TOWN OF KERNERSVILLE

WATERSHED AND STORMWATER ADMINISTRATIVE MANUAL

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I. INTRODUCTION AND PURPOSE

The Town of Kernersville Watershed and Stormwater Administrative Manual, referred to hereafter as Administrative Manual, has been developed for the purpose of providing guidance and clarity for implementation of the Town of Kernersville Stormwater and Watershed Regulations including Stormwater Post-Construction Controls, Buffer Rules and Water Supply Watershed Protection Regulations within the Town of Kernersville and its Extra-territorial Jurisdiction (ETJ). The Administrative Manual includes application requirements and forms, submission schedules, fee schedules, maintenance agreements, variances forms and information on where to obtain copies of the Town of Kernersville Stormwater Ordinances and information about the North Carolina Stormwater Best Management Practice Manual. A digital copy of the Administrative Manual is available at the Town of Kernersville Website under the following link:
Town of Kernersville - Permits, Ordinances, & Specs.

II. STORMWATER AND WATERSHED REGULATIONS

The Town of Kernersville Stormwater and Watershed regulations (Stormwater Post-Construction Controls, Buffer Rules and Water Supply Watershed Protection Regulations) are designed to control stormwater pollutants as well as increased stormwater volume and velocity from new development and redevelopment so that water quality is protected and downstream flooding is reduced; those regulations are included in the Town of Kernersville Unified Development Ordinance UDO within the Chapter C "Environmental Ordinance" as following:

- **Watershed Protection Ordinance – Unified Development Ordinance Chapter C Article III.** The effective date of this Ordinance was July 1, 1993.
- **Stormwater Runoff - Unified Development Ordinance Chapter C Article IV - Section 3- Post - Construction Runoff.** The effective date of this Ordinance was October 1, 2007.
- **Riparian Buffer Protection Ordinance for Lands within the Jordan Watershed - Unified Development Ordinance Chapter C Article V.** The effective date of this Ordinance was July 1, 2011.
- **Riparian Buffer Protection Ordinance for Lands within the Randleman Lake Watershed - Unified Development Ordinance Chapter C Article VI.** The effective date of this Ordinance was July 1, 2011.

Copy of the Town of Kernersville Unified Development Ordinance UDO, including Chapter C, Articles III, IV, V and VI can be found at the Town of Kernersville Web-site under the following link:
http://toknc.com/documents/files/Table%20of%20Contents.pdf.

Also, copy of the Town of Kernersville Local Watershed Map is available in Appendix 15 "Town of Kernersville Watershed Map" of this document and at the Town of Kernersville Web-site under the following link:
Town of Kernersville - Permits,Ordinances, & Specs.

III. STORMWATER BEST MANAGEMENT PRACTICES (BMPs) MANUAL

The Watershed Administrator (Town of Kernersville staff, located at the Community Development Department-Engineering Division, in charge of the issue of the Town Watershed/Stormwater Permit) and Stormwater Administrator (Town of Kernersville staff, located at the Public Services Department-Stormwater Division, in charge of the Town of

Kernersville BMP(s) Inspection Program) shall use the policies, criteria, and information, including technical specifications and standards, in the most current revision of the North Carolina Stormwater Best Management Practice Manual; and for publicly funded linear transportation projects, the North Carolina Department of Transportation Stormwater Best Management Practices Toolbox; as the basis for decisions about Watershed/Stormwater permits and about the design, implementation and performance and maintenance of structural and non-structural stormwater BMPs.

The North Carolina Stormwater Best Management Practices Manual includes a list of acceptable stormwater treatment practices, BMP(s), including the specific design criteria for each stormwater practice. Stormwater treatment practices that are designed, constructed, and maintained in accordance with these design and sizing criteria will be presumed to meet the minimum water quality performance standards of the Town of Kernersville Stormwater and Watershed regulations.

The Town of Kernersville Design and Construction Specifications document is also a useful reference for designers and developers. This manual was approved by the Board of Alderman as a Town ordinance and contains information pertinent to other stormwater infrastructure designs.

If the standards, specifications, guidelines, policies, criteria, or other information in the North Carolina Stormwater Best management Practices Manual and in North Carolina Department of Transportation Stormwater Best Management Practices Toolbox are amended subsequent to the submittal of an application for approval pursuant to the Town of Kernersville Stormwater/Watershed regulations but prior to approval, the new information shall control and shall be utilized in reviewing the application and in implementing the Town of Kernersville Stormwater/Watershed regulations with regard to the application. The most current version of the North Carolina Stormwater Best management Practices Manual and the North Carolina Department of Transportation Stormwater Best Management Practices Toolbox shall apply regarding the date of submittal of a new application.
A digital copy of The North Carolina Stormwater Best Management Practices Manual is available at the North Carolina Department of Environment and Natural Resources (NCDENR) website; Division of Energy, Mineral and Land Resources; Land Quality Section under the following link:

NCDENR - Stormwater BMP Manual

A digital copy of The North Carolina Department of Transportation Stormwater Best Management Practices Toolbox is available at the North Carolina Department of Transportation website; Programs; Environmental Programs; Environmental Excellence; Environmental Hot Topics; Stormwater Program; NPDES Permit under the following link:
https://connect.ncdot.gov/resources/hydro/Stormwater%20Resources/Stormwater%20Best%20Management%20Practices%20Toolbox%20-%20March%202008.pdf

A digital copy of The Town of Kernersville Design and Construction Specifications document is available at the Town of Kernersville Website under the following link: Town of Kernersville – Business Information - Permits, Ordinances, &
http://toknc.com/documents/files/SpecBook.pdf

IV. WATERSHED / STORMWATER PERMIT PROCESS

A. Purpose and Application

The purpose of the Watershed and Stormwater Permit Process is to provide a mechanism for the review, approval, and inspection of the approach to be used for the management and control of Stormwater for a development or redevelopment site consistent with the requirements of the Town of Kernersville's UDO, whether the approach consists of structural BMPs or other techniques such as low-impact or low-density design. Compliance after project construction is

assured by the maintenance provisions of the Town of Kernersville Stormwater and Watershed Ordinances.

