

TABLE OF CONTENTS

PREFACE 1

RULES OF PROCEDURE 2

 Rules 2

 Meetings..... 2

 Agenda 2

 Applications 2

 Study 2

 Quorum 2

 Subdivision Plats 3

 Fees 3

ARTICLE I 5

 PURPOSE 5

ARTICLE II 6

 AUTHORITY 6

ARTICLE III 7

 JURISDICTION 7

ARTICLE IV 8

 DEFINITIONS 8

ARTICLE V 10

 GENERAL PROVISIONS 10

 Major Plat 10

 Minor Plat..... 10

 Procedure for Recording Not More Than Two (2) Lots 12

ARTICLE VI 13

 DESIGN STANDARDS 13

 Streets..... 13

 Easements and Special Rights-of-Way 15

 Blocks..... 15

 Lots..... 15

 Public Sites and Open Spaces..... 16

 Land Subject to Flooding 16

 Airport Approach Zone 17

 City Road right-of-way Requirements..... 18

 County Road right-of-way Requirements 19

ARTICLE VII 20

 PRELIMINARY PLAT 20

 Procedure..... 20

 Content 21

 Variances, Modification, and Waivers..... 22

ARTICLE VIII 23

 FINAL PLAT 23

 Procedure..... 23

 Minor Plat..... 23

 Content 23

ARTICLE IX 27

 REQUIRED IMPROVEMENTS 27

 Streets..... 27

 Sewers 28

 Water 29

 Drainage and Storm Sewers 29

 Grading 30

 Street Lights 30

ARTICLE X 31

BOND AND SURETY 31
 Construction Bond 31
 Maintenance Bond 31
ARTICLE XI 32
 VARIANCES AND EXCEPTIONS 32
ARTICLE XII 33
 CHANGES AND AMENDMENTS 33
ARTICLE XIII 34
 ENFORCEMENT AND PENALTIES 34
ARTICLE XIV 35
 INTERPRETATION, CONFLICTS, AND SEPARABILITY 35
ARTICLE XV 36
 EFFECTIVE DATE 36
EXHIBIT "A" 37
 EASEMENT DESIGN AND 37
 CONSTRUCTION STANDARDS 37
 COUNTY EASEMENTS RIGHT-OF-WAY REQUIREMENTS 40
CITY OF CLARKSVILLE AND MONTGOMERY COUNTY DRAINAGE CRITERIA 41
EXHIBIT "B" 41
EXHIBIT "C" 51

PREFACE

The process of land subdivision is a major and continuing element of the growth process within Clarksville and Montgomery County. Regulation of the subdivision process is warranted not only by its value to the community as a whole, but also to the individual land consumer. The procedures and regulations contained herein are a direct outgrowth of the comprehensive plan for the city and county. As such, consideration has been given to land use, housing, transportation and other policy as developed within the Comprehensive Planning Process.

Many of the elements within these regulations are much the same as those previously in effect for the city and county. Growth of the locality and changes in technology and avenues of regulation have prompted this revision. It is hoped that the resulting document provides adequate information, design, and facilities for the land consumer; an equitable and efficient regulatory process for the developer; and an adequate means of review for regulatory agencies.

**CLARKSVILLE-MONTGOMERY COUNTY
REGIONAL PLANNING COMMISSION**

RULES OF PROCEDURE

1. Rules

"Roberts Rules of Order" shall govern the order of business and conduct of meetings of the Regional Planning Commission unless otherwise provided for herein.

2. Meetings

- a. The Planning Commission shall hold at least one (1) regularly scheduled meeting per month on the Wednesday before the last Thursday of each month, commencing at 2:00 p.m.
- b. Special Meetings of the Planning Commission may be called by the Chairman upon giving one day notice to the membership,
- c. Extraordinary meetings of the Planning Commission may be called by the Chairman or Vice-Chairman upon the request of any three (3) members of the Planning Commission mission, provided that the membership shall be notified by telephone at least four (4) hours prior to such meeting,

3. Agenda

An Agenda for each meeting shall be prepared by the Director of Planning and mailed to members not later than three (3) days prior to each regular monthly meeting of the Planning Commission.

4. Applications

- a. Applications for review of subdivision plats must be submitted in a format as established by the Planning Commission. Applications for preliminary plat review must be submitted not less than twenty-one (21) days prior to the date of the regular Planning Commission meeting.
- b. Applications for final plat review must be submitted not less than twenty-one (21) days prior to the regular Planning Commission meeting.
- c. Applications for one (1) and two (2) lot minor plats shall follow procedures outlined in Article V, Section 2 and Article VIII, Section 4.

5. Study

The Planning Commission may defer action on any matter presented to it at a regular meeting, until the next regular meeting; so that proper study of the matter may be made by the membership; provided however, that the Commission shall approve or disapprove a plat within sixty (60) days after the submission thereof, otherwise, such plat shall be deemed to have been approved and a certificate to that effect shall be issued by the commission on demand; provided, however, that the applicant for the commission's approval may waive this requirement and consent to the extension of such period in accordance with Section 13-3-404, Tennessee Code Annotated.

6. Quorum

Unless otherwise provided by statute, a majority of the members shall constitute a quorum for the conduct of business.

7. Subdivision Plats

The Director of the Planning Commission or the Chairman of the Planning Commission shall be authorized to sign the final plat as approved by the Planning Commission.

All plats must be submitted on a standard format as specified by the Planning Commission, copies of which are available at the Planning Commission office.

8. Fees

All applications or subdivision review must be accompanied by the following standard fees.

Preliminary Plats	\$15.00 per lot
Final Plats	\$10.00 per lot
Staff Level review (two lots or less)	\$100.00
Replats	\$200.00
R-O-W Dedications	\$200.00
Postponed Final Plat	\$250.00 per postponement. Any final plat that appears on the RPC agenda for the first time may be postponed once by applicant without charge. Any subsequent postponements will require a \$100.00 fee per postponement.

The above fees will automatically increase by 5% on July 1 of each year, beginning July 1, 2007 through July 1, 2011.

A RESOLUTION TO AMEND THE REGULATIONS GOVERNING THE SUBDIVISION OF LAND WITHIN THE JURISDICTION OF THE CLARKSVILLE - MONTGOMERY COUNTY REGIONAL PLANNING COMMISSION: PRESCRIBING THE PROCEDURES IN PREPARING AND APPROVING PLATS, AND PROVIDING PENALTIES FOR VIOLATION THEREOF.

SUBDIVISION REGULATIONS
FOR
CLARKSVILLE AND MONTGOMERY COUNTY

ARTICLE I

PURPOSE

The purpose of the regulations is to provide for the orderly development of land within Clarksville and Montgomery County in accordance with the Comprehensive Plan. The regulations provide for the placement of streets, utilities, and drainage facilities in a manner that is coordinated with existing development and also permits logical and efficient extension of such development in the future. It is also the purpose of these regulations to provide for the planned development of open space and recreation areas among other amenities that will increase the desirability and long term vitality of neighborhoods. Finally, it is the purpose of these regulations to minimize or eliminate the possibilities of adverse effects upon the environment as a result of land development.

ARTICLE II

AUTHORITY

The rules and regulations herein set forth governing the subdivision of land are adopted in accordance with Title 13, Section 13-3-301 and Section 13-3-401 through Section 13-3-411 as amended through 1991 of Tennessee Code Annotated.

ARTICLE III

JURISDICTION

These regulations shall govern the subdivision of all land within the boundaries of Montgomery County as now or hereafter established and includes the subdivision of all land within the corporate limits of the City of Clarksville as now or hereafter established. Within these regulations, the term "subdivision" shall mean the division of a tract or parcel of land into two (2) or more lots, sites, or other divisions requiring new street or utility construction, or any division of less than five (5) acres for the purpose, whether immediate or future, of sale or building development, and includes resubdivision and when appropriate to the context, relates to the process of resubdividing or to the land or area subdivided. Any owner of land within this area wishing to subdivide land shall submit to the Clarksville-Montgomery County Regional Planning Commission a plat of the subdivision according to the procedures outlined in Article V, which plat shall conform to the minimum requirements set forth in Article VII and Article VIII. Improvements shall be installed as required by Article IX of the regulations.

ARTICLE IV

DEFINITIONS

1. **Alley:** A minor public way used primarily for access to the back or side of properties otherwise abutting a street.
2. **Block:** A parcel of land entirely surrounded by streets or highways or by a combination of streets, highways, parks, or railroad right-of-ways.
3. **Block Frontage:** A property on one side of a street between two intersecting streets (crossing or terminating) measured along the line of the street, or if the street has a dead-end, then all of the property abutting the dead-end and or cul-de-sac of the street.
4. **Board of County Commissioners:** The Chief Legislative body of Montgomery County, Tennessee.
5. **City:** City of Clarksville, Tennessee.
6. **City Council:** The Chief Legislative body of The City of Clarksville, Tennessee
7. **County:** The county of Montgomery County, Tennessee.
8. **Comprehensive Plan:** The official plan for Clarksville and Montgomery County adopted in accordance with the provisions of Title 13, Tennessee Code Annotated. Such plan is the combination of a number of different elements including Land Use, Housing, and Transportation.
9. **Easement:** A grant by the property owner of the use of designated land for a specific purpose.
10. **Final Plat:** The completed subdivision plat in form for approval and recording.
11. **Flag lot(s):** Generally contains a narrow strip of property leading from a right-of-way to the building site which is generally located to the rear of other lots(s) fronting along the same right-of-way.
12. **Flood Plain (100-Year Base Flood):** The elevation at which a flood would have a one percent probability of annual occurrence.
13. **Lot:** A parcel of land intended as a unit for transfer of ownership or for development, having its principal frontage upon an officially approved street.
14. **Lot, Double-Frontage:** A lot which runs through a block from street to street and which has two (2) nonintersecting sides abutting on two (2) or more streets.
15. **Lot, Reverse-Frontage:** A double-frontage lot having the rear yard abutting a major street and with the primary means of ingress and egress being provided on a minor street.
16. **Major Street Plan: (or Major Route Plan)** the plan for Clarksville-Montgomery County which recommends new street construction and improvements to existing facilities designed to provide adequate traffic flow, adopted, amended, and recorded in accordance with the provisions of Title 13, Tennessee Code Annotated.
17. **One and Two Lot Subdivision Plats:** A proposed subdivision or subdivision replat which contains no more than two (2) lots of less than five (5) acres and does not require dedication of any land to the public or installation of any public improvements.

18. Preliminary Plat: A tentative plat of proposed subdivision for presentation to the Planning Commission for its initial consideration.
19. Roadway: That portion of a street right-of-way between regularly established curb lines being that part of a street devoted to vehicular traffic.
20. Sidewalk: That portion of a street right-of-way not included in the roadway and devoted in whole or part to pedestrian traffic.
21. Sinkhole: A closed topographic depression, generally elliptical circular in aerial view, resulting from the settlement or collapse of surface materials into solution openings beneath the surface such as caves or enlarged joints, (Phillip R. Kemmerly. "Sinkhole Collapse--Montgomery County, Tennessee," Environmental Geology Series N. 6. State of Tennessee, Division of Geology, 1980, p. 3.)
22. Street: The right-of-way of a public or private thoroughfare which affords principal means of access to abutting property.
 - a. Major Street: High volume streets that conduct traffic between towns and activity centers and connect communities to major state and interstate highways. Typically, residences are not located on major streets.
 - b. Collector Street: The principal traffic arteries within residential or commercial areas. They carry relatively high traffic volumes and should be designed to promote the free flow of traffic, including public transit buses and school buses. Some residences may front on these streets.
 - c. Access Streets: The lowest volume streets. Their purpose is to handle traffic between dwelling units and higher-order streets. They usually carry no through traffic and include short streets, cul-de-sacs, lanes, courts, and ways. Access streets serve only a few dwelling units. Access streets shall include courts and minor streets.
23. Subdivision of Land: Subdivision means the division of a tract or parcel of land into two (2) or more lots, sites or other divisions requiring new street or utility construction, or any division of less than five (5) acres for the purpose, whether immediate or future, of sale or building development, and includes resubdivision and when appropriate to the context, relates to the process of resubdividing or to the land or area subdivided.
24. Subdividers: An individual, firm, association, syndicate, co-partnership, trust, or any other legal entity commencing proceedings under these regulations to affect a subdivision of land hereunder for himself or for another.
25. Swale Easement: An easement along the side and/or rear property line the purpose of which is to drain surface water from the proposed lot and an adjoining property owner. The swale easement shall not be greater than one (1) foot in depth.

