

ARTICLE IV

DEVELOPMENT PREREQUISITE TO FINAL APPROVAL

A perfectly prepared and recorded subdivision plat means little to a prospective lot buyer until he can see the actual physical transformation of raw acreage into lots suitable for building purposes and human habitation. Improvements by the subdivider spare the community from a potential tax liability. The following tangible improvements are required before final plat approval in order to assure the physical reality of a subdivision.

Required Improvements

Every subdivision developer shall be required to grade and improve streets and alleys, and to install curbs, monuments, sewers, storm water inlets and water mains, in accordance with specifications established by the planning commission. Below are the minimum standards for subdivision improvements.

A. Monuments or Corner Markers

1. Flat top iron pins, not less than one-half (1/2) inch in diameter and eighteen (18) inches in length, shall be set at all points where the street lines intersect the exterior boundaries of the subdivision, and at angle points and points of curve in each street. The top of the iron pins shall have a cap or tag of noncorrosive material with the surveyor's registration number or company name stamped thereon..
2. All other lot corners shall be marked with iron pipe not less than one-half (1/2) inch in diameter and eighteen (18) inches in length, and driven so as to be flush with the finished grade.

B. Grading

All streets, roads and alleys shall be graded by the subdividers so that pavements can be constructed to the required cross-section. Deviation from the above due to special topographical conditions, will be allowed only with special approval of the planning commission. Where streets are constructed under or adjacent to existing electric transmission lines, the nearest edge of the pavement shall be a minimum of fifteen (15) feet from any transmission line structure, and all grading for the street shall be done in a manner which will not disturb the structure or result in erosion endangering it. In the case of electric transmission lines, the clearance from the pavement to the nearest conductor shall meet the requirements of the local utility.

1. Preparation: Before grading is started, the entire right-of-way area shall be cleared of all stumps, roots, brush and other objectionable materials and all trees not intended for preservation.
2. Cuts: All tree stumps, boulders and other obstructions shall be removed to a depth of two (2) feet below the subgrade. Rock, when encountered, shall be scarified to a depth of twelve (12) inches below the subgrade. All topsoil shall be removed a minimum of two (2) feet below the subgrade and back filled with suitable material. No grading shall be done when the ground is frozen or muddy, unless mud is removed and deposited outside of streets.
3. Fill: All suitable material from roadway cuts may be used in the construction of fills, approaches, or at other places as needed. Excess materials including organic materials, soft clays, etc., shall be removed from the development site. The fill shall be spread in layers not to exceed twelve (12) inches loose and compacted by a sheep's foot roller with a minimum standard compaction of 95%. The filling of utility trenches and other places not accessible to a roller shall be mechanically tamped, and where water is used to assist compaction the water content shall not exceed the optimum of moisture.

C. Inspections

During the construction of any subdivision roads in the area of planning jurisdiction, where such roads will be public roads maintained by the City of LaFollette or Campbell County, the developer and/or his contractor shall be required to keep the applicable City or County Road Superintendent advised as to the progress being made. Such roads shall meet or exceed the standards required by these subdivision regulations. The following inspections and/or approvals shall be required by the applicable official (City Street Superintendent, County Road Superintendent, and/or County Surveyor):

- (a) after clearing and stripping
- (b) after grading and drainage are completed
- (c) after the stone base is in place, and
- (d) during and after application of all asphaltic materials.

The developer, or his representative, shall be responsible for notifying the Street or Road Superintendent for each inspection. When the plat is submitted to the planning commission for final approval, a final inspection shall be made. That official's findings and recommendations concerning approval of the roads shall be reported in writing to the planning commission.

In lieu of the completion of road improvements by the time of final plat submission, the planning commission may, upon request, accept an improvements guarantee. In considering such a guarantee, the planning commission may request the advice of the City Street Official or County Road Superintendent (or designated county road inspector) regarding the amount indicated for the completion of the street and road improvements. Such a guarantee shall not be released by the planning commission until the recommendation of the applicable road official has been obtained concerning the acceptability of the completed road(s).

D. Storm Water Control

An adequate drainage system, including necessary open ditches, pipes, culverts, intersectional drains, drop inlets, bridges, etc., shall be provided for the proper drainage of all surface water. Cross drains shall be provided to accommodate all natural water flow, and shall be of sufficient length to permit a full width roadway and the required slopes. Cross drains shall be built on a straight line and grade, and shall be laid on a firm base, but not on rock. Pipes shall be laid with the spigot end pointing in the direction of the flow, and with the ends fitted and matched to provide tight joints and a smooth, uniform invert. They shall be placed at a sufficient depth below the roadbed to avoid dangerous pressure of impact, and in no case shall the top of the pipe be less than one (1) foot below the roadbed. For the calculation of cross drain or culvert diameters, Talbot's Formula shall be used, except that no drainage pipe or culvert may be less than fifteen (15) inches in diameter (see Appendix IV). In lieu of Talbot's formula, another method of calculation for pipe or culvert size may be employed, if it is widely accepted by engineering professionals.

