Number, building setbacks, current zoning of property, closure error (field and calculated), survey equipment used and private covenants. In addition, the plan shall show lot numbers in consecutive order, street names, 100-year floodplain or note absence, drainage easements, water (if applicable) and sanitary sewer system easements, north arrow, index map and storm sewer pipes and sizes. All lettering shall be legible in accordance with the State Plat Act. Sheet sizes shall not exceed 24" x 36" and the lettering shall be large enough that when the plan is reduced for recording, lettering will still be legible.

B. All Individual Commercial/Industrial Site Plans shall comply in all aspects with the Georgia State Plat Act. The plan shall note land lots, Tax Map, Block and Lot number, required building setbacks, proposed building(s), right-of-way, pavement widths and sign distances on existing road(s), entrances, driveways, maneuvering aisles, parking spaces, size with number of justified of parking spaces and proposed grading. road frontage width, current zoning of property, north arrow, topography with existing contour lines at two-foot intervals, existing streams, water courses and storm sewers, closure error (field and calculated), survey equipment used and private covenants. In addition, the plan shall show lot numbers in consecutive order, street names, 100-year floodplain or note absence, drainage easements, water (if applicable) and sanitary sewer system easements, index map, and proposed storm sewer pipes and sizes and profile with inverts, lengths, grades, types of pipes and drainage structures. Detention facilities with proposed grading shall be shown on the plans with the principal and emergency spillways shown in plan, profile and sections. The storm sewer system shall show drainage areas, runoff coefficients, intensity rates, peak flows, pipe capacities, headwater depths, etc. Details of pavement sections, curb and gutter, drainage structures, etc. shall be shown on the plans. All lettering shall be legible in accordance with the State Plat Act. Sheet sizes shall not exceed 24" x 36" and the lettering shall be large enough that when the plan is reduced for recording, lettering will still be legible.

401.4

As-builts:

A. **Subdivision:** As-builts shall include the full set of construction plans with the infrastructure shown as it was actually constructed. The road system shall show actual grades, horizontal and vertical curve data, catch basin locations, etc. The plans shall show the storm sewer system in plan and profile, drainage structure invert elevations, pipe grades, lengths, size of pipes, detention pond outlet works, etc. The detention pond-grading plan shall be shown with a certification that the pond configuration and outlet works were built according to design. The as-builts shall be submitted before approval of the final plan. A reproducible copy of the final plan and two (2) sets of as-builts shall be submitted. A digital copy of the as-built plans shall also be submitted in a format and coordinate system compatible with the City's Geographic Information System.

B. **Individual Commercial/Industrial Sites:** As-builts shall include the full set of construction plans with the improvements shown as it was actually constructed. Normally the as-builts are the original construction plans modified to reflect the actual construction. The plans shall include grading, entrance locations, pavement layout, striping, curb and gutter, storm sewers in plan and profile, building

location(s), etc. Detention facilities grading and outlet works shall be shown with a certification that the pond complies with the original design. A digital copy of the as-built plans shall also be submitted in a format and coordinate system compatible with the City's Geographic Information System.

402. Access to Property.

Openings for vehicular access to lots from public streets, referred to as curb cuts or driveways, shall be regulated by the Public Works and Utilities Department in accordance with the following requirements:

- 402.1 **Size and Spacing.** In no case shall a curb cut or other access point be less than ten (10) feet nor more than thirty (30) feet in width. Except in residential zoning districts no two (2) curb cuts or other access points shall be closer than 50 feet from each other.
- 402.2 **Location.** At street intersections, no curb cut or other access points shall be located closer than 35 feet from the intersecting point of the street right-of-way lines.
- 402.3 **Visibility.** At any street intersection or at the intersection of any private driveway with a street, no fence, wall, sign, planting or other structure or object shall be permitted or maintained that will form an impediment to the point of intersection of the driving surfaces.
- 402.4 **Visibility at Intersections.** On corner lots no fence, shrubbery or other obstruction to the traffic sight vision, except utility poles or traffic lights or sign standards shall exceed a height of three (3) feet within a triangular area formed by the intersection of the right of way lines of two (2) streets or a street intersection with a railroad right of way line and a diagonal line which intersects the right of way lines at two (2) points each a minimum of 20 feet distance from the intersection of the right of way lines, or in the case of a rounded corner, from the point of intersection of their tangents; provided however, signs, lights or similar objects which are totally located at least ten (10) feet above the finished grade shall be permitted.
- 402.5 **Permit Required.** No person shall be authorized to open any curb cut, grade or otherwise make any improvements upon the public right-of-way of any street, road or highway, except with approval of the Public Works and Utilities Department. The City reserves the right to require the applicant to indemnify and hold the City harmless for any injury or damage to public utilities and improvements existing within said right-of-way over which any driveway or other improvement is to be built. The City further reserves the right to require the property owner, at his

