Policy 26

City Of Knoxville
Utility Maintenance
&
Construction

March 17, 2021

CITY OF KNOXVILLE

Policy 26
CITY OF KNOXVILLE
UTILITY MAINTENANCE AND CONSTRUCTION
March 17, 2021

Introduction

In order to maintain the quality and durability of streets and sidewalks within public rights-of-way, promote an attractive environment for economic growth and to minimize any detrimental effect on storm water quality and facilities, the City of Knoxville provides the following policy for the non-emergency repair and improvement of utilities within the corporate limits of the City of Knoxville.

Permit Requirements

Utility construction performed within the City of Knoxville requires a site development permit and for construction in right-of-way, a right-of-way permit. The Site Development Permit is established by City of Knoxville Code, Chapter 22.5 - Stormwater. The Right-of-Way Permit is established by City of Knoxville Code, Chapter 23 - Streets and Sidewalks. Both Chapter 22.5 and 23 are included in Appendix I.

Site Development Permit for Utilities

Any utility construction resulting in a disturbed area within the corporate limits of the City of Knoxville requires a site development permit. Site development permits for utility construction can be obtained by contacting the City of Knoxville Engineering Division, 3131 Morris Ave at 215-6100. Upon permit approval, the utility company shall notify the Engineering Division at 215-6100 as to when the construction will begin. Site Development Permits for utility construction are classified into two categories, Site Development Utility Maintenance Permits and Site Development Utility Construction Permits.

Site Development Permit for Utility Maintenance

The City of Knoxville grants an annual Site Development Maintenance Permit to utility companies. This permit is for routine maintenance within the corporate limits of the City of Knoxville, i.e. service connections, emergency repairs, setting of poles, construction within areas already covered by permits of others (i.e. developers) or any maintenance/construction activities that result in a disturbed area of less than 20 square yards. Disturbed areas greater than 20 square yards shall be considered construction activities and permit fees will be assessed in accordance with Knoxville City Code Chapter 22.5, Section 22.5-29, Fees. The utility company shall notify the Civil Engineering Section before any construction activities begin.

Site Development Permit for Utility Maintenance

As a condition of the annual utility Site Development Maintenance Permit, the utility company will utilize best management practices (BMP's) for erosion and sediment control. These BMP's will comply with the Erosion and Sediment Control Handbook produced by the Tennessee Department of Environment and Conservation, dated March 2002, as amended by that organization or its successor, or the City of Knoxville's Best Management Practices (BMP) Manual, whichever is more restrictive.

The fee for this permit will be based upon the report of disturbed area information, i.e. date, location, size of area disturbed, which is tabulated by the utility and forwarded on a monthly basis to the City of Knoxville Engineering Division, 3131 Morris Ave. The Site Development Maintenance Permit fee will be billed annually to the utility company for the previous year. The actual cost will be based upon the total area disturbed and will be billed in accordance with the rate structure as found in the Knoxville City Code, Chapter 22.5, Section 22.5-29, Fees. The rate structure is as follows:

Disturbed Area: $15.00 for 20 square yards or less plus $0.50 per each additional square yard

The minimum charge for the issuance of any permit shall be fifteen dollars ($15.00).

The Engineering Division shall determine permit fees for utilities currently subject to a court order or decree.

Site Development Permit for Utility Construction

The City of Knoxville grants a Site Development Construction Permit on a per-project basis to utility companies. This permit is for any non-maintenance utility construction within the corporate limits of the City of Knoxville. Utility construction project plans, a permit and permit review checklist must be submitted to the City of Knoxville Engineering Division, 3131 Morris Ave at least 12 business days in advance of the work. The utility construction site development permit and permit review checklist are included in Appendix IV of this policy. Upon permit approval, the utility company shall notify the Engineering Division at 215-6100 as to when the construction will begin.

The utility company shall meet the requirements for the Site Development Permit as set forth in City of Knoxville Code, Chapter 22.5 – Stormwater. Specifically, the utility construction plans shall contain the items included in the Utility Construction Site Development Permit Review Checklist.

An erosion and sediment control plan must be submitted with the Utility Site Development Construction Permit and approved before the permit will be issued. Erosion and sediment control plans are to be prepared and sealed by a competent professional engineer registered in the State of Tennessee. The erosion and sediment control plan must comply with the Erosion and Sediment Control Handbook produced by the Tennessee Department of Environment and Conservation, dated March 2002, as amended by that organization or its successor, or the City of Knoxville's Best Management Practices (BMP) Manual, whichever is more restrictive.

Site Development Permit for Utility Construction

The City will invoice on a quarterly basis for fees associated with Utility Site Development Construction Permits. As set forth in the City of Knoxville Code, Chapter 22.5, Section 22.5-29, Fees, the Site Development Construction Permit fee is $1.00 per linear foot of pipe as shown on the construction plans with a $200 minimum fee per project.

The utility shall not pay any Site Development Permit fees for any work where the utility has obtained and paid fees for work as part of a Right-of-Way Permit. If a utility project requires work within the right-of-way and on private property, the utility shall pay Right-of-Way Permit fees for the limits of work within the right-of-way and Site Development Permit fees for the limits of work on private property.

The Engineering Division shall determine permit fees for utilities currently subject to a court order or decree.

Right-of-Way Permit

A Right-of-Way Permit is required for any project that requires grading, tree trimming, clearing, excavation or construction within public right-of-way. This permit can be obtained by contacting the Engineering Division, 3131 Morris Ave at 215-6100. Right-of-Way Permits for construction activity are classified into two categories, Maintenance Permits and Construction Permits.

Right-of-Way Maintenance Permit

The City of Knoxville will grant utility companies an annual Right-of-Way Maintenance Permit. This permit is for routine maintenance within the city right-of-way, i.e. service connections, emergency repairs, setting of poles, construction within areas already covered by permits of others (i.e. developers) or any maintenance/construction activities that result in a disturbed area of less than 20 square yards. Disturbed areas greater than 20 square yards shall be considered construction activities and permit fees will be assessed in accordance with the Right-of-Way Construction Permit Section as found on page 5 of this policy. The utility company shall notify the Civil Engineering Section before any construction activities begin.

The fee for this permit will be based upon the report of cut information, i.e. date, location, size of cut, which is tabulated by the utility and forwarded on a monthly basis to the City of Knoxville Engineering Division, 3131 Morris Ave. Utility companies may submit for review bored line extensions outside the pavement edge that are less than 500 feet long and 2-inches or less in diameter as a maintenance permit. The cost assessed for a bored line extension is $0.10 per linear foot or a minimum of $15.00 per boring.

Right-of-Way Maintenance Permit

The Right-of-Way Maintenance Permit fee will be billed annually to the utility company for the previous year. The actual cost will be based upon the following rate structure.

Classification	Maximum 20 Sq. Yds. Or less
Pavement or sidewalk	$15.00
Earth or gravel	$5.00

The minimum charge for the issuance of any permit shall be five dollars ($5.00).

As part of the maintenance permit, a temporary traffic control permit (TTCP) may be required for each location. See the "Policy on Work Zone Traffic Control" dated September 21, 2016 as found in Section 34.0, Standard Specification for Construction Area Traffic Control of Appendix II. Traffic control plans for the following require a plan prepared and sealed by a professional engineer registered in the State of Tennessee:

1. Any construction on a State route requiring multi-lane closures or a full road closure. A list of State routes within the corporate limits of the City of Knoxville is included in Appendix III.

2. Any construction requiring a detour on any roadway.

Personnel trained in work zone traffic control procedures may prepare traffic control plans for all other situations. A copy of the Temporary Traffic Control Permit is attached in Appendix III. All traffic control procedures must meet the requirements as set forth in Section 34.0, Standard Specifications for Construction Area Traffic Control, as found in Appendix II.

Right-of-Way Construction Permit

The City of Knoxville will grant utility companies a permit for construction in the right-of-way for all new construction on a per-project basis. Each new construction project must be submitted to the City of Knoxville Engineering Division 3131 Morris Ave at least 12 business days in advance of the work. Upon permit approval, the utility shall notify the Civil Engineering Section at 215-6100 as to when the construction will begin. The City will invoice on a quarterly basis for fees associated with construction permits.

The cutting of a street to install utilities results in long-term damage sustained to the street throughout its life. It also results in problems associated with work zone traffic control and inconvenience to the public when maintenance is required throughout the life of the system located under the pavement. For these reasons, the Engineering Division will carefully review the necessity to locate utility facilities under the pavement.

Right-of-Way Construction Permit – cont'd.

However, recognizing there will be cases where there will be construction on the right-of-way and/or under the pavement the following permit fee structure will apply:

1. $1.00 per linear foot of pipe within the right-of-way as shown on the construction plans. This fee is $0.10 per linear foot of bored pipe within the right-of-way, or a minimum of $15.00 per boring.

2. $15.00 per linear foot of pipe which is constructed under the pavement of the street and only surface destruction occurs. This $15.00 fee is to cover the current cost of resurfacing a 12-foot wide section of roadway. Exceptions to this fee shall be as follows:

    a. When the street is on the current city paving list the utility would pay nothing.

    b. When the street has been resurfaced within five years or less, the utility would pay $30.00 per linear foot, i.e. the current cost of paving two 12-foot wide sections of street.

    c. In cases when there are deep trenches and subgrade destruction as well as surface destruction, the utility will be billed on a case-by-case basis for the cost of roadway restoration.

As part of the construction permit, a Temporary Traffic Control Permit may be required. See the "Policy on Work Zone Traffic Control" dated September 21, 2016 as found in Section 34.0, Standard Specification for Construction Area Traffic Control of Appendix II. A traffic control plan must be submitted with the construction permit and approved before the permit will be issued. Traffic control plans for the following require a plan prepared and sealed by a professional engineer registered in the State of Tennessee:

1. Any construction on a State route requiring multi-lane closures or a full road closure. A list of State routes within the corporate limits of the City of Knoxville is included in Appendix III.

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Personnel trained in work zone traffic control procedures may prepare traffic control plans for all other situations. A copy of the Temporary Traffic Control Permit is attached in Appendix III. All traffic control procedures must meet the requirements as set forth in Section 34.0, Standard Specifications for Construction Area Traffic Control, as found in Appendix II.

Right-of-Way Construction Notes

Any utility work within right-of-way requiring excavation or tree cutting/trimming for utility maintenance or improvement should be repaired such that it is left in equal or better condition than prior to the work. The removal of trees will in some cases require the planting of new trees. The Engineering Division may require deteriorated areas adjacent to the construction be nominally improved during the repair of utility related cuts. The following are additional construction requirements:

1. Any construction which occurs under the roadway, curbs, gutters, sidewalks or less than three (3) feet from the outside edge of the roadway section shall be backfilled with Mineral Aggregate Base as detailed on the Standard Detail for Trench Cut Repairs, page 8. Stone classified as No. 57 or 67 by the Tennessee Department of Transportation Standard Specifications shall not be used for trench backfilling without prior approval by the Engineering Division.

2. Any construction which occurs three (3) feet from the outside edge of the roadway section, but within right-of-way shall be backfilled with fine compactable soil free of sod, brush, roots, and other perishable material and stones having a maximum dimension of more than six (6) inches. Also, this material shall be compacted in layers of not more than six (6) inches to 95% of the Standard Proctor Density at the optimum moisture content as determined by AASHTO T99, Method D. These areas should be repaired such that they are left in equal or better condition than prior to the work. This includes matching existing materials such as rip rap, concrete ditch or etc. The utility company shall furnish the Engineering Division with the Standard Proctor Compaction curve for any soil used for trench backfill material.

3. All utility cuts must be repaired immediately after backfilling and in accordance with the Standard Detail for Trench Cut Repairs, page 8.

4. All references to materials are described in detail in the City of Knoxville's Standard Specifications, which are attached in the Appendix II.

5. All concrete cuts shall occur at contraction or expansion joints only. Where existing construction and expansion joints are encountered in concrete pavement cuts, the Engineering Division shall designate location, size and materials to construct joints in the new concrete surface.

6. All asphalt and concrete cuts shall be saw-cut to provide a smooth edge. Jackhammering the edges of the cut is not acceptable.

7. Remove and replace full concrete sidewalk and concrete street panels. Do not cut trenches or form new joints in the concrete sidewalk or concrete street. In the case of an extremely wide area the Engineering Division may approve creating limited new joints to accommodate replacing only part of the area.

Right-of-Way Construction Notes – cont'd.

8. All accessible ramps must meet the City of Knoxville's Standard Detail, COK-13, Standard Detail for Curb Cuts and Tactile Warning Systems.
9. The subsurface shall be compacted according to the Standard Specification for Mineral Aggregate Base, Section 5.0.

10. Existing concrete streets that have been overlaid with asphalt shall be repaired with asphalt. The depth of the asphalt replacing the concrete shall be increased 50% (plus any overlay). Thus, the total asphalt depth shall be 1.5 times the concrete thickness plus the asphalt overlay thickness.

11. Surface textures and colors shall match, as close as possible, the existing surface.

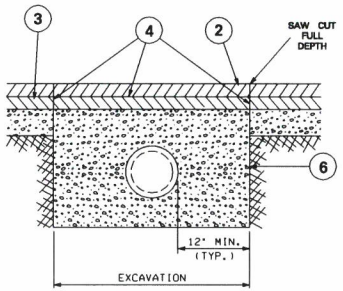
12. Sidewalks in historical areas shall be replaced with concrete meeting the requirements of Technical Specification 15.0, Concrete, with the exceptions of the concrete mix design shall contain natural brown silica sand and no fly ash.

13. Brick, or other specialty paving, shall be repaired using identical materials (e.g., brick or paver color and size, mortar color), and reconstructed to match existing line and grade.

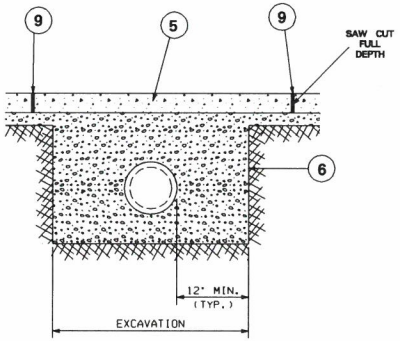
14. Replace painted surface markings such as lane lines, carefully matching the existing markings. Thermoplastic markings such as crosswalks, turn arrows, and STOP lines shall be replaced by the Engineering Division at the utility's expense. Upon completion of construction, the Engineering Division's Traffic Section shall be notified at 215-6100 to allow for the replacement of Thermoplastic markings destroyed by the utility company.

15. All utility installations resulting in obstructions in the right-of-way shall meet the clear zone requirement of the City of Knoxville. Currently the clear zone distance is 10 feet measured from the edge of pavement or face of concrete curb to the obstruction. Any encroachment upon this clear zone must be approved by the Engineering Division. However, in no case shall an obstruction be placed within an existing sidewalk without prior approval from the Engineering Division.