The following standards shall apply:

1. *Drainage System Design Criteria:* The following criteria shall be followed in the design and installation of storm water drainage systems:
 - (a) The installation of a drainage pipe is required for any driveway constructed by the subdivider, and which connects to a drainageway associated with any public street or road. This requirement is applicable on any roadway section which does not have curbing.
 - (b) Drainage pipes underlying driveways, and referred to in (a), shall be a minimum of fifteen (15) inches in diameter. However greater diameter may be necessary depending upon the flow of stormwater anticipated along the applicable drainage channel.

- (c) Catch Basins shall be integrated, where necessary, into any new roadway construction involving the installation of curbing. Catch basins shall be TDOT 12-32 (standard drawing D-CB-12-32), modified to accept the frame and grate as shown on standard drawing D-CBB-12A or other designs of comparable quality as approved by the county. Total casting weight shall be a minimum of 730 lbs. per catch basin. Castings shall be aligned using plan normal gutter elevations which shall be adjusted to allow for a 2' sump at face of curb.
- (d) Enclosed storm drains which collect and convey drainage on, across, and through public rights-of-way shall comply with standards for driveway side drains. Pipe shall extend beyond the ROW and shall terminate with a flared concrete headwall. Rip rap/quarry or field stone (4 to 8 inches in dimension) shall be placed a minimum of 6' beyond the headwall and laid over erosion control matting material equal to Erosion Control Fabric 955 by Synthetic Industries Inc.
- (e) Standards for enclosed systems: The minimum design criteria used for calculating the size of enclosed drainage systems shall be based on a ten (10) year frequency, twenty-four (24) hour duration storm. For major system designs, an engineer shall determine other appropriate criteria which are consistent with the intent of this section.
- (f) All hydrologic and hydraulic computations utilized in the design of stormwater detention or retention facilities must be prepared by a registered engineer proficient in the field of hydrology and hydraulics and licensed in the state of Tennessee. An acceptable method for calculating runoff and detention facilities is outlined in "Urban Hydrology For Watersheds", 2nd. Edition, U.S. Soil Conservation Service, Technical Release #55.
- (g) If curbs are not provided, drainage ditching shall be constructed so that the valley line of the ditch is placed at least six (6) feet from the edge of the pavement surface and at least eighteen (18) inches below the elevation of that surface. The slopes of the ditch shall normally have a ratio of at least 3:1, horizontally to vertically. Where the slope of a roadway is eight (8) percent or more, and drainage ditches are proposed, then rip-rapping, concrete swales, or other appropriate measures shall be taken by the subdivider to preserve drainage areas against erosion and sedimentation.
- (h) The surface of the finished street or road shall be constructed to include a crown of at least two (2) inches for the proper drainage of stormwater.

2. Stormwater Detention/Retention

Where significant problems exist in the conveyance of stormwater drainage from a proposed single family residential subdivision, amounting to at least five (5) acres or ten (10) lots, then stormwater detention or retention may be required.

Standards: Where detention or retention are necessary, the development shall be required to use generally accepted standards and procedures for calculating the release of stormwater from the site before and after development. The design criteria for the sizing of detention or retention basins are based on the maximum outflow rate of a 24-hour storm of 10 year frequency under the pre-development condition of the site, and adequate capacity for a 24-hour storm of 25-year frequency under the post-development condition.

3. Stormwater Drainage Plan

If any street improvement is proposed for a subdivision development, then a professionally (engineer, architect, registered surveyor) designed stormwater drainage plan shall be submitted to the planning commission with the preliminary plat. Where curbing, guttering, and underground piping are constructed, then the drainage system shall be designed by a certified engineer (P.E.). The plan may be integrated into the preliminary plat, if desired by the subdivider. It shall indicate

any needed stormwater structures, such as culverts, rip-rapping, concrete or asphalt swales, storm drains used with curbing, subsurface piping, and detention or retention basins. (See Subsection 2 above for detention/retention basins.)

4. Erosion Control

Effective erosion control measures shall be required during construction to eliminate sedimentation on public rights-of-way, watercourses, or adjacent properties. Among the most prevalent measures are straw bales or silt fencing, however other suitable methods may be permitted. Barren areas within the subdivision shall be replanted as soon as possible in the development process. At a minimum, grass shall be planted on denuded areas, but wherever feasible original vegetation shall be maintained on the development site.

E. Road Design Standards

1. Pavement Base

After preparation of the subgrade, the roadbed shall be surfaced with Type A mineral aggregate crushed stone, pugmill mixed with even wetting to maintain a uniform moisture content, in accordance with Section 303, Mineral Aggregate Base, Standard Specifications for Road and Bridge Construction, Tennessee Department of Transportation. The aggregate shall be applied in reasonably close conformity with the lines and grades shown on the street profile/plan. The average density shall not be less than ninety-five (95) percent of maximum density as determined by AASHTO T-99, Method D. Any constructed base shall extend at least three (3) feet from the edge of the pavement on each side of the street or road surface. The compacted thickness of the stone roadway shall be as follows for the dominant type of traffic using the road:

Residential 6"
Commercial 8"
Industrial 10"

2. Prime Coat

After a thoroughly compacted base has been established, a prime coat shall be applied as specified in Appendix III of these regulations.