expense, to remove any permitted improvement or to relocate or repair the same as necessary for the maintenance and future improvement of said right-of-way, including the location, relocation, repair or removal of utilities existing therein.

402.6 **New Subdivision or Developments Fronting Upon the State Highway System.** Whenever a new subdivision or development is proposed, which fronts the state highway system and requires access therefrom, no final approval of the site plan shall be given by the City of Griffin until the developer has submitted the final plat to the Georgia Department of Transportation, received approval and submitted this approval to the Planning and Development Department. The time limitations for final approval of a final subdivision or development under this Ordinance shall not be deemed to begin until such approval has been granted.

403. **Street Design Criteria.**

403.1 AASHTO Standards. Road design shall conform to AASHTO (American Association of State Highway and Transportation Officials) requirements, unless otherwise noted.

403.2 Minimum Design Speed and Maximum Grade. Minimum design speeds and maximum grades for proposed streets in the City of Griffin by street classification shall be as follows:

Street Type	Maximum Allowable Grade	Minimum Required Design Speed
Arterial	8%	55 MPH
Major Collector	10%	45 MPH
Minor Collector	15%	35 MPH
Unclassified	18%	25 MPH
Alleys	Varies	Varies

402.3 **Minimum Street Grade.** Minimum grade on cul-de-sacs shall be 1.5% to maintain 1% in curb lines.

402.4 **Sight Distance at Entrances to New Development:**

A. The sight distance along existing city roads at proposed entrances for both subdivisions and individual commercial/industrial sites shall be designed according to “A Policy on Geometric Design of Highways and Streets”, most current edition, by AASHTO. The design professional should refer to the chapter entitled “At-Grade Intersections”, and the “Sight Distance” section of this chapter.

B. A general guide is provided in the Standard Detail SSD-1 for sight distances at entrances. This guide does not relieve the design professional from complying with all aspects of AASHTO sight distance requirements for entrance designs.

C. Each traffic movement through the intersection should be checked for vertical and horizontal sight distance. Any object high enough above the roadway to constitute an obstruction should be shown on the plans and noted to be removed or lowered. Such obstructions include signs, ground cover (vegetation), cut slopes, hedges, buildings, etc.

402.5 **Minimum Length of Vertical Curves.** Interior subdivision streets – crest vertical curves $K = 10$, sag vertical curves, $K = 20$. Curve length equals the product of the K value and the algebraic difference in the road grades. Minimum vertical curve length shall be 100 feet.

402.6 **Widening for Development Entrances:**

A. The following widening is required for new developments in both subdivision and individual commercial/industrial site development entrances.

Street Classification	Street Width (ft.)	Required R/W (ft.)
Arterial	24+	50+
Major Collector	24	40
Minor Collector	20	30
Local	12	25

B. Street width is measured from centerline to the edge of the pavement.

C. Right-of-way is measured from the existing centerline.

D. Lane length is measured 150 feet from tangent point of radius to beginning of taper. Tapers are 50 feet. Vertical curb and gutter is required through the radii. The additional lane can be stopped at the projected property line if there is inadequate right-of-way, excessive cut or fills to install the lane. In this case, the tapers would start at the projected property line unless excessive cut or fills would encroach on the right-of-way limits of the abutting property.

E. Paving section shall correspond to the street classification of the existing road the entrance connects to:

1. Arterial – Industrial Paving Section
2. Major Collector – Industrial Paving Section
3. Minor Collector – Commercial Paving Section

4. Local – Commercial Paving Section

F. The cost of any catch basins, which must be constructed when an existing City or County road is required to be modified, will be paid by the developer.

G. Existing storm sewers located in the area of the entrance widening shall be extended and connected to the proposed storm sewer system at the developer’s expense.