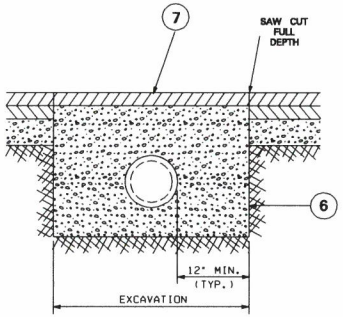
REVISIONS			
No.	DATE	BY	BRIEF DESCRIPTION



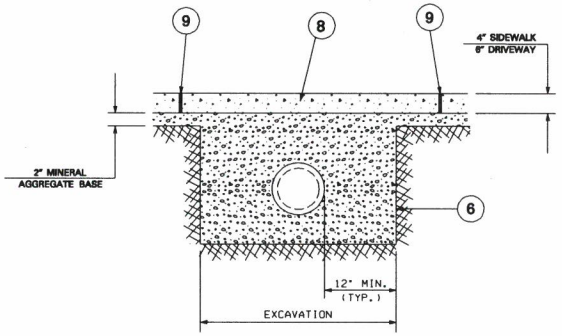
ASPHALT STREET REPAIR



CONCRETE STREET REPAIR



TEMPORARY ASPHALT STREET REPAIR



CONCRETE SIDEWALK / DRIVEWAY REPAIR

NOTES:

1. ALL SECTIONS NOTED BELOW REFERENCE THE CITY OF KNOXVILLE STANDARD SPECIFICATIONS UNLESS OTHERWISE SPECIFIED.
2. ASPHALTIC CONCRETE SURFACE, GRADING D, SECTION 10.0. MATCH EXISTING DEPTH OR MINIMUM THICKNESS OF ONE AND ONE-HALF (1.5) INCHES.
3. BITUMINOUS PLANT MIX BASE, GRADING B, B-M, OR C, SECTION 9.0. MATCH EXISTING DEPTH OR MINIMUM THICKNESS OF TWO AND ONE-HALF (2.5) INCHES. THE ENTIRE FOUR (4) INCH MINIMUM DEPTH MAY BE ASPHALTIC CONCRETE SURFACE GRADING D, BUT SHALL BE COMPACTED IN TWO LIFTS.
4. TACK COAT, SECTION 7.0.
5. PORTLAND CEMENT CONCRETE PAVEMENT, SECTION 11.0. JOINTS SHALL BE DOWELED AS DETAILED IN SECTION 11.0.
6. MINERAL AGGREGATE BASE, CLASS A AGGREGATE GRADING D, SECTION 5.0, COMPACTED IN SIX (6) INCH LIFTS TO 100% OF THE STANDARD PROCTOR DENSITY AT 2% LESS THAN OPTIMUM MOISTURE CONTENT AS DETERMINED BY AASHTO 199, METHOD D, APPROXIMATELY 140 PCF FOR LIMESTONE.
7. WHEN A TEMPORARY ASPHALT PATCH IS USED, IT SHALL BE PLACED IMMEDIATELY AFTER THE MINERAL AGGREGATE BACKFILL. ALL TEMPORARY REPAIRS MUST BE REPLACED PERMANENTLY WITHIN 90 DAYS.
8. CONCRETE SIDEWALKS, DRIVEWAYS, AND MEDIAN STRIP, SECTION 13.0.
9. LIMITS OF REMOVAL SHALL BE FROM THE NEAREST EXPANSION OR CONTRACTION JOINT.
10. EXISTING CONCRETE STREETS THAT HAVE BEEN OVERLAID WITH ASPHALT SHALL BE REPAIRED WITH ASPHALT. THE DEPTH OF THE ASPHALT REPLACING THE CONCRETE SHALL BE INCREASED 50% (PLUS ANY OVERLAY). THUS, THE TOTAL DEPTH SHALL BE 1.5 TIMES THE CONCRETE THICKNESS PLUS THE ASPHALT OVERLAY THICKNESS.

CITY OF KNOXVILLE
DEPARTMENT OF ENGINEERING

STANDARD DETAIL FOR
TRENCH CUT REPAIRS

DRAWN: RW
DESIGNED: RLT
DATE: 19-JAN-88
CHECKED: RLT
APPROVED: DTH

COK-12

Street Lighting and Overhead Wiring

Central Business District

City planning groups have made long range projections of where it would be desirable for future development to take place in the Central Business Improvements District (CBID). The attached map provides the specific boundaries and these boundaries include the entire right-of-way of boundary streets. Planning between the City and utility companies should be developed to accommodate utility facilities. Utility drawings should include clear and concise instructions for underground installation.

Utility companies are required to use existing underground facilities or alleys in the CBID area thereby eliminating all overhead wiring to improve the aesthetics of the area.

Street Lights

1. **ALL** street light additions or replacements should be in accordance with the agreed upon *STREET LIGHT PLAN*; (e.g. do not add ANY new cobraheads, even if only **one** is being installed--that is one more to replace later).

2. Cobraheads on wooden or other utilitarian poles may be installed as part of the Asentry@ program on **private property.**

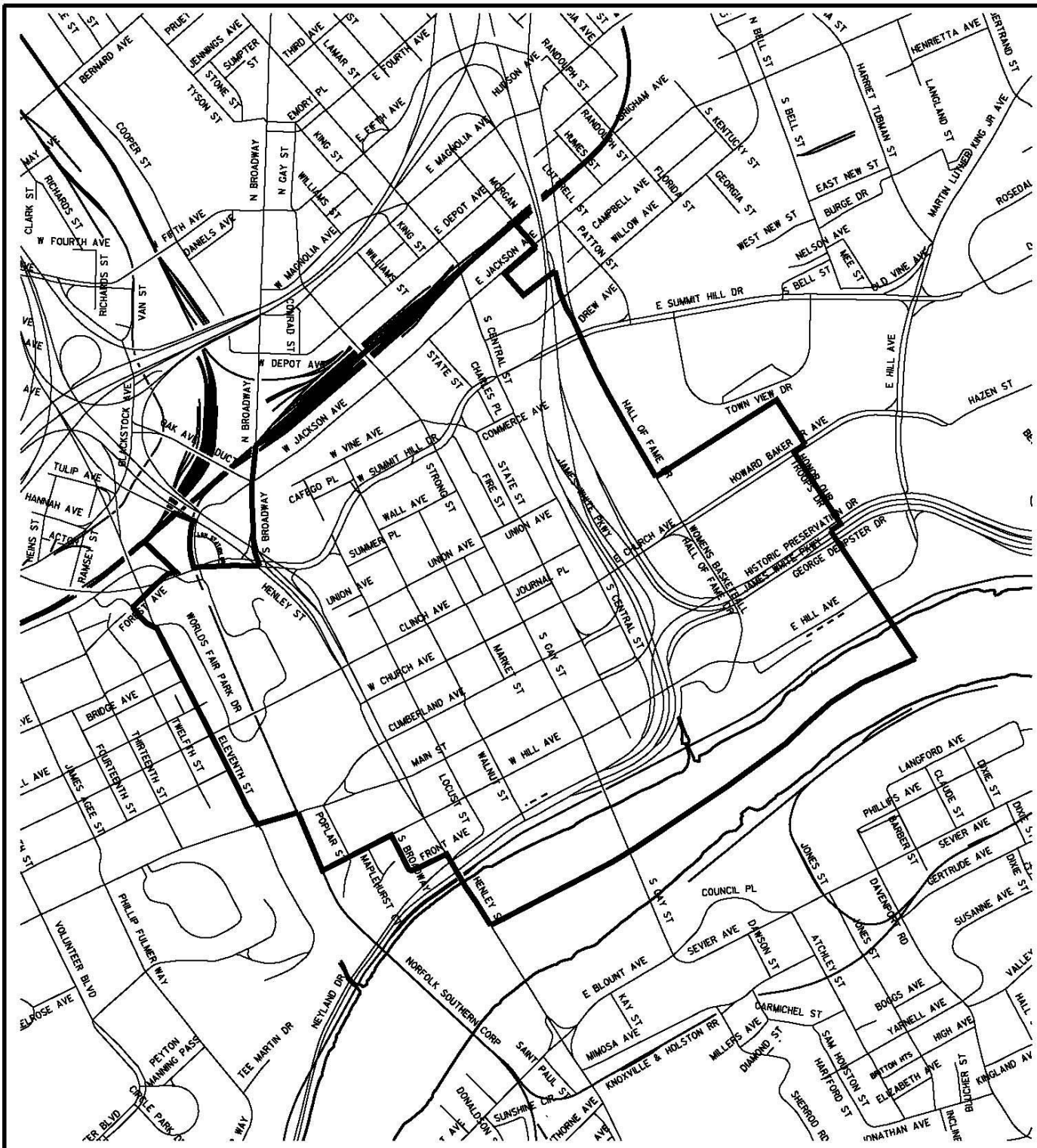
Overhead Wiring

1. All new or upgraded street lights should be fed through underground wiring ONLY.

2. NO new overhead wire should be added (or replaced in the event of non-emergency repair) in the downtown area, except with the express, written consent of the Director of Engineering. The exception will be granted only in cases where underground connection presents an extreme hardship AND where a reasonable alternative, which does not detract from the visual quality of the area, is proposed (e.g. running overhead wire service along an alley).

3. Installation of conduit or other equipment required to provide underground service should be done in accordance with the policies related to repair of utility cuts (see previous section).

Any exceptions or variances from this policy must be approved in writing by the Director of Engineering prior to beginning of work. Failure to secure prior approval of exceptions will result in corrections being required after the fact.



CITY OF KNOXVILLE

CENTRAL BUSINESS IMPROVEMENT DISTRICT (CBID)

APPENDIX I

Knoxville City Code

Chapter 22.5 – Stormwater

Chapter 23 - Streets and Sidewalks

Chapter 22.5
STORMWATER AND STREET ORDINANCE

Chapter 22.5 - STORMWATER (formerly known as Chapter 22A)

ARTICLE III. Illicit Connections and Illegal Dumping

This ordinance was initially issued in June 1997 (Ordinance O-224-97) with further revisions in December 1997 (Ordinance O-666-97), May 1998 (Ordinance O-247-98), May 2003 (Ordinance O-155-03), June 2003 (Ordinance O-264-03), August 2004 (Ordinance O-139-04), January 2005 (Ordinance O-16-05), and February 2005 (Ordinance O-45-05).

ARTICLE I. IN GENERAL

Section 22.5-1. Title of chapter.

This chapter shall be known and may be cited as the Stormwater and Street Ordinance of the City of Knoxville. (Ord. No. O-139-04, § 1, 8-17-04)

Section 22.5-2. Purpose.

The purpose of this chapter is to consolidate all regulations pertaining to the stormwater system and the local street system and to accomplish the following:

(a) Improve stormwater management;
(b) Control the discharge of pollutants to the stormwater system;
(c) Improve public safety;
(d) To comply with the City of Knoxville's NPDES Permit;
(e) Establish procedures to accomplish the above purposes.

(Ord. No. O-139-04, § 1, 8-17-04)

Section 22.5-3. Administration of chapter.

The Engineering Director and the engineering staff under the Director's supervision shall administer the provisions of this chapter. (Ord. No. O-139-04, § 1, 8-17-04)

Section 22.5-4. Definitions.

Unless specifically defined in this section, words or phrases used in this chapter shall be interpreted so as to give them the meaning they have in common usage, and to give this chapter its most reasonable application.

1-year frequency storm - A storm event defined to be 2.5 inches in 24 hours or other such magnitude the Engineering Director shall establish based upon scientific and engineering information.

2-year frequency storm - A storm event with a fifty (50) percent chance of being equaled or exceeded in a given year. Defined to be 3.3 inches in 24 hours or other such

magnitude the Engineering Director shall establish based upon scientific and engineering information.

5-year frequency storm - A storm event with a twenty (20) percent chance of being equaled or exceeded in any given year. Defined to be 4.1 inches in 24 hours or other such magnitude the Engineering Director shall establish based upon scientific and engineering information.

10-year frequency storm - A storm event with a ten (10) percent chance of being equaled or exceeded in any given year. Defined to be 4.8 inches in 24 hours or other such magnitude the Engineering Director shall establish based upon scientific and engineering information.

25-year frequency storm - A storm event with a four (4) percent chance of being equaled or exceeded in any given year. Defined to be 5.5 inches in 24 hours or other such magnitude the Engineering Director shall establish based upon scientific and engineering information.

50-year frequency storm - A storm event with a two (2) percent chance of being equaled or exceeded in any given year. Defined to be 6.1 inches in 24 hours or other such magnitude the Engineering Director shall establish based upon scientific and engineering information.

100-year frequency storm - A storm event with a one (1) percent chance of being equaled or exceeded in any given year. Defined to be 6.5 inches in 24 hours or other such magnitude the Engineering Director shall establish based upon scientific and engineering information.

500-year frequency storm - A storm event with a one-fifth (1/5) of one (1) percent chance of being equaled or exceeded in any given year. Defined to be 7.6 inches in 24 hours or other such magnitude the Engineering Director shall establish based upon scientific and engineering information.

Administrative Plat - A plat prepared and certified by a Registered Land Surveyor and approved or denied for recording by the Metropolitan Planning Commission (MPC) through staff administrative procedures. A plat shall be classified as an Administrative Plat when it meets one or more of the following criteria: 1) It divides one tract into no more than two lots; 2) It combines existing lots into no more than two lots; 3) It adjusts the common lot line(s) between two existing recorded lots; 4) It is for the purpose of recording an easement or other new information, and no subdivision of land is involved; or, 5) It qualifies as an exempt or corrected plat as defined by the Knoxville-Knox County Minimum Subdivision Regulations.

Best Management Practices Manual (BMP Manual) - A manual produced by the City of Knoxville containing best management practices for use on site development plans and construction projects.

Blue-Line Stream - Any stream shown on the 7.5 minute USGS Quad Maps.

Board of Environmental Appeals - Appointed by the Mayor and confirmed by Council to hear appeals filed by any person incurring a civil penalty or damage assessment imposed pursuant to Section 22.5-8 of the Stormwater and Street Ordinance.

Buffer Zone - A naturally undisturbed, vegetated and pervious streamside zone that is protected from clearing, grading, filling, paving, building or other destruction of the naturally vegetated state.

Condominium (Condo) Development - A development of attached or detached units where the individual units take access from a private drive that is neither a Joint Permanent Easement nor City Right-of-Way.

Covenants by Lessee for Maintenance of Stormwater Facilities on Leased Property - A legal document executed by a Lessee and recorded with the Knox County Register of Deeds guaranteeing proper maintenance of stormwater facilities during the term of the Lessee's lease and the proper removal of the water quality facilities at the end of the term of the Lessee's lease.

Covenants by Property Owner for Permanent Maintenance of Stormwater Facilities - A legal document executed by the Property Owner and recorded with the Knox County Register of Deeds guaranteeing perpetual and proper maintenance of stormwater facilities.

Detention - A practice to store stormwater runoff by collection as a temporary pool of water and provide for its gradual (attenuated) release and thereby control peak discharge rates.

Development Certification - As-built field-verified plans signed and sealed by a registered Professional Engineer and a Registered Land Surveyor, both licensed to practice in the State of Tennessee, showing contours, elevations, grades, locations, drainage and hydraulic structures, and detention basin volumes.

Development, large residential and commercial - Any development, commercial, office, industrial, multiple single family lots, any non-residential use, or any development of a single residential lot with a disturbed area of ten thousand (10,000) square feet, etc.

Development, small single family residential - Development of a single recorded residential lot with less than ten thousand (10,000) square feet of disturbed area.

Development, utilities - Physical alteration of any location for the purpose of installing utilities. This includes, but is not limited to, providing access to a site, clearing of vegetation, grading, earth moving, providing utilities, other services such as parking, altering land forms, and installing erosion control systems.

Discharge - Dispose, deposit, spill, pour, inject, seep, dump, leak or place by any means, or that which is disposed, deposited, spilled, poured, injected, seeped, dumped, leaked, or placed by any means including any direct or indirect entry of any solid or liquid matter into the stormwater system by any means intentional or otherwise.

Disturbed Area - Portion of any site that has been altered from existing conditions, including but not limited to the following: providing access to a site, clearing of vegetation, grading, earth moving, providing utilities and other services such as parking facilities, stormwater management and erosion control systems, potable water and wastewater systems, altering land forms, or construction or demolition of a structure on the land.

Downstream - Downgradient from the lowest point of each subwatershed in a development.

Erosion - The removal of soil particles by the action of water, wind, ice or other geological agents, whether naturally occurring or acting in conjunction with or promoted by anthropogenic activities or effects.

Extended detention - A practice to store stormwater runoff by collection as a temporary pool of water and provide for its gradual (attenuated) release over a minimum of twenty-four (24) hours and no more than seventy-two (72) hours and thereby control peak discharge rates and allow for gravity-driven settling of some types of pollutants. A practice which is used to control peak discharge rates, and which provides gravity settling of pollutants.

First flush - The initial or early stages of stormwater runoff from a storm event which commonly delivers a disproportionately large amount of previously accumulated pollutants due to the rapid rate of runoff. The first flush is defined as the first one-half (1/2) inch of direct runoff from the contributing drainage basin.

Floodplain - For a given flood event, that area of land temporarily covered by water which adjoins a watercourse.

Hydraulic - Pertaining to, involving, moved or operated by a fluid, especially water, under pressure or under a gravity-driving force.

Hydrologic - Pertaining to the scientific study of the properties, distribution, and effects of water on the earth's surface, in the soil and underlying rocks, and in the atmosphere.

Illicit discharge - Any discharge to the stormwater system that is not composed entirely of stormwater and not specifically exempted in Article III.

Impervious area - Impermeable surfaces, such as pavement or rooftops, which prevent the percolation of water into the soil.

Infiltration - A practice designed to promote the recharge of groundwater by containment and concentration of stormwater in porous soils.

Infiltration basin - An impoundment made by excavation or embankment construction to contain and infiltrate runoff into the soil layer.

Land Development Manual (LDM) - Manual produced by the City of Knoxville that provides additional information about the specifics of the Stormwater and Street Ordinance.

Lessee - A lessee occupying real property pursuant to a lease agreement entered into prior to February 4, 1987, which contains no contractual provisions requiring the landlord to execute Property Owner's covenants, whose site development plan is five (5) acres or less, and whose use of the real property will not create environmental hazards.

Main stream - A stream on which floods are controlled by the Tennessee Valley Authority reservoir system, i.e., the Tennessee and Holston Rivers.

Major storm - A 100-year design storm or a storm that has a probability of one (1) percent chance in any given year.

