SITE PLANNING AND PERMITTING PROCEDURES

4.1 Introduction

The Knox County Stormwater Design Manual is primarily written to describe and regulate the portions of the land development process that pertain to stormwater management and are under the direct control of the Knox County Department of Engineering and Public Works.

The purpose of this Chapter is to define the procedures which shall be followed by site developers when submitting plans for site development to Knox County Engineering, and to specify the information required for plans submittal. Although this Chapter contains general information with regards to the roles and requirements of other agencies that have a role in the development process in Knox County, such as the Metropolitan Planning Commission and various utilities, detailed information on the processes of such agencies is not presented in this manual and the reader is referred to the agency of interest for further information.

4.2 Overview of the Site Development Process

4.2.1 Development Process Flow Charts

Figure 4-1 presents a detailed sequence for the subdivision development process in Knox County, from initial consideration of zoning to the point that a building permit would be obtained for single lots. Note that the graduated shading in Figure 4-1 indicates which agency (e.g., MPC, Knox County Engineering, etc.) is primarily responsible for the task or review. MPC is responsible for receipt and coordination of the concept plan reviews with the appropriate reviewing agencies and the developer.

In general during the subdivision development process, two (2) plans and one (1) plat are required to be submitted: the concept plan; the design plan (which includes the stormwater management plan); and the preliminary plat. The requirements of the concept plan and plat, and more general requirements for the design plan are presented in the Knoxville-Knox County Minimum Subdivision Regulations. Specific requirements of the portion of the design plan dedicated to stormwater management (i.e., the stormwater management plan) are contained in the Knox County Stormwater Management Ordinance and this manual.

Figure 4-2 presents a detailed sequence for the site plan (i.e., building permit) process in Knox County. The notable difference of Figure 4-2 from the previous figure is that MPC handles very little of the site planning process. Design plans are submitted by the applicant directly to Knox County and other appropriate agencies.

4.2.2 Pre-Design Conference

Knox County Engineering is available to meet with the developer and site designer to discuss potential site layout and design prior to submittal of a concept plan or design plan. A pre-design conference is not mandatory. The developer is encouraged to invite representatives of other regulatory or permitting agencies to the pre-design conference. From Knox County’s perspective, the objectives of the pre-design conference are:
Figure 4-1. Typical Subdivision Development Process in Knox County

1. Undeveloped Land
   - Once the site is determined to be rezoned, rezoning request is submitted.
   - Review of site, setback requirements, and drainage plans.
   - Review of soil, geology, and floodplain analysis.

2. Metropolitan Planning Commission
   - Submit concept plan.
   - Concept plan approved.
   - Stormwater management plan submitted.
   - Stormwater management plan approved.

3. Other Agencies
   - Review of subdivision design plan.
   - Submit subdivision design plan.
   - Stormwater management plan submitted.

4. Knox County Engineering
   - Pre-design phase:
     - Perform traffic study.
     - Prepare design plan.
   - Subdivision design plan:
     - Submit subdivision design plan.
     - Submit subdivision design plan.
     - Submit subdivision design plan.
     - Submit subdivision design plan.

5. Knox County Register of Deeds
   - Conveyance of parcel approved.
   - Record final plat if approved.
Figure 4-2. Typical Site Plan (Building Permit) Process in Knox County

1. Metropolitan Planning Commission
   - Undeveloped Land
   - Is rezoning or use on property needed?
     - Yes: Rezoning or Use on Review Process
     - No: Denied
   - Approved

2. Other Agencies
   - Submit Design Plan
     - Is grading required prior to Design Plan approval?
       - Yes: Submit Design Plan to Health Department if needed
       - No: Design Plan Approved

3. Knox County Engineering
   - Pre-Design meeting held upon request
   - Submit Small Lot EPSC Plan
     - Yes: No further submittals to Knox Co. Engineering
     - No: EPSC Plan Approved
   - EPSC Plan Approved
     - Yes: Perimeter EPSC measures and construction entrances installed
     - No: No further submittals to Knox Co. Engineering
   - Grading Permit issued
     - Yes: Landscape Buffer Created
     - No: Performance bond posted for EPSC and buffers, if not previously done
   - Post-Construction Conference
     - Yes: Performance bond posted for EPSC and buffers, if not previously done
     - No: Pre-Construction Conference, if not previously held
   - Post-Construction Inspection
     - Yes: Performance bond posted for EPSC and buffers, if not previously done
     - No: Post-Construction Inspection