ARTICLE V

GENERAL PROVISIONS

1. Prior to Planning Commission consideration of any plat of a subdivision of land, the subdivider shall file a standard form of application and appropriate fees in the office of the Regional Planning Commission, in accordance with the application section previously mentioned.
2. No plat of the subdivision of any land within the jurisdiction of the Planning Commission shall be filed for record by the Montgomery County Register of Deeds unless the following conditions have been met:

Major Plat

- a. A pre-application conference should be held on the subdivision with the Planning Commission staff to review initial development proposals including a "sketch" or "concept" plan.
- b. A preliminary plat shall have been prepared and shall have been approved by the Planning Commission as specified herein.
- c. Detailed construction plans shall be approved and signed by the proper authority before any utility, drainage, or roadway construction begins on the site.
- d. The required improvements shall have been satisfactorily installed and completed by the subdivider or a performance bond has been posted to secure the same, providing the department having jurisdiction accepts such bonds.
- e. Adequate maintenance bond shall have been posted as per the requirements of Article X.
- f. A final plat shall have been prepared and such plat approved by the Planning Commission as specified herein. Applicants may obtain mylar copies of the standard plat formats by ordering such copies through the Planning Commission.
- g. On any final plat, all signatures other than those of public officials shall be acknowledged before a Notary Public. The final plat shall contain the signature of the City Engineer or Utility District Official certifying approval of utilities; the Superintendent of City Streets or the County Highway Superintendent and the Montgomery County Building Commissioner certifying approval of streets or roads and drainage structures; if appropriate, the Tennessee Department of Environment and Conservation certifying approval of on site sewage disposal systems; the Director or Chairman of the Clarksville-Montgomery County Regional Planning Commission certifying approval for recording; signature of Registered Land Surveyor or Engineer certifying accuracy of the plat; and certificate of ownership and dedication signed by the property owner(s). In the absence of any public official, such public official may designate a person from their respective office to sign the plat in their absence.

Minor Plat

- a. A pre-application conference should be held on the subdivision with the Planning Commission staff to review initial development proposals including a "sketch" or "concept" plan.
- b. Where a proposed subdivision contains no more than ten (10) lots, does not require dedication of any land to the public or installation of any public improvements, the Planning Commission may consider and act on the Final Plat at the initial hearing. All information required for preliminary plats shall be submitted on Minor Plats. Additional detailed information may also be required by

the City Engineer, County Highway Department, City Street Department, the Tennessee Department of Environment and Conservation, Montgomery County Building and Codes Office, and/or appropriate Utility District.

- c. A final plat shall have been prepared and such plat approved by the Planning Commission staff. Applicants may obtain mylar copies of the standard plat format by ordering such copies through the Planning Commission.
3. All proposed subdivision of land shall conform to the applicable portion of the Comprehensive Plan for the Clarksville-Montgomery County Planning Region.
4. Whenever regulations contained in this ordinance are different from regulations contained in other city ordinances and county resolutions, the most restrictive regulations shall prevail.
5. The Planning Commission shall not approve the subdivision of land if from adequate investigations conducted by all public agencies concerned, it has been determined that in the best interest of the public the site is not suitable for platting and development purposes of the kind proposed.
6. A Planned Unit Development (PUD) development, including the large scale construction of housing units together with necessary drives and ways of access, may be approved by the Planning Commission although the design of the project does not include standard street, lot, and subdivision arrangements if the departure from the foregoing standards can be made without destroying their intent.
7. After November 1, 1987, subdivisions within the corporate limits of the City of Clarksville may be developed along permanent easements as allowed in T.C.A. Section 13-4-308. In any subdivision utilizing such easement access, the easement shall conform to all other rules, regulations, and specifications for streets as required within these Subdivision Regulations. It shall also be insured that the City shall not be responsible for future maintenance of such permanent easements.

The City Street Department shall review and approve the road and drainage plans for permanent easements. The City Street Department will not conduct inspections of any roadway easement construction, and it shall be the project engineer's responsibility to insure that all roadways are constructed to City Street Specifications. The City Street Department will have the authority to inspect all drainage facilities and may require any information needed to insure that the drainage facilities have been installed correctly. Before any permanent easement will be accepted by the Planning Commission for approval, the project engineer must certify in writing that the improvements were constructed according to the approved plan and to Subdivision Regulations and City Street Specifications (see sample certification in exhibit C) This certification must include the project engineer's signature, engineer's seal, and date signed.

A 20' building setback line and drainage/utility easements shall be reserved along the above mentioned easements in the same manner, as if, said easements were public right-of-ways. Normal side and rear yard setbacks are applicable for lots fronting along dedicated easements.

8. After August 15, 1994, subdivisions in Montgomery County, outside of the corporate limits of the City of Clarksville may be developed along permanent easements as allowed in TCA Section 13-3-411. In any subdivision utilizing such easement access, the easement shall conform to all other rules, regulations, and specifications for streets and utilities as required within the Subdivision Regulations for Clarksville and Montgomery County as they exist on the date of this resolution, a copy of which rules, regulations and specifications for streets and utilities is attached as Exhibit "A" hereto.

The County Highway Department and the Montgomery County Building and Codes Office shall review and approve the road and drainage plans for permanent easements. The County Highway Department will not conduct inspections of any roadway easement construction, and it shall be the project engineer's responsibility to insure that all roadways are constructed to County Road Specifications. The Montgomery County Building and Codes Office will have the authority to inspect all drainage facilities and may require any information needed to insure that the drainage facilities have been installed correctly. Before any permanent easement will be accepted by the Planning Commission for approval, the project engineer must certify in writing that the improvements were constructed according to the approved plan and to Subdivision Regulations and County Road Specifications (see sample certification in exhibit C) This certification must include the project engineer's signature, engineer's seal, and date signed.

A 20' building setback line and drainage/utility easements shall be reserved along the above mentioned easements in the same manor, as if, said easements were public right-of-ways. Normal side and rear yard setbacks are applicable for lots fronting along dedicated easements.

Procedure for Recording Not More than Two (2) lots

- a. A pre-application conference should be held on the subdivision with the Planning Commission staff to review initial development proposals including a “sketch” or “concept” plat.
- b. Pursuant to TCA, Section 13-3-402, where a proposed subdivision or subdivision replat contains no more than two (2) lots of less than five (5) acres, and does not require dedication of any land to the public or installation of any public improvements, the Secretary of the Regional Planning Commission may approve the plat and sign the plat for recording without the approval of the Regional Planning Commission, upon certification by the planning staff that the subdivision complies with the regulations as described in Article VIII, Section 4, and provided further, that no request for variance from these regulations has been requested.

ARTICLE VI
DESIGN STANDARDS

All subdivisions shall conform to the following design standards:

1. Streets

a. Street pavement and right-of-way width

- (1) The two charts following this section shall be used to determine required right-of-way and pavement widths for all road and streets. Commercial and industrial zoned subdivision shall have a minimum of 50 feet right-of-way and a minimum of 28 feet pavement width. Project engineers shall propose the classification of all streets within the development at the time of preliminary plat submittal. Proposed classifications will be reviewed by the Planning Commission staff, who will have final determination of such classifications.
- (2) Subdivisions along existing streets of inadequate right-of-way shall dedicate additional right-of-way to meet the minimum street width specified in these regulations.
 - (a) The entire right-of-way shall be provided where any part of the subdivision is on both sides of an existing street.
 - (b) When the subdivision is located on only one side of an existing street, one-half (1/2) of the required right-of-way, measured from the centerline of the existing roadway, shall be provided.

b. Street Alignment

- (1) All street alignments must provide for the continuation of existing streets abutting the subdivision.
- (2) Arrangement of major streets in the subdivision shall conform as closely as possible with the Major Thoroughfare Plan.
- (3) The arrangement of streets shall be such as will not cause hardship to owners of adjoining property in providing convenient access.
- (4) Collector streets may be required where necessary to facilitate traffic flow in the subdivision.
- (5) On subcollector, collector, and major streets tangents of not less than 100 feet shall be provided between all reverse curves unless local conditions warrant a shorter tangent.
- (6) “Broken Back” or “Flat Back” arrangements of curves (having a short tangent between two curves in the same direction) shall be avoided.
- (7) Whenever a subdivision abuts or contains an existing or proposed collector or arterial street, the Planning Commission may require service streets, reverse frontage lots,

and/or deep lots to provide for adequate protection for properties and to separate collector and arterial traffic from local traffic.

- (8). Where the plat to be submitted includes only part of the tract owned or intended for development by the subdivider, a tentative plan or a proposed future street system for the unsubdivided portion shall be required of the subdivider.

c. Street Grades

- (1) Street grades shall comply with good engineering practice and shall not exceed 10 percent or be less than 0.5 percent. Grades of major and collector streets shall not exceed 5.0 percent wherever possible.
- (2) Grades approaching intersections or cul-de-sacs shall not exceed 5.0 percent for a distance of not less than 75 feet from the center line of said intersection, or from the center point of dead end cul-de-sacs.
- (3) Minimum grades on a cul-de-sac shall be 1.0 percent centerline grade.

d. Horizontal Curves

On major or collector streets, the center line radius of curvature shall be not less than three hundred (300) feet; on other streets not less than one hundred (100) feet.

e. Super Elevation

The use of Super Elevation is discouraged on residential street. When Super Elevation is allowed it shall be to the inside of the curve with the rate of Super Elevation being based on an appropriate design speed. The maximum rate of Super Elevation shall be 0.08 foot per foot.

f. Vertical Curves

All changes in grade shall be connected by vertical curves of minimum length in feet equal to fifteen (15) times the algebraic difference in rates of grade for major or collector streets and one half this minimum length for other streets. Profiles of all streets showing natural and finished grades drawn to a scale of not less than one inch equals one hundred 50 feet horizontal, and one inch equals five (5) feet vertical, shall be required.

g. Street Intersections

- (1) Streets shall intersect as nearly at right angles as possible, and in no case at an angle of less than 60 degrees. Intersections involving a major and collector street shall not be at an angle of less than 80 degrees.
- (2) Street intersections which do not align shall not be closer than 150 feet between centerlines.
- (3) At all street intersections, property line corners shall be rounded by an arc, with a minimum radius of 25 feet. Pavement edge at intersections shall have a minimum radius of 25 feet.

h. Streets in Relation to Railroads

- (1) The centerline of any street intersection shall not be closer than 200 feet from the centerline of any railroad right-of-way.

i. Cul-de-sac, Dead End Streets, and Temporary Turnarounds

- (1) The length of a cul-de-sac, measured from the centerline of the intersecting street to the center of the turnaround, shall not be longer than 500 feet. The permanent turnaround

shall have a right-of-way radius of not less than 50' and a pavement radius of not less than 45'.

- (2) Temporary turnarounds shall be provided at the end of dead end streets which are in excess of 300 feet in length, the distance shall be measured from the center of the nearest intersection to the end of the street right-of-way. The temporary turnaround easement shall have a radius of not less than 50 feet and surface radius of not less than 45 feet.

2. Easements and Special Rights-of-Way

a. Drainage easements

An adequate easement shall be dedicated along each side of any important surface drainage course for purposes of constructing, widening, deepening, relocating, improving, or maintaining such drainage course. The location of any surface drainage course shall not be changed without the approval of the City Street Superintendent and/or County Road Supervisor and the Montgomery County Building Commissioner.

- b. Easements of at least ten feet in width shall be provided along the inside of all rear lot lines and 5 feet in width along the inside of all side lot lines for drainage, poles, wires, conduits, storm and sanitary sewers, gas, water, or other utilities. Easements of greater width may be required along any lot line or across lots where necessary for the extension of major utility lines, or where more than one utility is located in the same easement or for general drainage.

Swale easements of ten feet in width along each side of the rear property lines and five feet along each side of the side property lines may be acceptable when the swale easement is needed to drain surface water from an adjoining property owner. The Montgomery County Building Commissioner will determine when a drainage easement or swale easement will be required. When a swale easement exists in a subdivision the following note shall be added to the final plat.

“An easement exists for the placement of a swale on the side and rear property lines. This swale shall be no deeper than (12) inches and shall be ten (10) feet wide. The deepest point of the swale shall be on the property line. The actual construction of this swale is optional. It shall be left to the discretion of the property owner if the swale is needed. If built, any deviation in construction from the established standard may lead to revocation of the lot approval, by the Tennessee Department of Environment and Conservation. At such time that sanitary sewer is extended to these lots all swale easements shall automatically convert to drainage easements.”

- c. The following requirement shall be noted on all final plats: “It will be the responsibility of the subdivider or the owner to include the above referenced easements as an integral part of the subdivision in such a manner that said areas will be owned and maintained by the present owner or by a prospective property owner”.