Natural Resources Conservation Service (NRCS) - An organization within the U.S. Department of Agriculture that has published standard drainage procedures in the form of Technical Release No. 55. Formerly known as the Soil Conservation Service (SCS).

Outfall - The terminus of a stormwater system where the contents are released.

Parking area - The off-street facility including parking spaces along with adequate provision for drivers and aisles for maneuvering and giving access, and for entrance and exit, designed to be usable for the parking of vehicles.

Partial plat - A survey plat prepared and certified by a Registered Land Surveyor for recording as an exhibit to a written legal document that describes and establishes property easements and access for stormwater facilities. Only that portion of the total property necessary to show new easements relative to the property boundaries and all other conflicting property rights or uses must be included.

Peak flow - The maximum instantaneous rate of flow of water at a particular point resulting from a storm event.

Peak flow attenuation - The reduction of the peak discharge of a storm.

Performance and Indemnity Agreement - A contract between the Property Owner, Lessee or Developer and the City that assures construction and compliance as per site development plans approved by the Department of Engineering and in the case of a Lessee, assures the Lessee's proper maintenance of stormwater facilities during the term of its lease, and the proper removal of water quality facilities by the Lessee at the end of the term of its lease.

Person - Any individual, firm, corporation, partnership, association, organization or entity, including governmental entities, or any combination thereof.

Redevelopment - The improvement of 50% of the assessed value of the lot, building, or lot use.

Restaurant - An establishment or facility where food is prepared and sold.

Retention - A practice designed to store stormwater runoff by collection as a permanent pool of water without release except by means of evaporation, infiltration, or attenuated release when runoff volume exceeds storage capacity of the permanent pool.

Riprap - A combination of large stone, cobbles and boulders used to line channels, stabilize stream banks, and reduce runoff velocities.

Runoff - The water resulting from precipitation that is not absorbed by the soil.

Sanitary sewer - A system of underground conduits that collect and deliver sanitary wastewater to a wastewater treatment plant.

Sanitary wastewater - Wastewater from toilets, sinks and other plumbing fixtures.

Sewage - Human wastes carried by water from residences, buildings, industrial establishments or other places, together with such industrial wastes, stormwater or other water as may be present; or any substance discharged from a sanitary sewer collection system.

Sinkhole - (1) A naturally occurring depression where drainage collects in the earth's surface that is a minimum of two (2) feet deep. These depressions are typically denoted as closed contours and are shown as hachured contours on the City of Knoxville's Geographic Information System, or

(2) A hole, fissure or other opening in the ground, often underlain with limestone, dolomite or other rock formation that provides for and is being designated as a natural conduit for the passage of stormwater.

For both 1 and 2 above, the extent of the area considered to be a sinkhole is, at a minimum, the limits determined by the 100-year water surface elevation, assuming plugged conditions (0 cfs outflow).

Site Development - To physically alter a site. Site development includes, but is not limited to, providing access to a site, clearing of vegetation, grading, earth moving, providing utilities and other services such as parking facilities, stormwater management and erosion control systems, potable water and wastewater systems, altering land forms, or construction or demolition of a structure on the land.

Stormwater - Runoff from rain, snow or other forms of precipitation, resulting in surface runoff and drainage.

Stormwater system - The system of roadside drainage, roadside curbs and gutters, curb inlets, swales, catch basins, manholes, gutters, ditches, pipes, lakes, ponds, sinkholes, channels, creeks, streams, storm drains, and similar conveyances and facilities, both natural and manmade, located within the city which are designated or used for collecting, storing, or conveying stormwater, or through which stormwater is collected, stored or conveyed, whether owned or operated by the city or other person.

Swale - A natural or manmade depression or wide shallow ditch used to route or filter runoff.

Upstream - Upgradient of the lowest point of each subwatershed of a development.

Utility, public or private - Any agency which under public franchise or ownership, or under certification of convenience and necessity, provides the public with electricity, natural gas, steam, communication, rail transportation, water, sewage collection, or other similar service.

Vegetation - Collection of plant life, including trees, shrubs, bushes, and grass.

Wastes, industrial/commercial - Liquid or other wastes resulting from any process of industry, manufacture, trade or business, or from the development of any natural resources.

Wastes, other - Decayed wood; sawdust; shavings; fallen bark; fallen leaves; lawn clippings; animal wastes; used or previously applied lime; garbage; trash; refuse, loose used paper, paper products, plastic containers, or metal containers; ashes, offal, discarded tar; discarded paint; discarded or uncontained solvents; used, discarded, or spilled petroleum products, antifreeze, motor vehicle fluids; used or discarded tires, gas tanks, or chemicals; or any other used, uncontained, or unpackaged, or disposed of materials which may discharge to or otherwise enter the stormwater system.

(Ord. No. O-139-04, § 1, 8-17-04; Ord. No. O-16-05, § 1, 1-18-05)

Section 22.5-5. Performance and Indemnity Agreement.

In order to ensure that any site development complies with the requirements of this chapter, the Engineering Director shall have the authority to require a Performance and Indemnity Agreement, together with a letter of credit, a cashier's check, or a surety bond from an approved financial institution or insurance carrier which guarantees satisfactory completion of the project and names the city as beneficiary, and in the case of a Lessee, assures the Lessee's proper maintenance of stormwater facilities during the term of its lease and the proper removal of water quality facilities by the Lessee at the end of the term of its lease. The security shall be provided by the property owner, Lessee or developer in a form and in an amount to be determined by the Department of Engineering based on submission of plans and actual construction or potential remediation expenses. In addition, a Lessee shall pay the city an amount determined by the

Engineering Director, that in no event shall be less than $5,000.00, to compensate the city for any perpetual maintenance that may be required after the expiration of the Lessee's lease.

(Ord. No. O-139-04, § 1, 8-17-04)

Section 22.5-6. Right of entry.

The Engineering Director or his designated representatives may enter upon any property which discharges or contributes, or is believed to discharge or contribute, to stormwater runoff or the stormwater system; stream; natural drainage way; or other stormwater system during all reasonable hours to monitor, remove foreign objects or blockages, and to inspect for compliance with the provisions of this chapter.

(Ord. No. O-139-04, § 1, 8-17-04)

Section 22.5-7. Notice of Violation.

Whenever the Engineering Director or his representative determines that a violation of any provision of this chapter has occurred, or that work does not have a required plan or permit, or that work does not comply with an approved plan or permit, the representative may issue a Notice of Violation to the property owner, utility, facility operator, Lessee, tenant, contractor, permittee, the equipment operator and/or any other person or entity doing work on the site.

The Notice of Violation shall:

(a) Be in writing;

(b) Include a description of the property sufficient for identification of where violation has occurred;

(c) List the violation;

(d) State the action required;

(e) Provide a deadline for compliance or to stop work.

(Ord. No. O-139-04, § 1, 8-17-04)

Section 22.5-8. Penalties.

(a) Any person violating the provisions of this chapter shall be guilty of a misdemeanor and punished as provided in the general provisions of the City Code. Each day that a continuing violation of this chapter is maintained or permitted to remain shall constitute a separate offense.

(b) Any person violating the provisions of this chapter may be assessed a civil penalty by the city of not less than fifty dollars ($50.00) or more than five thousand dollars ($5,000.00) per day for each day of violation. Each day of violation shall constitute a separate violation. The city may also recover all damages proximately caused to the city by such violations.

(c) In assessing a civil penalty, the city may consider:

(1) The harm done to the public health or the environment;

(2) Whether the civil penalty imposed will be a substantial economic deterrent to the illegal activity;

(3) The economic benefit gained by the violator;

(4) The amount of effort put forth by the violator to remedy this violation;

(5) Any unusual or extraordinary enforcement costs incurred by the city;

(6) The amount of penalty established by ordinance or resolution for specific categories of violations; and

(7) Any equities of the situation that outweigh the benefit of imposing any penalty or damage assessment.

(d) In addition to the civil penalty in subsection (b) above, the city may recover all damages proximately caused by the violator to the city, which may include any reasonable expenses and attorney's fees incurred in investigating, enforcing and/or correcting violations of this chapter.

(e) The city may bring legal action to enjoin the continuing violation of this chapter, and the existence of any other remedy, at law or in equity, shall be no defense to any such actions.

(f) The remedies set forth in this section shall be cumulative, not exclusive, and it shall not be a defense to any action, civil or criminal, that one (1) or more of the remedies set forth herein has been sought or granted.

(Ord. No. O-139-04, § 1, 8-17-04)

Section 22.5-9. Board of Environmental Appeals.

(a) There is created a Board of Environmental Appeals (BEA) to hear appeals filed by any person incurring a civil penalty or damage assessment imposed pursuant to the Stormwater and Street Ordinance.

(b) The BEA may issue subpoenas requiring attendance of witnesses and production of such evidence as requested, administer oaths, and take testimony as the BEA deems necessary to fulfill its purpose.

(c) The BEA shall be composed of five members appointed by the Mayor and confirmed by Council.

(1) The Mayor shall select appointees so that the BEA will consist of individuals with an expertise as follows:

(A) One licensed Professional Engineer with three (3) years of engineering experience as a Professional Engineer;

(B) One architect, engineer, landscape architect or surveyor with three (3) years of experience;

(C) One representative of the development or industrial community;

(D) One neighborhood representative;

(E) One member at large.

(2) In addition to the above qualifications (A) through (E), one of the five members must have at least three (3) years civil engineering experience and a second member must have at least three (3) years civil or environmental engineering experience.

(3) BEA members shall serve for a term of five (5) years. A BEA member shall continue to serve, however, until a successor has been appointed, or until the BEA member has been reappointed, as the case may be. The terms of the original BEA members shall be staggered so that the term of one member shall expire each year.

(4) An appointment to succeed a BEA member who is unable to serve said member's full term shall be for the remainder of said member's term.

(5) BEA members may be reappointed, but they do not succeed themselves automatically.

(6) BEA members shall serve without compensation.

(d) The BEA shall annually select one of its members to serve as chair and another member to serve as vice-chair of the BEA by a majority vote of all members.

(e) The BEA shall keep complete and accurate records of the proceedings of all their meetings. The Department of Engineering shall designate a person to serve as secretary to the BEA.

(f) No BEA member shall participate in the appeal of any matter in which the member has a direct personal or financial interest.

(g) Three members of the BEA shall constitute a quorum, and the concurrence of a majority of the BEA present and voting in any matter shall be required for a determination of any matter within its jurisdiction.

(Ord. No. O-139-04, § 1, 8-17-04)

Section 22.5-10. Appeals.

Any person aggrieved by the imposition of a civil penalty or damage assessment as provided by this chapter may appeal said penalty or damage assessment to the Board of Environmental Appeals (BEA).

(a) The appeal shall be in writing and filed with the Law Department within thirty (30) days after the damage assessment or civil penalty is served in any manner authorized by law.

(b) Upon receipt of an appeal, the BEA shall hold a public hearing within sixty (60) days, or a later date mutually agreed upon by the parties. Ten (10) days prior notice of the time, date, and location of said hearing shall be published in a daily paper of general circulation. Ten (10) days notice shall be provided to the aggrieved party at the address provided at the time of appeal.

(c) Any alleged violator may appeal a decision of the BEA pursuant to the provisions of title 27, chapter 8 of Tennessee Code Annotated.

(d) If a petition for review of such damage assessment or civil penalty is not filed within thirty (30) days after the damage assessment or civil penalty is served in any manner authorized by law, the violator shall be deemed to have consented to the damage assessment or civil penalty, and it shall become final.

(Ord. No. O-139-04, § 1, 8-17-04)

Section 22.5-11. Severability.

Each separate provision of this chapter is deemed independent of all other provisions herein so that if any provision or provisions of this chapter shall be declared invalid, all other provisions thereof shall remain enforceable.

(Ord. No. O-139-04, § 1, 8-17-04)

Sections 22.5-12--22.5-17. Reserved.

ARTICLE II. SITE DEVELOPMENT CRITERIA

Section 22.5-18. Purpose.

This article is adopted to improve public safety, to control the rate of flow of stormwater, to minimize increases in the peak flow rates of stormwater runoff caused by site development within the city, to control new site development, to minimize any detrimental effect on water quality by the completed facility, and to avoid such effects during construction.

(Ord. No. O-139-04, § 1, 8-17-04)

Section 22.5-19. Approval of plan required prior to issuance of a building permit.

No building permit shall be issued until the required site development plan and stormwater facilities are approved by the Department of Engineering, and the portion of the property required for stormwater facilities is recorded as a permanent drainage, water quality and/or access easement, except that a Lessee shall be required to record a drainage, water quality and/or access easement running only through the term of its lease.

(Ord. No. O-139-04, § 1, 8-17-04)

Section 22.5-20. Partial Plat Process.

(a) In limited situations, the Partial Plat Process may be used to establish easements for stormwater facilities, such as detention and retention basins, water quality devices, access from a public road, storm drain pipes, and open drainage ditches, as an alternative to dedicating easements by recording a subdivision plat.

(b) The Partial Plat Process allows (1) a property owner to create permanent easements, and (2) a Lessee to create easements running through the term of its lease, by recording a written legal document in which the easements are shown and defined on attached survey plat and written property description exhibits. All exhibits shall be prepared on letter or legal-sized paper, certified by a Registered Land Surveyor, and recorded with the Knox County Register of Deeds. At the discretion of the Law Director, the written document may be a form document provided by the Department of Law or may be a document prepared by the property owner's or Lessee's attorney and approved by the Department of Law. Survey plat and property description exhibits shall be approved by the Department of Engineering.

(c) The Partial Plat Process is not an option in the following situations:

  (1) When any portion of a pre-existing easement would be relocated or abandoned.

  (2) If the Law Director or Engineering Director decides, in unforeseen or unusual circumstances, that this process shall not be an option.

(d) The Partial Plat Process is an option for those sites with the following:

  (1) An existing survey plat of the entire property recorded with the Knox County Register of Deeds.

  (2) A site development plan approved by the Department of Engineering and showing the proposed easements.

  (3) A legal document, "Covenants by Property Owner for the Permanent Maintenance of Stormwater Facilities" in the case of a property owner, or "Covenants by Lessee for the Maintenance of Stormwater Facilities on Leased

Property" in the case of a Lessee, approved by the Department of Engineering and recorded with the Knox County Register of Deeds.

(4) A Special Pollution Abatement Permit (SPAP) approved by the Department of Engineering, if one was required.

(Ord. No. O-139-04, § 1, 8-17-04; Ord. No. O-16-05, § 1, 1-18-05)

Section 22.5-21. General design criteria.

(a) The Engineering Director or his representative has the authority to adopt site development design criteria.

(b) The standard method of drainage computation shall be as set forth in Article II, Hydrologic and hydraulic computations.

(c) The stormwater system, excluding stormwater detention ponds, water quality control facilities and sinkholes, shall be designed to accommodate a 10-year return frequency 24-hour duration storm, except for those facilities which would flood public roads classified as locals, collectors or arterials. A 25-year storm runoff prevention plan shall be used to prevent flooding of local roads and collectors, and a 50-year storm runoff prevention plan shall be used to prevent flooding of arterial streets. A 100-year design storm shall be used to prevent flooding of all new structures and have no additional adverse impact on existing structures. For site development on blue-line streams included in the Flood Insurance Study, the Flood Damage Protection Ordinance O-347-90 (Chapter 12 of the City Code) shall govern. All stormwater systems shall be designed to have no additional adverse impact on upstream and adjacent property in the 50-year storm, unless an adequate permanent drainage easement is obtained.

(d) For drainage generated by areas greater than 200 acres, the flow for a 100-year storm shall be computed. Such flow may exceed the capacity of facilities designed to comply with the requirements of lesser floods as noted in paragraph (c) above, and shall be contained in the public right-of-way or a permanent drainage easement on the property being improved or developed. Pipes and culverts designed for a 100-year storm shall be constructed of reinforced concrete if such pipes or culverts lie in public lands or easements.

(e) Material for pipes used for conveyance of stormwater within the City of Knoxville shall be in accordance with the following:

(1) Cross drains and any other pipe under the pavement surfaces shall be reinforced concrete pipe (RCP). Storm drains within the roadway prism, but not under the pavement, shall also be RCP.

(2) Any pipe, culvert, or drainage system dedicated to the City of Knoxville, whether inside or outside the right-of-way, shall be constructed of RCP.

(3) RCP is required if the failure of the pipe would cause flooding or potential property damage on adjacent properties. RCP is required for all storm pipes and culverts that carry through water from adjacent properties ("off-site water").

(4) RCP is required for all detention basin outlet structures.

(5) Material for driveway pipes may be RCP, corrugated metal pipe (CMP), or double-wall high-density-polyethylene pipe (HDPE) as desired by the responsible agency, corporation or individual. RCP is required underneath any

driveways or entrances that are heavily traveled or which would have the potential to flood areas within the public right-of-way or any structure.