4. Knox County Register of Deeds
   - Does Plat agree with All Survey?
     - Yes: Release remainder of bond
     - No: Re-record Plat, if necessary
• review the site topography, existing vegetative condition, and preliminary development lay-out (if determined);
• identify the natural drainage conditions (for new development) and existing drainage conditions (for redevelopments);
• identify any environmentally-sensitive features, such as streams, wetlands, sinkholes, and steep slopes, that should be avoided by the development or redevelopment;
• discuss preliminary strategies for site clearing, grading and construction;
• discuss preliminary design strategies for erosion and sediment control, road geometry and layout, stormwater treatment practices, water quality buffers, and encourage the use of better site design practices and water quality volume (WQv) credits; and,
• determine how the technical guidelines and criteria presented in this manual should be applied to the site.

Knox County staff will not be responsible for development of a concept plan or design plan for the site. Further, the pre-design conference should not be considered by the developer as an endorsement or pre-approval of any concept and/or design plans that will be submitted to Knox County later in the development process. The developer is responsible for requesting and scheduling the pre-design conference, and for inviting others as appropriate for his/her needs (e.g., the site design engineer, representatives of other agencies). The conference can be scheduled by calling the Knox County Engineering plans review staff at: 865-215-5800.

4.2.3 Pre-Construction Conference

Requirements for attendance at a pre-construction conference with Knox County Engineering prior to issuance of a grading permit are included in the Knox County Stormwater Management Ordinance. In addition to the ordinance requirements, the Director may require that the owner or operator of land development activities not listed explicitly in the ordinance attend a pre-construction conference.

The purpose of the pre-construction conference is to review the proposed grading or development for the site, general erosion prevention and sediment control measures, and other site-specific topics or issues. Knox County will document the pre-construction meeting on a standard form, which must be signed by all attendees.

The pre-construction conference is scheduled when the developer is ready to obtain a grading permit. It is the responsibility of the developer to schedule and attend the conference, and to ensure the attendance of the contractor for the site.

4.3 Applicable Permits

4.3.1 Grading Permit

Grading permits are issued by Knox County Engineering prior to grading or other land disturbing activities on a site. An approved grading permit will allow the developer to begin such activities, in accordance with the specifications and details presented in the approved erosion prevention and sediment control (EPSC) plan for the site. The purpose of the grading permit is to require and document proper planning before beginning the land disturbing activity and to reduce or eliminate the potential for off-site sedimentation. A flowchart that depicts the Knox County grading permit process for most development and redevelopment situations is presented in Figure 4-3.
Figure 4-3. Knox County Grading Permit Process

1. **Undisturbed Land**
   - Is a grading permit required?
     - Yes: Prepare and submit EPSC plan (SW Manual Vol. 1, Appendix C)
       - EPSC Plan Approved?
         - Yes: Land disturbing activities cease
         - No: Performance Bond posted for EPSC and buffers
           - Install perimeter EPSC measures, sediment barriers, and construction entrance
             - Periodic EPSC inspections by Knox Co. Engineering
             - Grading Permit Issued
               - Mandatory Pre-Construction Conference attended by Knox Co. Engineering, the developer and contractor
               - NOV & Enforcement Actions occur: Corrective actions, Stop Work Order, Penalties and/or Damage Assessments
             - Final stabilization achieved when there is permanent ground cover over 70% of site
               - EPSC and buffer bond is released. No further local EPSC requirements
               - Site inspections continue
               - Have all violations been corrected?
                 - Yes: Land disturbing activities can occur, performed in accordance with the approved EPSC plan
                 - No: Periodic site inspections by Knox Co. Engineering
                   - Is there a violation?
                     - Yes: Periodic site inspections by Knox Co. Engineering
                     - No: Site inspections continue
   - No: Is a Small Lot EPSC Plan required?
     - Yes: Complete an Erosion Prevention & Sediment Control Plan for Small Lots
     - No: Land disturbing activities can begin.
       - No further submittals to Knox Co. Engineering