3. Blocks

- a. Blocks shall be wide enough to allow two tiers of lots of minimum depth, except where fronting on major streets or prevented by topographical conditions or size of the property, in which case the Planning Commission may approve a single tier of lots of at least minimum depth.
- b. No block shall be more than 1,500 feet in length.
- c. Where blocks are over 800 feet in length, a cross walk easement not less than 20 feet wide may be accepted if necessary to provide proper access to schools, playgrounds, or other public facilities.

4. Lots

- a. The lot arrangement and design shall be such that all lots will provide satisfactory and desirable building sites, properly related to topography and the character of surrounding development.
- b. Where easements for public utilities and drainage are contemplated, the lot lines shall be located in such manner as to facilitate the construction and maintenance of such improvements.
- c. Lot areas and lot widths shall not be less than the minimum provided for in the Clarksville Zoning Ordinance or by the County Zoning Resolution.
- d. Residential lots not served by a public sewerage system shall not be less area than approved by the Tennessee Department of Environment and Conservation.

Greater area may be required for private sewage disposal if, in the opinion Tennessee Department of Environment and Conservation, there are factors of drainage, soil condition, or other conditions to cause potential health problems. Lots found unsuitable for private sewage disposal systems shall be combined with adjacent suitable lots, and building setback lines added to designate unusable areas. Notes shall be added to the plat to explain why these areas are not suitable for septic tank systems.

The Planning Commission shall require that approval from the Tennessee Department of Environment and Conservation be submitted as a basis for passing upon subdivisions dependent upon septic tanks as a means of sewage disposal.

- e. All side lines of lots shall be at right angles or radial to street lines, except where a variation will provide a better street and lot layout.
- f. Double frontage lots shall be avoided wherever possible.
- g. Corner lots for residential use shall have additional width sufficient to provide proper building setback from each adjoining street.
- h. The depth of a residential lot shall not be less than 100 feet, and excessive depth in relation to width shall be avoided.
- i. The minimum size of residential lots to be served by a private source of water supply shall be determined by the Tennessee Department of Environment and Conservation after investigation of soil conditions, proposed sewerage system, and depth of ground water.
- j. Size of properties reserved or laid out for commercial or industrial properties shall be adequate to provide for the off-street service and parking facilities required by the type of use and development contemplated.
- k. A surveyor shall stake all lot corners at least two weeks prior to final plat approval, to insure drainage structures have been installed correctly as per approved construction plans.
- l. Flag lots are prohibited.

5. Public Sites and Open Spaces

Where the subdivision contains a park, school, or other public area, which is shown in the Comprehensive Plan, such area shall either be dedicated to the proper public agency, or it shall be reserved for acquisition by the proper public agency within a specified period, by purchase or other means; and an agreement shall be entered into between the subdivider and the proper agency to the effect that should such purchase or acquisition not be accomplished within one year of the date of recording the plat, such reservation may become void. Prior to approval of the final plat the developer shall provide evidence of an acceptance of such areas by the proper agency. This regulation shall not preclude the dedication of property for public use not included in the Comprehensive Plan provided, such property is acceptable to the city or county for dedication and maintenance.

6. Land Subject to Flooding

- a. When land is subject to flooding because of inadequate drainage facilities, or if sinkholes are located within the proposed development area, the land will not be acceptable for subdivision unless the subdivider provides sufficient data and agrees to make the required improvements which in the opinion of the City Street Superintendent, and/or the County Road Supervisor and the Montgomery County Building Commissioner render the land fit for occupancy.
 - b. Only lots containing a buildable site outside of the 100-year flood plain as defined by the U. S. Army Corps of Engineers or any locally designated flood plains will be approved for plating purposes. Where any subdivided property lies within the 100-year flood plain, the location and elevation of the flood plain shall be shown on the final plat. A note shall also be attached to the plat stating "Elevation certificate shall be required. Lot lies within the 100-year flood plain (storm frequency). Minimum finish floor elevation (feet above sea level) including, basements all heating and cooling units, and ductwork." The minimum finished floor elevation shall be at least one foot above the 100 year base flood "with floodway" according to the floodway boundary and floodway maps for the City of Clarksville, Tennessee and Montgomery County, Tennessee, unless the minimum finish floor elevation is determined to be greater by the City of Clarksville Storm Water Management Manual or the Montgomery County Storm Water Management Resolution.
 - c. Lakes, ponds, creeks, and similar areas will be accepted for maintenance only if sufficient land is dedicated as a public recreation area or park or if such area constitutes a necessary part of the drainage control system. Such areas must be approved by the Planning Commission and accepted by the city or county before approval of the final plat. Whenever such areas are not accepted by either the city or county, it will be the responsibility of the subdivider or owner to include lakes, ponds, creeks, and similar areas as an integral part of the subdivision in such a manner that said areas will be owned and maintained by the present owner or by a prospective property owner.
 - d. The following note shall be placed on all plats which indicate any areas within the 100 year flood or storm frequency: The degree of flood protection required hereon is considered reasonable for regulatory purposes and is based on engineering and scientific methods of study. Larger floods may occur on rare occasions or flood heights may be increased by man-made or natural causes, such as bridge openings restricted by debris. This does not imply that areas outside the floodplain district will be free from flooding or flood damages. The approval of this plat shall not create liability on the part of the city/county or any officer or employee thereof for any flood damages that result from reliance on this plat or any administrative decision lawfully made.
 - e. The developer shall enter into a Storm Water Maintenance Agreement with the City Street Department and/or the Montgomery County Building and Codes Office before any grading or construction begins on site.
7. Airport Approach Zone
- a. When a subdivision or a portion of the subdivision lies within the Airport Approach Zone, a note shall be shown on the final plat stating, "Subdivision lies within the Airport Approach Zone" (designate lot numbers on plat if portion of the subdivision lies within this area). When structures are limited in height by the Airport Approach Zone, a note shall also be added stating the maximum height of such structure.
9. Concrete and Landscape Islands
- a. When subdivision has a concrete or landscape island located within the right-of-way, at the entrance of a development, there shall be a minimum 16-foot pavement width on either side of the concrete or landscape island.
10. Water and Sewer Utility Design & Construction
- a. General
All plans for subdivisions of land within the potential service area for which water and/or sewer services, shall be required must be submitted to the City Engineer for review and approval in accordance with the standards adopted. The developer shall warrant all utilities for a 1 year period following testing and final acceptance by the City Engineer's Office. Also, the developer is responsible for providing a working sewer and water service until all new facilities are in service.

- b. Review Fee
 Any person (s) or entities desiring water or sanitary sewer service for any development within the potential service areas of the utility, which development requires a review process in accordance with existing policies, shall submit to the City Engineer such request in writing, said request containing the following information:
- (1) Cover letter for map indicating the nature of the proposed development and number of residential services anticipated, or potential water and sewage capacities required if a non-residential development, including anticipated instantaneous peak flow requirements of same. All information shall be based on the ultimate buildout or development for which service is requested.
 - (2) For areas outside the City which require a separate review, a preliminary Engineering report shall be submitted and must include hydraulic calculations, pipe sizing methodology and peak and/or fire flow demands for water and peak and average day demands for sewage. Report shall be sealed by a Tennessee licensed professional engineer and dated accordingly. Approval of the development will be subject to the results of the report.
- c. General
 All plans for subdivisions of land within the potential service area for which water and/or sewer services, shall be required must be submitted to the City Engineer for review and approval in accordance with the standards adopted. The developer shall warrant all utilities for a 1 year period following testing and final acceptance by the City Engineer's Office. Also, the developer is responsible for providing a working sewer and water service until all new facilities are in service.
- d. Review Fee
 Any person(s) or entities desiring water or sanitary sewer service for any development within the potential service areas of the utility, which development requires a review process in accordance with existing policies, shall submit to the City Engineer such request in writing, said request containing the following information:
- (1) Cover letter for map indicating the nature of the proposed development and number of residential services anticipated, or potential water and sewage capacities required if a non-residential development, including anticipated instantaneous peak flow requirements of same. All information shall be based on the ultimate buildout or development for which service is requested.
 - (2) For areas outside the City which require a separate review, a preliminary Engineering report shall be submitted and must include hydraulic calculations, pipe sizing methodology and peak and/or fire flow demands for water and peak and average day demands for sewage. Report shall be sealed by a Tennessee licensed professional engineer and dated accordingly. Approval of the development will be subject to the results of the report.
- e. Standards for Construction Plans
- (1) All Construction Plans must have a Title Sheet with certain required signatures, including a Tennessee Professional Engineer's seal.
 - (2) The Title Sheet must contain a location map at a scale not smaller than 1"=1,000', the name of the project, and the name(s), addresses, and telephone numbers of the Developer(s). The Title sheet must also contain an index to all sheets. The title sheet shall also include the length and size of each water and sewer main proposed.
 - (3) Street Plan containing the following:
 - (a) Location of all proposed and existing streets or rights-of-way in or adjacent to the subdivision.
 - (b) Width of existing and proposed rights-of-way

- (c) Street names
 - (d) Plan of all streets, showing natural and finished grades.
 - (e) Location of all required sidewalks and crosswalks.
- (4) Storm Drainage Plan containing the following information:
- (a) Location of proposed drainage ways, streams, and ponds in the subdivision
 - (b) Topography at contour intervals not exceeding 5-ft.
 - (c) Location of existing sinkholes.
- (5) Sanitary Sewer Construction Plans shall contain the following information:
- (a) Plan and profile of proposed sewer system, drawn at 1"=50' horizontal and 1"=10' vertical scales, with grades (%) indicated and invert elevations shown at every manhole.
 - (b) All pertinent planimetric features.
 - (c) Planimetric location of proposed sewers as related to existing or proposed: streets, alleys, highways, buildings, structures, other utilities, easements and right-of-ways.
 - (d) Location, size and material of all existing and proposed sewers, with locations of connections to other sewers.
 - (e) Horizontal location of all manholes and other system features, and deflection angles at manholes.
 - (f) Construction details of typical manholes, connections, service laterals, pipe bedding, trenching, road crossings (including encasement if required), stream or ditch crossings, and slope protection.
 - (g) North arrow on each Plan sheet.
 - (h) Tennessee Professional Engineer's seal on each Plan sheet.
 - (i) Bench Mark elevation based on USGS datum.
 - (j) All topographic features, both existing and proposed.
 - (k) All property lines including subdivision block and lot numbers, right-of-way, and required or utilized easements.
 - (l) Off-site related right-of-way and easements, as required
 - (m) Indications of any modifications or revisions from previous drawings.
 - (n) References to applicable Standard Construction Specifications of the City.
 - (o) All lots shall include individual sewer services. Laterals only need to be shown at the Engineer's. Laterals will typically not need to be shown.
- (6) Water Distribution Construction Plans shall contain the following information:
- (a) Plan of proposed water system, drawn at 1"=50', with all critical elevations.