(6) Double-walled HDPE pipe and CMP may be used to convey stormwater generated on the particular property ("on-site drainage"), such as parking lots, buildings, etc. Both pipe materials (HDPE and CMP) may be used to convey water under driveways in locations, where a pipe is outside of the roadway prism, has adequate cover, and would not cause flooding of adjacent properties or rights-of-way in the event of pipe failure. Installation of all pipe must be done with adequate pipe bedding, backfill material, and coupling bands as recommended by the pipe manufacturer.

(a) To comply with Federal mandates, protect stream water quality, and to reduce flood insurance rates for the City of Knoxville residents, development or significant redevelopment of land adjacent to or containing a blue-line stream shall include the following permanent protection measures.

(1) Construction fill that alters the conveyance and/or storage capacity of the regulated floodplain is prohibited in the flood fringe in an area bounded by the floodway line and a line defined as one-half the linear distance between the floodway line and the 100-year floodplain line. This requirement may be waived if a development occurs on a lake/river where regulated by Tennessee Valley Authority and a TVA flowage easement exists, or if a drainage study prepared by a registered Professional Engineer licensed to practice in the state of Tennessee shows a rise of less than 0.1 feet on existing properties within 0.5 miles (upstream or downstream) of the proposed development using a method widely accepted among engineering professionals.

(2) All blue-line stream banks shall be left in a stabilized condition upon completion of the project. No actively eroding bare or unstable vertical stream banks shall remain unless TDEC has determined there is no better alternative. Placement of riprap and other hard armor is only allowed when bioengineering alternatives are not technologically feasible.

(3) A naturally vegetated and pervious streamside buffer zone shall be created, maintained, and protected from clearing, grading, filling, paving, building, or other destruction of the naturally vegetated state. Acceptable uses of this buffer zone may include but are not limited to: yards, picnic areas, walking trails, greenways, landscaped areas, wildlife habitat, primitive areas, roadway and sidewalk stream crossings as close to perpendicular to the stream centerline as practicable (bridge abutments, driveway/road culverts, etc.), or other similar uses approved by the Engineering Director. Specifically prohibited uses include but are not limited to: parking lots, dumpster storage, grease-bin storage, vehicle storage/maintenance, concentrated animal lots or kennels, or other uses known to contribute pollutants to waterways. The buffer zone will extend the length of the blue-line stream. The width of the buffer zone will be determined by the following criteria:

(A) Blue-line streams where a floodway profile has been computed, as part of the Flood Insurance Study, shall require a natural buffer measured fifty (50) feet from the center of the low flow channel or the width of the floodway, whichever is greater.

(B) Blue-line streams where a floodway profile has not been computed, as part of the Flood Insurance Study but are named on the USGS 7.5 minute quadrangle map, shall require a natural buffer zone measured thirty-five (35) feet from the center of the low flow channel.

(C) Blue-line streams and tributaries where a floodway profile has not been computed, as part of the Flood Insurance Study and are not named on the USGS 7.5 minute quadrangle map, shall require a natural buffer zone measured fifteen (15) feet from the center of the low flow channel.

(D) Blue-line streams that have been determined not to be Waters-of-the-State by the criteria adopted by the Tennessee Department of Environment and Conservation are excluded from this provision.

(E) The Engineering Director may approve mitigation for buffer zones to achieve a higher standard of water quality.

(F) Blue-line streams that are in culverts at the date of adoption of this ordinance do not require a buffer zone.

(a) When existing or documented flooding problems are present, the Engineering Director has authority to condition the approval of a permit upon the compliance with additional requirements, including but not limited to detention, conveyance facilities, or other stormwater management solutions required to reduce the adverse impact of the proposed development on other properties or on the subject development.

(Ord. No. O-139-04, § 1, 8-17-04; Ord. No. O-16-05, § 1, 1-18-05)

Section 22.5-22. Site development design manuals.

The Department of Engineering is authorized to adopt additional policies, criteria, specifications, and standards, for the proper implementation of the requirements of this chapter in a Land Development Manual (LDM) and a Best Management Practices (BMP) Manual. The policy, criteria, and requirements of the Land Development Manual dated February 2002, and the Best Management Practices Manual dated March 2001, as amended by the City of Knoxville's Department of Engineering, shall be enforceable consistent with other provisions of this chapter.

(Ord. No. O-139-04, § 1, 8-17-04)

Section 22.5-23. Stormwater detention.

(a) The requirement for stormwater detention ponds shall apply to the following:

(1) All road construction exceeding one-half (1/2) acre of impervious area;

(2) All commercial, industrial, educational, institutional and recreational developments of one (1) acre or more of disturbed area;

(3) Large single-family or duplex residential developments of five (5) acres or more of disturbed area or five (5) lots or more;

(4) Any site development which contains one-half (1/2) acre or more of additional impervious area.

(5) Any redevelopment that meets any of the four criteria above.

(a) For areas of redevelopment, if the downstream system (to the second existing road crossing or blue-line stream) is examined and found to be adequate to carry the 2 and 10-year 24-hour storms, the requirement for detention for areas of redevelopment may be waived. However, if the examination finds inadequate conveyance for the 2 and 10-year 24-hour storms, the Engineering Director has authority to condition the approval of a permit upon compliance with additional requirements, including but not limited to detention, conveyance facilities, or other stormwater management solutions required to reduce the adverse impact of the proposed development on other properties or on the subject development. The engineer is charged with determining the predeveloped (before any site development had occurred) conditions, including the curve number. If the engineer cannot determine the predeveloped conditions, then a maximum predeveloped curve number of seventy (70) may be used to compute the predeveloped flow and satisfy the requirement. In areas of redevelopment, detention or retention is required for the entire developed site, not just the portion of the site being redeveloped. This does not exempt the developer from providing the first flush and/or water quality requirements.

(b) If in the developer's judgment, stormwater detention is either unwarranted or impractical, hydrologic and hydraulic computations to support such a conclusion and demonstrate that stormwater runoff shall not be increased in peak rate for storm events identified in the design standards for detention ponds in this chapter shall be furnished to the Department of Engineering for review. This does not exempt the developer from providing the first flush and/or water quality requirements.

(c) Where the development's stormwater discharges directly into a main stream, detention for peak flow attenuations is not required unless deemed necessary by the Department of Engineering. This does not exempt the developer from providing the first flush and/or water quality requirements.

(d) When existing or documented flooding problems are present, the Engineering Director has authority to condition the approval of a permit upon the compliance with additional requirements, including but not limited to detention, conveyance facilities, or other stormwater management solutions required to reduce the adverse impact of the proposed development on other properties or on the subject development.

(e) Detention basins located in subdivisions must be located on two or more buildable lots or in a common area with a legally established property owners' organization with responsibility for maintenance and repair of the detention basin.

(Ord. No. O-139-04, § 1, 8-17-04)

Section 22.5-24. Erosion and sediment control.

To comply with state, federal, and local regulations, erosion and sediment control shall be regulated by this article because of the following water quality impacts:

(a) Stormwater runoff can carry pollutants into receiving water bodies, thereby degrading water quality;

(b) The increase in nutrients in stormwater runoff such as phosphorus and nitrogen accelerates eutrophication of receiving waters;

(c) Construction requiring land clearing and the alteration of natural topography tend to increase erosion;

(d) Siltation of water bodies resulting from increased erosion decreases their capacity to hold and transport water, interferes with navigation, and harms flora and fauna;

(e) Substantial economic losses can result from these adverse impacts on community waters.

(Ord. No. O-139-04, § 1, 8-17-04)

Section 22.5-25. Objectives of erosion and sediment control.

In order to protect, maintain and enhance the immediate and long-term health, safety and general welfare of the citizens of the city, this article has the following objectives:

(a) Control erosion and sedimentation to limit deposition in streams and other water bodies;

(b) Facilitate the removal of pollutants in stormwater runoff to perpetuate the natural biological functions of streams.

(Ord. No. O-139-04, § 1, 8-17-04)

Section 22.5-26. Site development permit required before site development.

No person shall:

(a) Grade, dump, alter natural or existing topography, move or place fill material, excavate, remove any vegetation not exempted by the tree protection ordinance, or begin any site development activities without first obtaining a site development permit from the Department of Engineering.

(b) Alter any natural or manmade drainage system so as to divert, constrict, increase or change in any manner the natural or existing flow of any stream, or natural or existing drainage of any area without obtaining a site development permit from the Department of Engineering.

(c) Commence site development and/or construction of any building or structure without obtaining a site development permit from the Department of Engineering.

(d) Clear any site by means that causes disturbance of soil without first obtaining a site development permit from the Department of Engineering.

(Ord. No. O-139-04, § 1, 8-17-04)

Section 22.5-27. Site development permit requirements.

(a) A site development plan shall be required for any site development except when:

(1) The developed area is used for gardening or agricultural purposes;

(2) The proposed work does not, in the opinion of the Department of Engineering, affect the drainage on the site or the quality of stormwater runoff from the site.

(a) Before any residential lot(s) in a platted subdivision may be transferred, the engineer of record must sign and seal a letter stating that all supporting stormwater and street infrastructure and grading has been completed for the subject lot(s), or the development certification may be submitted to and approved by the Department of Engineering. Failure to comply with this requirement may result in the revocation of the surety bond, cashier's check, or letter of credit and implementation of all available legal remedies. A site development plan shall contain the following:

(1) The name, address, and telephone number of all persons having a legal interest in the property;

(2) The tax map number, group, and parcel number of the property or properties affected;

(3) Information that complies with the requirements of the Tree Protection Ordinance and the City Arborist.

(a) Additional information is required for site development plans based on the type of development.

(1) Small Single Family Residential Development - requires a topographic map showing the proposed area of land disturbance, the layout of the structure(s), identification of all areas of depression, blue-line streams, easements, and stormwater system, and other information as required by the Engineering Director.

(2) Large Residential and Commercial Development - requires plans showing existing and proposed 2-foot contours as they relate to the roadway, parking lot, drainage facilities, cut and fill slopes, all stormwater pipe size, material and location, identification of all areas of depression, blue-line streams, easements, erosion and sediment control measures, detention pond data including size, location, slope of bottom, outlet, invert, top elevations, spillway size and elevation, and the detention easement and an adequately sized traversable access easement. Also, catch basin location, elevation, slope, swales, ditches, and their stabilization treatment. Building pad contours and building pad elevations are also required when existing elevations are altered by more than 4 feet. When this site development plan includes a street to be dedicated to the city, a complete set of roadway plans must be submitted including profiles, grades, and cross sections showing cross slope, limits of construction, clear zone, utility strip, greenway/pedestrian space, signage plan, and a street-lighting fixture type and any aboveground fixed objects on the right-of-way. All Large Residential and Commercial Development plans that are submitted to the Department of Engineering must meet the following minimum standards:

(A) Stamp and signature from appropriate design professional;

(B) Legible (for microfilming and reproducing);

(C) Constructible plans;

(D) All required hydraulic and hydrologic calculations with reasonable assumptions (including downstream calculations with descriptive numbers, time of concentration, pre- and post-development delineated watersheds, and the City of Knoxville's detention pond design sheet completed);

(E) Pre- and post-developed contours;

(F) Erosion and sediment control plan;

(G) Required retaining wall calculations;

(H) Owner's, and if applicable Lessee's, name, address, and phone number;

(I) Vicinity map;

(J) City block number;

(K) CLT number (including map, insert, group and parcel);

(L) Certified address from the Metropolitan Planning Commission.

Plans that do not meet these minimum standards will be rejected, and will not be reviewed further until submission standards are met.

(1) Utilities Development -

(A) Except as provided below in subsection (B), requires plans showing the following: the names and addresses of all property owners; the name, address and contact person of the utility; the name, address and contact person of the engineering firm; a vicinity map; a graphical scale; the stamp and signature of a registered Professional Engineer licensed to practice in the State of Tennessee; total project length in feet; all property lines; existing easements; existing and proposed contours; all water features; all topographic features such as sinkholes; appropriate delineations such as no fill, buffer, floodway and F-1 zone; appropriate construction details and an effective erosion and sediment control plan with details adequate for installation and inspection that complies with the TDEC "Erosion and Sediment Control Handbook", Second Edition dated March 2002, and all subsequent updates thereto, or the City of Knoxville's Best Management Practices (BMP) Manual, current as of the date of the submission of the plans.

(B) The site development permit requirements for any utility entity currently subject to a court order or decree shall be determined by the Department of Engineering.

(a) Plans shall be prepared and stamped by an engineer, landscape architect, or architect competent in civil and site design and licensed to practice in the state of Tennessee with the following conditions:

(1) Portions of the Site Development Plan that require hydraulic or hydrology calculations and design must be prepared and stamped by a Professional Engineer competent in civil and site design and licensed to practice in the state of Tennessee.

(2) All roads and Joint Permanent Easements that are required to be designed and built to Public Road Standards shall be designed and stamped by a Professional Engineer competent in civil and site design and licensed to practice in the state of Tennessee.

(a) Prior to the release of a bond, a Development Certification must be completed showing that all roadway lines, grades, cross slopes, locations, contours, elevations, drainage structures or facilities, and detention basin volumes, size, slopes, locations, elevations, and hydraulic structures have been field verified, represent the as-built field conditions, and comply with the approved plans. This certification must be stamped by the appropriate design professional required to stamp the original Site Development Permit as stated in Section 22.5-28(d) as well as a Registered Land Surveyor licensed to practice in the State of Tennessee.

(b) When the Department of Engineering has determined the site development plan is approvable, it will send a letter authorizing the installation of the erosion and sediment control measures. When the erosion and sediment control plan has been implemented on site, the appropriate design professional required to stamp the erosion and sediment control portion of the site development permit will provide a letter to the Department of Engineering stating that he has inspected the site and the erosion control has been implemented as shown on the approved erosion and sediment control plan. This letter

must be signed and sealed by the appropriate design professional. Once this letter is received by the Department of Engineering, the site development permit can be issued.

(c) The City Arborist and the Zoning Inspector must approve all plans prior to the issuance of a site development permit. The Metropolitan Planning Commission must approve all plans in a planned zone and overlays prior to the issuance of a site development permit.

(h) A Registered Land Surveyor licensed to practice in the state of Tennessee shall prepare and submit a plat for all plans that propose stormwater facilities. The plat shall locate, establish, and define an easement around each facility and traversable access to it. The plat must be approved and recorded with the Knox County Register of Deeds before a building permit can be issued.

(i) When existing or documented flooding problems are present, the Engineering Director has authority to condition the approval of a permit upon the compliance with additional requirements, including but not limited to detention, conveyance facilities, or other stormwater management solutions required to reduce the adverse impact of the proposed development on other properties or on the subject development.

(j) An erosion and sediment control plan must be provided as follows:

(1) Small Single Family Residential Development requires no erosion and sediment control plan except if the residential development, exclusive of agricultural, gardening, farming, and similar areas of activity, results in disturbance of more than 10,000 square feet or except as deemed necessary by the Engineering Director. When a plan is deemed necessary, the erosion and sediment control must comply with the TDEC Erosion and Sediment Control Handbook Second Edition, dated March 2002 and all subsequent updates, or the City of Knoxville's Best Management Practices (BMP) Manual, current as of the date of the submission of the plans, whichever is more restrictive.

(2) Large Residential and Commercial Development requires an erosion and sediment control plan that is stamped by a competent registered Professional Engineer, architect, or landscape architect licensed to practice in the State of Tennessee and complies with the TDEC Erosion and Sediment Control Handbook, Second Edition, dated March 2002 and all subsequent updates, or the City of Knoxville's Best Management Practices (BMP) Manual, current as of the date of the submission of the plans, whichever is more restrictive.

(3) Portions of the erosion and sediment control plan that require hydrology or hydraulic calculations and design shall be prepared and stamped by a competent licensed Professional Engineer registered in the State of Tennessee.

(k) A surety bond, cashier's check, or letter of credit must be provided as follows:

(1) A Performance and Indemnity Agreement is required prior to the issuance of a site development permit for rough grading or site development when there is a potential for runoff to adversely impact city rights-of-way and other property, when sites drain into sinkholes, or when the site is used for a borrow pit. The Performance and Indemnity Agreement shall be guaranteed in the form of a cashier's check, a letter of credit, or a surety bond.

(2) A Performance and Indemnity Agreement is required for Large Residential Development when there is a potential for runoff to adversely impact city rights-of-way and other property, when sites drain into sinkholes, when the site is used for a borrow pit, a detention pond is required, or there is construction of a joint

permanent easement or public road. The Performance and Indemnity Agreement shall be guaranteed in the form of a cashier's check, a letter of credit, or a surety bond. The actual amount is based on a remediation and completion estimate as determined by the Department of Engineering, with a minimum amount of $50,000.