2. **No Further Submittals to Knox Co. Engineering**

3. **Periodic EPSC Inspections by Knox Co. Engineering**
The Knox County Stormwater Management Ordinance requires that a grading permit be obtained before any land disturbing activity occurs on a site that requires a stormwater management plan. Land disturbing activities are defined by the ordinance as:

"any activity on a property that results in a change in the existing soil (both vegetative and non-vegetative) and/or the existing soil topography. Land disturbing activities include, but are not limited to, development, re-development, demolition, construction, reconstruction, clearing, grading, filling, logging and/or tree-chipping operations, haul roads associated with the development, and excavation".

In general, a grading permit must be obtained prior to a building permit. See Section 4.4.2 for exemptions to the requirement for a grading permit.

All State and Federal permits that may be applicable to the site must be documented to Knox County Engineering prior to issuance of a grading permit. These State and Federal permits include, but are not limited to, Tennessee permits for NPDES and ARAP coverage, US Army Corps of Engineers section 404 permits, and TVA section 26A permits.

Land disturbing activities performed in accordance with the approved EPSC plan shall commence within one year from the issue date of the grading permit, or the grading permit will become null and void and the plan must be resubmitted for approval. Land disturbing activities that commence within one year from the issue date of the grading permit and are being performed in accordance with the approved EPSC plan shall receive an automatic administrative renewal of the grading permit.

4.3.1.1 Endangered Species Act Review

The NPDES Phase II permit (discussed in Chapter 3) administered by the Tennessee Department of Environment and Conservation (TDEC) requires Knox County to include consideration of potential impacts from stormwater discharges on species that are listed as endangered or threatened under the Endangered Species Act (ESA) and on habitat that is designated as "critical" under the ESA. As part of Knox County’s compliance with the NPDES Phase II permit, any proposed development that is located within, or discharges stormwater runoff to, a buffer area for threatened species, endangered species, or critical habitat (as defined by the ESA) shall be reviewed by the United States Fish and Wildlife Service (USFWS) prior to Knox County Engineering’s review of a grading permit and/or stormwater management plan. If USFWS determines that the proposed development may, or will, impact an endangered or threatened species, or critical habitat, an informal consultation may be required by USFWS to determine the best management practices (BMPs) that will mitigate the potential ESA-related impacts. It is the responsibility of the property owner to work with USFWS to ensure compliance with the ESA.

Knox County is not the regulatory agency tasked with enforcing the ESA, and therefore cannot advise the property owner on ESA compliance practices and options. However, BMPs utilized to mitigate ESA-related impacts must be included in the grading and/or stormwater management plans, and once approved, will be enforced by Knox County as a matter of compliance with approved plans. Variations from USFWS accepted BMPs will not be allowed by Knox County without a copy of written acceptance of such variations by USFWS.

Knox County does not have the authority to expedite USFWS reviews and informal consultations. Therefore, person(s) responsible for proposed developments should consider the additional time required to coordinate with USFWS when preparing development schedules and costs. Questions regarding a USFWS consultation for any particular site should be forwarded to the USFWS office in Cookeville, Tennessee. Contact information for USFWS is presented in Appendix C.
The Knox County Tennessee Threatened and Endangered Species Buffer Map shall be used to determine which proposed developments will require review by USFWS. This map is prepared and maintained by the USFWS, and is available for use by the general public on Knox County Engineering’s website, www.knoxcounty.org. The map will be updated by Knox County as needed to remain current.

Proposed developments that are located within a buffered area or are located in a watershed that discharges to a buffered stream shown on the Knox County Tennessee Threatened and Endangered Species Buffer Map must submit to review by USFWS. A copy of the results of the USFWS determination must be provided, in writing, with all grading and stormwater management plans submitted to Knox County Engineering. Further, proposed developments that undergo informal consultation by USFWS must also present, in detail, the BMPs that have been accepted by USFWS to mitigate ESA-related impacts. A copy of BMP acceptance by USFWS must also be provided. Grading and stormwater management plans that do not comply with these requirements will not be accepted for review by Knox County Engineering.