- (b) Location, size, and material of all existing and proposed water mains in the subdivision, (or outside the subdivision if off-site connections are required), with locations of connections to other mains, service connections, valves, fire hydrants, and all other appurtenance indicated
- (c) Construction details of typical pipe bedding, trenches, road crossings (including encasement if required), stream or ditch crossings, slope protection, service connections, fire hydrants, and valves and other related appurtenances.
- (d) North arrow on each Plan sheet.
- (e) Tennessee Professional Engineer's seal on each Plan sheet.
- (f) All topographic features, both existing and proposed.
- (g) All Property lines including subdivision block and lot numbers, right-of-way, and required or utilized easements
- (h) Off-site related right-of-way and easements, as required
- (i) Indications of any modifications or revisions from previous drawings. References to applicable Standard Construction Specifications of the City.

f. Design Criteria

- (1) Sanitary Sewers
 - (a) All sanitary sewers shall be designed in accordance with these criteria, and the TDEC adopted Standard Water and Sewer Specifications for the City.
 - (b) Sanitary sewers to be dedicated to the City shall be constructed within dedicated rights-of-way or utility and drainage easements.
 - (c) Sewers shall be designed for a minimum velocity of 2.0 ft./second at design flow, a maximum velocity of 5.0 ft./second, and shall accommodate design flow at one-half full. Sewer shall be a minimum 8 inch diameter and minimum slope for 8" sewers shall be 0.40% (0.40ft./100 ft.).
 - (d) Design flow shall be based on a contribution of 100 gallon/capita/day multiplied by a peak factor of 3.0. If the sewer serves other than residential developments, the design flow shall be calculated independently for each user based on their specific demand. Design flows shall be based upon buildout of the subdivision and other areas which may contribute flow to the same basin.
- (2) All manholes shall be designed in accordance with the following guidelines:
 - (a) Maximum distance between manholes shall be 400 ft.
 - (b) Maximum deflection angle at manholes shall be 90 degrees.
 - (c) For in/out invert elevations greater than 2.0 ft., a drop manhole shall be used with an internal drop. Drop manholes shall be avoided where practical.
 - (d) Watertight frames and covers shall be required where the proposed manholes are subject to inundation.
 - (e) A vent assembly shall be required on trunk sewers with water tight manholes at approximately 1500 ft. intervals.
- (3) All sanitary sewers shall be constructed of the following types of pipe:

- (a) Sanitary sewers 21 inches in diameter and smaller shall be constructed of ductile iron sewer pipe or PVC sewer pipe unless specific needs demand otherwise, and only then pending the review and approval of the City Engineer and the Standard Water and Sewer Specifications.
- (b) Sanitary sewers with slopes in excess of 18% shall be constructed with concrete restraining collars designed at intervals to insure pipe stabilization.
- (c) Open cut Sanitary sewers crossing storm drains, creeks, or USGS blue lined streams shall be epoxy coated ductile iron pipe and will be provided with concrete encasement.
- (d) Sanitary sewers with less than 36" of cover shall be ductile iron pipe, unless otherwise approved by the City Engineer.
- (4) All sanitary sewers shall have a minimum of 36 inches of cover in non-traffic areas and 48 inches in paved areas subject to vehicular traffic.
- (5) Separation between sanitary sewers and water mains shall be 10 ft. horizontal, and 18 inches vertical between the bottom of the water main and the top of the sanitary sewer.
- (6) Permanent easements for sanitary sewers shall be a minimum width of 10 feet. Easements of greater width may be required by the City Engineer.
- (7) Sewers shall be designed to serve every lot or parcel adjacent to the sewer.
- (8) All sanitary sewers or force main systems which discharge into the Authority's system shall be designed according to these criteria.
- (9) New Pump Stations shall be avoided where practical. Where approved for use the Engineer shall submit pump curves, operational data, flow and hydraulic calculations for review. The Engineer shall coordinate and provide a permanent dedicated site/access station to be owned by the City of Clarksville. A quick claim deed needs to accompany the final plat before signature by the City Engineer or his designer.

g. Water Mains

- (a) All water mains shall be designed in accordance with these criteria, Specifications contained in other Sections, and the City's Standard Water and Sewer Specifications approved by TDEC.
- (b) Water mains to be dedicated to the City shall be constructed within dedicated rights-of-way, or utility and drainage easements. The City shall accept dedication one year after final testing and inspection.
- (c) All potential customers shall be provided a minimum of 20 psi residual pressure, at the design domestic flow:
 - $Q=20(c)^{1/2}$
 - where: Q = flow in gpm
 - c = total customers served, based on 2.5 persons/customer.
- (d) Maximum designed velocity shall be 5.0 ft./sec.
- (e) All water mains less than 12" in diameter shall be PVC Class 200, unless otherwise necessary for compliance with guidelines for pressure ratings. All water mains 12" and greater in diameter shall be ductile iron pipe, Pressure Class 350, unless otherwise necessary for compliance with guidelines for pressure ratings. All water mains shall be a minimum of 6" diameter.
- (f) Water mains shall be designed for installation behind curbs where practical. Dead-end mains shall extend to the last lot or parcel being served so that no service lines are installed in front of adjacent lots or parcels (i.e. service should not cross one lot to serve

another). Service meters shall be located adjacent to property lines, in a grass/landscaped area in the center of the lot where practical.

- (g) All mains shall have a minimum of 36 inches of cover.
- (h) Water mains shall have 10 ft. horizontal and 18" vertical clearance from sanitary sewers, and shall have 3 ft. horizontal and 12" vertical clearance from other underground structures.
- (i) Adequate thrust blocking shall be designed for the expected pressures, including the required test pressure, 200 psi minimum.
- (j) A fire hydrant, or flushing hydrant, shall be required at the dead end of any water main to allow for flushing the main at 2.5 ft./sec., minimum. Temporary blow-off hydrants are allowed only for temporary utilities intended to be extended.
- (k) All water mains and appurtenances which connect to the City's system shall be designed according to these criteria and the City's Standard Water and Sewer Specifications.
- (l) Any facilities not specifically covered herein shall be presented to the Authority for its approval. It is recommended the Authority be contacted prior to detailed design to discuss specific requirements.

11. Alleys

- a. Shall not be less than twenty (20) feet in width. Alley intersections and sharp changes in alignment should be avoided, but where necessary, corners shall be cut to permit safe vehicular movement. Dead-end alleys should be avoided.

CITY & COUNTY ROAD RIGH-OF-WAY REQUIREMENTS

TWO WAY WITH CURB AND GUTTER

	<u>COURTS</u>	<u>MINOR</u>	<u>COLLECTOR</u>
*NUMBER OF LOTS	LESS THAN 25	26-160	OVER 160
R-O-W WIDTH	30 FEET	40 FEET	50 FEET OR GREATER
PAVEMENT WIDTH	20 FEET	24 FEET	28 FEET OR GREATER

* All road right-of-way and pavement widths shall be determined by the number of lots the street will serve, whether immediate or potentially through future extension of any roads, or developments of adjacent properties which would potentially utilize the streets.

ARTICLE VII
PRELIMINARY PLAT

1. Procedure

a. Filing of Application and Plans

An application for preliminary approval shall be submitted together with thirteen (13) prints of the proposed plat to the Planning Commission staff at least twenty-one (21) days prior to consideration of the plat by the Planning Commission. The Planning Commission staff shall acknowledge receipt of the application by the signing and dating of said application by any person so authorized.

The Planning staff shall forward one of said copies to the City Engineer and/or appropriate Utility District, the City Street Department and/or the County Highway Supervisor and the Montgomery County Building and Codes Office, the City Building and Codes Department, the South Central Bell Telephone Company, the Department of Electricity and/or the Cumberland Electric Membership Corporation, the City Fire Department and/or the Emergency Management Agency, Clarksville/Montgomery County School System and where applicable, Tennessee Department of Transportation, Fort Campbell Planning Office and the Tennessee Department of Environment and Conservation.

The Planning staff, affected agencies, and applicant and/or developer shall meet the week before the scheduled Planning Commission meeting to review and discuss development plans.

b. Informational Review

The Planning staff shall determine whether all information pertinent to the review has been provided and within seven (7) days of receipt of the application shall notify the applicant that either:

- (1) The application has been accepted for consideration or,
- (2) Additional information is required. If additional information is required, the applicant has until the time of the staff and agency review meeting to furnish the staff with a

designated number of copies of the corrected plat. If such information is not furnished before said time, the subdivision may not be placed on the agenda for the Planning Commission meeting the following week.

c. Notice

Notice of hearing shall be sent by mail not less than seven days before the date of the scheduled Planning Commission meeting to the subdivider and to the owners of land immediately adjoining the proposed subdivision, in the case of one and two lot subdivision plats the above notice of hearing shall not be required.

d. Planning Commission Action

The Regional Planning Commission shall approve or disapprove a plat within sixty (60) days after the submission thereof; otherwise such plat shall be deemed to have been approved and a certificate to that effect shall be issued by the Commission on demand; provided, however, that the applicant for the Commission approval may waive this requirement and consent to the extension of such period.

If approved conditionally, the conditions shall be stated; and if necessary, the Commission may require the subdivider to submit a revised Preliminary Plat.

If disapproved, the reasons for such action shall be stated; and if possible, recommendations made as to the basis on which the plat would be approved.

e. Effect of Preliminary Approval

Receipt of certified approval of the Preliminary Plat by the subdivider and approval of detailed construction plans by appropriate agencies, shall be authorization, subject to the issuance of any required permits, for the subdivider to proceed under the supervision of the City Street Department or the County Highway Supervisor and the Montgomery County Building and Codes Office and/or the City Engineer or appropriate Utility District with the construction of any improvements and with the staking of streets and lots; provided however, that the granting of Preliminary Plat Approval will not constitute acceptance of the Final Plat.

Approval of a Preliminary Plat, conditions stipulated, and variances granted shall become void after a period of two years unless a Final Plat has been filed as provided in these regulations. Subdivisions for which the final plats are not submitted within this time limit must be resubmitted for tentative approval as new subdivisions. In the event that a final plat is submitted for only a portion of the area originally approved on a preliminary plat, the approval of the remaining portion of the preliminary plat shall be automatically extended for a period of two years. No other preliminary plats shall be extended unless otherwise deemed appropriate by the Regional Planning Commission.

The Commission shall require and consider detailed preliminary sketch plans, prepared by a person or persons qualified by law, indicating the proposed method of accomplishing drainage. Approval of such plans will not constitute approval of final road and drainage plans as required.

2. Content

Whenever reasonable, the preliminary Plat shall be drawn at a scale of 100 feet to the inch. The Preliminary Plat may be drawn at a scale not larger than 30 feet to the inch, but in no case smaller than 100 feet to the inch and shall include;

- a. Title, North Arrow, Graphic & Written scale, Date (including dates of any revisions), Civil District, and acreage of land to be subdivided.
- b. A location sketch map at a scale of 2000 feet to the inch showing the relation of the proposed subdivision to the adjoining area.

- c. A topographic map prepared from information obtained in the field, from aerial photography, from using Coast and Geodetic datum and using contours at vertical intervals of no more than five feet except when specifically varied by the Planning Commission. The topo shall extend for a distance of 200 feet past the subdivision boundaries on all sides.
 - d. Location of all sinkholes within the subdivision itself and for a distance of 200 feet outside the subdivision boundaries. If any portion of the property development drains toward outside areas show or note the route of water runoff.
 - e. The proposed names, location and widths of all streets and temporary turnarounds.
 - f. Locations, width, and purposes of all easements.
 - g. Location of utilities, sewers (including size and invert elevations where pertinent), and fire hydrants within or adjacent to the proposed subdivision. All water lines shall be minimum of 6 inches inside diameter, except for short, dead end sections which may be otherwise approved by the City Engineer and/or appropriate utility official. Any required fire hydrant must be located on a minimum 6" water line.
 - h. Lot and block lines and identification numbers or letters together with approximate dimensions.
 - i. Names of the owner, the person or firm preparing the plat, and the names and location of adjoining property owners. The names and addresses of all adjoining property owners shall also be placed upon the application.
 - j. Boundary of property indicating preliminary distances and bearings.
 - k. Location of existing and proposed bodies of water, the location of natural drains, proposed major drainage system features, and method of discharging storm water.
 - l. Location and extent of all land subject to flooding by the overflow or ponding of storm water.
 - m. All parcels of land intended to be dedicated or reserved for public use.
 - n. Indication of existing zone district classification applying to, and proposed use of, all land within the subdivision.
 - o. Any other information that may be necessary for the full and proper consideration of the proposed subdivision.
 - p. Preliminary drainage plans shall be submitted to and approved by the City Street Superintendent, and/or County Road Supervisor, and the Montgomery County Building Commissioner before Preliminary Plat Approval. Preliminary road profile plan may also be required. U.S.G.S. maps showing and outlining the entire drainage area must be provided.
3. Variances, Modification, and Waivers

Each modification, variance, or waiver of these Subdivision Regulations sought by a Subdivider shall be especially applied for in numerical order of the Subdivision Regulations, in writing by the subdivider on forms supplied by the Planning Commission. Any condition shown on the Preliminary or Final Plat (or on engineering plans or data called for by Article VI) which would require a modification, variance, or waiver, shall constitute a ground for disapproval of the Preliminary or Final Plat unless such special application for a modification, variance, or waiver is made. Such requests should be accompanied by written justification for said modification variance, or waiver as outlined in Article XI.

ARTICLE VIII

FINAL PLAT

1. Procedure

- a. With the exception of one and two lot subdivisions, as outlined in Article V, Section 2, and Article VIII, Section 4, the subdivider shall file the Final Plat and thirteen (13) copies thereof, in the Office of the Regional Planning Commission not less than twenty-one (21) days prior to the regularly scheduled meeting of the Commission at which the Plat is to be considered. Copies shall be distributed, review conducted, and notices sent as outlined in Article VII, Section 1 (a and b). Notice shall be sent by mail not less than seven days before the date of the scheduled Planning Commission meeting to the subdivider.

b. Agency approval

Before the time of the Planning Commission meeting, the developer shall show that all conditions as stipulated in the Preliminary Plat Approval and by all city ,county, state and federal agencies have been met and shall supply the staff with signed letters of acceptance from all City, County, State, Federal agencies and/or Utility Districts.

c. Planning Commission Action

The Planning Commission shall take action as specified in Article VII, Section 1 (d).

d. Effect of Final Approval

Approval of the Final Plat by the Planning Commission shall be authorization for the Subdivider to secure the signatures required on the final plat from all agencies or departments named in Article VII, Section 1(a) within whose jurisdiction the subdivision lies provided that the requirements of each department has been fully met.

e. Recording of Plat

Upon receipt of all required signatures from all concerned agencies, and upon the determination by the Planning staff that the subdivision meets the regulations in every respect, the Planning Director may sign the plat on behalf of the Planning Commission and release same for recordation. A copy of the plat may then be recorded at the Montgomery County Register of Deeds Office.