H. See Standard Detail Drawings for widening at entrances.

402.7 **Residential Street Section.**

A. Residential streets shall be a minimum of 22 feet of paved width within the curb and gutter. There shall be a minimum shoulder section behind both curbs as shown in the Standard Detail Drawings and based on the City’s sidewalk requirements.

B. Pavement width shall be no less than as follows:

Street Types	Minimum Pavement Width
Arterial	As may be required
Major Collector	12 ft. lanes + curb & gutter
Minor Collector	24 ft. + curb & gutter
Local	22 ft. + curb & gutter

D. See Typical Residential Curbing Detail.

E. Cul-de-sac radius shall be as shown in the Standard Detail Drawings.

402.8 **Industrial/Commercial Streets.**

A. Pavement width for industrial/commercial streets shall be no less than as follows:

Type Street	Minimum Right-of-way	Minimum Pavement Width
Arterial	100 feet	52 ft. + w/13+foot lane
Major Collector	80 feet	52 ft. w/13 foot lane
Minor Collector	80 feet	28 ft. w/14 foot lane

B. Paving standard shall be as shown in Standard Detail Drawings for industrial/commercial streets.

C. See Typical Industrial curbing detail in Standard Detail Drawings.

F. Cul-de-sac radius shall be as shown in the Standard Detail Drawings.

402.9 **Dam Supporting Road.** No city road shall be designed to cross an existing or proposed dam.

402.10 **Curbs and Gutter.** Curb and Gutter shall be required on all paved streets:

A. Residential Curb and Gutter:

1. Vertical Curb and Gutter.
2. Typical section shall be 6" x 24" x 9" **12"**.

B. Commercial/Industrial Curb and Gutter.

1. Vertical curb and gutter.
2. Typical section shall be 6" x 24" x 12".

403. **Sidewalks.**

A. Sidewalks shall be required in all residential, commercial and industrial developments along both sides of the proposed streets. Sidewalks shall also be required along the existing streets on the side adjacent to the development. This requirement may be waived for certain residential streets subject to the type of development.

B. Sidewalks shall be located as shown in the Standard Detail Drawings, but not less than one foot from the property line to prevent interference of encroachment by fencing, walls, hedges or other planting or structures placed on the property line at a later date.

C. Concrete sidewalks shall be a minimum of five feet wide and four inches thick.

D. Sidewalks shall be located on both sides of proposed streets and on existing streets on the side adjacent to the development.

E. Sidewalks shall have a prepared base where necessary and be backfilled and landscaped.

404. **Traffic Signs.**

A. The design professional shall show the location of all required traffic signs. Unless otherwise noted, design of traffic signs shall conform to the Manual on Uniform Traffic Control Devices.

B. Stop signs shall be located from the signs edge six (6) feet off the back of curb or edge of gravel at the beginning of the intersection radius. The sign shall be located on the right side of the intersection. The bottom of the sign shall be at least five (5) feet above the edge of pavement or back of curb. This standard applies to typical residential interior street intersections.

C. All other intersections shall have stop signs located according to the Manual on Uniform Traffic Control Devices.

D. Stop signs shall be sized so that their overall dimensions are 30" x 30".

E. All other signs shall be sized according to the Manual on Uniform Traffic Control Devices.

405. **Utility Locations.** All utility locations shall correspond to the typical layout shown in the Standard Detail Drawings.

406. **Bridge piling.** Shall be driven to State Highway load standards for loading. Certification of pile load shall be by Registered Professional Engineer.

407. **Apartments and Condominiums.** Streets shall be constructed to residential street standards as set forth in these specifications.

408. **Mobile Home Parks.** Streets shall be constructed to residential street standards as set forth in these specifications.

409. **Site Design for Individual Commercial/Industrial Lots**

409.1 **Entrance Design.**

A. See above sections "Sight Distance at Entrances to New Development", "Widening for Development Entrances" and Individual Commercial/Industrial Sites – Development Entrances.

B. Width of entrances shall be limited to those shown in the Standard Design Drawings. Entrances with several lanes for different traffic movement with concrete or painted islands shall be reviewed on a case-by-case basis.

C. Spacing of entrances and distance of entrances to property lines shall be limited to distances shown in the Standard Design Drawings.