A Watershed/Stormwater Permit is required for all development and redevelopment unless exempt pursuant to the Town of Kernersville Stormwater and Watershed Ordinances. No building or built-upon area shall be erected or expanded, nor shall any building or zoning permit be issued until a Watershed/Stormwater Permit has been issued by the Watershed Administrator or Town Manager's designee.

A properly submitted packet (plans, calculation, legal documents, etc.), as well as a reviewed and approved Watershed/Stormwater Permit Application, are required for the issuance of a Watershed/Stormwater Permit. All plans submitted with the application shall be prepared by a registered North Carolina professional engineer or landscape architect. The engineer or landscape architect shall perform services only in their area of competence and shall verify that the design of all stormwater management facilities and practices meets the submittal requirements for complete applications; that the designs and plans are sufficient to comply with applicable standards and policies found in the North Carolina Stormwater Best Management Practices Manual, and the North Carolina Department of Transportation Stormwater Best Management Practices Toolbox if it is a linear transportation project; and that the designs and plans ensure compliance with the Town of Kernersville Stormwater and Watershed Ordinances.

B. Watershed/Stormwater Permitting Process

The Watershed/Stormwater Permitting Process can be separated into three phases of stages: Planning, Preliminary Design, and Concept Plan; Final Stormwater Management Plan, Construction Drawing Review and Permitting; and Construction and Construction Inspections of Stormwater Control Structures-BMP(s).

1. Planning, Preliminary Design, and Concept Plan

Before plans will be reviewed and approved for construction, preliminary site plans must be reviewed by the Watershed Administrator through the Community Development department review process.

Based upon the review of existing conditions and site analysis, the designer should develop a concept site layout plan for the project. During the concept plan stage the site designer will perform most of the layout of the site including the preliminary stormwater management system design and layout. The stormwater concept plan allows the design engineer to propose a potential site layout and gives the developer and local review staff preliminary information regarding the stormwater management system for the proposed development.

The following steps should be followed in developing the stormwater concept plan:

a. Use appropriate site design approaches (see the North Carolina Stormwater Best Management Practices Manual) as applicable to develop the site layout, including:
   - Preserving the natural feature conservation areas defined in the site analysis.
   - Fitting the development to the terrain and minimizing land disturbance.
   - Reducing impervious surface area through various techniques.
   - Preserving and utilizing the natural drainage system wherever possible.

b. Calculate preliminary estimates of the stormwater sizing criteria requirements for water quality, channel protection, overbank flooding protection and extreme flood protection based on the concept plan site layout.

c. Perform screening and preliminary selection of appropriate structural

stormwater controls and identification of potential sitting locations.

It is extremely important at this stage that stormwater design is integrated into the overall site design concept in order to best reduce the impacts of the development as well as provide for the most cost-effective and environmentally sensitive approach. The goal of maintaining natural hydrologic conditions as a site is developed, to the extent possible, can reduce the economic costs of stormwater management and minimize the negative environmental impacts associated with development.

It is recommended that prior to the preparation of the Final Stormwater Plan; the owner or developer shall request a consultation meeting with the Watershed Administrator on a concept plan for the post-construction stormwater management system to be utilized in the proposed development project. This consultation meeting shall take place at the time of the preliminary plan of subdivision or other early step in the development process. The purpose of this meeting is to discuss the post-construction stormwater management measures necessary for the proposed project, as well as to discuss and assess constraints, opportunities and potential approaches to stormwater management designs before formal site design engineering is commenced. The development process will typically proceed much faster and smoother if the concept meeting is conducted very early in the process.

Appendix 01 "Stormwater Concept Plan - Preliminary Site Plan Requirements Submittal Checklist" contains the list of the items that should be submitted to the Watershed Administrator for review purposes prior to the preparation and submittal of the Final Stormwater Management Plan and Construction Plans.

The Stormwater Management System Concept Plan is only a portion of the preliminary submittal through the Community Development Department review process. The Community Development Department must approve the proposed preliminary site plan with respect to City ordinances and policies relating to all components of the development plan (e.g., zoning, subdivision, utility, landscape, etc.) in addition to the Stormwater Management System Concept Plan before the developer may submit an application and construction plans for the Watershed/Stormwater Permit.

The "Planning, Preliminary Design, and Concept Plan" phase is outlined in Appendix 02 "Stormwater Management System Concept Plan Review Submittal Process"

2. Final Stormwater Management Plan, Construction Drawing Review, and Permitting

The final Stormwater Management Plan ensures that requirements and criteria are being complied with and that opportunities are being taken to minimize adverse impacts from the development. The Final Stormwater Management Plan should consist of plans; narrative and supporting design calculations (hydrologic and hydraulic); proper documentation and adequate financial assurance for the proposed stormwater management system.