4.3.2 Building Permit
The building permit is the final permit that is reviewed and approved by Knox County Engineering. The Knox County Zoning Ordinance designates the activities for which a building permit must be obtained, and activities that are exempt from a building permit. For most new structures in the County, an approved building permit will allow construction to begin on the building. The Knox County Stormwater Management Ordinance requires approval of a stormwater management plan before a building permit can be obtained, unless the development is exempted by the Knox County Stormwater Management Ordinance. The ordinance also requires recording of the portion of the property required for stormwater facilities as a permanent drainage, water quality and/or access easement. More information on Knox County building permit requirements are presented in the Knox County Zoning Ordinance.

4.3.3 Special Pollution Abatement Permit
A Special Pollution Abatement Permit (SPAP) is required for development or redevelopment projects based on the potential for the development to impact stormwater runoff quality, unless a current NPDES discharge permit is in effect for the site. A SPAP application form is presented in Appendix C. SPAP requirements are presented in detail in Volume 2, Chapter 10 of this manual.

4.3.4 Floodplain Development Permit and Elevation Certificate
Knox County participates in the National Flood Insurance Program (NFIP), which is administered by the Federal Emergency Management Agency (FEMA). Participation in the NFIP requires that Knox County manage development within local floodplains using a Floodplain Development Permit and Elevation Certificate, the latter of which is presented in Appendix A. Typically, the permit and certificate are required for insurable structures that are located in the County’s Special Flood Hazard Areas that have been designated by FEMA. The Director may require a permit and certificate for developments in TVA flowage easements and other areas as necessary for proper management of local floodplains.

A Floodplain Development Permit is required for any development or alteration to the natural drainage system within the 500-year floodplain in Knox County. The Director shall review said permit based on the requirements stated in the Stormwater Management Ordinance, the Flood Damage Prevention Ordinance, and the required engineering calculations stipulated by the Director and detailed in Volume 2, Chapter 8 of this manual. It is the responsibility of the property owner (or developer) to prepare and submit a Floodplain Development Permit application. Knox County Engineering will issue permits for development and redevelopment sites that are compliant with floodplain development regulations as provided in the Knox County Stormwater Management Ordinance and the Flood Damage Prevention Ordinance.
After construction is complete, a FEMA Elevation Certificate for each building located in the 500-year floodplain must be presented to Knox County Engineering. Failure to submit an elevation certificate shall be cause for Knox County to withhold a certificate of occupancy. The Elevation Certificate, if required, must be completed and sealed by a professional engineer or land surveyor licensed to practice in the State of Tennessee.

4.4 The Stormwater Management Plan

Knox County has established the stormwater management plan as the “umbrella” plan under which all stormwater and roadway related plans are submitted, and grading and building permits are approved. Land disturbing activities not exempted by the Knox County Stormwater Management Ordinance cannot begin before obtaining a grading permit, and a building permit cannot be issued until approval of a stormwater management plan. The contents of the stormwater management plan depend upon the land disturbing or construction activity that is proposed.

The purpose of this section is to present the requirements, contents, and procedure for submittal of stormwater management plans to Knox County prior to beginning land-disturbing activities or making application for a building permit.

4.4.1 General Requirements

In general, the stormwater management plan may include, but is not limited to, written information, calculations, and maps to support the following items:

- an EPSC plan;
- a drainage report and associated maps/plans, including hydrologic and hydraulic calculations for peak discharge, stormwater quantity control, floodplain and sinkhole management, and stormwater quality treatment and water quality volume credit calculations;
- a water quality buffer enhancement plan, if applicable;
- a Special Pollution Abatement Permit and/or Floodplain Development Permit, if applicable; and,
- an Operations and Maintenance plan for stormwater facilities and BMPs located on the property.