D. Entrances shall comply with valley gutter requirements shown in the Standard Detail Drawings (GA DOT Standard 9031U).

409.2 **Proposed Grading.**

A. Proposed grading shall have positive drainage.

B. Swales lined with grass or stone shall be designed with a minimum 1.0% slope. Concrete lined swales shall be designed with a minimum 0.5% slope.

C. Embankment Slopes. The design of embankment slopes is dependent upon the type of soil encountered at each site. A soils engineer must be employed to design slopes and slope stabilization for slopes steeper than the following:

1. Maximum cut slopes should be no steeper than 2:1.
2. Maximum fill slopes should be no steeper than 2.5:1.

409.3 **Automobile Parking.**

A. Automobile parking shall be designed with maneuvering aisles and parking spaces to the minimum dimensions as shown in the Standard Detail Drawings.

B. The number of parking spaces required for each development shall be as required in the City of Griffin Zoning Ordinance.

C. Paved Automobile Parking. All off street automobile parking, accesses and maneuvering aisles shall be paved. Off street automobile parking and the access and maneuvering aisles that serve this parking shall be defined as those areas that are open to the general public.

D. Parking for the handicapped shall be designed as shown in the Standard Detail Drawings.

409.4 **Retaining Walls.** Retaining walls shall be designed by a registered engineer qualified to do structural design.

410. **Storm Drainage Design Criteria.**

This section provides maximum and minimum values, and methodologies accepted by the City of Griffin Stormwater Department in the preparation of

Stormwater Drainage Plans. The latest edition of the *Stormwater Design Manual*, prepared for the City of Griffin Public Works and Stormwater Department shall be consulted for the proper design procedures in meeting the standards of this section.

- A. Sizing and location of all existing and proposed storm sewers shall be the responsibility of a professional engineer registered in the State of Georgia.
- B. Storm drainage pipes shall be sloped so as to maintain a minimum velocity of 3 fps during the 2 year storm event so that sediment will not collect.
- C. The Rational Method shall be used for calculating discharges for storm sewers draining less than or equal to 25 acres. The SCS method or USGS regression equations may be used for calculating discharges for storm sewers draining over 25 acres.
- D. The 25-year storm event shall be used in sizing storm drains that serve public streets and rights-of-way. Storm sewers and culverts conveying water under public streets shall be sized to carry runoff from the 100-year storm event without overtopping the road. All other storm-sewer systems shall be sized for the 50-year storm event. The storm sewer system shall be designed for subcritical gravity flow such that the system is not flowing under pressure flow during the design storm. The hydraulic grade line shall be delineated on the construction drawings. Storm sewer systems shall not be designed using Manning's Equation alone. A "Standard Step" procedure must be utilized.
- E. Storm sewers shall not be less than 18 inches in diameter. No storm drain can be under proposed acceleration/deceleration lanes. The City, upon recommendation, by the City Engineer may modify or waive this requirement if unusual circumstances exist such as topography.
- F. Storm drainage shall be collected in storm sewers at or near the perimeter of the property on the upstream end and piped to an existing storm drainage system. This extension requirement can be waived for collection of storm water upstream of roadways where topographic conditions warrant placing the inlet at the toe of the roadway fill.
- G. Maximum continuous length of pipe shall be 300 feet for pipes less than 42 inches in diameter.
- H. Drainage Easements shall be at least 20 ft wide along all storm drain systems and around all detention ponds.

- I. Exit velocities from storm-drain pipes shall not exceed 4 fps during the 25-year storm event without the design of additional energy dissipaters (not including required rip-rap).
- J. It is the developer's and/or the contractor's responsibility to ensure that all structures built on individual lots or sites have positive drainage and are built at an elevation to adequately avoid being flooded by the 100-year storm and that runoff from their project does not adversely affect downstream or upstream property. The City is not responsible for damages resulting from improper design or inadequate runoff control.
- K. Maximum velocity of runoff in swales lined with vegetation shall be 5.0 feet/second during the 25-year storm event. Swales with runoff velocities in excess of 5.0 fps shall be lined with stone, concrete, or approved synthetic matting.

410.1 **Drainage Structures (Excluding pipe or culverts).** The design professional shall check the hydraulic capacity of each drainage structure designed as an inlet point in the drainage system. The actual storm water flows shall be compared with the structures flow capacity to ensure the capacity is not exceeded.