(3) A Performance and Indemnity Agreement is required for Commercial Development when there is a potential for runoff to adversely impact city rights-of-way and other property, when sites drain into sinkholes, when the site is used for a borrow pit, a detention pond is required, or there is construction of a joint permanent easement or public road. The amount is based on the project cost estimate that includes roadway facilities, drainage facilities, and erosion and sediment control remediation. The Performance and Indemnity Agreement shall be guaranteed in the form of a cashier's check, a letter of credit, or a surety bond. The actual amount is based on a remediation and completion estimate as determined by the Department of Engineering, with a minimum amount of $10,000.

(4) A surety bond, cashier's check, or letter of credit is not required for Small Single Family Residential Development except when deemed necessary by the Engineering Director based on site conditions and the adverse impact on downstream conditions or other properties.

(5) The Engineering Director may refuse brokers or financial institutions the right to provide a surety bond, letter of credit, etc. based on past performance, ratings of the financial institution, or other appropriate sources of reference information.

(Ord. No. O-139-04, § 1, 8-17-04; Ord. No. O-16-05, § 1, 1-18-05; Ord. No. O-45-05, § 1, 2-15-05)

Section 22.5-28. Temporary emergency exemption.

In extreme circumstances when a delay in construction may cause significant property damage or loss of life, the Engineering Director may grant a temporary exemption from a Site Development Permit. Specific instances may include a sinkhole opening up which threatens homes or personal safety, a failure of a storm system where the flooding could cause property damage or loss of life, etc. This exemption is limited to work specific to resolving the dangerous situation(s). Any approval for work granted under this emergency exemption must be issued in writing and approved by the Engineering Director. After the emergency has been resolved, a Site Development Permit must be obtained for the emergency work and any additional proposed work. This should be accomplished through the standard review process. This temporary emergency exemption does not provide immunity from any of the design criteria of this ordinance.

(Ord. No. O-139-04, § 1, 8-17-04)

Section 22.5-29. Fees.

(a) The following fees shall be charged for reviewing site development plans and will be required upon the submittal of the plans.

(1) Site Development Plans for an Administrative Plat:

(A)	Small Single Family Residential	$0.00
(B)	Less Than one (1) acre:	$150.00
(C)	One (1) acre to five (5) acres:	$150.00 + $20/acre (acres 1-5)
(D)	More than five acres:	$250.00 + $10/ acre (acres 6+)

(E) Condominium/Apartment Developments: $150.00 + $5/ unit

(2) Subdivisions:

(A) One (1) to fifty (50) lots: $150.00 + $12/ lot (lots 1-50)

(B) Fifty-One (51) lots or more: $750.00 + $8/ lot (lots 51+)

(b) The following fees shall be charged for site development permits and will be required before the issuance of the permit.

(1) Site Development Plans for an Administrative Plat without a bond:

(A) Small Single Family Residential $10.00

(B) All other projects: $50.00

(2) Site Development Plans for an Administrative Plat with a bond:

(A) Projects of less than (1) acre: $350.00

(B) Projects of one (1) acre or more: $350.00 + $15/ acre

(C) Condominium/Apartment Developments: $350.00 + $5/ unit

(3) Subdivisions:

(A) One (1) to four (4) lots: $150.00 + $10/ lot (lots 1-4)

(B) Five (5) to fifty (50) lots: $350.00 + $20/ lot (lots 1-50)

(C) Fifty-One (51) lots or more: $1350.00 + $5/ lot (lots 51+)

(4) Utilities (except for utility entities currently subject to a court order or decree, the fees for which shall be determined by the Department of Engineering):

(A) Maintenance: $15.00 per 20 square yards plus $0.50 per each additional square yard.

(B) Construction: $1.00 per linear foot of conduit (pipe, cable, wire, fiber optics, etc.) with a $200.00 minimum.

(c) The fee for a site development permit issued after site development has begun without a permit shall be ten times the standard fee.

(d) A Site Development Permit is valid for one year. A permit may be renewed before it expires at no additional cost. Once a permit expires, the appropriate permitting fee shall be charged for the renewal.

(e) If an individual permit for grading, erosion control, or drainage is requested, the appropriate permitting and review fee will be charged for each permit.

(f) The cost of each special pollution abatement permit shall be one hundred dollars ($100.00), which will cover the entire period of the permit.

(g) The following fees shall be charged for reviewing final plats and will be required before approval of plat:

(1) Administrative Plat $80.00

(2) Exempt Subdivision and Corrected Plats $70.00

(3) All Other Plats:

(A) One (1) to fifty (50) lots $100 + $10/ lot

(B) Fifty-One (51) or more lots $600 + $6/ lot (lots 51+)

(4) Partial Plat $150.00

(Ord. No. O-139-04, § 1, 8-17-04; Ord. No. O-16-05, § 1, 1-18-05)

Section 22.5-30. Violation of a site development permit.

No person shall perform site development work that does not conform to an approved site development plan. (Ord. No. O-139-04, § 1, 8-17-04)

Section 22.5-31. Design standards for detention and/or retention ponds.

(a) The calculated peak flow rate of stormwater runoff resulting from a 1-year, 2-year, 5-year, 10-year, 25-year and 100-year return frequency 24-hour duration storm shall be no greater after site development of the site than that which would result from a 1-year, 2-year, 5-year, 10-year, 25-year and 100-year return frequency 24-hour duration storm on the same site prior to site development.

(b) Adequate attention must be given to safety and sanitation in the design of any detention facility. This includes, but is not limited to, a minimum of 2% slope in the bottom of all detention ponds, a minimum of 3:1 (H:V) side slopes or with traversable access to the pond's vegetated bottom and side slopes for maintenance, proposed contours should reflect 15% additional area for each two (2) foot contour of the detention or retention pond based on the appropriately sized pond for the 1, 2, 5, 10, 25 and 100-year storms, a minimum of 4,500 cubic feet of storage volume, and a minimum of one (1) foot of freeboard from the highest water surface elevation for the largest required design storm to the top of the berm before the 15% additional volume is added. An exception can be made to the minimum slope requirement in the bottom of the pond if the first flush requirement is not managed in the quantity detention pond and the pond invert is finished in concrete.

(c) The plans shall include sufficient design information to show that the facility will operate as required. This shall include the existing (or before site development) peak flow discharges, the after site development peak flow discharges, and/or volumes of stormwater runoff based on the proposed site development, as well as all necessary computations used to determine the reduced peak flow rates for the design storms. The capacity of the facility shall be sufficient to control the volume of stormwater runoff resulting from 1-year, 2-year, 5-year, 10-year, 25-year and 100-year frequency 24-hour duration storms within the peak rate of flow requirements stated in the subsection.

(d) Discharge from the stormwater detention pond shall be routed to a ditch, channel, or stormwater facility of adequate capacity. Calculations showing the capacity of the receiving stormwater facility and its capability to convey a 10-year frequency storm shall be provided. If the receiving stormwater facility is incapable of conveying a 10-year frequency storm, calculations showing the capacity of the receiving stormwater facility and its capability to convey a 2-year frequency storm shall also be provided. The above calculations will be routed to the closer of the second existing street crossing or blue-line stream. The Engineering Director has authority to condition the approval of a permit upon the compliance with additional requirements, including but not limited to correctly sizing and installing offsite conveyance facilities or other stormwater management solutions required to reduce the adverse impact of the proposed development on other properties or the development.

(Ord. No. O-139-04, § 1, 8-17-04; Ord. No. O-16-05, § 1, 1-18-05)

Section 22.5-32. Requirements for developments draining to a sinkhole.

(a) Site development on property that includes a sinkhole will require copies of the appropriate permits from the Tennessee Department of Environment and Conservation (TDEC) prior to site development approval. After review of the State permit, the Engineering Director may require additional information related to structural integrity

and flood protection. If the proposed development does not require TDEC approval, a letter from TDEC shall be submitted prior to the issuing of a Site Development Permit, stating that a TDEC permit is not required.

(b) For site development or redevelopment projects requiring attenuation or retention of the 1-year, 2-year, 5-year, 10-year, 25-year and 100-year frequency 24-hour duration storms with sinkholes entirely on site, calculations shall be provided showing that 100-year 24-hour design storm will not flood any structures assuming plugged conditions (0 cfs outflow) for the sinkhole. These calculations must include the entire contributing watershed for the sinkhole. An easement is required around the sinkhole to include an area that is a minimum of five (5) feet horizontally outside the highest closed contour.

(c) For site development or redevelopment projects requiring attenuation or retention of the 1-year, 2-year, 5-year, 10-year, 25-year and 100-year frequency 24-hour duration storms with sinkholes partially on site, calculations must be provided showing that there will not be a rise in water surface elevations between the 100-year predeveloped and the 100-year postdeveloped 24-hour design storm assuming plugged conditions (0 cfs outflow) for the sinkhole. An easement is required at a minimum of five (5) feet horizontally outside the highest closed contour on the section of the sinkhole located on the developed property. A rise in the 100-year water surface elevation is allowable when no structures will be flooded and all parties with ownership of the sinkhole agree in writing to allow the rise. In this case, an easement is required around the sinkhole to include an area that is a minimum of five (5) feet horizontally outside the highest closed contour.

(d) Stormwater retention is required for site developments that meet the requirements for stormwater attenuation and are located in one of the following critical watersheds:

(1) Ten Mile Creek
(2) Sinking Creek
(3) Emily Ave. and Timothy Ave. area
(4) Harrell Hills watershed (near Cranberry Dr, Clairmont Dr, and Gaines Rd)
(5) Prosser Road #1 (immediately between north of the railroad crossing and Cherry Street)
(6) Prosser Road #2 (approximately halfway between Knoxville Zoo Dr and Magnolia Ave)
(7) Pamela Lane
(8) All areas draining to a sinkhole
(9) Any area of known flooding where deemed necessary by the Engineering Director.

The retention pond shall be designed so that the overflow in the 1-year, 2-year, 5-year, 10-year, 25-year and 100-year design storms must meet the predeveloped discharges in addition to retaining the difference in the predeveloped and postdeveloped 100-year design storm. In basins or sub-basins where there is a documented historical draw down time for the sinkhole or region being drained to, it may be acceptable for a detention pond to be used instead of retention. For detention to be approvable, the draw down time of the detention pond must be a minimum of one and a half times the draw down time for the region.

(e) When existing or documented flooding problems are present, the Engineering Director has authority to condition the approval of a permit upon the compliance with additional requirements, including but not limited to detention, conveyance facilities, or other stormwater management solutions required to reduce the adverse impact of the proposed development on other properties or on the subject development.

(Ord. No. O-139-04, § 1, 8-17-04)

Section 22.5-33. Hydrologic and hydraulic computations.

(a) All hydrologic and hydraulic computations utilized in the design of stormwater detention facilities must be prepared by a registered engineer proficient in the field of hydrology and hydraulics and licensed to practice engineering in the State of Tennessee.

(b) The required hydrologic and hydraulic computations shall be in accordance with NRCS (formerly known as the SCS) unit hydrograph procedures using AMC II curve numbers and Type II rainfall distribution, or other criteria that the Engineering Director shall establish based on scientific and engineering information. All post-developed conditions must be routed at appropriately small time intervals through the detention pond using either hand calculations or computer models that are widely accepted among engineering professionals. The BMP Manual contains accepted methods and procedures. Other methods may be approved by the Engineering Director in the design of curb inlets and small pipe systems when the final result is verified by a SCS method.

(Ord. No. O-139-04, § 1, 8-17-04; Ord. No. O-16-05, § 1, 1-18-05)

Section 22.5-34. Maintenance of stormwater facilities.

(a) Property owners and Lessees are responsible for maintaining stormwater and/or water quality facilities located on their property. Prior to the issuance of a site development permit, the property owner shall execute a legal document entitled "Covenants for Permanent Maintenance of Stormwater Facilities", or the Lessee shall execute a legal document entitled "Covenants for Maintenance of Stormwater Facilities on Leased Property" ("the Covenants"). The property owner or the Lessee, as the case may be, shall record the Covenants in the Office of the Knox County Register of Deeds. The location of the facility, the recorded location of the Covenants document, and a note stating the property owner's or Lessee's responsibility shall be shown on a plat, or in the case of a Lessee, as an exhibit attached to the Lessee's Covenants, that is also recorded in the Office of the Knox County Register of Deeds.

(b) The Covenants shall specify minimum maintenance requirements to be performed at necessary intervals by the property owner or Lessee, as the case may be.

(c) In order to provide access to stormwater and/or water quality facilities by personnel, vehicles and equipment, the property owner or Lessee, as the case may be, will provide a traversable twenty (20) foot wide access within an easement from a public street in strict accord with the Plan and any conditions required by the Department of Engineering.

(d) The Covenants shall grant the City permission to enter the property to inspect any stormwater facility for proper functioning and maintenance. If the facility is not being maintained as required, the City will notify the property owner or Lessee, as the case may be, in writing. If property owner or Lessee, as the case may be, fails to repair or maintain the facility within the allotted time, the Engineering Director may authorize the work to be performed by the City or others. In such cases, the property owner or Lessee, as the

case may be, shall reimburse the City for double its direct and related expenses. If the property owner or Lessee, as the case may be, fails to reimburse the City, the City is authorized to file a lien for said costs against the property or the Lessee's leasehold interest, as the case may be, and to enforce the lien by judicial foreclosure proceedings.

(c) Sediment removal and disposal shall be performed in accordance with all local, state, and federal laws. Guidelines for sediment removal and disposal are given in the City's LDM. The Engineering Director may stipulate additional guidelines if deemed necessary for public safety.

(Ord. No. O-139-04, § 1, 8-17-04; Ord. No. O-16-05, § 1, 1-18-05)

Section 22.5-35 Acceptance of streets and stormwater systems within public rights-of-way.

No street or stormwater system shall be dedicated to the city for public use or maintained by the city as a public street, until said street and stormwater facility have been accepted in writing by the Engineering Director. The Engineering Director shall only approve streets constructed according to the current version of "A Policy on Geometric Design of Highways and Streets", published by the American Association of State Highway and Transportation Officials, and designed by a registered Professional Engineer licensed to practice in the State of Tennessee. The design speed for local streets in residential subdivisions shall be a minimum of thirty (30) miles per hour, unless the Engineering Director deems a different design speed appropriate. Additionally, stormwater systems and streets must conform to the city standard specifications and the city construction standards.

(Ord. No. O-139-04, § 1, 8-17-04)

Section 22.5-36. First flush requirements for detention ponds.

(a) The requirements of this article shall not apply to those developments built or approved before the passage of this article.

(b) All requirements of sections 22.5-20 through 22.5-35 shall apply to this article.

(c) All stormwater detention ponds that are required under section 22.5-23 and which are approved after the adoption of this article shall be built to improve first flush water quality by using the best management practices outlined in this section. The standard management method shall be to collect the first flush or the first 4,500 cubic feet, whichever is greater, of stormwater runoff in a pond and release that runoff over a minimum 24-hour and a maximum of a 72-hour period. The Engineering Director may approve other methods of improving first flush water quality if valid documentation from full-scale testing by an independent third party is provided indicating that a higher or equal level of water quality will result from the alternate method.

(Ord. No. O-139-04, § 1, 8-17-04)

Section 22.5-37. Technical requirements for Special Pollution Abatement Permits.

Technical requirements for the permit shall be based on the current Best Management Practices Manual subject to the approval of the Department of Engineering.

(a) Specific land uses are known to produce pollutants that are detrimental to water quality and would not be corrected by the standard methods outlined in the preceding section. A Special Pollution Abatement Permit is required to ensure that structural and management best management practices are used to control water quality for these uses. Before the approval of structural stormwater treatment devices, the Engineering Director may require valid documentation from full-scale testing by an independent third party to verify that the pollutants of concern will be properly controlled. A Special Pollution Abatement Permit will be valid for a period of five (5) years, at which point it must be renewed. At the time of renewal, any deficiency in the management method must be corrected. Any development that occurs without a required permit shall be a violation of this chapter of the code.

(b) A Special Pollution Abatement Permit shall be required for the following land uses:

(1) Vehicle, truck or equipment maintenance, fueling, washing or storage areas including but not limited to: automotive dealerships, automotive repair shops, and car wash facilities;

(2) Any property containing more than 400 parking spaces, or 120,000 square feet of impervious parking area;

(3) Recycling and/or salvage yard facilities;

(4) Restaurants, grocery stores, and other food service facilities;

(5) Commercial facilities with outside animal housing areas including animal shelters, fish hatcheries, kennels, livestock stables, veterinary clinics, or zoos;

(6) Other producers of pollutants identified by the Engineering Director by information provided to or collected by him or his representatives, or reasonably deduced or estimated by him or his representatives from engineering or scientific study.