While each of the above items is considered a component of the stormwater management plan, items that are not applicable to the development site need not be submitted. For example, a site that is going to disturb more than one acre, but does not include any new impervious surfaces, is not located in a floodplain, and does not have a wetland, lake/pond, or stream that is required to be buffered on-site would be required to submit only an EPSC plan to obtain a grading permit.

In general, stormwater management 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. However, the elements of a stormwater management plan that are listed below must be prepared and stamped by a professional engineer competent in civil and site design and licensed to practice in the state of Tennessee.

- Any portions of the stormwater management plan that require hydraulic or hydrologic calculations and design, including those temporary best management practices designed for purposes of erosion prevention and sediment control
- Any portions of the erosion prevention and sediment control plan that require hydraulic or hydrologic calculations and design
• All public roads and Joint Permanent Easements

4.4.2 Applicability

The applicability and exemptions for submittal of a stormwater management plan are provided in the Knox County Stormwater Management Ordinance. Exemptions should not be construed as exempting these developments and redevelopments from onsite drainage improvements that may be required in accordance with building and construction codes, nor from compliance with the requirements for a special pollution abatement permit or floodplain development permit.

The requirements for a small lot EPSC plan are discussed in detail in Section 4.6 of this chapter. General technical guidelines and policies for construction site management are discussed in Volume 2, Chapter 9.

4.4.3 Application Instructions and Checklist

Stormwater management plans and any associated plans review fees must be submitted to Knox County Engineering. Knox County Engineering will review the plans for compliance with the Knox County Stormwater Management Ordinance and other applicable local regulations. Only complete plans will be accepted for review.

A stormwater management plan checklist and an EPSC plan checklist are presented in Appendix E. EPSC plans can be submitted separately from a stormwater management plan if a grading permit is desired prior to stormwater management plan approval. In this situation, the grading permit checklist should be utilized alone.

These checklists provide a complete inventory of the required contents of a stormwater management plan and/or grading permit application. Plans submittals shall contain the information listed, as applicable to the proposed land disturbing activity or development.

The Director has the authority to request the submittal of additional information with the stormwater management plan as necessary to allow a thorough review of the site conditions. Note that the EPSC plan, drainage report and associated plans/maps, and buffer enhancement plan must be on separate plan sheet(s) for clarity.

Use of the checklists will expedite the plans review process. The applicant must attach a signed copy of the checklist with the stormwater management plan to certify that a complete package is being submitted. Some requirements of the checklists in Appendix E will not be applicable to all projects. These requirements should be checked as “not applicable.” Omission of any required items renders the plans incomplete, and they will be returned to the applicant, or their engineer, so that they may be completed.

The checklists indicate that the applicant may also be required to meet State and Federal regulations for construction activities that will have an impact on Waters of the State, wetlands, sinkholes and threatened or endangered species. Wetlands can be defined as such by any agency with authority to make legal wetland determinations (United States Army Corps of Engineers, United States Environmental Protection Agency, Tennessee Department of Environment and Conservation, United States Natural Resources Conservation Service).

It is the responsibility of the developer or permit applicant to thoroughly review, understand and adhere to all applicable local, state and federal laws and regulations with regard to site development and property regulations when submitting the stormwater management plan. Copies of all applicable State and Federal permits must be provided to Knox County Engineering as part of the stormwater management plan.
4.5 Operations and Maintenance Plan

4.5.1 Background
Proper maintenance of stormwater facilities and best management practices is one of the most important factors in the long-term performance and effectiveness of a stormwater management plan. Knox County requires property owners or homeowners associations to properly maintain the stormwater system and BMPs located on private property. In an effort to reduce maintenance requirements for each development, a developer or site designer should consider the maintenance requirements for each stormwater structural or non-structural BMP when designing a development. To this end, Knox County strongly encourages site designers to utilize non-structural BMPs and better site design practices to the maximum degree possible, thereby reducing the degree of stormwater maintenance that will be required for the property after construction. Non-structural controls, which are discussed in detail in Volume 2, Chapter 5, generally require very little (and often no) maintenance and can reduce the size of any structural BMPs needed to treat stormwater runoff quality. The developer and site designer should then choose structural BMPs that have the lowest relative long-term maintenance requirements based upon the site constraints.