After approval has been given the developer shall file the reproducible Final Plat, in the office of the Regional Planning Commission.

2. Minor Plat

Where a proposed subdivision contains no more than ten (10) lots and does not require dedication of any land to the public or installation of any public improvements, the Commission may consider and act upon the Final Plat at the initial hearing.

At the time of the subdivision review meeting, the staff shall stipulate such conditions as it deems necessary for Final Plat Approval. Such conditions shall be met before the Planning Commission may give Final Plat Approval. If such conditions are not met by the date of the Regional Planning Commission meeting, the plat shall be considered a Preliminary Plat and shall be processed according to the provisions as stipulated in the major platting requirements.

3. Content

The Final Plat shall be drawn, to a scale of one inch = one hundred feet (1" = 100') on sheets furnished by the Regional Planning Commission office and shall include:

- a. Title & Section Number, North Arrow, Graphic & Written Scale, Date (including dates of any revisions) & Civil District. The drawing shall be so oriented that the north point will be directed to the top or the right of the drawing or as near thereto as possible.
- b. Location sketch map showing site in relation to area.
- c. Right-of-way lines, widths and names of streets, alleys, easements, and other rights-of-way, with accurate dimensions, bearings, or deflection angles and the radii, arcs, and central angles of all curves.
- d. All easements shall be located, labeled as to purpose, and dimensioned. Required minimum easements include:
 - (1) 20 feet from and parallel to each side of all streets within subdivision.
 - (2) 5 feet on either side of all side lot lines.
 - (3) 10 feet either side of all rear lot lines.
 - (4) Any additional easements as required to insure proper surface drainage and utility installation.
- e. The building setback line conforming to the front yard requirement set forth in the City or County Zoning Ordinance.
- f. All lot line with mathematically enclosed dimensions and bearings and an identification system for numbering lots and blocks. Dimensions shall be to the nearest 100th of a foot and angle to the nearest second.
- g. Statement that all easements shown on the plat may be used for the installation of sanitary sewers, storm sewers, public utilities and open storm drains unless otherwise noted.
- h. A permanent benchmark (U.S.N.V.D. datum exclusively) shall be shown on the plat.

- i. Purpose for which lots, or tracts, other than residential are to be dedicated or reserved.
 - j. Location and description of concrete monuments and iron pins. Monuments shall be designated by small open squares and iron pins by small open circles.
 - k. The name of the owner or owners, the subdivider, and the name of the surveyor and/or engineer.
 - l. Notarized certificate of surveyor attesting to the accuracy of the survey and the correct location of all monuments shown and notarized acknowledgment of the owner or owners, and mortgagee, if any, to the plat and restrictions, including dedication to public use of all streets, parks, or other open spaces shown thereon and the granting of easements included on the plat.
 - m. Location of all fire hydrants within and immediately surrounding the proposed subdivision.
 - n. Complete pipe schedule showing minimum size of all driveway culverts.
 - o. Location of all temporary turnarounds.
 - p. The Final Plat shall be accompanied by certificates showing:
 - (1) That all required improvements have been installed and approved by the proper officials or agencies, or that bond insuring their installation has been accepted by the City Engineer and/or appropriate utility district official, and the City Street Department Superintendent, or the County Road Supervisor and the Montgomery County Building Commissioner.
 - (2) Proposed individual sewage disposal or private water systems fully meets the minimum requirements of the Tennessee Department of Environment and conservation.
 - (3) That all maintenance bonds have been accepted by the City Engineer and/or appropriate utility district and the City Street Superintendent, or the County Road Supervisor and the Montgomery County Building Commissioner as stipulated in Article X.
4. Procedure for Recording Not More than Two (2) lots

Pursuant to TCA, Section 13-3-402, where a proposed subdivision or subdivision replat contains no more than two (2) lots of less than five (5) acres, and does not require dedication of any land to the public or installation of any public improvements, the Secretary of the Regional Planning Commission may approve the plat and sign the plat for recording without the approval of the Regional Planning Commission, upon certification by the planning staff that the subdivision complies with the regulations as described as described below, and provided further, that no request for variance from these regulations has been requested.

Content for one (1) or two (2) lot plats shall be drawn to a scale on one inch=one hundred feet (1"=100') on 11" X 17" sheets furnished by the Regional Planning Commission Office and shall include:

- a. Title and Lot Number, North Arrow, Graphic & Written Scale, Date, & Civil District.
- b. Vicinity Map.
- c. Label the point of beginning to the nearest street centerline intersection.
- d. Right-of-way lines, widths, and names of streets (including easements if they exist).
- e. The size and location of the waterline serving that lot(s). This information will not have to appear on the survey, but shall be provided by the City Engineer/Utility District with their signature block.
- f. All easements shall be located, labeled as to purpose, and dimensioned. Required minimum easements include:

- (1) 20 feet from and parallel to each side of all streets within subdivision.
 - (2) 5 feet on either side of all side lot lines.
 - (3) 10 feet on either side of all rear lot lines.
 - (4) Any additional easements as required to insure proper surface drainage and utility installation.
- g. The minimum building setback line conforming to the front yard requirements set forth in the Zoning Ordinance.
 - h. All lots must meet the minimum zoning regulations set forth in the Zoning Ordinance.
 - i. Dimensions shall be to the nearest 100th of a foot and angle to the nearest second.
 - j. A permanent benchmark may be required.
 - k. Statement that all easements shown on the plat may be used for the installation of sanitary sewers, storm sewers, public utilities and open storm drains unless otherwise noted.
 - l. Location and description of all concrete monuments and iron pins.
 - m. The name of the owner and the name of the Surveyor and/or Engineer.
 - n. Location of the nearest fire hydrant, provided by the City Engineer/Utility District within their signature block.
 - o. Complete pipe schedule showing the minimum size of all driveway culverts, provided by the City Street Department, or the County Highway Department, or the Tennessee Department of Transportation.
 - p. Most recent deed book and volume number.
 - q. Topography may have to be provided if the 100-year flood elevation affects the lot or drainage concerns exist. Topography must be provided in ten-foot intervals. If it is determined that the 100 year elevation affects the lot a note will be required on the plat stating, "Elevation certificate shall be required. Lot lies within the 100-year flood plain (storm frequency). Minimum finish floor elevation (feet above sea level) including, basements all heating and cooling units, and ductwork."
 - r. If the property lies within the Airport Approach Zone a note will need to be added to the plat stating, "Lot lies within the Airport Approach Zone".
 - s. The signature blocks provided by the Regional Planning Commission must be signed by the following department/agencies before approval of the planning staff. The signature of the City Engineer/and or appropriate Utility District, the signature of the City Street Superintendent, or the County Highway Department Official and the Montgomery County Building Commissioner , or the Tennessee Department of Transportation Official, the signature of the Tennessee Department of Environment and Conservation, the signature of the surveyor attesting to his accuracy of the survey and the correct location of all monuments shown, the signature of the Owner(s) of the property attesting to ownership and dedication, the signature of a Notary, notarizing the Owner(s) signature, and the signature of the Secretary of the Regional Planning Commission.

ARTICLE IX

REQUIRED IMPROVEMENTS

A final plan for subdividing shall be approved by the Planning Commission only after receipt of a statement signed by the City Engineer and/or by the County Road Supervisor certifying that the plans and specifications for improvements described herein have been prepared by an Engineer and that construction conforms with the requirements set forth in these regulations and meets the minimum requirements of all applicable ordinances or resolutions of the city or county.

1. Streets

- a. The Subdivider shall enter into an agreement with the City Street Superintendent and/or the County Road Supervisor wherein for the consideration of the acceptance of the street improvements by the City Street Superintendent and/or the County Road Supervisor, the Subdivider agrees to construct streets in the subdivision to the standard Street Specifications as adopted by the City and/or County. The subdivider shall post a surety bond or irrevocable letter of credit for completion in an amount to be determined by the City Street Superintendent and/or the County Road Supervisor, or their appropriate designee providing the department having jurisdiction accepts such bonds.

b. Grading

- (1) All street improvements shall be raised at least two feet above the 100-year flood plain at established by the U.S. Army Corps of Engineers unless otherwise allowed within the

City of Clarksville Stormwater Management Manual or the Montgomery County Stormwater Management Resolution.

c. Minimum Pavements Widths

- (1) All residential streets shall be improved with pavements to an overall width in accordance with chart A in Article VI.
- (2) Minimum pavement widths in commercial and industrial zoned subdivisions shall be a minimum of 28 feet in width.
- (3) Pavement in cul-de-sac turnarounds in all developments shall have a minimum diameter of 90 feet with permanent type edge.
- (4) Streets in industrial or business subdivisions may be required to have greater width as directed by the City Street Superintendent and/or the County Road Supervisor.
- (5) Where high volume street parking is expected, the City Street Superintendent and/or County Road Supervisor may require a pavement width greater than that prescribed in the preceding specifications.

d. Roadway Surfacing

Pavements shall be installed in accordance with the rules and regulations enforced by the City Street Department and County Highway Department:

e. Curbs and Gutter

All subdivisions shall install curbs and gutters, as specified in City and/or County Street and Road Specifications:

f. Sidewalks

Within the City limits of Clarksville, sidewalks shall be installed in accordance with the City of Clarksville's Sidewalk Ordinance.

If the developer provides sidewalks for the safety of pedestrians and for children at play and the sidewalks are installed outside the city limits of Clarksville, sidewalks shall meet the following specifications:

Sidewalks shall be located not less than one (1) foot from the property line to prevent interference or encroachment by the fencing, walls, hedges or other plantings or structures placed on the property line at a subsequent date. In single family residential areas, concrete sidewalks shall be four (4) feet wide and four (4) inches thick. In multiple family residential areas concrete sidewalks shall be five (5) feet wide and four (4) inches thick. In commercial and industrial subdivisions, sidewalks shall be ten (10) feet wide and four (4) inches thick

- g. All unpaved areas within the dedicated street right-of-way shall be graded and seeded in an approved manner.

h. Street Name Signs

As specified in the City and/or County Street and Road Specifications, and shall be installed at each street intersection.

The signs shall be installed by the developer and accepted by the City Street Superintendent and/or the County Road Supervisor as a portion of the street improvements, or the cost shall be included in the amount of construction bond.

i. Pedestrian Ways

Five (5) feet wide Portland Cement concrete walks shall be installed in easements dedicated for this purpose.

j. Monuments, Pins, and Staking of Lots

- (1) Concrete monuments four (4) inches in diameter or square, three (3) feet long, with a flat top, and shall be set at points on the property line where there is a change in bearings.
- (2) The top of the monument shall have an indented cross to identify the location and shall be set flush with the finished grade.
- (3) All other lot corners shall be marked with iron pins driven so as to be flush with the grade.
- (4) A surveyor shall stake all lot corners at least two weeks prior to final plat approval, to insure drainage structures have been installed correctly as per approved construction plans.

2. Sewers

- a. Each property or lot shall be connected to a public sanitary sewer system if such system adjoins the proposed subdivision or is run by a public authority (or district utility system) to the proposed subdivision. The developer shall supply to the Planning Commission a written statement from the applicable public authority stating sewage is available adjacent to the property or that it will or will not run a sewer main to the property.
- b. If sewer system is not required as above, then individual disposal systems approved by the Tennessee Department of Environment and Conservation shall be provided on each lot or as an alternate, a disposal plant or plants may be provided as approved by the State Water Pollution Control Board and the Tennessee Department of Environment and Conservation.

The individual disposal system, including the septic tank, septic disposal fields, and secondary areas, shall be located on the same platted lot as the dwelling unit it will serve.

Within any subdivision which has received preliminary plat approval prior to November 22, 2005, sewage disposal systems shall be allowed as per current policy of the Tennessee Department of Environment and Conservation Division of Groundwater Protection.