For review purposes, the final stormwater management plan should include the following elements:

a. Existing Conditions Hydrologic Analysis: Provide an existing condition hydrologic analysis for stormwater runoff rates, volumes, and velocities, which includes:

- A topographic map of existing site conditions (minimum 2-foot contour interval recommended) with the basin boundaries indicated.
- Acreage, soil types and land cover of areas for each sub basin affected by the project.
- All perennial and intermittent streams and other surface water features.
- All existing stormwater conveyances and structural control facilities.
- Delineation of on-site and off-site drainage areas including number of acres.
- Direction of flow and exits from the site.
- Analysis of runoff from off-site areas upstream of the project site.
- Methodologies, assumptions, site parameters and supporting design calculations used in analyzing the existing conditions site hydrology.

b. Post-Development Hydrologic Analysis: Provide a post-development hydrologic analysis for stormwater runoff rates, volumes, and velocities, which includes:

- A topographic map of developed site conditions (minimum 2-foot contour interval recommended) with the post-development basin boundaries indicated.
- Location of proposed roads, building, parking lots, etc.
- Total area of post-development impervious surfaces and other land cover areas for each sub basin affected by the project.
- Unified stormwater sizing criteria runoff calculations for water quality, channel protection, overbank flooding protection and extreme flood protection for each sub-basin.
- Location and boundaries of proposed natural feature protection and conservation areas.
- Methodologies, assumptions, site parameters and supporting design calculations used in analyzing the existing and proposed conditions site hydrology.

c. Stormwater Management System: Provide drawings, design calculations and specifications for the proposed stormwater management system, including:

- A drawing of the stormwater management system including the location of nonstructural site design features and the placement of existing and proposed structural stormwater controls. This drawing should show design water surface elevations, storage volumes available from zero to maximum head, location of inlets and outlets, location of bypass and discharge systems, and all orifice/restrictor sizes.
- Narrative describing selection process for appropriate and effective structural stormwater controls.
- Plan view, Cross-sections and profile drawings and design details for each of the structural stormwater controls (BMPs) in the system. This should include supporting calculations to show that the structure is designed according to the applicable design criteria and the North Carolina Best Management Practices Manual.
- Hydrologic and hydraulic analysis of the stormwater management system for all applicable design storms (should include stage-storage or outlet rating curves, and inflow and outflow hydrographs).
- Drawings, design calculations and elevations for all existing and proposed stormwater conveyance elements including stormwater drains, pipes, culverts, catch basins, channels, swales and areas designed for overland flow.

d. Erosion and Sedimentation Control Plan: All projects which disturb more than one acre within the Town of Kernersville and its Extraterritorial Jurisdictional (ETJ) must have an approved Erosion and Sedimentation Control Permit from NC DENR. The developer shall submit one copy of the approved Erosion and Sedimentation Control Plans to the Watershed Administrator.

e. Proper Documentation and adequate Financial Assurance for the Proposed Stormwater management system
In addition to an approval for design construction plans for the proposed Stormwater Management System, and prior to obtaining a Watershed and Stormwater permit, the developer and/or property owner shall comply with others Watershed Protection and Storm water Runoff Ordinances requirements, which require as part of the permitting process the submittal of the following documents for review and approval by the Watershed Administrator and/or Watershed Review Committee:

- **Complete Watershed and Stormwater Permit Application and payment of Stormwater Site Plan Review fees.** The Watershed and Stormwater Permit Application fee must be paid with the submittal of the Permit Application in order for the application to be considered complete for review. The Town of Kernersville Schedule of Fees and Charges is in the approved current fiscal year Budget document available online at: Town of Kernersville - Finance
- **Draft of an Operation and Maintenance Plan for each BMP (if applicable).** Such plan shall specify all operation and maintenance work necessary for the stormwater control structure(s) and methods to be used to maintain or restore a stormwater control structure to design specifications in the event of failure. Include in this plan an annual budget for the maintenance and control of the wet detention basin. The approved Operation and Maintenance plan should be signed and notarized and submitted to the Town of Kernersville Engineering Division.
- **Draft of the Operation and Maintenance Agreement for the BMPs (if applicable)** meeting both Watershed Protection and Storm water Runoff Ordinances. The purpose of this agreement is to ensure that each BMP receives adequate maintenance so that it can satisfactorily perform its pollutant removal function, and meet the Town of Kernersville Watershed and Stormwater runoff regulations. The agreement also designates the responsible party who shall be in charge of maintaining the BMP. It serves as a legal document to ensure maintenance and also outlines the routine maintenance schedule for each BMP. The approved Operation and Maintenance Agreement shall be recorded in the office of the Register of Deeds and submitted to the Town of Kernersville Engineering Division.
- **Deed of Easement**. For a development that involves any stormwater control structure, the applicant shall convey unto the Town of Kernersville or its successors or assigns an easement and right-of-way establishing the right to ingress, egress, and regress over the property for the purpose of inspection, repair, or maintenance of the stormwater control structure(s). A description of the area containing the storm water control structure(s) within a drainage easement shall be contained within the deed filed with the Register of Deed together with any dedication necessary for access

to and from the stormwater control structure(s) and a public street. The approved deed of easement shall be recorded in the office of the Register of Deeds and submitted to the Town of Kernersville Engineering Division.