(Ord. No. O-139-04, § 1, 8-17-04)

Section 22.5-38. Additional permits required.

(a) Where a National Pollutant Discharge Elimination System (NPDES) permit has been issued for NPDES regulated stormwater discharges from a facility, no local permit will be required for those NPDES regulated stormwater discharges from the facility for which such permit has been issued and remains in effect. For site development, both a TDEC construction site NPDES permit and a City of Knoxville Site Development Permit are required.

(b) Additional permits may be required from various state and federal agencies before a site development permit will be issued by the City of Knoxville.

(Ord. No. O-139-04, § 1, 8-17-04)

Section 22.5-39. NPDES permits.

(c) Any person who holds an individual National Pollutant Discharge Elimination System (NPDES) permit shall provide a copy of such permit to the Engineering Director no later than sixty (60) calendar days after issuance or renewal of the permit. The permit holder shall also provide copies of all discharge monitoring reports required by the permit for any discharge to the stormwater system.

(d) Any person who holds an NPDES general permit and/or multi-sector permit (as distinct and different from an individual permit) shall provide either a copy of such permit or the permit number assigned to them by the Tennessee Department of Environment and Conservation to the Engineering Director no later than sixty (60) calendar days after issuance of the permit.

(Ord. No. O-139-04, § 1, 8-17-04)

Sections 22.5-40--22.5-49. Reserved.

ARTICLE III. ILLICIT CONNECTIONS AND ILLEGAL DUMPING

Section 22.5-50. Findings of fact.

The city council finds that the uncontrolled discharge of pollutants to the stormwater system has an adverse impact upon the water quality of the receiving waters.

(a) The 1987 amendments to the Federal Water Pollution Control Act, commonly known as the Clean Water Act, established the National Pollutant Discharge Elimination System (NPDES) program, which requires permits for discharges from stormwater systems into waters of the United States. The Environmental Protection Agency has promulgated regulations implementing the NPDES program.

(b) The NPDES regulations for stormwater discharges require certain municipalities, including the City of Knoxville, to:

(1) Control through ordinance, permit, contract, order or similar means, the contribution of pollutants to municipal stormwater systems by stormwater discharges associated with industrial activity and the quality of stormwater discharged from sites of industrial activity;

(2) Prohibit through ordinance, order or similar means, illicit discharges to the stormwater system;

(3) Control through ordinance, order or similar means, discharges to the stormwater system of spills, dumping or disposal of materials other than stormwater;

(4) Require compliance with conditions in ordinances, permits, contracts or orders; and

(5) Carry out all inspections, surveillance, and monitoring procedures necessary to determine compliance and noncompliance with permit conditions, including the prohibition of illicit discharges to the stormwater system.

(Ord. No. O-139-04, § 1, 8-17-04)

Section 22.5-51. Objectives.

This chapter is adopted as part of the city stormwater management program in order to prevent certain non-stormwater discharges to, and improper disposal of substances in, the stormwater system, as to reduce, to the maximum extent practicable, pollutants that may be present in discharges from the stormwater system. (Ord. No. O-139-04, § 1, 8-17-04)

Section 22.5-52. Prohibitions.

(a) No person shall:

(1) Connect, or allow to be connected, any sanitary sewer to the stormwater system, including any sanitary sewer connected to the stormwater system as of the date of adoption of this chapter.

(2) Cause or allow an illicit discharge to the stormwater system, or any component thereof, or onto driveways, sidewalks, parking lots, sinkholes, creek banks, or other areas draining to the stormwater system. Illicit discharges include, but are not limited to:

(A) Sewage discharges or overflows, including Sanitary Sewer Overflows (SSOs);

(B) Discharges of wash water resulting from the hosing or cleaning of gas stations, auto repair garages, or other types of automotive services facilities;

(C) Discharges resulting from the cleaning, repair, or maintenance of any type of equipment, machinery, or facility including motor vehicles, cement-related equipment, and port-a-potty servicing, etc.;

(D) Discharges of wash water from mobile operations such as mobile automobile washing, steam cleaning, power washing, and carpet cleaning, etc;

(E) Discharges of wash water from the cleaning or hosing of impervious surfaces in industrial and commercial areas including parking lots, streets, sidewalks, driveways, patios, plazas, work yards, and outdoor eating or drinking areas, etc.;

(F) Discharges of runoff from material storage areas containing chemicals, fuels, grease, oil, or other hazardous materials;

(G) Discharges of pool or fountain water containing chlorine, biocides, or other chemicals; discharges of pool or fountain filter backwash water;

(H) Discharges of sediment, or construction-related wastes, etc.;

(I) Discharges of food-related wastes (e.g., grease, fish processing, and restaurant kitchen mat and trash bin wash water, etc.).

(a) Subject to the provisions of subsection (c), the following discharges shall not be in violation of this chapter:

(1) Water line flushing;

(2) Landscape irrigation;

(3) Diverted stream flows or rising groundwater;

(4) Infiltration of uncontaminated groundwater [as defined at 40CFR35.2005(20)] to separate storm drains;

(5) Pumping of uncontaminated groundwater;

(6) Discharges from potable water sources, foundation drains, uncontaminated air conditioning condensation, irrigation waters, springs, water from crawl space pumps, or footing drains;

(7) Lawn watering;

(8) Individual noncommercial car washing on residential properties; or car washing of less than two (2) consecutive days in duration for a charity, nonprofit fund raising, or similar noncommercial purpose;

(9) Flows from riparian habitats and wetlands;

(10) Dechlorinated swimming pool discharges;

(11) Incidental street wash water from street cleaning equipment designed for cleaning paved surfaces and limiting waste discharges;

(12) Street deicing for public safety;

(13) Any activity authorized by a valid NPDES permit; and

(14) Any flows resulting from firefighting.

(a) If the Engineering Director finds that any activity, including but not limited to any of the activities listed in subsection (b) above, are found to cause or may cause sewage, industrial wastes or other wastes to be discharged into the stormwater system, the Engineering Director shall so notify the person performing such activities, and shall order that such activities be stopped or conducted in such a manner as to avoid the discharge of sewage, industrial wastes or other wastes into the stormwater system. The Engineering Director may require a stormwater pollution prevention plan to insure that the activity can be conducted without causing further discharge of pollution to the stormwater system.

(Ord. No. O-139-04, § 1, 8-17-04; Ord. No. O-16-05, § 1, 1-18-05)

Section 22.5-53. Notification of spills and illicit discharges.

As soon as any person has knowledge of any illicit spills or discharges to the stormwater system in violation of this chapter, such person shall immediately notify the Engineering Director by telephone of this discharge. If such person is directly or indirectly responsible for such discharge or responsible for the operation of the system or business, then such person shall also take immediate action to ensure the containment and cleanup of such discharge and shall confirm such telephone notification with a written report to the Engineering Director within three (3) calendar days. At a minimum, the written report for any illicit discharge shall include:

i. Date and time of the discharge
ii. Location of the discharge
iii. Material or substance discharged
iv. Duration and rate of flow
v. Total volume discharged
vi. Total volume recovered
vii. Cause or reason for the discharge

viii. Remediation and containment action taken

ix. Material Safety Data Sheets (MSDS) for the discharged material

x. Action taken to prevent further discharges

xi. Description of any environmental impact

(Ord. No. O-139-04, § 1, 8-17-04)

Section 22.5-54. Requirements for monitoring.

The Engineering Director may require any person engaging in any activity or owning any property, building or facility (including but not limited to a site of industrial activity) to undertake such reasonable monitoring of any discharge(s) to the stormwater system operated by the city and to furnish periodic detailed reports of such discharges.

(Ord. No. O-139-04, § 1, 8-17-04)

Sections 22.5-55--22.5-60. Reserved.

Chapter 23
STREETS AND SIDEWALKS

Chapter 23 - STREETS AND SIDEWALKS

- Charter reference--Authority to lay out, open, etc., streets and other improvements, § 206.
- Cross references--Aircraft and airports, Ch. 3; animals, Ch. 5; buildings and building regulations, Ch. 6; cable television regulations, Ch. 7; civil emergencies, Ch. 9; flood damage and prevention control, Ch. 12; horticulture, Ch. 14; ambulance service, § 16-61 et seq,; markets and pedestrian vendors, § 16-316 et seq.; motor vehicles and traffic, Ch. 17; offenses, Ch. 19; parks and recreation, Ch. 20; public transportation, Ch. 21; railroads, Ch. 22.
- State law reference--Streets and other public improvements, T.C.A. § 7-31-101 et seq.

Sections 23-51-70. Reserved.

ARTICLE I. IN GENERAL

Section 23-1. Definitions.

The following words, terms and phrases, when used in this chapter, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

Curb means that construction parallel to and adjoining the edge of the paving or roadway surface of the street definitely marking the limits of that portion of the street to be used by vehicular traffic.

Director means the person holding the position of director of public service in the government of the city, or his duly authorized representative.

Driveway means that portion of the street lying between the curbline of the street and the property line of the street used for ingress and egress to property adjoining a street, by vehicles.

Gutter means that construction adjoining the curb and forming a part of the street surface used by vehicles and whose primary function is to provide surface drainage along the street.

Sidewalk means that portion of the street generally reserved for pedestrians' use. Unless otherwise permitted, it shall be laid so that the property side of the walk shall be parallel to and identical with the property line of the street.

Specification means the standard specifications and plans for construction procedures and materials on file in the office of the city engineer, and their subsequent revisions.

Street means all public thoroughfares within the corporate limits of the city, such as alleys, avenues, highways, boulevards, streets and the like, and shall include all that portion of the public way from property line to property line dedicated to the public use, and includes sidewalks, driveways, grass plots, curbs and that portion of the street used by vehicles.

(Code 1962, § 36-1)

Section 23-2. Obstructions--Prohibited; exceptions.

If any person shall place upon any public street of the city, or cause to be placed thereon, any rocks, lumber, wood, rubbish or other encumbrance, or other obstruction whatever, he shall be guilty of a misdemeanor; provided that, for the purpose of erecting, finishing or repairing any building within the city, a contractor, upon obtaining a permit therefor from the director of public service, shall have the privilege of depositing on the squares, streets, lanes or alleys opposite or adjacent to the building any lumber, brick or other material necessary to be used in erecting, finishing or repairing the building. Such materials shall not hinder or impede the necessary passage of pedestrians and vehicles, nor the free passage of water in the gutters of the streets; the materials shall not remain longer than is absolutely necessary for the completion of the work being done; and all rubbish from the building shall be removed as soon as possible. This section shall not apply to any obstruction permitted by law. (Code 1962, § 36-55)

Section 23-3. Same--Removal of unlawful obstructions.

Should any rocks, wood, lumber or other obstruction whatever be found upon any of the pavements, sidewalks, squares or streets of the city, where such obstruction is not permitted by the provisions of section 23-2, the director of public service shall request the person allowing, making or suffering such obstruction to remove the obstruction without delay, and if the obstruction is not removed by the offender it shall be the duty of the director to remove the obstruction, and the person offending shall be liable, in addition to the penalties fixed in section 1-9, to pay to the city double the expense of removing the obstruction. (Code 1962, § 36-56)

Section 23-4. Same--Public safety; lights.

When any person shall place or cause to be placed any kind of building material or other obstruction in or upon any street of the city, he shall see to it that such material is not left in condition to endanger any person passing along the street, and shall put up, at or near the obstruction, a red signal light during the darkness of each and every night the obstruction continues. If such obstruction is more than fifty (50) feet in length there shall be an additional light for every fifty (50) feet or fraction thereof. (Code 1962, § 36-57)

Section 23-5. Sale of merchandise on street or sidewalk.

It shall be unlawful for any person to sell or offer for sale on the streets and sidewalks, or in doorways or entrances to vacant buildings when the occupancy of the doorway or entrance

interferes with travel upon the sidewalk adjacent thereto, any merchandise of any kind or character; provided that the provisions of this section shall not apply to sales regulated by chapter 16, article X of this code. (Code 1962, § 36-58)

Section 23-6. Storage or display of goods.

It shall be unlawful to use any part of any public street between the curbline and property line or between the curbline and outermost street line for the storage of goods, merchandise or other material, or for the purpose of displaying goods or articles for sale or barter, except as provided in chapter 16, article X. (Code 1962, § 36-59)

Section 23-7. Cleaning of sidewalks.

All owners or occupants of property in front of which paved sidewalks have been laid or abutting upon paved sidewalks are hereby required to keep such sidewalks clean. All persons and others required to keep sidewalks clean where such sidewalks are within the first fire district of the city and are swept or otherwise cleaned and the sweepings placed in the street shall sweep and clean the sidewalks between the hours of 6:00 p.m. and midnight and at no other time. If any person within the first fire district of the city who is required by this section to keep sidewalks clean desires to and does sweep or clean the sidewalk between the hours of midnight and 6:00 p.m., all sweepings shall be gathered and placed in a garbage can and disposed of as other garbage.
(Code 1962, § 36-60)

Section 23-8. Removal of ice, snow, mud, etc., from sidewalks.

It shall be the duty of every person occupying any dwelling house or other house upon any street of the city, or owner thereof if the house is unoccupied, to remove or cause to be removed from the sidewalks in front of or upon the sides of his premises all ice, snow or mud, grass, weeds and other foreign substances which may accumulate thereon, and it shall be the duty of every police officer to enforce this section. (Code 1962, § 36-62)

Section 23-9. Discharge of roof water on sidewalk.

It shall be unlawful for any owner or occupant of a house situated upon any of the streets to have any water spout or gutter attached to such building which shall be so constructed as to empty its contents upon the public sidewalk, and all such water spouts emptying their contents on the alleys shall not be of greater height than four (4) inches from the ground, and all such as are of greater height from the ground are hereby declared to be public nuisances. It shall be the duty of all persons owning property within the city, whose buildings are provided with water spouts emptying their contents upon the public sidewalks, to abate such nuisance by the construction of drainpipes beneath the surface of the sidewalks, which shall make connection with all such water spouts for the purpose of conveying the water into the gutter. (Code 1962, § 36-63)

Section 23-10. Making fire on street.

(a) It is hereby declared to be a misdemeanor for any person to make any fire or burn any trash, leaves, wood, coal, oil, gasoline or similar combustible material upon any of the paved streets or other public thoroughfares of the city; provided, however, that contractors and other workmen may construct necessary fires for melting tar or similar material where the surface of the street under such fires is first amply protected by depositing a sufficient thickness of earth on the surface so as to prevent injury to the

street. Such workmen or contractors shall first obtain a written permit for the construction of such fire from the director of public service.

(b) As used in this section, "paved streets of the city" means any of the streets paved with brick, asphalt, bitulithic, concrete, wood block, stone block, tar macadam, granitoid or other similar improved paving material in common use in paving the city's streets.

(Code 1962, § 36-64)

Section 23-11. Slaking or burning lime, cement or similar material on street.

It shall be unlawful and a misdemeanor for any person to slake or burn any lime, cement or similar material which thereby generates heat upon any of the unprotected paved streets of the city in such way or manner as to be calculated to damage or injure the street by the application of heat thereto. (Code 1962, § 36-65)

Section 23-12. Construction of cellar doors.

All cellar doors upon any of the streets, parks or squares of the city shall be built of strong material and be uniform and flush with the pavement or sidewalk, and shall not project from the wall of the building more than five (5) feet. Within the first fire district, all such doors shall be of noncombustible material. (Code 1962, § 36-66)

Section 23-13. Leaving cellar doors open or out of repair.

If any owner of a house in the city shall permit his cellar door, on any square, lane, alley, pavement or sidewalk of the city, to remain open, except when in actual use, or shall have it so insecure or weak or out of repair as to render walking thereon or over the door unsafe or dangerous, such person so offending shall be punished as provided in Section 1-9. In case the owner or occupant of any house does not, on notice, attend to the repairs of any cellar door, the door may be repaired by the director of public service, at the expense of the owner, which may be recovered before any court having jurisdiction, with costs. (Code 1962, § 36-67)

Section 23-14. Obstruction of streetlights by shade trees.

(a) *Prohibited.* It shall be unlawful for the owner of any property abutting upon any of the streets within the corporate limits of the city to permit the branches of any shade trees upon his property, or the sidewalk in front thereof, to so extend across the street as to obstruct the shining of any electric light in the street placed there by the corporate authorities or under their direction.

(b) *Notice to trim trees.* If any person shall permit branches of his shade trees to extend on the street and obstruct the electric lights on the street, it shall be the duty of the director of public service to cause to be served upon such property owner a ten-day notice requiring him to trim his trees so that the light may freely shine without obstruction upon the thoroughfare in front of his property.

(c) *Failure to comply with notice.* If the person owning trees shall fail or refuse so to trim his trees by the time fixed in the notice prescribed by subsection (b) of this section, he shall be guilty of a violation of subsections (a) and (b) of this section.