- A. Catch basins shall be designed by the design professional to State Highway Standards 1033D and/or 1034D. Alternate catch basins complying with the standards of the Georgia DOT are subject to approval by the City.
- B. Catch basins shall be located outside of intersection radii unless unusual circumstances cause undue hardship, in which case the City may waive this requirement.
- C. Catch Basin Spacing shall be limited to a maximum distance as follows:

- 500' on grades up to 7%
- 400' on grades from 7% to 10%
- 250' on grades over 10%

Maximum gutter spread shall be one half of the travel lane, as measured from the face of curb, for the 25-year storm event. The inlets shall be spaced in order to intercept a minimum of 85% of the flow during the 25-year storm event without exceeding the above gutter spread.

- D. The outlet end of all storm drain pipes (except driveway pipe) shall have either flared-end sections or concrete headwalls, which meet GA DOT Standards 1120 or 1125. This same standard applies to the inlet end of storm sewers where an open pipe is designed to collect the runoff.
- E. Drop inlets shall be designed to GA DOT Standards 1019A. Weir drop inlets shall be provided in landscape areas. Grated drop inlets shall be provided in paved areas.
- F. Junction boxes or manholes having access to the pipe shall be constructed to meet the requirements of State Standard 9031U or 1011A. Manholes shall be provided with eccentric cone sections.
- G. Detention pond riser structures shall be designed to Georgia DOT standards. These structures shall be checked for flotation.

410.2 **Storm Detention Facilities.** All development plans will require a hydrology study certified by a professional engineer registered in the State of Georgia qualified to do work in the field of hydrology. Permanent detention facilities are required for every development project that has an increase in post-development discharges.

- A. Detention ponds shall be designed for the 2, 5, 10, 25, 50, and 100-year storm events. The SCS Method is the only acceptable method that can be used for developing hydrographs to be used for detention pond routing.
- B. An emergency overflow device (which does not include the throttling device) for a detention pond shall be designed to pass the 100-year peak developed inflow without overtopping the dam. There shall be at least 1.0 ft of free board between the 100-year elevation in the emergency spillway and the top of the dam.
- C. Pond discharge locations shall be in defined drainage ditches. The developer's engineer shall include in the hydrology study a discussion of existing conditions downstream of the detention pond and an explanation of how downstream property owners will not be adversely affected by the "concentrated" runoff. If there is an existing storm drainage system within 150 feet of the discharge point of the outlet pipe for the pond, then the developer shall extend the outlet pipe and tie-in to the existing system.
- D. The steepest fill slopes shall be 2.5:1, and cut slopes shall be no steeper than 2:1. Vegetated embankments shall be less than 20 feet in height. Riprap-protected embankments shall be no steeper than 2:1.

Geotechnical slope stability analysis is recommended for embankments greater than 10 feet in height and is mandatory for embankment slopes steeper than those given above. All embankments must be designed to State of Georgia guidelines for dam safety. The maximum depth shall not exceed 10 ft.

- E. If the City of Griffin Stormwater Department determines that the detention pond poses a significant safety hazard, then the detention pond shall be fenced around the 100-year elevation. The fence shall be at least 4 ft in height with a 14 ft wide gate. Adequate access must be provided for construction equipment and a drainage easement of at least 20 ft in width must be delineated around the pond on the final subdivision plat.

410.3 **Subdrainage.** Will be installed to control the surplus ground water by intercepting sidehill seepage or by lowering or regulating the ground water level where such conditions exist.

410.4 **Bridges.** Bridges shall be designed for a 100-year storm event.

410.5 **Lake(s).** If it is proposed to make a new or existing lake a part of a subdivision, the developer shall be required to submit a breach analysis for affected property within the boundaries of the development and show the dam breach zone on the plans.

411. **Materials**

All materials shall comply with GA DOT Standard Specifications Construction of Roads and Bridges with Supplemental Specifications and Standard Details current edition, unless noted otherwise.

411.1 **Streets.**

A. Graded Aggregate Base Course. The base course shall consist of mineral aggregate and may be a combination of natural deposit or a blend of the materials specified. All materials are subject to approval by the City Engineer. If a blend of materials is used, it shall be blended through a base plant, which meets the latest specifications of the Georgia State Highway Department specification 815.