- **Submit a Construction Performance Surety to the Town of Kernersville for the amount equal to one hundred percent twenty (120%) of the total cost of the storm water control structure (If applicable).** Performance Sureties may be in the form of Standby Letters of Credit, Performance Bonds, and Cash. Please submit unit cost information pertaining to all storm water control structures and /or bids from the contractor hired to perform the work and any change orders related thereto as a method to determine the basis for cost of the work for the construction of the BMP. The Engineering Division will review and approve the total cost estimation for the construction of the BMP.
- **Covenants and Restrictions (If applicable)**. For those developments having a permanent stormwater control structure, (Homeowner's / Property Owner's) Association Covenants, Conditions and Restrictions and Articles of Incorporation shall be reviewed and approved by the Watershed Review Committee prior to recordation of a plat.
- **Maintenance Escrow Agreement (If applicable).** For all structural BMPs that are to be or are owned and maintained by an owners' association, the Town of Kernersville Stormwater Runoff Ordinance requires the establishment of an escrow account for the long term maintenance of the BMP(s); which can be spent solely for sediment removal, structural, biological or vegetative replacement, major repair, or reconstruction of the structural BMPs.
- **Town of Kernersville No Practical Alternatives - Riparian Buffer Authorization Application Form (If applicable).** Persons who wish to undertake uses designated as allowable or allowable with mitigation (as per the Table of Uses of the Jordan and Randleman Buffer Rules) shall submit a request for a "No practical alternatives" determination to the Town of Kernersville. A Buffer Authorization may be issued by the Town of Kernersville. Please refer to the Town's UDO buffer rules and watershed regulations (Chapter C Articles III, V, and VI).
- **Town of Kernersville Variance Request Application Form (If applicable)** for the UDO Chapter C Articles III, V and VI. The Town may issue a Minor Variance, upon request from the developer or developer's representative. A Major Variance request will be processed through the Town of Kernersville, but shall be issued by the North Carolina Environmental Management Commission and requires extensive reporting and a local Watershed Review Committee hearing and report.
- **Copy of any required environmental permit by NCDENR Division of Water Resources (NCDWR) and the US Army Corps of Engineers (USACE)** (Stream and/or Jurisdictional Wetland Impacts - 404 general or Individual Permit & 401 Water Quality Certification; Isolated Wetland Impacts; Stream Determinations; Buffer authorizations; etc.)

See appendix 03 for the High Density and Low Density Watershed/Stormwater Permit Applications; appendix 04 for the

Checklists of the items that should be submitted to the Watershed Administrator for review and approval prior to the issuance of a Watershed/Stormwater Permit; and appendix 05 "Guidelines for Surety Posting" for information about the performance Sureties.

Appendices 06 to 11 contain templates of most of the documents mentioned above for the convenience and use of developers and property owners. Electronic copy of this model documents can be found at the Town of Kernersville Web-site under the following link: Town of Kernersville - Applications and Forms

Additionally, the "Final Stormwater Management Plan, Construction Drawing Review, and Permitting" phase is outlined in Appendix 12 "Watershed/Stormwater Management Permit Application Process" Flow Chart.

3. Construction and Construction Inspections of Stormwater Control Structures-BMP(s)

The Construction and Construction Inspections of Stormwater Control Structures-BMP(s) Phase is outlined on Appendix 13, titled "Stormwater Management Construction and Construction Inspection Process."

Once the Watershed/Stormwater Permit is issued, construction may begin, provided all other environmental permits have been obtained, or are in the process of being obtained, and all requirements of the Town of Kernersville Community Development Department have been satisfied. During construction, Town staff may conduct periodic construction inspections of Stormwater BMP(s), however the designer is ultimately responsible to certify that any structural BMPs meet the requirements of the ordinance and Stormwater Permit.

Certain BMP(s) (as Bio-retention Areas) should not be constructed until the drainage area to that BMP has been stabilized. Should a BMP be constructed prior to adequate ground stabilization provisions being implemented, the responsibility of reconstruction, replanting or replacement of any contaminated soils is the responsibility of the owner

Upon completion of a project, and before a certificate of occupancy shall be granted, the applicant shall certify that the completed project is in accordance with the approved Stormwater Management Plan and design, and shall submit "as built" plans for all BMPs after final construction is completed to the Watershed Administrator. The plans shall show the final design specifications for all stormwater management facilities and practices and the field location, size, depth, and planted vegetation of all measures, controls, and devices, as installed.

The designer of the stormwater management measures and plans shall also certify, under seal, that the as-built stormwater measures, controls, and devices are in compliance with the approved stormwater plans and designs and with the requirements of the Town of Kernersville's applicable ordinances. Appendix 14 "Engineer's Certificate of Stormwater Control Completion" contains a model that the Town of Kernersville has available for the convenience and use of designers.

After review and approval by the Watershed Administrator of the BPM(s) As-built plans and Engineer's Certificate of Stormwater Control Completion, and any other pending requirements; the owner may request release of fifty percent (50%) of the performance surety. Upon request by the owner, the Stormwater Division shall inspect the stormwater control structure(s) to determine that the stormwater control(s) have been constructed and maintained as required by the Town of Kernersville's Stormwater and Watershed Ordinances.

The Stormwater Administrator, upon determining that the stormwater control(s) have been installed in conformity with the Town of Kernersville's Stormwater and Watershed Ordinances and maintained properly, shall release fifty percent (50%) of the performance surety.

No sooner than one year after the completion of the Stormwater control structure, BMP(s), the owner may request release of the remainder of the performance surety. Upon request by the owner, the Stormwater Division shall inspect the stormwater control structure(s) to determine that the stormwater control(s) are performing as required by the Town of Kernersville's Stormwater and Watershed Ordinances.

If the plantings or other features cannot be viewed due to time of year, plant dormancy or leaf cover, then the inspection may be delayed until such time as the inspection may be performed.

The Stormwater Administrator, upon determining that the stormwater control(s) are performing as required by the Town of Kernersville's Stormwater and Watershed Ordinances, and after any needed repairs to the stormwater control structure(s) are made by the owner, shall release the remaining performance surety.

Upon default of the owner to construct, maintain, repair and, if necessary, reconstruct any structural BMP in accordance with the applicable permit or operation and maintenance agreement, the Town of Kernersville may use all or any portion of the performance surety to make necessary improvements based on an engineering estimate or bids.