Knox County oversees the long-term maintenance of stormwater facilities and best management practices in a three-phased approach, as follows:

1) A preliminary Operations and Maintenance (O&M) Plan is submitted and approved as part of the Stormwater Management Plan. The preliminary O&M Plan must include all of the maintenance and inspection information for the stormwater system as designed. The purpose of the preliminary O&M Plan is to ensure that long-term maintenance issues have been considered in the design of the development.

2) A final O&M Plan is submitted and approved with the As-Built Certification and must accurately reflect the stormwater system and BMP locations after construction of the site has been completed. The goals of the final O&M Plan are to establish a legal record of the stormwater management system that is located on the property and the property owner's responsibilities with regards to the system; and to provide guidance to the current and any subsequent property owner on the requirements for BMP inspection and maintenance. The final O&M Plan is considered permanent and must be recorded with the deed.

3) Knox County Engineering will perform periodic inspections of the stormwater system shown in the final O&M Plan in order to determine if the system is being maintained in proper operating condition. Knox County will order corrective actions for components of the system that are determined to be improperly constructed or not maintained. More information about maintenance requirements after construction is presented in Volume 1, Chapter 5 of this manual.

4.5.2 Requirements
A preliminary O&M Plan shall consist of:

1) a map that accurately identifies the stormwater system location and components (e.g., stormwater pond, micropool extended detention pond, pipes, ditches, water quality buffers, etc.) that are located on the property. This map also must show the locations of drainage and access easements. The language used to identify each BMP shall be consistent with the BMP names used in this manual and on any inspection checklists included in the O&M Plan.

2) "Inspection Checklist and Maintenance Guidance" sheet(s) for each type of BMP that is located on the property. These sheets are presented in Volume 2, Chapter 4. The sheets provide a general guideline of inspection and maintenance elements. At a minimum, the Inspection
Checklist and Maintenance Guidance provided in Volume 2, Chapter 4 must be utilized for the O&M Plan as appropriate for the BMPs located on a site development. However, site designers may modify the templates to include inspections and maintenance elements as needed and appropriate for the BMPs.

The final O&M Plan includes the components of the preliminary O&M Plan stated above, updated to reflect the stormwater facilities and BMPs as they have been constructed in the field, as well as a completed “Covenants for Permanent Maintenance of Stormwater Facilities and Best Management Practices” (also called the “Maintenance Covenants”). A blank copy of the Maintenance Covenants is presented in Appendix F of this manual.

An example final O&M plan for a residential subdivision is presented in Figure 4-4.

**Figure 4-4. Operations and Maintenance Plan Contents**

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<td>WATER QUALITY DRY SWALE</td>
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### 4.6 Small Lot EPSC Plans

The owner or operator of residential lots that will disturb less than one acre must submit a small lot EPSC plan prior to obtaining a building permit. In some circumstances, a small lot EPSC plan may not provide adequate protection to streams, sinkholes and other stormwater systems from sedimentation. In such situations, the Director can require a more detailed EPSC plan.

The small lot EPSC plan must identify general erosion prevention and sediment control measures that will be employed on the site via one of the template options that is shown on the plan. A blank small lot EPSC plan presented in Appendix G of this manual. In the event that none of the
template options shown on the plan adequately represent site conditions, the owner or operator must create a sketch.

Failure to install and maintain the measures identified in the small lot EPSC plan will be considered a violation of the Knox County Stormwater Management Ordinance. The grading or building permit holder is required to adhere to the small lot EPSC plan and prevent sediment from leaving the building site. The permit holder is also responsible for stabilizing the site prior to the issuance of a Certificate of Occupancy.

4.7 Bonds

Knox County requires that a performance bond be provided for land disturbing activities, and/or the construction of new developments and redevelopments when:

1) there is a potential for runoff to adversely impact Knox County rights-of-way, other property, and/or streams, wetlands, ponds or lakes that are located in Knox County; or,

2) an erosion prevention and sediment control plan is required; or,

3) a stormwater management plan is required; or,

4) there is construction of a joint permanent easement or public road; or

5) the area of grading or development drains to one or more sinkholes; or,

6) the site is used for a borrow pit.