B. Black Base. The base course shall consist of asphaltic concrete as approved by the City Engineer and shall conform to applicable specifications of the Georgia State Highway Department.

- C. Prime. After the base has been placed, mixed, compacted, shaped, inspected and accepted, it shall be primed with suitable asphaltic materials as specified in DOT Specification 412.
- D. Tack. Tack coat shall be applied on a prepared road surface according to the requirements of Georgia DOT Specification 413.
- E. Roadway Surfaces. After the prime has been inspected and accepted, the roadway or street shall be surfaced with an asphaltic concrete wearing surface. No surface treatment pavement as a finished wear surface will be accepted. All asphaltic concrete will be mixed in an asphalt plant meeting the latest requirements of the Georgia State Highway Department.

411.2 **Curbs and Gutter.**

- A. Residential. Concrete shall be Class “A” as defined by GA DOT and have a minimum compressive strength of 3000 psi at 28 days.
- B. Commercial/Industrial. Concrete shall be Class “A” as defined by GA DOT and have a minimum compressive strength of 3000 psi at 28 days.

411.3 **Storm Sewer Pipe.**

- A. State Highway Standard 1030D shall be used in determining class concrete or gauge of pipe under fill.
- B. A certification by the supplier of the pipe specifications for each pipe shall be required before installation.
- C. Concrete pipe shall be reinforced.
- D. Reinforced Concrete pipe shall be used under all public streets, where pipe slopes are less than 1%, and for all live streams. Double Wall High Density Polyethylene Pipe may be used in all other instances.

411.4 **Storm Drainage Structures (excluding storm sewer pipe)**

The materials used for storm drainage structures shall comply with the standards of the GA DOT.

412. **Construction**

All construction shall comply with GA DOT Standard Specifications Construction of Road and Bridges, with Supplemental Specifications and Standard Details, current edition, unless noted otherwise.

412.1 **Clearing and Grubbing.** The entire area within the typical grading section shall be cleared and grubbed of all trees, bushes, stumps and debris. Such debris shall be disposed of in a lawful manner. There shall be no burial in the road right-of-way.

412.2 **Grading.**

A. Grading shall be accurately done to the lines and grades shown on the plans. Embankments shall be placed in uniform layers not to exceed six inches and compacted to a density of 95% of the maximum laboratory dry weight per cubic foot as determined by ASSHTO Method T-99. If necessary in order to obtain this compaction, the contractor shall add moisture to the material as it is placed.

B.

Depth of Cut or Fill	Cut Slopes	Fill Slopes
2 feet or less	4 to 1	4 to 1
2 feet to 5 feet	3 to 1	3 to 1
5 feet to 10 feet	2 to 1	2 to 1
Over 10 feet	2 to 1	2 to 1

The depth of cut referred to above shall be constructed to the maximum cut or fill occurring in any one section of cut or fill. The slope on cut or fill slopes shall be uniform throughout for each section of cut or fill. When a cut is made in rock that requires blasting, the slope may be changed to vertical slope upon the written approval of the Subdivision Administrator.

C. Typical grading section shall be as shown in the Standard Detail Drawings.

1. Shoulder section behind curb on typical streets shall be as shown in the Standard Detail Drawings.

412.3 **Subgrade.**

A. After the earth work has been completed, all storm drainage and other underground utilities have been installed under the roadbed and the backfill in all such ditches thoroughly compacted, the subgrade shall be brought to the lines, grades and cross section shown on the plans.

- B. If any sections of the subgrade are composed of unsuitable or unstable material, such material shall be removed to the depth directed by the authorized representative of the city and replaced with suitable material and compacted to 90% minimum.
- C. When the street is to be used for construction traffic before the paving work is completed, a layer of #3 stone can be laid as a traffic surface if the developer so desires.
 - 1. This material shall not be used as part of the base material.
 - 2. It may be worked into the subgrade; or it shall be removed before the base course is set up for paving.
 - 3. Provision shall be made to drain low points in road construction when the final paving surface is delayed.
 - a. Provide break in the berm section when the curbing has not been constructed.
 - b. Use 2 ½ inch or 6-inch pipe sections to provide drainage under curb to side slopes.

412.4 **Curbs and Gutter.**

- A. Line and grade shall be set by developer's engineer, landscape architect, or surveyor.
- B. One-half inch expansion joints or pre-molded bitumastic expansion joint material shall be provided at all radius points and at intervals not to exceed 50 feet in the remainder of the curb and gutter.