Such expenditure of funds shall only be made after requesting the owner to comply with the permit or maintenance agreement. In the event of a default triggering the use of installation performance surety, the Town of Kernersville shall not return any of the unused performance surety, which shall be retained for maintenance. If the Town of Kernersville takes action upon such failure by the applicant or owner, the Town of Kernersville may collect from the applicant or owner for the difference should the amount of the reasonable cost of such action exceed the amount of the performance surety held.

V. STORMWATER CONTROL STRUCTURES (BMPs) INSPECTION PROGRAM

Inspections and inspection programs by the Town of Kernersville may be conducted or established on any reasonable basis, including but not limited to routine inspections; random inspections; inspections based upon complaints or other notice of possible violations; and joint inspections with other agencies inspecting under environmental regulations. Inspections may include, but are not limited to, reviewing maintenance and repair records; sampling discharges, surface water, groundwater, and material or water in BMPs; and evaluating the condition of BMPs.

If the owner or occupant of any property refuses to permit such inspection, the Stormwater Administrator shall proceed to obtain an administrative search warrant pursuant to G.S. 15-27.2 or its successor. No person shall obstruct, hamper or interfere with the Stormwater Administrator while carrying out his or her official duties.

The Stormwater Administrator may notify the owner of any repair or reconstruction necessary to meet the requirements of the Town of Kernersville's Stormwater and Watershed Ordinance All repair or reconstruction shall be in accordance with the approved plans and specifications for the stormwater control structure and the operation and maintenance plan and shall be completed within ninety (90) days after notification by the Stormwater Administrator. Upon request by the owner, the

Stormwater Administrator shall inspect and approve the completed repairs.

Annual Maintenance Inspection and Reports by the Owner of the BMP(s)

All stormwater control structures shall be inspected at least on an annual basis to determine that the controls are performing as required by the Town of Kernersville's Stormwater and Watershed Ordinances. For stormwater control structures completed and approved by the Town of Kernersville after October 2007, the owner or person responsible for maintenance shall submit to the Stormwater Administrator an inspection report from a qualified registered North Carolina professional engineer, surveyor, soil scientist or landscape architect performing services only in their area of competence. The inspection report shall contain all of the following:

- The name and address of the land owner;
- The recorded book and page number of the lot of each structural BMP;
- A statement that an inspection was made of all structural BMPs;
- The date the inspection was made;
- A statement that all inspected structural BMP(s) are performing properly and are In compliance with the terms and conditions of the approved maintenance agreement required by the Town of Kernersville regulations.
- The original signature and seal of an engineer, surveyor, soil scientist or landscape architect who either has adequate training in BMP maintenance or has been certified to maintain BMPs.
- Homeowner's and other associations required entering into an operation and maintenance agreement shall include a financial statement certifying compliance with the escrow account long term maintenance requirement.

An original inspection report shall be provided to the Stormwater Administrator beginning one year from the date of as-built certification and each year thereafter on or before the date of the as-built certification.

APPENDIX 01

TOWN OF KERNERSVILLE

Town of Kernersville
P.O. Box 728
Kernersville, NC 27285-0728

134 East Mountain Street
Telephone (336)996-3121
Fax (336)996-4822

STORMWATER CONCEPT PLAN - PRELIMINARY SITE PLAN REQUIREMENTS

SUBMITTAL CHECKLIST

___Site plan at a scale of not less than one (1) inch equals 100 feet.

___Property lines with bearings and distances of the land to be developed; names of the owners of all adjacent land.

___Topographic contours at an interval of four (2) feet, showing existing and proposed contours.

___ Location of existing structures and other impervious areas

___ Watershed Site Data Block

- Watershed Name & Classification
- Total Site Acreage = "A"
- Existing Impervious Areas Built prior to 1993 = "B"
- Existing Impervious Areas Built after 1993 = "C"
- Total Undeveloped Acreage under regulations = "D" (D = A-B)
- New acreage of Impervious Area Proposed = "E"
- Percentage of Impervious area proposed = "P" {P = [(C+E) / (D)]*100}

____ Delineation of on-site and off-site drainage areas including number of acres

____ Direction of stormwater flow and exits from the site

____ Plan view of the proposed stormwater drainage system

- Preliminary Location of inlets, manholes, pipe lines, and other storm drainage structures.

- Location of existing and proposed conveyance systems such as grass channels, swales, natural vegetated conveyance, level spreaders, etc.
- Existing Ditches, swales, pipes, and drainage easements which are adjacent to the proposed project
- Preliminary Drainage Calculations

____ Preliminary grading plan that should include finish grading for the residential unit in case of subdivision and other developments.

____ Delineation of Predominant Soil Types (from soil surveys if available)

____ Delineation of Existing Predominant Vegetation

____ Location and boundaries of other natural feature protection and conservation areas such as wetlands, lakes, ponds, 100 year floodplain, stream buffer and features used in designing buffers and meeting any applicable buffer requirements. Other setbacks(e.g drinking water well setbacks, septic setbacks, etc).

____ Preliminary selection, size, calculations and location of proposed structural stormwater controls (BMP's). Low-impact design elements if applicable.

____ All proposed right-of-ways, easements, parks, playgrounds and other areas proposed to be dedicated to public or common use.