- c. Sanitary sewers shall not be used to carry storm or surface water.
- d. All principal sanitary sewer lines shall be located within the street right-of-way or public easements.
- e. Before utilities will be accepted for dedication, the developer must submit a copy of asbuilt plans for all utilities or other areas requiring asbuilt information to the City Engineer's Office or appropriate utility district or their representatives.
- f. All utilities constructed shall be designed in accordance with the plans approved by the City Engineer's Office.

3. Water

- a. Where adequate public water supply is available, the subdivider shall construct a system of water mains including a water stub terminal outside curb lines for each lot which shall connect with such public water supply and serve adequately all lots and tracts within the subdivision.
- b. All fire hydrants shall be located on a minimum 6" water line. Fire hydrants located within a single-family residential district shall be spaced no more than 800' apart, as measured along the street right-of-way. Fire hydrants located within a multi-family, commercial or industrial district shall be spaced no more than 300' apart. There shall be no fire hydrants installed that are located

more than 300' from a dead-end of a cul-de-sac. All fire hydrant locations shall be approved by the Clarksville Fire Department or the Montgomery County Emergency Management Agency.

- c. The installation of the aforementioned improvements shall be under the supervision and inspection of the City Engineer appropriate utility district or their representatives.
- d. Before utilities will be accepted for dedication, the developer must submit a copy of asbuilt plans for all utilities or other areas requiring asbuilt information to the City Engineer's Office or appropriate utility district or their representatives.

4. Drainage and Storm Sewers

- a. General Requirements: The Planning Commission shall not approve any plat of subdivision which does not make adequate provision for storm or flood water runoff channels or basins. The storm water system shall be separate and independent of any sanitary sewer system, and shall comply with the adopted drainage criteria of the governing jurisdiction.

- (1) The review and approval of drainage plans for proposed subdivision shall be the responsibility of the City Street Superintendent; or the County Road Supervisor and the Montgomery County Building Commissioner and such approvals shall be based on applicable statutes, rules, regulations, and adopted master plans for storm water management.
- (2) Where all or part of a proposed subdivision is affected by periodic flooding, Planning Commission review and approval of the subdivision shall be subject to the restrictions contained in the City and County Zoning Resolutions and other applicable statutes regulating storm water management.
- (3) The review and approval of drainage plans should generally include the following:
 - (a) The type of drainage facilities needed (i.e., open drainage vs. storm sewers).
 - (b) The off-site impacts both upstream and downstream from the subdivision, including the need for off-site or on-site improvements to offset adverse on-site impacts.
 - (c) On-site improvements necessary to accommodate upstream drainage.
 - (d) Possible problems due to localized poor drainage of feature such as sinkholes.

- b. Dedication of Drainage Easements

- (1) General Requirements: Where a subdivision is traversed by a watercourse, drainageway, channel, or stream, there shall be provided a storm water easement or drainage right-of-way conforming substantially to the lines of such watercourse, and of such width and construction as will be adequate for the purpose. Whenever possible, it is desirable that the drainageway be maintained by an open channel with landscaped banks and adequate width for maximum potential flow.
- (2) Drainage Easement
 - (a) Where topography or other conditions make the inclusion of drainage facilities within the road right-of-way impractical, perpetual unobstructed easements of appropriate width for such drainage facilities shall be provided across property outside the road lines and with satisfactory access to the road. Easements shall be carried from the road to a natural watercourse or to the drainage facilities.

- (b) The developer shall dedicate, by drainage easement, land on both sides of existing watercourses, to a distance to be determined by the City of Clarksville Storm Water Management Manual or the Montgomery County Storm Water Management Resolution.
- (c) Along waterways, low-lying land subject to flooding or periodic overflow during storm periods, whether or not included in areas for dedication, shall be preserved and retained in their natural state as areas for drainage.
- (d) Before drainage easements will be accepted for dedication, the developer must submit a copy of asbuilt plans for detention and/or retention basins, sinkholes, or other areas requiring asbuilt information to the City Street Department; or the County Highway Department and the Montgomery County Building and Codes Office.

5. Grading

The developer shall confer with the South Central Bell Telephone Company to determine the route of the telephone lines which will serve the residents of the subdivision. After these routes have been established, in the case where underground routes will be placed, the developer shall prepare all easements which will contain the lines to finished grade. A letter, signed by the developer, and an official of the South Central Bell Telephone Company, shall then be submitted to the Planning Commission office stating that the prepared easement grades will not be altered, filled, scraped, or landscaped in any manner after approval of the grading by the South Central Bell Telephone Company.

A set of construction drawings shall be submitted to South Central Bell when subdivision has underground routes.

6. Street Lights

Streetlights are required to be installed by the subdivision developer, inside the City Limits of Clarksville, as per criteria established by the Clarksville Street Department.

ARTICLE X

BOND AND SURETY

1. Construction Bond

In the event the subdivider elects to defer construction of the improvements required under Article IX, a bond, cashier's check, or irrevocable letter of credit shall be required of the subdivider, the amount and specifications of which shall be approved by the City Engineer or appropriate utility district and the City Street Superintendent or the County Road Supervisor and the Montgomery County Building Commissioner securing to the City, County, the Montgomery County Building Commissioner, or utility district, actual construction and installation of such improvements for a minimum period of 12 months from the date of final plat approval and in accordance with standard specifications of these Regulations. Such bond or irrevocable letter of credit shall be in cash or be made by a surety company and shall be made payable to

and enforceable by the City of Clarksville, Montgomery County, Tennessee, the Montgomery County Building and Codes Office, or appropriate utility district. Such bond amount shall be determined by the agency having jurisdiction over the improvements. The surety or irrevocable letter of credit shall not be released from said bond except by written release from the City Engineer or appropriate utility district and the City Street Superintendent or the County Road Supervisor and the Montgomery County Building Commissioner.

The above mentioned surety bonds, cashier's check, or irrevocable letter may be accepted for utilities, streets, and drainage structures within the proposed street right-of-way. Surety bonds, cashier's check, or irrevocable letter of credit will not be accepted for drainage structures outside the proposed street right-of-ways. Drainage structures, outside the proposed street right-of-ways, will have to be complete and in working order before final plat approval.

The subdivider by agreement with the City Engineer or appropriate utility district and the City Street Superintendent or the County Road Supervisor and the Montgomery County Building Commissioner shall warranty improvements for 12 months after all improvements are in place and accepted by the City Engineer or appropriate utility district and the City Street Superintendent or County Road Supervisor and the Montgomery County Building Commissioner in case of any and all failure due to improper workmanship and/or materials used for the installation of utilities, fills, drainage systems, etc.

In the event the subdivider wishes to defer the placement of a second pavement course, the subdivider shall post a surety bond in an amount to be determined by the Director of Streets, the County Road Supervisor, or their appropriate designee. The bond shall be issued by a surety company and shall normally be for a period of two years, not to exceed the period of three years.

All bonds shall be delivered to the proper department by noon the last business day before the Regional Planning Commission meeting, or the case will be deferred until the next regular meeting.

2. Maintenance Bond

- a. After completion and acceptance of any improvements required herein, the City Engineer or appropriate utility district and the City Street Superintendent or the County Road Supervisor and the Montgomery County Building Commissioner may require a maintenance bond for a period of up to five years for construction maintenance. The subdivider shall post a letter of credit or be made by a surety company in an amount to be determined by the Director of Streets, the County Road Supervisor, the Montgomery County Building Commissioner or their appropriate designee.
- b. All bonds shall be delivered to the proper department by noon the last business day before the Regional Planning Commission meeting, or the case will be deferred until the next regular meeting.

ARTICLE XI

VARIANCES AND EXCEPTIONS

1. General: Where the Planning Commission finds that extraordinary hardships or practical difficulties may result from strict compliance with these regulations and/or the purposes of these regulations may be served to a greater extent by an alternative proposal, it may approve variances to these subdivision regulations so that substantial justice may be done and the public interest secured, provided that such variances shall not have the effect of nullifying the intent and purpose of these regulations, and further provided that the Planning Commission shall not approve variances unless it shall make findings based upon the evidence presented to it in each specific case that:

- a. The granting of the variance will not be detrimental to the public health, safety, or welfare or injurious to other property in the area where the proposed variance is located.
 - b. The conditions upon which the request for the variance is based are unique to the property for which the variance is sought and are not applicable generally to other property.
 - c. Because of the particular physical surroundings, shape or topographical conditions of the specific property involved, a particular hardship to the owner would result as distinguished from a mere inconvenience if the strict letter of these regulations are carried out.
 - d. The variance will not in any manner vary the provisions of the City and County Zoning Ordinances or other adopted facility plans.
2. Conditions: In approving variances, the Planning Commission may require such conditions as will in its judgment, secure substantially the objectives of the standards or requirements of these regulations.
 3. Procedure: A petition for any such variance shall be submitted in writing by the subdivider at the time when the preliminary plat is filed for the consideration of the Planning Commission. The petition shall state fully the grounds for the application and all of the facts relied upon by the petitioner.

ARTICLE XII

CHANGES AND AMENDMENTS

Any regulation or provisions of this resolution may be changed or amended from time to time by the Planning Commission by resolution passed after a public hearing, due notice of which has been given as required by law.

ARTICLE XIII
ENFORCEMENT AND PENALTIES

The enforcement of these regulations and penalties for the unapproved recordation of transfer of land is provided by state law in the authority granted by Title 13 of the Tennessee Code Annotated.

ARTICLE XIV

INTERPRETATION, CONFLICTS, AND SEPARABILITY

1. In their interpretation and application, the provisions of these regulations shall be held to be the minimum requirements for the promotion of the public health, safety, and general welfare.

2. Conflict with Public Provisions: These regulations are not intended to interfere with, abrogate, or annul any other ordinance, rule or regulation, statute, or other provisions of law. Where any provision of these regulations imposes restrictions different from those imposed by any other provision of these regulations or any other ordinance, rule or regulation or other provision of law, whichever provisions are more restrictive or impose higher standards shall control.
3. Conflict with Private Provisions: These regulations are not intended to abrogate any easement, covenant, or any other private agreement or restriction, provided that where the provision of these regulations are more restrictive or impose higher standards or regulations than such easement, covenant, or other private agreement or restrictions, the requirements of these regulations shall govern. Where the provisions of the easement, covenant, or private agreement or restriction impose duties and obligations which are more restrictive or of higher standards than the requirements of these regulations or of the determinations of the Planning Commission or the local government in approving a subdivision or in enforcing these regulations, and such private provisions are not inconsistent with these regulations or determinations made thereunder; then such private provisions shall be operative and supplemental to these regulations and determinations made thereunder.
4. Separability: Should any article, section, or provision of these regulations be for any reason held to be void or invalid, it shall not affect the validity of any other article, section, or provision hereof, which is not itself void or invalid.

ARTICLE XV

EFFECTIVE DATE

1. Before adoption of these Subdivision Regulations or any amendment thereof, the Planning Commission thereon shall hold a public hearing; thirty (30) days of notice of the time and place of which shall be given by one publication in a newspaper of general circulation.
2. These rules and regulations shall be in full force and effect from and after their adoption and effective date.