(Code 1962, §§ 36-68--36-70)

Section 23-15. Walking or driving on grass plot or park strip.

(a) The term "grass plot or park strip," as used in this section, means:

(1) Where there is a sidewalk pavement on the side of a street or public way, the space between such sidewalk pavement and the property line, and the space between such sidewalk pavement and the curb pavement, or, if there is no curb pavement, the space between the sidewalk pavement and the improved or traveled portion of the street or public way, all such references being to the side of the street or public way upon which the sidewalk pavement is located.

(2) Where there is no sidewalk pavement on the side of a street or public way, the space between the property line and the improved or generally traveled portion of such street or public way of the side upon which there is no sidewalk pavement.

(b) It shall be unlawful to walk or drive on, over or across any grass plot or park strip except where landings have been provided in front of property or other improved crossings have been provided over such grass plot or park strip. (Code 1962, §§ 36-71, 36-72)

(c) Section 23-16. Curb stops.

Whenever a parking lot is ten (10) feet or closer to any property line, a physical barrier or curb stop shall be provided to prevent encroachment of any portion of a parked vehicle over the property line. (Code 1962, § 36-73)

Section 23-17. Failure to obtain franchise for use of streets.

It shall be unlawful for any person to operate and conduct any kind of business within the corporate limits of the city which requires a franchise, grant or easement over its streets, without first obtaining such franchise, grant or easement. Any person engaged in operating or conducting such a business without having first obtained a franchise, grant or easement shall be guilty of a misdemeanor. (Code 1962, § 28-1002)

Sections 23-18--23-40. Reserved.

ARTICLE II. CONSTRUCTION AND REPAIR OF SIDEWALKS AND DRIVEWAYS

Section 23-41. Responsibility for construction.

(a) It shall be the duty of the abutting property owner, or his agent, of any house or property, to construct sidewalks or driveways adjoining his property, and if the abutting property owner or his agent fails to construct sidewalks or driveways adjoining his property, the director of public service shall cause written notice to be given such property owner or agent requiring him to construct such sidewalks or driveways, after the council has, by proper resolution, determined that the construction of the sidewalks or driveways is necessary for the public convenience and safety.

(b) If such property owner or agent shall fail or refuse to construct the sidewalk or driveway within fifteen (15) days from the giving of such written notice, the director shall construct such sidewalk or driveway, and the cost of such construction shall be paid by the city and

the amount so paid shall be a lien against the abutting property and may be enforced in the chancery court of the county or any other court of competent jurisdiction.

(Code 1962, § 36-5)

Section 23-42. Responsibility for repairs.

It shall be the duty of the abutting property owner, or his agent, of any house or property, to maintain and repair sidewalks or driveways adjoining his property, and if an abutting property owner or his agent fails to repair or maintain the sidewalk or driveway adjoining his property the director shall notify the owner, and if the repairs are not completed within ten (10) days the director shall cause the necessary repairs to be made and the cost of such repairs shall be a lien against the abutting property and may be enforced in the chancery court of the county or any other court of competent jurisdiction. (Code 1962, § 36-6)

Section 23-43. Permit; lines and grades.

(a) No person shall construct any sidewalk, driveway, curb or gutter, or change or repair any sidewalk, driveway, curb or gutter on the streets of the city without having first received a permit from the director of public service for the work, authorizing such construction, and received the necessary lines and grades from the office of the city engineer.

(b) Such permits shall be issued by the director of public service at charges set out under section 23-75 in order to provide for inspectors on the work. (Code 1962, § 36-7)

Cross reference--Licenses and miscellaneous business regulations, Ch. 16.

Section 23-44. Bond.

No person shall be granted a permit for the construction of any sidewalk, driveway, curb or gutter, or repairs to any sidewalk, driveway, curb or gutter without first having on file with the recorder of the city, in a form prescribed by the director of law, an indemnity bond in the amount of two thousand five hundred dollars ($2,500.00) protecting the city from any and all claims for damages to person or property arising out of or incident to the prosecution of the work, whether caused from negligence or otherwise. (Code 1962, § 36-8)

Section 23-45. Storage of materials and equipment; public safety.

(a) *Generally.* The director of public service shall specify the portion of the street that may be used for storage of materials and equipment, necessary safety precautions to be observed and other precautions to be taken in prosecuting the work of construction or repair of any sidewalk, driveway, curb or gutter. All materials, equipment, barricades and the like shall be properly marked by red lanterns or flares from sunset to sunrise, and properly marked with suitable markers clearly distinguishable by the public during daylight hours. When so directed, the person obtaining the permit shall add additional lights or markers. He shall also carry out the work in a safe and workmanlike manner with due caution for the safety of the public at all times, and shall be subject to the instructions of the director to attain this safety.

(b) *Use of street.* No materials or equipment shall be piled or placed in gutters, over sewer inlets, in front of crosswalks, or within ten (10) feet of any fireplug, and no more than one-half of the street shall be occupied in the prosecution of the work of constructing or

repairing any sidewalk, driveway, curb or gutter. Sufficient and safe walkways for ingress and egress to the premises in front of which the work is being carried on shall be provided at all times.

(c) *Use of gutter or sidewalk* No construction, barricades, temporary driveways, etc., shall be placed in the gutter or on the sidewalk, except as may be permitted by the building code of the city and authorized by the director of public service.

(Code 1962, §§ 36-9--36-11)

Section 23-46. Special construction.

(a) *Approval.* Wherever any special construction is required in the sidewalk space, such as chute covers, openings, special vault lights or any other construction, either in or under the sidewalk space, the construction shall be approved by the director of public service both as to material and method of construction, the approval to be written on the permit for the work.

(b) *Bond.* Whenever such special construction referred to in subsection (a) of this section is authorized, the property owner for whom such construction is authorized shall furnish a surety bond in suitable amount and form as directed by the director of law of the city, protecting the city against any and all damages incident to or arising out of the special construction authorized under subsection (a) of this section. (Code 1962, §§ 36-12, 36-13)

Section 23-47. Specifications for sidewalks.

All sidewalks laid within the corporate limits of the city shall be composed of standard portland cement, sand and stone in the proportion prescribed by the standard specifications on file in the office of the director of public service or city engineer. All materials and methods of mixing and placing shall conform to the standard specifications and plans for concrete sidewalks on file in the office of the director of public service or city engineer. Sidewalks shall be laid on a cinder base of two-inch thickness, when compacted, shall be four (4) inches in thickness and five (5) feet wide, unless otherwise prescribed by the director, and shall be laid to the lines and grades established by the director of public service and subject to his inspection and approval.
(Code 1962, § 36-14)

Section 23-48. Specifications for driveways.

Driveways laid within the corporate limits of the city shall be composed of standard portland cement, sand and stone, in the proportion prescribed by the standard specifications on file in the office of the director of public service or city engineer. All materials and methods of mixing and placing shall conform to the standard specifications and plans for concrete driveways on file in the office of the director of public service or city engineer. Driveways shall be six (6) inches thick and of a width prescribed by the director of public service, who shall determine the necessary width and have full authority to set the maximum width required. Driveways shall be laid to the lines and grades established by the director and subject to his inspection and approval.
(Code 1962, § 36-15)

Section 23-49. Specifications for curbs.

All curbs laid in the corporate limits of the city shall be composed of standard portland cement, sand and stone in the proportion prescribed by the standard specifications on file in the office of the director of public service or city engineer. All materials, methods of mixing and placing shall conform to the standard specifications and plans for concrete curbs or granite curbs on file in the office of the director of public service or city engineer. Curbs shall be either standard six-inch by fourteen-inch curb or six-inch by eighteen-inch curb, as determined by conditions, and the size shall be prescribed by the director of public service. They shall be laid to the lines and grades as established by the director and subject to his approval and inspection.
(Code 1962, § 36-16)

Section 23-50. Specifications for gutters.

All gutters shall be composed of standard portland cement, sand and stone, in the proportion prescribed by the standard specifications on file in the office of the city engineer. All materials and methods of mixing and placing shall conform to the standard specifications and plans for concrete gutters on file in the office of the city engineer. Gutters shall be six (6) inches thick and either eighteen (18) inches, twenty-four (24) inches, thirty (30) inches or thirty-six (36) inches in width as prescribed by the director of public service. They shall be laid to the lines and grades as established by the director and subject to his inspection and approval. (Code 1962, § 36-17)

Sections 23-51--23-70. Reserved.

ARTICLE III. CONSTRUCTION WITHIN OR INTERFERING WITH RIGHT-OF-WAY*

**Editor's note--Ord. No. O-15-00, § 1, adopted January 25, 2000, has been treated by the editor as amending the Code by repealing former Article III, §§ 23-71--23-83, and adding a new Article III, §§ 23-71--23-83, to read as herein set out. The former Article III pertained to excavations, and derived from the Code of 1962, §§ 36-25--36-37; Ord. No. O-419-91, adopted October 1, 1991; Ord. No. O-420-91, adopted October 1, 1991; and Ord. No. O-396-99, adopted September 21, 1999.*

Sec. 23-71. Permit required; emergency exception.

(a) It shall be unlawful for any person to make an opening in any street, to disturb in any way the surface or subsurface of any street, or to perform any construction within the right-of-way, or to perform any work so closely adjacent as to create a hazardous roadway condition, or to restrict pedestrian or vehicle flow within the right-of-way without having first received a right-of-way permit and/or temporary traffic control permit therefor from the department of engineering.

(b) All applications for mains, conduits, manholes and other subsurface structures shall be accompanied by a construction plan and typical cross sections showing as nearly as possible the existing underground structures and the location of the proposed structure.

(c) A copy of the permit and the approved traffic control plan must be maintained at the work site at all times during construction. Upon request, it shall be available for inspection by the city.

(d) Where, because of a leak, break, failure or other hazardous condition in a utility distribution or collection system, or other emergency, the public safety requires

immediate action, the work may proceed without a permit. In such a situation, the permit shall be obtained as soon as possible thereafter.

(e) A person who begins work within the right-of-way or performs any work so closely adjacent as to create a hazardous roadway condition, or to restrict pedestrian or vehicle flow within the right-of-way without having first received a right-of-way permit and/or temporary traffic control permit, shall be charged a double fee for said permits. This shall not apply to emergency situations.

(Ord. No. O-15-00, § 1, 1-25-00)

Cross reference--Licenses and miscellaneous business regulations, Ch. 16.

Section 23-72. Permit cancellation.

If a permit has been issued and the work has not been started or has not been completed within the time allowed by the permit, the work cannot proceed until the permit is extended or a new permit is secured. If an extension or new permit is not obtained, the department of engineering may cancel the permit. (Ord. No. O-15-00, § 1, 1-25-00)

Section 23-73. Revocation of permit.

The issuance of a permit will be based upon the approved plans, and no work which changes the alignment or methods of construction from the approved plans shall be performed unless and until revised plans have been submitted to and approved by the department of engineering. The department of engineering may revoke a permit for failure to comply with the terms of the approved traffic control plan or construction plan or for any violation of this article.
(Ord. No. O-15-00, § 1, 1-25-00)

Section 23-74. Bond; certificate of insurance.

When permits are requested to disturb, excavate, obstruct, or perform any construction within or interfering with the right-of-way, the department of engineering may require such applicant to provide a bond or certificate of insurance with good and sufficient sureties, conditioned to secure the city and third parties against all loss, damage or injury of any kind which may result by reason of such work. (Ord. No. O-15-00, § 1, 1-25-00)

Section 23-75. Inspection fees.

(a) Where the contractor or other governmental agency makes its own restoration, or the operation is of unusual size or difficulty, the department of engineering may assign an inspector to ensure that street openings or street restoration comply with city department of engineering standards and specifications. In such cases, the permittee shall deposit with the city the estimated amount of such inspection charges in advance and in accordance with the following fee schedule:

Classification	Minimum fee (20 square yards or less)		Exceeding 20 square yards: Minimum fee plus the following rate per square yard
Pavement or sidewalks:	$15.00	+	$0.50 / square yard (above 20)
Earth or gravel:	$5.00	+	$0.15 / square yard (above 20)

(b) The minimum charge for the issuance of any permit shall be five dollars ($5.00).

(Ord. No. O-15-00, § 1, 1-25-00)

Section 23-76. Responsibility for repair of street, sidewalk, or right-of-way.

(a) Where any street, sidewalk or right-of-way is damaged or disturbed by any person, said person shall restore the street, sidewalk, or right-of-way to the condition that existed before the excavation began.

(b) In all cases where work is done in and upon the streets, sidewalks, or right-of-way, the person doing the work and the person for whom it is done will be held responsible for any subsequent settling of the ground or other disrepair.

(c) Whenever notified by the department of engineering that such street, sidewalk, or right-of-way where an area was excavated or on account of the work done, is hazardous to the public and requires emergency repair, the person responsible therefor shall immediately cause said area to be repaired. In all other situations, the repair work must be commenced within ten (10) days or within a longer time as approved by the department of engineering.

(d) If after said notification above, the person responsible fails to make the necessary repairs within the time specified by the department of engineering, said person shall be guilty of a separate offense and violation of this section, and shall be punished as provided in section 1-9. The department of engineering may further make such necessary and proper repairs at the cost and expense of the person doing such work or having such work done, or for whose benefit such work is done, or at the cost and expense of each of such persons or all of such persons, jointly and severally.

(Ord. No. O-15-00, § 1, 1-25-00)

Section 23-77. Supervision of work.

All excavation and construction within the right-of-way, for any purpose shall be done under the regulation, review and approval of the department of engineering.
(Ord. No. O-15-00, § 1, 1-25-00)

Section 23-78. Public safety and traffic control.

(a) A permittee under this article shall carry on the work authorized by the permit in such manner as to cause a minimum of interference with traffic.

(b) A permittee shall provide adequate signs and devices to warn and guide traffic, and shall place the signs and devices in a position of maximum effectiveness. The most recent edition of the Manual on Uniform Traffic Control Devices shall be used for the design, installation and maintenance of any traffic control devices. The permittee shall provide and deploy all traffic control devices as prescribed in the approved traffic control plan.

(c) Where difficult or potentially hazardous conditions exist, the permittee shall provide a competent flagger in compliance with the most recent edition of the Manual on Uniform Traffic Control Devices to effect the safe and orderly movement of traffic. Where insufficient traffic lanes exist because of street opening, adequate bridging shall be supplied by the permittee.

(d) When traffic congestion occurs in spite of all precautions and when the permittee or his agent or employee has notice of the congestion, either actual notice or notice from the department of engineering or the police department, the permittee shall request police

department assistance immediately. Failure of the permittee to request such assistance will constitute a violation of this article and will be grounds for revocation of the permit. The permittee shall be responsible for such police assistance at rates determined by the city.

(e) When construction is required that will block one or more lanes of a principal collector or arterial roadway, the hours of work shall be limited on weekdays to avoid conflict with peak traffic movement. Work on weekdays is permitted only during the following times: 1) before 6:00 a.m., 2) from 9:00 a.m. to 3:00 p.m., and 3) after 6:30 p.m. Additional work hours may be permitted on a case-by-case basis. Work is permitted on weekends except for unusual circumstances, such as parades and University of Tennessee football games, etc., as determined by the department of engineering.

(f) When proposed construction will block one or more lanes of a secondary collector or a local roadway, the department of engineering will review the temporary traffic control plans on a case-by-case basis to determine when work is permitted.

(g) In case of an emergency occurring in any roadway, the permittee must notify the police and the fire departments immediately.

(Ord. No. O-15-00, § 1, 1-25-00)

Section 23-79. Use of sheeting and braces.

Whenever the sides of trenches dug in the streets will not stand perpendicularly, sheeting and braces must be used to prevent unnecessary caving. (Ord. No. O-15-00, § 1, 1-25-00)

Sec. 23-80. Work in public right-of-way.

All work within the right-of-way shall comply with the utility maintenance and construction policy, standard detail for trench cut repair, and policy on work zone traffic control prepared by the department of engineering. (Ord. No. O-15-00, § 1, 1-25-00)

Section 23-81. Utility connections to be installed prior to paving the street.

Where utility connections have not been made in any improvement district, under the abutting property law, utility connections shall be laid to the property line of the abutting owner before the paving on the street is done by the paving contractor. The department of engineering, through the proper officer, shall notify the owner to have such connections made where necessary and at the time necessary. Upon failure of the owner to have such connections made to the property line as provided in this section, it shall be done by the department of engineering at the expense of the abutting owner in order that such street paving may not be torn up unnecessarily after the street has been paved. (Ord. No. O-15-00, § 1, 1-25-00)

Section 23-82. Protective barriers for work in sidewalks or right-of-way.