412.5 **Street Cuts.**

- A. All trenches shall be backfilled and compacted the same day the trench is opened. Backfill in trenches within the right-of-way shall be compacted to 95% of the maximum laboratory dry density. In addition, the top one-foot of backfill to be located under pavement and curbs shall be compacted to 100% of the maximum laboratory dry density. The top one-foot of backfill is as measured from the bottom of the graded aggregate base to 1-foot below that surface.
- B. The City's policy is no existing city roads can be open cut unless unusual circumstances warrant it. Storm sewers 36 inches or smaller shall be bored. Contact the City for permission to open cut any existing City road. If the City allows open cutting, all trenches under existing paving shall be backfilled and compacted in 6 inch lifts and excavated to allow for concrete and asphalt to be placed as shown in the Standard Detail Drawings. The edges of the paving cut shall be saw cut smooth.

412.6 **Underground Utilities.**

- A. All utilities located within street rights-of-way within the curbs shall be installed and the ditches backfilled and thoroughly compacted as stated in Section 406.5 A before any pavement or base is installed. All utilities otherwise located within street rights-of-way, shall be installed and ditches backfilled and compacted to 95% of the maximum laboratory dry density.
- B. All utility manholes and valve boxes shall be brought to the finished grade within the roadway section.

412.7 **Shoulders and Easements.** All shoulders and easements shall be clear of limbs and debris, graded smooth and established in grass.

412.8 **Foreign Material on Streets.**

- A. The developer, builders, and/or homeowners shall be responsible for keeping dirt, mud, building materials, concrete, etc., off of the pavement and curbing of existing City or County roads during construction of buildings in all developments covered by these regulations.
- B. Before the streets are accepted by City of Griffin, all litter and trash shall be removed from the dedicated rights-of-way and surrounding areas.

412.9 **Storm Sewers.** Pipe installation shall conform to GA DOT Standard Specifications for construction of roads and bridges.

- A. Before any traffic over a storm drain is allowed, the developer shall provide an adequate depth and width of compacted backfill to protect the structure from damage or displacement. Any debris or silt that constricts the flow through a pipe shall be removed by the developer as often as necessary to maintain drainage. All pipe structures shall be cleaned before the work is conditionally approved. Any damage or displacement that may occur due to traffic or erosion shall be repaired or corrected at the developer's expense.
- B. Minimum Clearances Are.
 - 1. One foot between the bottom of the base or sub-base, if used, and the exterior crown of the culvert.
 - 2. A minimum of 0.5 foot between underground utilities and exterior crown of culverts.

- C. Trench construction for storm drainage pipe shall be in accordance with State Highway Standard 1030D and current manufacturer's specifications. A typical detail shall be provided on the construction drawings.
- D. The storm sewer bedding shall be designed according to the latest manufacturer's specifications and a typical detail shall be provided on the construction drawings.
- E. All pipe joint connections and connections to manholes shall be made according to the latest manufacturer's specifications. At a minimum all connections to manholes shall be grouted with cement.

413. **Inspection and Tests.**

413.1 Scope. This section pertains to the inspection and testing of road and storm sewer construction.

413.2 Testing.

- A. All tests shall comply with Standard Specifications Construction of Roads and Bridges by the GDOT, most current edition.
- B. Compaction testing shall be done on road embankments, trench backfill and road subbase.
- C. Asphalt testing including coring for pavement thickness and asphalt extraction tests shall be done for roads.

413.3 **Contractor Qualifications.**

- A. Licensing and Safety. All contractors who work on water systems that will be owned by the City of Griffin must be licensed in accordance with State of Georgia law and local ordinance. Compliance with applicable safety regulations is the responsibility of each company engaged in the work; the city assumes no responsibility for the actions of others on the job site. It is the responsibility of those installing water mains and related appurtenances to conform to OSHA regulations, 29 CFR Part 1926, Subpart P, Paragraph 1926.650 through 1926.653. Publications from OSHA can be obtained by contacting OSHA Publications Distribution, Washington, D.C.
- B. Contractors performing road and storm sewer construction must be approved by the City and should be completely familiar with the procedures and contract requirements associated with this type project.