The purpose of the performance bond is to ensure that the person(s) responsible for completing the land disturbing activities and/or construction work that has the potential to impact the public interest if performed improperly is completed in an appropriate manner. The performance bond provides assurance to Knox County that the County will be reimbursed when it must assume the costs of corrective measures and/or work not completed by the responsible person(s) according to the required specifications and approved plans. A performance bond can be used to cover the County’s costs for the remediation or demolition of roadways, stormwater management facilities and related appurtenances, the installation and maintenance of EPSC measures and EPSC corrective actions, final soil stabilization of a site, and the establishment, protection, and maintenance of water quality buffers.

Performance bonds are authorized in Section 4.4 of the Knox County Stormwater Management Ordinance and are administered by Knox County Engineering. The dollar amount of the performance bond will be determined by Knox County Engineering, based on the information presented in the approved EPSC and/or stormwater management plan.

General policies regarding release of a performance bond are as follows.

1) An accurate as-built certification must be completed for the property, in accordance with the Knox County Stormwater Management Ordinance and this manual.

2) Portions of the property that will be used for the stormwater management system must be recorded as a permanent drainage, water quality, preservation, and/or access easement, as appropriate for each system component.

3) If found within the boundaries of the development, any one of the following items could keep areas or activities from being released from the performance bond:

   • areas of erosion or unstabilized areas;
   • less than 70% perennial vegetation coverage of non-paved areas. There may be
additional requirements for sites that are considered a priority construction activity or have caused past damages off-site due to sediment discharges;

- potential for discharges of sediment, or construction-related and other wastes;
- engineering or structural deficiencies or maintenance issues associated with constructed roadways, the stormwater system, or stormwater management best management practices;
- unsafe conditions;
- unhealthy, damaged or poorly growing vegetation in a water quality buffer that has been impacted by construction or for which a buffer enhancement plan has been approved;
- Operations and Maintenance Plan not complete.

4.8 As-Built Certifications

Prior to obtaining a Certificate of Occupancy, two (2) complete copies of as-built drawings with the appropriate professional certifications must be provided to Knox County Engineering for approval. The as-built drawings will be compared to the approved stormwater management plan for any irregularities or non-conformance with the approved plans.

The as-built drawings shall reflect the “as-constructed” condition of the development, and shall include sufficient information to demonstrate substantial conformance with the approved stormwater management plan. Significant deviations from the approved plan shall be considered violations of the Knox County Stormwater Management Ordinance and are grounds for the invocation of the injunctions and penalties defined therein, and/or withholding the release of a bond pending the completion of corrective action(s), and/or requiring a submittal of a revised stormwater management plan. In the event that the Director requires submittal of a revised plan, the revision shall include a description of the discrepancies between the site conditions and the prior approved stormwater management plan, along with design calculations that demonstrate that the as-built conditions comply with the Knox County Stormwater Management Ordinance. Should the as-built conditions be shown to have a negative impact with regards to flooding, maintenance, erosion or water quality, the Director has the authority to require other mitigation measures and proposed design plans to mitigate any potential impacts from the development.

Only complete as-built plans will be accepted by Knox County Engineering for review. The As-Built Certification checklist presented in Appendix E shall be included in the as-built plan to indicate that a complete plan is being submitted. As-built plans shall contain the information and certification(s) listed, as applicable to the development. Some requirements of the checklist in Appendix E will not be applicable to all projects. These requirements should be checked as “not applicable”. The Director has the authority to request the submittal of additional information with the as-built plan as necessary to allow a thorough review of the as-constructed conditions. Omission of any required items shall render the plans incomplete, and they will be returned to the applicant, or their engineer, so that they may be completed.

Plats, easements and BMP locations shown in the Operations and Maintenance Plan must be field checked by the property owner or developer prior to submitting the as-built plan to ensure that the field locations are approximately correct. Prior to submittal of the as-built drawings, all easements and survey plats, and the final Operations and Maintenance Plan for the development must be recorded in the Knox County Register of Deeds’ office. Copies of the recorded documents or other verification of the recording shall be included with the as-built drawings.