Any person leaving a hole or excavation in the sidewalk or right-of-way unprotected by a barrier, guard or other reasonable protection against the dangers thereof, whether caused by the taking out or putting in of a grating, tree, pole, or from any other cause which leaves the sidewalk or right-of-way in an unsafe condition for pedestrians, shall be guilty of a misdemeanor.
(Ord. No. O-15-00, § 1, 1-25-00)

Section 23-83. Annual maintenance permit.

The director of engineering is authorized to create an annual permit for the repair and maintenance of existing utility facilities located in the right-of-way and to develop the necessary regulations to administer such permit. (Ord. No. O-15-00, § 1, 1-25-00)

Sections 23-84--23-105. Reserved.

ARTICLE IV. STREET NAMING AND ADDRESSING

Section 23-106. Assignment of street names, property addresses.

The Knoxville/Knox County Metropolitan Planning Commission shall develop and maintain street names and property addressing. This agency shall maintain a file of existing public and private street names and be responsible for ensuring that proposed street names and addresses are in conformance with this article and do not create duplications. Street names and addresses shall be adopted by the city, provided, however, that the city may modify such names and addresses as it, in its wisdom, deems appropriate. (Code 1962, § 36-48; Ord. No. O-280-90, § 2, 9-18-90)

Section 23-107. Sections established.

The city and county shall be divided into four (4) sections by the following streets and rights-of-way:

(1) North/south line formed by Heiskell Road, Central Avenue Pike, Gay Street, Blount Avenue and Chapman Highway;

(2) East/west line formed by Asheville Highway, Martin Luther King Avenue, Jackson Avenue, Gay Street, Southern Railway and Kingston Pike.

The system shall start at the intersection of Central Street and Jackson Avenue going to the four general points of the compass: north, south, east and west. Continuous street names which cross over these designated lines shall carry the appropriate directional prefix, in addition to the proper street name. All official street names shall include the geographic quadrant suffix.
(Code 1962, § 36-45; Ord. No. O-280-90, § 3, 9-18-90)

Section 23-108. Street designation.

The following street designation guidelines shall apply to street names, street signs and addresses:

(1) All public streets generally extending easterly/westerly shall be designated drives or avenues.

(2) All public streets generally extending northerly/southerly shall be designated streets or roads.

(3) Deadend public streets which cannot be extended shall be designated lanes.

(4) Private easements serving six (6) or more dwelling units shall be designated ways.

(5) Other designations such as boulevard, pike, circle, etc., may be requested for consideration by application to the Metropolitan Planning Commission (MPC). The MPC shall consider such request in their monthly public meetings and approve or deny the request after consideration of the public interest.

(Code 1962, § 36-46; Ord. No. O-280-90, § 4, 9-18-90)

Section 23-109. House and building address procedure.

(a) The MPC addressing department shall designate the number of each lot or building within the city.

(b) Buildings on the south and east sides of streets or easements shall receive even numbers. Buildings on the north and west sides of streets or easements shall receive odd numbers. Numbers shall be assigned every 25 feet progressively outward from the base lines of the community. Except as otherwise provided by special ordinance of the city council, the numbering in all cases shall begin with the figures "100" and progress consecutively for the first block, and the second block shall begin with the figures "200," the third block shall begin with the figures "300," and so on until the limits of the city are reached.

(c) Multiple principal structures on a lot shall receive a unique number or letter for each structure. Multiple occupants of a principal structure may be assigned multiple numbers across the linear frontage of structures or a unique number or letter for each occupant in addition to and distinct from the structure's designation.

(Code 1962, §§ 36-46, 36-47; Ord.No. O-280-90, § 5, 9-18-90; Ord.No. O-458-92, § 1, 10-27-92)

Sec. 23-110. Buildings required to have number.

It shall be the duty of the owners, occupants or lessees of all dwellings, apartment houses, hotels, commercial establishments and other buildings to number such buildings with numerals not less than three and one-half (3 1/2) inches in height and/or of such contrasting color and so located as to be readily visible from the street in daylight or when a light is shined upon them at night. Where such buildings have access to an alley, the numbers shall also be posted on the rear of the building, subject to the same requirements, so as to be easily seen from the alley. The owners, occupants or lessees shall number such dwellings, apartment houses, hotels, commercial establishments and other buildings in accordance with the provisions of this article within sixty (60) days from September 18, 1990. (Code 1962, § 36-49; Ord. No. O-280-90, § 6, 9-18-90)

Section 23-111. Street names.

(a) All proposed names for public streets and private easements shall be reviewed and approved by the MPC addressing department. Approved street names may be reserved for a maximum of 18 months before being formally recorded.

(b) Extensions of existing streets, including extensions across intersecting streets, shall use the same name as the existing street, provided, however, that local streets which cross major collector or arterial streets may change names if approved after formal consideration by the MPC.

(c) Street name duplications, including phonetic duplications within Knoxville/Knox County, are prohibited. Existing duplications shall be identified and a procedure initiated for changing the name of the street duplications which is less disruptive to the community.

(d) All initiated street name changes shall be formally acted upon and become effective, if approved, within eighteen months of September 18, 1990.

(Ord. No. O-280-90, § 7, 9-18-90)

Section 23-112. Street signs.

(a) All public streets and private easements serving six (6) or more dwelling units shall be signed at intersections. Signs shall be built in compliance with the latest edition of the Manual on Uniform Traffic Control Devices for Streets and Highways.

(b) Street signs shall be provided within three (3) months of public access to the facility. Any repair or replacement of street signs on publicly dedicated right-of-way shall be the responsibility of the city.

(c) All street and road signs in the city shall display street names, any required prefix letter designations, the 100 block number and geographic quadrant letter designation.

(Ord. No. O-280-90, § 8, 9-18-90)

Section 23-113. Appeals.

(a) Anyone aggrieved by the enforcement of this article may appeal the decision of the MPC staff to the MPC.

(b) Any person, firm or corporation aggrieved by any decision of the MPC may appeal to the city council to consider the same. All appeals shall be filed at the MPC office within fifteen (15) days of the date of the decision being appealed.

(Ord. No. O-280-90, § 9, 9-18-90, Ord. No. O-211-00, § 1, 5-30-00)

Section 23-114. Enforcement.

(a) Enforcement of this article shall be accomplished through the MPC subdivision regulations and city and county administrative departments. A proper address shall be required for any permit issuance.

(b) Any person, firm, association or corporation who violates, disobeys, omits, neglects or refuses to comply with this article shall be guilty of a misdemeanor and subject to the penalties provided for such an offense.

(Ord. No. O-280-90, § 10, 9-18-90)

APPENDIX II

Table of Contents

Section 5.0

Knoxville, Tennessee
1996

TECHNICAL SPECIFICATIONS
FOR
MINERAL AGGREGATE BASE

1. Description

This work shall consist of furnishing and placing one or more courses of aggregates and additives, if required, on a prepared subgrade in accordance with these Specifications and in reasonably close conformity with the lines, grades, thicknesses and typical cross-section shown on the Plans or established by the Engineer. This work also includes furnishing and placing Maintenance Stone and Backfill Stone in accordance with these Specifications and the Plans.

2. Materials

All materials used in this construction, in addition to the general requirements of these Specifications, unless otherwise stipulated, shall conform to the following:

(a) Mineral Aggregate Base shall be crushed stone, Class A Aggregate Grading D, as specified in Subsection 903.05 of the TDOTSS, 1995, and all Special Provisions pertaining thereto through the date of advertisement for this Contract.

Sieve Size	Total Percentage by Weight Passing Sieves
1-1/2 inch	100
1 inch	85 - 100
3/4 inch	60 - 95
3/8 inch	50 - 80
No. 4	40 - 65
No. 16	20 - 40
No. 100	9 - 18

(b) Calcium Chloride shall meet the requirements of the AASHTO Specification for Calcium Chloride, Designation M-144 and shall be Type 2.

(c) Maintenance Stone and Backfill Stone shall be of quality and gradation as specified in Subsection 2(a) above. The backfill stone in the roadway or less than 5 feet from the outside edge of the roadway, curbs, gutters and sidewalks shall be compacted to 100% of the Standard Proctor Density at 2% less than the optimum moisture content as determined by AASHTO T99 Method D.

3. Equipment & Construction Requirements

(a) Equipment and Construction Requirements shall conform to Subsections 303.05 to 303.12 of the TDOTSS, 1995, and all Special Provisions Pertaining thereto through the date of advertisement of this Contract. In addition, the following compaction, will be required: Mineral Aggregate Base shall be compacted to 100% of the Standard Proctor Density at 2% less than the optimum moisture content as determined by AASHTO T99 Method D.

(b) The maximum speed of trucks hauling or traveling over any part of the project under construction shall be 20 mph.

4. Method of Measurement

(a) Mineral Aggregate Base, Maintenance Stone, and Backfill Stone will be measured by the ton in place, as by the actual scale weight.

(b) All moisture in the Aggregate at the time of weighing in excess of eight percent will be deducted from the weight of the Aggregate.

(c) Any water added on the road will be at the Contractor's expense.

5. Basis of Payment

(a) The accepted quantities of Mineral Aggregate Base, Maintenance Stone, and Backfill Stone of the type specified will be paid for at the Contract unit price per ton, complete in place. This price shall be full compensation for all work, materials, including calcium chloride where specified and water; labor and other incidentals required to complete the work in accordance with the Plans and Specifications.

(b) Payment will be made under the following bid item as set forth in the Bid Schedule:

Mineral Aggregate Base
Mineral Aggregate Base with Calcium Chloride
Maintenance Stone

TECHNICAL SPECIFICATIONS
FOR
TACK COAT

1. Description

This work shall consist of the application of bituminous material on a prepared base course, binder course, or existing pavement to provide a bond for superimposed course, in accordance with the requirements of these Specifications.

2. Materials

Bituminous materials used shall conform to the following:

AC-20	AASHTO M-226
Cut-Back Asphalt Grade No. RC-70 or RC-250	AASHTO M-81
Emulsified Asphalt SS-1, SS-1H, CSS-1, or CSS-1H	AASHTO M-140

3. Equipment & Construction Requirements

(a) Equipment and Construction Requirements shall conform to Subsections 403.03 to 403.05 of the TDOTSS, 1995, and all Special Provisions pertaining thereto through the date of advertisement of this Contract.

(b) The ranges of application temperatures in degrees Fahrenheit shall be as follows:

AC-20	375-400 F
RC-70	80-150 F
RC-250	100-175 F
SS-1, SS-1H CSS-1, or CSS-1H	60-140 F

(c) Special care shall be given to the application of a "paint coat" of tack coat material to curbs, the edges of manholes and catch basins and to the cold edge of bituminous material to secure an even coating of tack coat material so that a tight, waterproof bond is secured when the hot plant mix material is placed against these surfaces.

The application rate of tack coat shall be as noted on Plans or as directed by the Engineer. Tack coat shall be applied only so far in advance of the paving operation as is necessary to obtain the proper condition of tackiness.

4. Method of Measurement

Bituminous material will be measured by the number of gallons used in the accepted work, as determined by the Engineer, and at the temperature of application.

5. Payment

Tack Coat will be paid at the Contract unit price per gallon and shall be full compensation for all work, materials, labor, and incidentals required to complete the work in accordance with the Plans and Specifications.

TECHNICAL SPECIFICATIONS FOR BITUMINOUS PLANT MIX BASE

1. Description

This work shall consist of a foundation composed of hot mixture of aggregate and asphalt prepared in a hot bituminous mixing plant. It shall be constructed in one or more layers, on a prepared subgrade, subbase, or base, in accordance with these Specifications and in reasonably close conformity with the lines, grades, thicknesses, and typical cross sections shown on the Plans or as directed by the Engineer. Each course shall have a thickness after compaction of not more than 4 inches. This construction shall include a leveling course if specified on the Plans.

2. Materials

(a) Asphalt Cement shall conform to the requirements of AASHTO Designation M 226 for Viscosity Grade AC-20.

(b) Aggregates shall conform to Subsection 903.06 of TDOTSS, 1995, and all Special Provisions through the date of the advertisement for this Contract. Grading B and B-M shall be used for base placed upon subgrade or base, and Grading C shall be used on existing pavement for leveling courses, Grading C-S and C-W shall be used for surface unless otherwise specified in the Contract or Plans.

3. Composition of Mixtures

(a) The bituminous base shall be composed of aggregate and bituminous material. The mix shall comply with the applicable requirements of Subsection 407.03 of TDOTSS, 1995.

(b) The proportions by weight of the total mixture shall be as follows:

Mixtures	Combined Mineral Aggregate	Asphalt Cement
Grading “B” and “B-M”	93.8 - 95.8	4.2 - 6.2
Grading “C” and “C-W”	93.8 - 95.8	4.2 - 6.2
Grading “C-S”	92.3 - 94.7	5.3 - 7.7

4. Equipment

All equipment necessary for the construction shall be approved before the work will be permitted to begin. The equipment shall meet the requirements of Subsections 407.04 through 407.08 of TDOTSS, 1995, and as revised by all Special Provisions dated through the date of the advertisement for this Contract.

5. (a) The construction requirements shall be as prescribed in Subsection 407.09 and Subsections 407.11 through 407.16 TDOTSS, 1995, and as revised by all Special Provisions dated through the date of this advertisement, and the requirements listed below.

(b) The Plans will indicate whether the bituminous pavement is to be constructed on a subbase, mineral aggregate base, asphalt base, or an existing surface. The surface of the base or subbase upon which the construction is to be placed shall meet the requirements of the applicable Sections of the Grading, Mineral Aggregate Base, and Bituminous Plant Mix Base Specifications.

(c) When bituminous mixes are placed upon existing concrete pavement, with or without bituminous overlay, all excess bituminous material shall be removed from joints and cracks.

When bituminous mixes are placed upon existing bituminous pavement, any areas containing excess bitumen and any failures in existing pavement shall be removed to a depth up to 3 feet and backfilled with crushed stone base up to the bottom of the surrounding pavement structure and with appropriate asphaltic base, leveling or surface material to the existing surface, all as directed by the Engineer. Crushed stone base material, asphaltic base, leveling, and surface materials to be paid at the Contract Unit Price for those items. Pavement removal and undercut up to 3 feet will be measured and paid in accordance with subparagraph 6(c) and 7(b) of this Section.

The existing pavement surface shall be thoroughly cleaned of all dirt and loose particles prior to the application of tack coat or prime coat as specified in Specifications for Tack Coat and Prime Coat.

(d) Thickness shall be controlled during the spreading operation by frequent measurements taken of the freshly spread mixture to establish relationship between the uncompacted mixture and the completed course. Thickness or pounds per square yard shall be within reasonably close conformity with that specified on the Plans.

(e) Under Subsection 407.18 of TDOTSS, 1995, the surface of the bases meet the requirements specified and when tested in accordance with the provisions of that Subsection, the deviation of the surfaces from the testing edge of the straightedge shall not exceed the amounts shown below for the several types of mixtures.

Grading B and B-M Mixture	3/8 inch
Grading C Mixture	3/8 inch
Grading C-W Mixture	3/8 inch
Grading C-S Mixture	3/8 inch

(f) Subsection 307.03(b), Recycled Asphalt Pavement, will be accepted for Grading B, Grading B-M and Grading C with the following exception: The Contractor shall be responsible for providing a fully coated and workable mixture that shall have a marshall stability of not less than 1,000 pounds when tested in accordance with AASHTO - T-245, and the compactive effort for all specimens shall be 75 blows of the hammer on each end. No adjustments for asphalt content increases or decreases shall be provided under these Specifications.

6. Method of Measurement

(a) Bituminous plant mix base, including the mineral aggregate and asphalt cement as specified or required by these Specifications, will be measured by the ton of 2,000 pounds, accepted and placed as indicated or directed.

(b) Materials for prime or tack coat will be measured for payment as prescribed in their Specifications.

(c) The surface measurements of any pavement, base or subbase removal shall be made in square yards by the Engineer prior to backfilling.

(d) Bituminous mixtures used to fill openings left by pavement removal will be measured for payment. Base materials used to fill openings left by base removal will be measured as provided for in the respective Sections for each type specified.

(e) Adjustment of sewer manholes and castings will be measured for payment as prescribed in its Specification.

(f) No allowance will be made for unacceptable material; for material used in replacing defective or condemned construction; or for material wasted in handling, hauling or otherwise.

7. Basis of Payment

a) The accepted quantity of bituminous plant mix base, complete in place, will be paid for at the Contract Unit Price per ton for each "Grading" listed in the Bid Schedule and constructed in accordance with the Plans and Specifications.

b) The accepted quantity of pavement, base and subbase removal up to 3 feet in depth will

be paid for at the Contract Unit Price per square yard listed in the Bid Schedule and performed in accordance with the Plans, Specifications, and under the direction of the Engineer.