C. Unsatisfactory work may result in the loss of privilege to obtain a permit for future work in the City of Griffin.

413.4 **Construction Inspection.**

A. Responsibility for Inspection. The developer's contractor will be responsible for the quality, accuracy and workmanship of his completed work. In addition, the developer shall employ a qualified professional (this shall normally be the same design professional who prepared the plans for the work) to review the quality of work as required during construction and to oversee the various tests and inspection points that are specified herein.

City personnel will visit the job site on a periodic basis and will make spot checks, as they deem appropriate. The City of Griffin shall have the right to review and inspect all construction and may reject any work that does not meet quality control standards.

B. Access To Project. Authorized representatives of the City of Griffin, which may include city employees, the city engineering consultant, state or federal agencies, shall have access to the site for inspection at any time.

C. Communications During Construction. All written communications regarding road and storm sewer construction will be to:

Director of Public Works and Utilities
City of Griffin
P. O. Box T
Griffin, GA 30224
Phone No. 770-229-6424 - Fax No. 770-229-6439

The developer, contractor(s) and the developer's professional responsible for inspection will be required to attend a pre-construction conference with the City. At the pre-construction conference, the contractor will submit to the city, in writing, the date they propose to begin construction. The contractor will provide notification by phone any time the work is to be vacated and will provide notice by phone prior to resuming work.

The applicable City departments may have informal verbal communications with the contractor foreman or superintendent at any time during construction. The City will not direct the actions of contractor's workmen.

- D. Concealed Work. The contractor shall notify the City and receive inspection approval prior to concealing certain work such as storm sewers and bedding, storm drainage structures, road fill, etc.
- E. Minimum Inspection by Developer's Professional. The following minimum inspections and tests will be performed and certified by the professional who is employed by the developer to perform quality control checking on the construction work.
1. Roadway Embankment Compaction Testing. Frequency of testing shall be determined by project conditions. Testing schedule and locations subject to approval by the City. Areas failing compaction test shall be reworked as necessary until compaction is achieved.
 2. Storm Sewer Trench Backfill Compaction Testing. At least two (2) tests per road crossing. Random testing for storm sewers in road shoulders. Any areas failing the compaction tests shall be reworked as necessary to achieve compaction.
 3. Sub-base Compaction Testing and Test Rolling. Compaction tests of the sub-base should be done randomly not exceeding 500 feet apart. In addition, the road sub-base shall be test rolled with the City inspector present. Areas failing compaction testing shall be reworked until compaction is achieved.
 4. Asphalt Pavement. The asphalt shall be cored for thickness at random locations not exceeding 500 feet apart. Extraction testing shall be done on the asphalt to ensure compliance with GA DOT Specifications for the asphalt section required. Areas with failing asphalt tests shall be corrected by a method approved by the City.
 5. Concrete. Testing for concrete shall be done where concrete is used on the project for retaining walls, culverts and headwalls and bridges. Testing shall include slump tests, compressive strength tests and air entrainment tests. Testing shall comply with GA DOT testing standards for concrete.

413.5 **Final Inspections and Conditional Acceptance.** The developer's professional responsible for inspection of construction will provide the city with an affidavit after he completes his inspection, testing and submittal of as-built drawings and easements. This affidavit must certify that all specified inspections and tests have been made and successfully passed and that the work has been completed in substantial accordance with the approved plans and specifications. After receipt of this affidavit, the city will schedule a final inspection. A representative of the developer's professional and the contractor will be present during this final inspection. This final inspection will generally include spot checks of

storm sewers, drainage system, drainage easements, roads and a complete overview of the project.

After any discrepancies are corrected, the city will issue a letter certifying conditional acceptance of the water system. This letter shall commence the start of the 24-month warranty period, which is required of the contractor.

On projects having phased development, this letter will allow the developer to apply for a permit for the next phase of development.

At the end of 24 months, the City will re-inspect the entire development. When any discrepancies have been corrected, the city will issue an acceptance letter and will begin perpetual maintenance and operation of the roads and storm sewer system within the right-of-way.”

Section 2. All ordinances, codifications of ordinances, and parts thereof in conflict with the foregoing are hereby repealed.

Section 3. This ordinance shall become effective immediately upon second and final reading.

PUBLIC HEARING: March 11, 2003

FIRST READING: March 11, 2003

SECOND READING: March 25, 2003