ADOPTED:

Chairman,
Clarksville-Montgomery County
Regional Planning Commission

October 28, 1980
Date

ATTEST:

Director of Planning

EXHIBIT "A"
**EASEMENT DESIGN AND
CONSTRUCTION STANDARDS**

1. All easements shall conform to the following design standards:

a. Easement pavement and right-of-way widths

- (1) The attached chart shall be used to determine required right-of-way and pavement widths for all easements. Commercial and industrial zoned subdivisions shall have a minimum 50-foot easement width and a minimum of 28-foot pavement width. Project engineers shall propose the classification of all easements within the development at the time of preliminary plat submittal. Proposed the Planning Commission staff will review classifications, who will have final determination of such classifications.

b. Easement Alignment

- (1) All easement alignments must provide for the continuation of existing streets abutting the subdivision.
- (2) Arrangement of major easements in the subdivision shall conform as closely as possible with the Major Thoroughfare Plan.
- (3) The arrangement of easements shall be such as will not cause hardship to owners of adjoining property in providing convenient access.
- (4) Collector easements may be required where necessary to facilitate traffic flow in the subdivision.
- (5) On subcollector, collector, and major easements, tangents of not less than 100 feet shall be provided between all reverse curves unless local conditions warrant a shorter tangent.
- (6) "Broken Back" or "Flat Back" arrangements of curves (having a short tangent between two curves in the same direction) shall be avoided.

c. Easement Grades

- (1) Easement grades shall comply with good engineering practice and shall not exceed 10 percent or be less than 0.5 percent. Grades of major and collector easements shall not exceed 5.0 percent wherever possible.
- (2) Grades approaching intersections or cul-de-sacs shall not exceed 5.0 percent for a distance of not less than 75 feet from the center line of said intersection, or from the center point of dead end cul-de-sacs.
- (3) Minimum grades on a cul-de-sac shall be 1.0 percent centerline grade.

d. Horizontal Curves

On major or collector easements, the center line radius of curvature shall be not less than three hundred (300) feet; on other easements not less than one hundred (100) feet.

e. Super Elevation

The use of Super Elevation is discouraged on residential easements. When Super Elevation is allowed it shall be to the inside of the curve with the rate of Super Elevation being based on an appropriate design speed. The maximum rate of Super Elevation shall be 0.08 foot per foot.

f. Vertical Curves

All changes in grade shall be connected by vertical curves of minimum length in feet equal to fifteen (15) times the algebraic difference in rates of grade for major or collector easements and one half this minimum length for other easements. Profiles of all easements showing natural and finished grades drawn to a scale of not less than one inch equals one hundred 50 feet horizontal, and one inch equals five (5) feet vertical, shall be required.

g. Easement Intersections

- (1) Easements shall intersect as nearly at right angles as possible, and in no case at an angle of less than 60 degrees. Intersections involving a major and collector easement shall not be at an angle of less than 80 degrees.
- (2) Easement intersections, which do not align, shall not be closer than 150 feet between centerlines.
- (3) At all easement intersections, property line corners shall be rounded by an arc, with a minimum radius of 25 feet. Pavement edge at intersections shall have a minimum radius of 25 feet.

h. Easements in Relation to Railroads

- (1) The centerline of any easement intersection shall not be closer than 200 feet from the centerline of any railroad right-of-way.

i. Cul-de-sac, Dead End Easements, and Temporary Turnarounds

- (1) The length of a cul-de-sac, measured from the centerline of the intersecting easement to the center of the turnaround, shall not be longer than 500 feet. The permanent turnaround shall have a right-of-way radius of not less than 50 feet and a pavement radius of not less than 45 feet.
- (2) Temporary turnarounds shall be provided at the end of dead end easements which are in excess of 300 feet in length, the distance shall be measured from the center of the nearest intersection to the end of the easement right-of-way. The temporary turnaround easement shall have a radius of not less than 50 feet and surface radius of not less than 45 feet.

2. All easements shall conform to the following construction standards:

a. Grading

- (1) All easement improvements shall be raised at least two feet above the 100-year flood plain as established by the U.S. Army Corps of Engineers.

b. Minimum Pavements Widths

- (1) All residential easements shall be improved with pavements to an overall width in accordance with the attached chart.
- (2) Minimum pavement widths in commercial and industrial zoned subdivisions shall be a minimum of 28 feet in width.
- (3) Pavement in cul-de-sac turnarounds in all developments shall have a minimum diameter of 90 feet with permanent type edge.
- (4) Easements in industrial or business subdivisions may be required to have greater width as directed by the County Road Supervisor.
- (5) Where high volume street parking is expected, the County Road Supervisor may require a pavement width greater than that prescribed in the preceding specifications.

c. Roadway Surfacing

Pavements shall be installed in accordance with the following standards:

- (1) One coarse bituminous concrete wearing surface to be composed of aggregate and bituminous material mixed in a central plant and constructed on a prepared base which has been provided with a prime coat.

The above hot mix wearing surfaces shall be minimum two-(2) inches thick compacted.

d. Curbs and Gutter

All subdivisions shall install curbs and gutters, as specified in County Road Specifications.

- e. All unpaved areas within the easement right-of-way shall be graded and seeded in an approved manner.

f. Street Name Signs

As specified in the County Road Specifications, and shall be installed at each street intersection.

g. Water and Sewer

- (1) Where adequate public water supply is available, the subdivider shall construct a system of water mains including a water stub terminal outside curb or ditch lines for each lot which shall connect with such public water supply and serve adequately all lots and tracts within the subdivision. All water lines shall be a minimum of six (6) inches inside diameter, except for short, dead-end sections which may be otherwise approved by the City Engineer and/or appropriate utility official and the Planning Commission. Any required fire hydrant must be located on a minimum six-inch water line. Fire hydrants shall be installed as directed by the Clarksville Fire Department or appropriate Utility District.

- (2) The installation of the aforementioned improvements shall be under the supervision and inspection of the City Engineer, appropriate utility district or their representatives.

h. Maintenance

It shall be insured that the County shall not be responsible for the construction or future maintenance of any such ingress/egress easement.

3. These rules and regulations shall be in full force and effect from and after their adoption.

CITY & COUNTY EASEMENT RIGH-OF-WAY REQUIREMENTS

TWO WAY WITH CURBS

	<u>COURT</u>	<u>MINOR</u>	<u>COLLECTOR</u>
*NUMBER OF LOTS	LESS THAN 25	26-160 LOTS	OVER 160 LOTS
EASEMENT WIDTH	30 FEET	40 FEET	50 FEET OR GREATER
PAVEMENT WIDTH	20 FEET	24 FEET	28 FEET OR GREATER

*All easement widths and pavement widths shall be determined by the number of lots the easement will serve, whether immediate or potentially through future extensions of any roads, or developments of adjacent properties which would potentially utilize the streets or easements.

MONTGOMERY COUNTY DRAINAGE CRITERIA
MTAS LOCAL GOVERNMENT PUBLIC WORKS STANDARDS AND SPECIFICATIONS
DESIGN CRITERIA
SECTION 300-DRAINAGE SYSTEMS

EXHIBIT B

300.1 **SCOPE**

The purpose of compiling this criteria for standard procedures in storm sewer design and subsurface drainage is to develop improved routine methods of planning, designing and checking storm sewer plans. It covers the reference information needed, design procedures, and standard details. This is not expected to cover extra-ordinary situations and shall be reviewed periodically to maintain an up-to-date procedure and the information required.

301 **GENERAL**

301.1 **STORM WATER**

Storm waters shall generally be carried in storm sewer systems on the basis of criteria established in this section and subject to final determination and approval of the Engineer.

301.2 **PROTECTION**

Storm sewer systems shall be designed to prevent flooding of improvements by storms having the return period designed in Section 303.4. Design of the system shall provide a minimum of 1.0 feet of freeboard. The 100-year flood routing shall be shown on all plans.

301.3 **STORM SEWER SYSTEMS**

Systems shall be designed to protect against flooding of property of all classes, and maintain the required level of service for public facilities. Storm Sewer systems shall be designed as a coordinated unit and may include any or all of the following elements:

- a. Enclosed storm sewers and appurtenances
- b. Open Channels
- c. Swales on property lines and/or back lot lines.

301.4 **VELOCITY**

Discharge velocity shall be controlled to prevent both erosion and siltation at the immediately downstream from the point of discharge. Energy dissipating structures shall be used if required.

302 **DESIGN PROCEDURES**

302.1 **MAPS**

Prints showing the water shed area, recorded plats, survey maps or other plans which are available showing the tributary area to be designed for shall be obtained.

302.2 **SURVEYS**

Check and confirm survey reference data with the official plat book and other recorded information.

302.3 **UTILITIES**

The location of all utility lines existing and proposed from files and others information supplied by utility companies and City records shall be checked.

302.4 EXISTING INFORMATION

Determine the ridgelines of the tributary area and establish the general routing of the proposed sewer line. Check connecting storm sewer lines, appurtenances, street grades and all other information pertaining to the location of the proposed sewer.

302.5 PRELIMINARY LAYOUT

Prepare the preliminary layout and grades. The drainage pattern must be compatible with the existing pattern established in the area.

302.6 ULTIMATE DEVELOPMENT

Compute the estimate ultimate density and impervious surfaces of the area. Information may be obtained from the Planning and Zoning Commission.

302.7 FIELD CHECK

Verify the preliminary design by field checking of the watershed area, critical connections, crossings, slopes, etc., before proceeding with the final draft of the plan.

302.8 RUNOFF

Establish and indicate curb grades, outline of the runoff area, and indicate cubic feet per seconds by increment at each point of interception.

302.9 CURB CAPACITIES

Calculate curb capacities for each side of the street interdependently. Differences in curb elevations, off center crowns, etc., must be taken into consideration.

302.10 INLETS

When calculations indicate that curb capacities are exceeded at a point, no further allowance shall be made for flow beyond that point and basins shall be used to intercept flow at the point. All flow shall be picked up by an inlet. Paved gutters may be used to intercept flow and drained to an approved outfall on approval of the Engineer.

302.11 INLET AND PIPE CAPACITY

Calculate capacities for inlets and size pipe laterals. An 18-inch pipe is the minimum sizing for all laterals.

302.12 MAXIMUM DEPTH

Drainage water must not exceed the depth of the curb at any intersection. This maximum drainage water depth is further limited in duration as stipulated in subsection 307.3.

302.13 HYDRAULICS

Calculate and show hydraulics of pipe inlets. Calculate velocity head and hydraulic profiles of flows exceeding a velocity of 15 feet per second.

303 RUNOFF CALCULATIONS AND CRITERIA

The rational method of calculating storm water quantities, $Q=CIA$, shall be used with the following definitions of terms and arbitrary values:

- 303.1 Q is the quantity of runoff in cubic feet per seconds and is used as a basis for design of the storm drainage system.
- 303.2 A is the area in acres contributing to the drainage system. All upstream tributary areas are to be considered as fully developed as zoned at the time of design.
- 303.3 C is the Runoff Coefficient and shall have the following values where applicable:

<u>Description of Area</u>	<u>Runoff Coefficients</u>
Business	
Downtown	0.70 to 0.95
Neighborhood	0.50 to 0.70
Residential	
Single-family	0.30 to 0.50
Multi-units, detached	0.40 to 0.60
Multi-units, attached	0.60 to 0.75
Residential (suburban)	0.25 to 0.40
Apartment	0.50 to 0.70
Industrial	
Light	0.50 to 0.80
Heavy	0.60 to 0.90
Parks, cemeteries	0.10 to 0.25
Playgrounds	0.20 to 0.35
Railroad yard	0.20 to 0.35
Unimproved	0.10 to 0.30

- 303.4 I is intensity of rainfall in inches per hour and shall be determined for the yearly frequency and as specified from the intensity duration table attached to this criteria:

A 100-year return period shall be used.

Time of concentration equals the inlet time plus the time for water to flow down the pipe or channel to the point at which the peak flow is to be determined. The inlet time shall be figured taking into account the topography, size, and surface characteristics of the contributing area; but shall not exceed 15 minutes unless detailed calculations justifying longer periods are submitted.

304 PIPE SIZING

304.1 MANNING FORMULA

Pipe sizes in integrated underground systems will normally be determined in accordance with the Manning Formula:

$$Q = \frac{1.49}{n} A R^{2/3} S^{1/2}$$

where: Q = Flow CFS
n = Manning's Roughness Coefficient (see table below)
A = Area of Flow square Feet
R = Hydraulic Radius
S = Slope Ft./Ft.

The exception will be in cases where slopes are above the critical. Pipe sizing shall then be determined by entrance control. Head shall be considered up to a point allowing for 1.0 foot of freeboard.

The coefficients of friction allowed for the various kinds of pipe are as follows:

Portland Cement Concrete	n = 0.013
Corrugated Metal	n = 0.024
Corrugated Metal with Paved Invert	n = 0.019
Smooth Flow Corrugated Metal	n = 0.013

Vitrified Clay Pipe
Asbestos Cement

n = 0.013
n = 0.012

304.2 MINIMUM PIPE SIZE

The minimum size storm sewer shall be 18 inches in diameter.

304.3 VELOCITY

All storm drainage systems shall be designed so as to maintain a minimum velocity of flow of 3 feet per seconds and a maximum velocity of 10 feet per second when flowing full.

304.4 VELOCITY HEAD

Large quantities or masses of water flowing at a high rate of speed contain a large amount of kinetic energy which in hydraulics is defined as velocity head.

$$\frac{V^2}{2g}$$

Any change in cross section, restrictions in pipes or inlets shall be considered energy losses and shall be taken into consideration in the design of the system.

304.5 SLOPE

All sewers shall be designed and constructed with a minimum slope of 0.5% unless detailed calculations are provided justifying a lesser slope.

(NOTE: Percent is specified for purposes of compatibility with nomenclature used on current laser equipment.)

305 LOCATION

Storm drainage lines shall generally be located in the parkway area and shall be placed as shown on the approved submitted plans.

306 DEPTH OF COVER

All storm drainage lines shall have a minimum cover of 12 inches.