As-built plans must be prepared and stamped by the appropriate design professional as required to stamp the original stormwater management plan, and/or a registered land surveyor licensed to
practice in the State of Tennessee. Land surveyors providing as-built plans must provide the following certification, in addition to the surveyor’s seal and an original signature and date across the seal.

```
I hereby certify that I have surveyed the land boundaries and easements shown hereon in accordance with the accuracy requirements for a Category I survey and that the ratio for precision of the unadjusted survey is not less than 1:10,000.

I further certify that I have located all natural and manmade features shown hereon in accordance with the current Standards of Practice as adopted by the Tennessee State Board of Examiners for Land Surveyors. I certify the location, elevation and description of these features.

Printed name __________________ Date _______________ RLS Number _____________
```

The reviewing engineer shall provide the following certification, in addition to the engineer’s seal and an original signature and date across the seal.

```
Based upon site observations and/or information provided by a registered land surveyor, I hereby certify that all grading, drainage, structures and/or systems, erosion and sediment control practices including facilities and vegetative measures, have been completed in substantial conformance with the approved plans and specifications.

Printed name __________________ Date _______________ PE Number _____________
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4.9 Inspections and Maintenance During Construction

4.9.1 Permittee Responsibilities

During construction, the permittee(s) (i.e., persons responsible for grading and or building permit conditions) must perform documented routine inspections and conduct maintenance to ensure that the stormwater system and erosion prevention and sediment control best management practices are functioning properly, and that no off-site sedimentation is occurring. This section of the Knox County Stormwater Management Manual describes the responsibilities of a permit holder (permittee) to perform inspections and maintenance during active construction, as well as Knox County’s role in inspections and maintenance. For more information on inspection content, frequency and documentation, refer to Volume 2, Chapter 9 of this manual.

While the construction site is active, the permittee (or his/her designee) is responsible for conducting inspections on all components of the stormwater system within the development. The inspection should document the functionality of each component, including the component’s ability to convey or treat runoff, as well as any maintenance needs. It is recommended that the stormwater system be inspected after every rainfall event that produces stormwater runoff to assess the functionality of the system.

The permittee (or his/her designee) is also responsible for performing maintenance on the stormwater system during construction. Maintenance includes, but is not limited to, removing blockages, removing accumulated sediment, replacing stone, repairing silt fence, and cleaning sediment out of catch basins, pipes, and check dams. Maintenance activities should focus on
maintaining the functionality of each component as well as preventing pollutants from being discharged from the development site.

4.9.2 County Authority and Responsibilities

4.9.2.1 Inspections
The Knox County Stormwater Management Ordinance gives the Director (or his/her designated representative) the authority and right to enter private property to inspect for compliance with approved plans. During the normal course of the property development process, this is a common occurrence. County inspectors will document activities at the site and note any corrective actions needed at the site. The permittee may be required to provide the County inspector with copies of inspection reports and permit documentation to verify that inspections and maintenance are being performed as necessary. In the event that a maintenance need or concern is identified during an inspection by Knox County, the County will require the permittee to perform the maintenance activity and will establish a completion date in writing. Failure to perform the maintenance by the completion date set by Knox County could result in further enforcement action.

Failure of a property owner to allow entry by the Director or his/her designee for purposes of an inspection shall be cause for the issuance of a stop work order, withholding of a certificate of occupancy, and/or civil penalties and/or damage assessments.

4.9.2.2 Corrective Actions
The Director has the authority to order corrective actions to EPSC measures, stormwater management facilities, and/or the stormwater system as necessary to properly maintain the stormwater systems within Knox County. Further, the Director can perform the corrective action. If the property owner(s) fails to perform corrective actions, the Director shall have the authority to order corrective action, to be performed by the County or others. The property owner or permittee is responsible for providing funding for corrective actions that are performed by the County (or designee), either through revocation of the performance bond or reimbursement for double the cost of the corrective action. Knox County has the authority to file a lien for failure to reimburse a corrective action.