____ Proposed lot lines, dimensions of lots. Lot number and total number of lots, and proposed use of land.

____ Location of right-of-way widths of all existing and proposed streets; water and sewer lines.

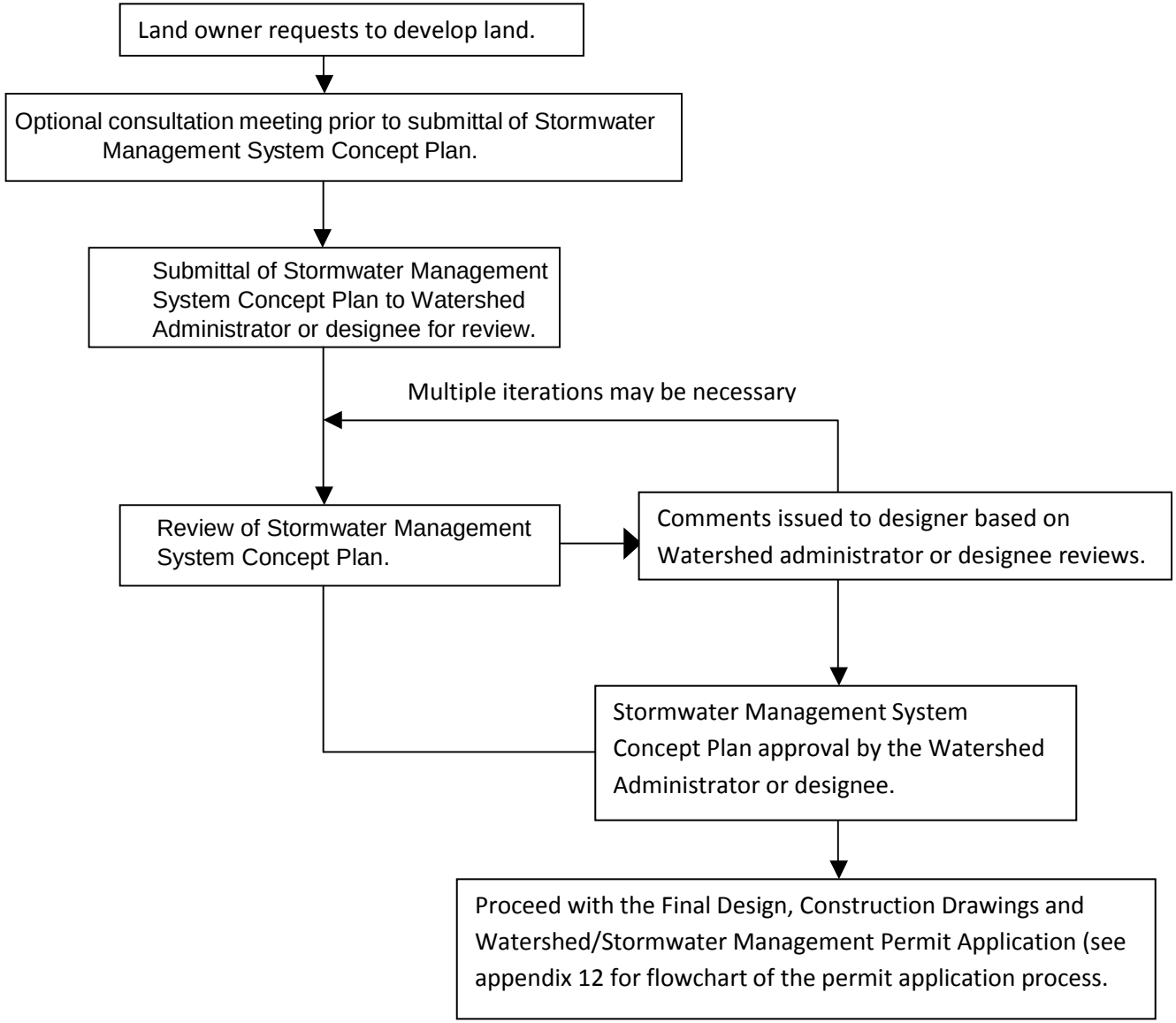
____ Vicinity map at a scale of not less than one (1) inch to 1000 feet showing the relation of the property to adjoining property and to all streets, roads, and existing drainage ways within 200 feet of any part of the property to be developed.

____ The legend of the preliminary site plan shall contain the name of the owner(s) of the property and of the authorized agent, if any; the name of the engineer or landscape architect with registration seal, responsible for the plan; north arrow; scale; date; total area, stated in acres, of the land to be developed.

Note: The items listed above should be submitted to the Watershed Administrator for review prior to the preparation and submittal of the Final Stormwater Management plan and Construction plans.

APPENDIX 02

STORMWATER MANAGEMENT SYSTEM CONCEPT PLAN REVIEW SUBMITTAL



APPENDIX 03 - a
Watershed/Stormwater Permit - High Density
Site Plan Review by Watershed Administrator

Date Submitted:_____ Filing Fee $_____

Tax Block(s): _____ Lot(s): _____ Pin Number(s):_____

Name of Development: _____

Location of Development: _____

Address of Development: _____

Name and Classification of Watershed: _____

Name and Address of Contact Person: _____
Phone: _____

Name of Property Owner: _____

Is the Owner the Developer? Yes _____ No _____

Name and Address of Engineer or Landscape Architect:
_____
_____
_____
Phone: _____

Acreage: _____ Number of Units/Lots: _____

Streets: Public_____ Private_____

Utilities: Water: Public_____ Private_____
Sewer: Public_____ Private_____
Other: _____

SITE DATA
Total site acreage= "A" :_____sf
Existing impervious areas built prior to 1993= "B" :_____sf
Existing impervious areas built after 1993= "C" :_____sf
Total undeveloped site acreage under regulations= "D" (D = A-B):_____sf
New acreage of impervious area proposed= "E":_____sf
Percentage of impervious area proposed= "P" {P= [(C+E)/(D)]*100} : _____%

Note: Filing this application form gives the Town permission to enter property for inspections.