307 DRAINAGE INLETS

307.1 LOCATION

Provide inlets to maintain a reasonable level of vehicular and pedestrian traffic service as follows:

307.2 GENERAL

Contain all flow within street curbs during the design storm.

307.3 ARTERIAL & COLLECTOR STREETS

Limit gutter flow width to prevent encroachment on the center 24 feet of street.

307.4 RESIDENTIAL STREETS

Limit gutter flow width to prevent encroachment on the center 14 feet of street.

307.5 PEDESTRIAN CROSSWALK

Gutter flow across major pedestrian crosswalks including marked crosswalks on streets bordering school grounds, pedestrian signal controlled crosswalks, and crosswalks in retail business areas shall be limited as provided for intersections.

307.6 INTERSECTION FLOW

Limit gutter flow across intersections to provide a maximum flow not greater than:

<u>LONGITUDINAL GUTTER SLOPE</u>	<u>FLOW C.F.S.</u>
0.5%	0.30
1.0%	0.45
2.0%	0.60
3.0%	0.70
4.0%	0.70
5.0% AND OVER	1.00

307.7 CONCRETE VALLEYS

When water is to flow across an intersection and the longitudinal slope is less than 5%, then the crossing shall require the installation of a concrete valley constructed at the proper grade.

307.8 FLOW CALCULATIONS IN CURB SECTIONS

Due to the cross-sectional properties of curb flow, Manning's Formula does not provide a realistic presentation of flow. Instead, an integration of Manning's Formula is used for curb flow:

$$Q = \frac{(0.56)}{n} S_x^{5/3} S^{1/2} T^{8/3}$$

where: Q = Flow CFS
n = Manning's roughness Coefficient (0.016 typ.)
T = Width of flow (spread) Ft.
Sx = Cross slope Ft./Ft.
S = Longitudinal slope Ft./Ft.

308 OPEN CHANNELS

308.1 GENERAL

Open channels shall be sized to carry design rates of flow without significant damage or erosion to the channel. Channels shall be fenced, sloped or otherwise protected to prevent injury to the public.

308.2 CONNECTIONS

Pipe culverts, box culverts, and other structures entering channels shall not project into the normal waterway area.

308.3 VELOCITY

Channel design shall include lining or treatment of the invert and sides as required to minimize erosion. Minimum treatment shall include seeding. Channel inverts and sides shall be lined to a height 1.0 foot above the hydraulic grade line produced by a flow rate of 60 percent of the peak design rate of the design storm in accordance with the following table:

<u>Mean Flow Velocity</u>	<u>Minimum Type of Lining</u>
---------------------------	-------------------------------

3 F.P.S. & Less	Seeded
3 - 8 F.P.S.	Sod
8 - 15 F.P.S.	Riprap or Concrete
Over 15 F.P.S.	Concrete Paved

Lining materials having equivalent erosion control properties to those shown in the foregoing table may be used in lieu thereof.

308.4 SLOPE

The minimum slope for an open channel shall be 0.5%. When the slope falls below 1.0%, the invert of the channel shall be concrete constructed with grade control comparable to that required for curb of likewise slope (i.e. blue tops at 25' stations).

308.5 CAPACITY

Open channels shall be sized to carry design flow rates with 1.0 foot of freeboard. 1.0 foot freeboard for 100-year flood to structures shall be maintained.

308.6 SECTIONS

Channel sections shall be compatible with the type of lining and maintenance practice to be used. Side slopes shall not be steeper than 2 horizontal to 1 vertical. Channels lined with sod, grass, or other vegetative ground cover and having slopes steeper than 3 horizontal to 1 vertical are not readily susceptible to mowing. Friction factors used in design shall consider type of lining.

308.7 CHECK DAMS

Check dams may be used to control flow velocity in open channels. Check dams shall be designed to prevent flow bypass by undercutting or erosion around the ends. Adequate paving or riprap shall be provided at the downstream toe of check dams to prevent erosion or loss of foundation supported by undercutting. Wood may be used for temporary check dam construction only.

308.8 NATURAL CHANNELS

Natural channels of adequate capacity and having stable banks and invert may be used without modification.

309 DESIGN DETAILS

309.1 PLAN

The Plan view of all storm sewer details shall indicate the proper location of the storm sewer, appurtenances, size of line, capacity, and other details relating to the storm drainage system, including a bench mark on site which is tied to USGS datum. The plan shall show sufficient detail to include exact locations, proper ties into existing permanent reference points, proper angles, and distances from other utilities to be placed or presently in the street right-of-way. Easement shall be a minimum of 10 feet for enclosed structures and 20 feet for open paved channels where they cross private property or an designated by the City Engineer.

309.2 PROFILE

The profile of all storm sewers shall show the necessary slope, existing and proposed street grades, both center line and edge of pavement grades, grate elevations, invert elevations, locations of angles and appurtenances, and proper elevations for existing outfall ditches. The profile shall indicate the size of line and the capacity of each line as determined by the design engineer. The total area draining to each basin and the Q that will be required to be dissipated at that point shall also be indicated, on either plan or profile.

310 EASEMENTS

Permanent drainage easements shall be obtained for all storm sewers, and open drains, that are not within a public dedication, with the right of entry for inspection and maintenance.

Permanent easements shall be obtained for a detention dam site with spillway and release facilities, and floodage rights for temporary detention and conveyance of storm drainage. Easements and floodage rights shall include all necessary provisions and sufficient land for entry to inspect and maintain facilities. Deeds and easements shall be properly recorded.

311 SUGGESTED STORM SEWER DESIGN CHECK LIST

- () 1. CONTROL-SCALE: Horizontal 1"=100', vertical 1"=10'
Large scale for details
Drawing number and date
North Arrow
Signature Blocks
- () 2. Boundary Lines: Counties, Cities, Sewer Districts, Drainage Area, etc.
- () 3. Subdivision: Name and location by section
- () 4. Streets: Names and widths
- () 5. Easements: R.O.W.
- () 6. Survey Data Complete
Curve Data-Where curved sewers are placed
Line, grade & depth-dimensioned & specified
- () 7. Pipe size and class: Existing Lines
Proposed Lines-size, length and cover
Connections
Elevations and grades shown
- () 8. Manholes: Designation, spacing and invert elevation shown
- () 9. Location and depth of existing utilities, cables and structures as available from records.
- () 10. Test hole data if required
- () 11. Structural details adequate
- () 12. Removals and replacements-trees, poles, paving, etc.
- () 13. Sealed by Professional Engineer.

312 TEMPORARY DETENTION

312.1 GENERAL

Provisions of areas for the temporary controlled detention of storm drainage and its regulated discharge to the downstream storm sewer system at peak rates less than would occur without such facilities, may be included in storm sewer systems development upon specific approval of the City Engineer.

312.2 PERFORMANCE CRITERIA

- 312.2.1 The design storm shall be a storm of 24-hour duration and having the return periods set forth in Section 303.4 for enclosed structures.
- 312.2.2 Detention storage areas shall have adequate capacity to contain maximum required volume of tributary storm drainage runoff with 1.0 foot of freeboard. Adequate provisions and allowances shall be made for the accumulation and removal of silt.
- 312.2.3 Outlet works shall be designed to limit peak outflow rates from detention storage areas to or below peak flow rates that would have occurred prior to the proposed or zoned development of the tributary area.
- A. Outlet works shall not include any mechanical components or devices and shall function without requiring attendance or control during operation.
 - B. Size and hydraulic characteristics shall be such that all water in detention storage is released to the downstream storm sewer system within 24 hours of the end of the design rainfall.
- 312.2.4 Detention storage system shall be designed to accept storm drainage runoff from the entire area tributary thereto, regardless of ownership of lands included within the tributary area.
- 312.2.5 Emergency spillways shall be provided to permit safe passage of water from storms producing runoff in excess of the design storm.

312.3 DESIGN DATA SUBMITTAL

In addition to complete plans, the following design data shall be submitted for the City Engineer's approval for all projects including temporary detention facilities:

- 312.3.1 Runoff hydrograph plotted in units of inches per hour runoff rate of the tributary area as ordinates, and time from the start of runoff as abscissas. The runoff hydrograph shall be developed to include all storms of lesser duration within the 24-hour storm.
- 312.3.2 Area-Capacity curve for proposed detention facility plotted in units of datum elevation as ordinates, and cumulative volume of storage as abscissas.
- 312.3.3 Discharge characteristics curve of outlet works plotted in units of detention facility water surface elevation as ordinates, and discharge rate in C.F.S. as abscissas.
- 312.3.4 Combined Storage-Outflow curves showing both inflow and discharge in units accumulated volume as ordinates, and time from the start of runoff as abscissas.
- A. Curves shall be so arranged that the vertical distance between the accumulated storage and accumulated discharge will indicate the net volume in storage at any point in time.
 - B. Curves shall be extended to the time required for complete discharge of all runoff stored in the detention facility.

312.4 LAND REQUIREMENTS

Permanent easements for the temporary impoundment of storm water runoff shall be dedicated to the City over all lands, structures, and facilities to be used for temporary detention and conveyance of storm drainage. Easements shall include all necessary provisions and land necessary for the City's right-of-entry for purposes of inspection and/or maintenance. All instruments, and easements shall be subject to the approval of the City.

312.5 MAINTENANCE

Provisions acceptable to the City for perpetual maintenance of temporary detention facilities, outlet works, and appurtenances shall be made.

312.6 PERMITS

Building permits for project including temporary detentions facilities may be granted by the City only after all easements have been dedicated, accepted and recorded, and all required maintenance agreements, contracts, and bonds have been executed.

313 SINKHOLES

313.1 GENERAL

Sinkholes are acceptable for use as stormwater relief provided that they are determined to be sufficiently active to prevent long term ponding of water. Active sinkholes, which are partially obstructed, may be excavated to locate and clean the natural opening.

313.2 REQUIRED VOLUME

When a sinkhole is used for stormwater relief, provisions shall be made to supply the necessary volume to contain total runoff equivalent to that occurring for a 100-year - 24-hour flood.

313.3 PROTECTION

There shall be measures taken to assure that the sinkhole is protected from sedimentation and erosion during construction. Temporary methods such as erosion control fabric and surrounding the sinkhole with bales of straw are acceptable during construction. Permanent protection of the sinkhole opening shall normally include a metal or concrete casing which is protected from entry by a top grate and is encapsulated with stone to prevent sediment from stopping the opening.

INTENSITY-DURATION-FREQUENCY RELATIONSHIPS FOR CLARKSVILLE, TENNESSEE

<u>RECURRENCE INTERVAL (YR)</u>	<u>DURATION</u>	<u>RAINFALL (In)</u>	<u>INTENSITY (In/Hr)</u>
10	5 min.	0.64	7.64
10	10 min.	0.98	5.88
10	15 min.	1.24	4.96
10	30 min.	1.72	3.44
10	1 hr.	2.17	2.17
10	2 hr.	2.67	1.34
10	3 hr.	2.93	0.98
10	6 hr.	3.77	0.63
10	12 hr.	4.29	0.36
10	24 hr.	4.85	0.20
25	5 min.	0.72	8.64
25	10 min.	1.11	6.66
25	15 min.	1.40	5.60
25	30 min.	1.95	3.90
25	1 hr.	2.50	2.50
25	2 hr.	3.00	1.50
25	3 hr.	3.40	1.13
25	6 hr.	4.00	0.67
25	12 hr.	4.79	0.40
25	24 hr.	5.73	0.24
50	5 min.	0.80	9.60
50	10 min.	1.23	7.83
50	15 min.	1.35	6.20
50	30 min.	2.15	4.30
50	1 hr.	2.75	2.75
25	2 hr.	3.37	1.69
50	3 hr.	3.75	1.25
50	6 hr.	4.58	0.76
50	12 hr.	5.50	0.46

50	24 hr.	6.38	0.27
100	5 min.	0.90	10.80
100	10 min.	1.38	8.28
100	15 min.	1.74	6.96
100	30 min.	2.42	4.84
100	1 hr.	3.00	6.00
100	2 hr.	3.78	1.89
100	3 hr.	4.14	1.38
100	6 hr.	4.39	0.82
100	12 hr.	5.85	0.49
100	24 hr.	6.73	0.28

P.M.P. = 28.50 inches.

ENGINEERING CERTIFICATION

Exhibit C

This is to certify that I am a duly qualified engineer licensed to practice in the State of Tennessee, License # _____.

It is to further certify that the roads and drainage structures in the proposed development have been installed in accordance with City of Clarksville Street Specifications and Montgomery County Highway Department Road Specifications and approved plans.

Signature

Date

Seal