3. Binder

A binder course consisting of compacted asphaltic concrete (307-B specification) shall be required for all streets or roadways as follows:

Residential 2.0"
Commercial 3.0"
Industrial 3.0"

4. Wearing Surface

A wearing surface consisting of compacted finish material (307-C specification) shall be required for all streets or roadways as follows:

Residential 1.25"
Commercial 2.0"
Industrial 2.0"

5. Minimum Pavement Widths

Minimum pavement widths shall conform to the standards listed below (where curbs and gutters are installed, the following widths shall be required between the curbs):

- a. Minor Residential Streets (inside city) 24 feet

Minor Residential Streets (outside city)	20 feet
b. Marginal Access Streets (1,200' or less in length or serving not more than 24 lots)	24 feet
c. Cul-de-sac (1,200' or less)(inside city)	24 feet
Cul-de-sac (1,200' or less) (outside city)	20 feet
d. Collector Streets (major and minor, with two moving lanes)	26 feet
e. Arterials (not usually paved by developer)	n/a
f. Alleys	12 feet
6. Curbs and Gutters	

The subdivider may provide permanent six (6) inch concrete curbs with twenty-four (24) inch integral concrete gutters; standard rolled curb and gutters; or other construction approved by the planning commission (see Appendix).

F. Sidewalks (may be required)

Sidewalks, if constructed, shall be located not less than one (1) 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. In single-family residential areas, concrete sidewalks shall be four (4) feet wide and four (4) inches thick. In multi-family or group housing developments, sidewalks shall be five (5) feet wide and four (4) inches thick. In commercial areas, sidewalks shall be ten (10) feet wide and four (4) inches thick.

G. Installation of Utilities and Driveways

After grading is completed and approved, and before any base is applied, all of the underground works--water mains, gas mains, etc.--shall be installed completely and approved throughout the length of the road right of way(s) and any other relevant areas. All driveways for houses to be built by the developer shall be cut and drained.

H. Water Supply System

It is the intent of these regulations to require six (6) inch inside diameter water mains as a minimum in future subdivisions throughout the municipality and planning region. The mains shall be connected to the city water supply system or other public utility in order to serve adequately all lots for domestic use and fire protection. Exceptions may be considered where the existing water lines and/or water pressure in the vicinity of a proposed subdivision are not adequate to connect to new six (6) inch water lines. Where main water lines are extended to provide public water service to subdivisions, fire hydrants shall be installed at intervals not exceeding eight hundred (800) feet, as measured along a right of way. At least one (1) hydrant shall be required in any subdivision where a main water line is extended for the provision of public water service.

I. Sanitary Sewers

When located within a sewer service area, sanitary sewers shall be installed in such a manner as to serve adequately all lots with connection to the public system.

Where lots cannot be economically connected with a public sewerage system, they must contain adequate area for the installation of approved septic tank and disposal fields, or another acceptable alternative, and must be approved in writing by the appropriate environmentalist.

J. Street Name Signs & Regulatory Warning Signs

Signs shall be installed by the developer and appear at all intersections in new subdivisions, including intersections with county roads. Appropriate regulatory and warning signs shall be installed as needed and shall conform to Uniform Traffic Control Manual guidelines.

K. Requirements for Acceleration and Deceleration Lanes

In order to provide for the safe and orderly movement of traffic on existing streets, the City of LaFollette Regional Planning Commission may require a developer to construct such lanes for acceleration and deceleration as may be appropriate. The commission's decision shall be based on the existing road widths, average and peak daily traffic, and safety conditions of the area.

L. Electric Transmission Lines

The subdivider shall provide the necessary major electrical distribution lines throughout the subdivision. Electrical lines shall make electrical power available to all lots shown on the subdivision plat.

M. Guarantee in Lieu of Completed Improvements

No final subdivision plat shall be approved by the planning commission, nor accepted for record by the county register of deeds, until one of the following conditions has been met:

1. All required improvements have been constructed in a satisfactory manner and approved by the planning commission.
2. The planning commission has accepted an irrevocable letter of credit, certified check, escrow account, or security or performance bond in an amount equal to the estimated cost of installation of the required improvements, whereby improvements may be made and utilities installed without cost to the City of LaFollette in case of default by the subdivider. The conditions of such guarantees shall provide for the installation of the secured improvements within a period not to exceed eighteen (18) months; provided however, that such period may be extended by the planning commission with the consent of the parties thereto, if the planning commission finds that the public interest will not be adversely affected by such extension.
3. Any owner or agent of any land may sell, transfer, or agree to sell any lot or lots shown on a plat having been given final approval by the planning commission; provided the owner or agent posts an acceptable guarantee to the public for the construction and installation of necessary improvements within the specified time period.

Sale of subdivision by auction does not exempt the subdivider from posting acceptable security in lieu of completed improvements; however, in the event that a parcel is sold as a whole, the security or performance bond shall be immediately released by the planning commission.