PART II:

1. _____ Three (3) copies of site plan. At a scale of not less than one (1) inch equals 100 feet indicating :
2. _____ Property lines with bearings and distances of the land to be developed; names of the owners of all adjacent land;
3. _____ Site Data. Total acreage to be developed. Total acreage of impervious area proposed. Percentage of built-upon area proposed.
4. _____ Drainage System. Proposed facilities, including location, dimensions, and calculations for open channels, storm sewers, culverts, detention ponds, and any other drainage features.
5. _____ Topographic contours at an interval of four (4) feet, showing existing and proposed contours.
6. _____ Stream buffer access, streams, drainways, floodways and floodway fringe areas within 200' of the subject property.

7. _____ All existing right-of-ways, easements or other dedication to the use of public or others with widths. All existing structures and built-upon areas, including parking, expressed in square feet, with surface treatments indicated.
8. _____ All proposed right-of-ways, easements, parks, playgrounds and other areas proposed to be dedicated to public or common use, or designed for such use; including finished elevations on all streets and stub streets.
9. _____ Proposed lot lines, dimensions of lots. Lot number and total number of lots, and proposed use of land.
10. _____ Location and right-of-way widths of all streets; water and sewer lines.
11. _____ The legend of the development plat shall contain the name of the owner(s) of the property and of the authorized agent, if any; the name of the engineer or landscape architect with registration seal, responsible for the plan; north arrow; scale; date; total area, stated in acres, of the land to be developed.
12. _____ Engineered stormwater control structure. Including location, dimension, and calculations for:
    A. Total stormwater runoff from design storm, both for pre-development and post-development conditions.
    B. Location, dimensions, and calculations for open channels and storm drainage system, including channel linings for design storm.
    C. Plans, calculations, and specifications for wet detention ponds.
13. _____ Vicinity map at a scale of not less than one (1) inch to 1000 feet showing the relation of the property to adjoining property and to all streets, roads, and existing drainageways within 200 feet of any part of the property to be developed.
14. _____ Where the plan for subdivision includes a lake or pond of one (1) acre or more in size, existing or proposed, the plan shall show the location of dams, spillways or other structures and the location and extent of inundation at full reservoir. The plan shall be accompanied by a profile of the proposed dam structure(s) including all appurtenances thereto;
15. _____ Erosion and Sedimentation Control Plan. (2 copies) Confirmation of approval by City/County Inspections Department, if required.

APPENDIX 03 - b
Watershed/Stormwater Permit Application - Low Density
Site Plan Review by Watershed Administrator

Date Submitted:_____ Filing Fee $_____

Name of Development:_____
Location of Development:_____

Name and Classification of Watershed: _____
Street Address of Property: _____

Tax Block(s): _____ Lot(s): _____ Pin Number(s): _____

Contractor Name: _____
Address: _____
Phone: _____

Name of Property Owner: _____
Address: _____
Phone: _____

Name and Address of Engineer, Surveyor, Landscape Architect, or person preparing plans:
_____
_____
Phone: _____

SITE PLANS
At a scale of not less than one (1) inch equals 100 feet indicating: the name of the engineer, surveyor, or landscape architect with registration seal, or person responsible for the plan; north arrow; scale; date; total area, stated in acres, of the land to be developed.

_____ Property lines with bearings and distances of the land to be developed;
_____ Stream buffer access, streams, drainageways, floodways and floodway fringe areas within 100' of the subject property.
_____ Erosion and Sedimentation Control Plan, and/or Engineered Stormwater Control Plan. (2 copies) Required if more than 20,000 sf is to be graded.
_____ All existing streets, utilities, drainage, right-of-ways, easements or other dedications to the use of public or other with dimensions indicated.

SITE DATA
Total site acreage = "A":_____sf
Existing impervious areas built prior to 1993 = "B": _____sf
Existing impervious areas built after 1993 = "C": _____sf
Total undeveloped site acreage under regulations = "D" (D = A-B): _____sf
New acreage of impervious area proposed= "E" : _____sf
Percentage of impervious area proposed = "P" {P= [(C+E)/(D)]*100} : _____%

Streets: Public_____ Private_____

Utilities: Water: Public_____ Private_____
Sewer: Public_____ Private_____
Other: _____

Note: Filing this application form gives the Town permission to enter property for inspections.

<24% Impervious Area
_____Watershed

_____
Watershed Administrator

Date:_____

APPENDIX 04 - a
SUBMITTAL CHECKLIST

HIGH DENSITY WATERSHED/STORMWATER PERMIT
TOWN OF KERNERSVILLE

Project Name: _____

Submitted By: _____

Date: _____

	YES	NO	REVIEWERS INITIALS
1. COMPLETED HIGH DENSITY WATERSHED PERMIT APPLICATION	☐	☐	_____
2. TWO (2) COPIES OF STORMWATER DESIGN CONSTRUCTION PLANS AND CALCULATIONS FOR INITIAL REVIEW	☐	☐	_____
3. OPERATION AND MANTENANCE AGREEMENT	☐	☐	_____
4. DEED OF EASEMENT	☐	☐	_____
5. OPERATION AND MAINTENANCE PLAN	☐	☐	_____
6. COVENANTS AND RESTRICTIONS (IF APPLICABLE*)	☐	☐	_____
7. CONTRACTOR'S ESTIMATED COST FOR CONSTRUCTION OF BMP(s)	☐	☐	_____
8. PERFORMANCE SURETY FOR BMP(s)	☐	☐	_____
9. MAINTENANCE ESCROW AGREEMENT (IF APPLICABLE)	☐	☐	_____
10. COMPLETE RIPARIAN BUFFER AUTHORIZATION APPLICATION FORM (IF APPLICABLE)	☐	☐	_____
11. COMPLETE VARIANCE REQUEST APPLICATION FORM (IF APPLICABLE)	☐	☐	_____
12. COPIES OF REQUIRED ENVIRONMENTAL PERMITS FROM NCDWR AND/OR USACE (IF APPLICABLE)	☐	☐	_____

Date Reviewed: _____

*If owner's association is to own the best management practice(s), BMPs, the association covenants and restrictions must be reviewed and approved prior to recordation of a plat.

Note: Items listed above shall be submitted, reviewed and approved prior to issuance of a High Density Watershed/Stormwater Permit.

APPENDIX 04 - b

TOWN OF KERNERSVILLE

Town of Kernersville
P.O. Box 728
Kernersville, NC 27285-0728

134 East Mountain Street
Telephone (336)996-3121
Fax (336)996-4822

STORMWATER DESIGN CONSTRUCTION PLANS - SUBMITTAL CHECKLIST

____ Vicinity map at a scale of not less than one (1) inch to 1000 feet showing the relation of the property to adjoining property and to all streets, roads, and existing drainage ways within 200 feet of any part of the property to be developed.

____Site plan at a scale of not less than one (1) inch equals 100 feet.

____The legend of the development plat shall contain the name of the owner(s) of the property and of the authorized agent, if any; the name of the engineer or landscape architect with registration seal, responsible for the plan; north arrow; scale; date; total area, stated in acres, of the land to be developed.

____ Property lines with bearings and distances of the land to be developed; names of the owners of all adjacent land.

____Topographic contours at an interval of four (2) feet, showing existing and proposed Contours lines.

____ Location of existing structures and other impervious areas

____ All existing right-of-ways, drainage easements or other dedication to the use of public or others with widths.

____ All proposed right-of-ways, easements, parks, playgrounds and other areas proposed to be dedicated to public or common use, or designed for such use.

____ Location of right-of-way widths of all existing and proposed streets; water and sewer lines.

____ Proposed lot lines, dimensions of lots. Lot number and total number of lots, and proposed use of land.

____ Watershed Site Data Block

- Watershed Name & Classification
- Total Site Acreage = “A”
- Existing Impervious Areas Built prior to 1993 = “B”

- Existing Impervious Areas Built after 1993 = "C"
- Total Undeveloped Acreage under regulations = "D" (D = A-B)
- New acreage of Impervious Area Proposed = "E"
- Percentage of Impervious area proposed = "P" {P = [(C+E) / (D)]*100}

____ Delineation of on-site and off-site drainage areas including number of acres

____ Detailed proposed grading plan (should include finish grading for the residential unit in case of subdivision and other developments), stormwater flow paths and exits from the site

____ Delineation of Predominant Soil Types (from soil surveys if available)

____ Delineation of Existing Predominant Vegetation

____Where the plan for subdivision includes a lake or pond of one (1) acre or more in size, existing or proposed, the plan shall show the location of dams, spillways or other structures and the location and extent of inundation at full reservoir. The plan shall be accompanied by a profile of the proposed dam structure(s) including all appurtenances thereto.

____ Proposed stormwater drainage system, including location, dimensions, and calculations.

- Inlets, manholes, pipe lines, and other storm drainage structures. Provide pipe and structures design charts
- Existing and proposed conveyance systems such as grass channels, swales, natural vegetated conveyance, etc.
- Existing Ditches, swales, pipes, and drainage easements which are adjacent to the proposed project

____ Location and boundaries of other natural feature protection and conservation areas such as wetlands, lakes, ponds, 100 year floodplain, stream buffer and features used in designing buffers and meeting any applicable buffer requirements. Other setbacks (e.g drinking water well setbacks, septic setbacks, etc).

____ **If applicable**, selection, size, calculations and location of proposed Engineered Stormwater Control Structures (BMP's) and Low-impact design elements. Including:

- Total stormwater runoff calculations from design storm, both for pre-development and post-development conditions.
- Location, dimensions, and calculations for open channels and storm drainage system, including channel linings for design storm.
- Plans, including plan view and profiles; calculations; and specifications for Best Management Practices (wet detention ponds, bio-retention areas, sand filters, etc.) proposed.

_____**If applicable**, complete Town of Kernersville Riparian Buffer Authorization Application Form.

_____**If applicable**, complete Town of Kernersville Variance Request Application Form.

_____**If applicable**, copies of required Environmental Permits from NCDWR and/or USACE.

Note: The items listed above should be submitted to the Watershed Administrator for review and approval prior to the issuance of a Watershed/Stormwater Permit.

APPENDIX 05
GUIDELINES FOR SURETY POSTING:

Performance Bond

A) Entity issuing the Performance Surety must be licensed to do business in the State of North Carolina and state its preferred correspondence address within the Performance Surety.

B) The Performance Surety must be issued in favor of the Town of Kernersville (obligee) for the specified amount.

C) The Performance Surety shall clearly indicate the obligation within the document.

D) The Performance Surety shall clearly indicate principal's full intent to perform.

E) The Performance Surety shall state the surety shall stay in full force and effect until obligee notifies principal that all obligations stated within the Performance Surety have been satisfied in their entirety.

Standby Letter of Credit (SBLC)

A) Entity issuing the SBLC must be licensed to do business in the State of North Carolina and state its preferred correspondence address within the SBLC.

B) The SBLC must be issued in favor of the Town of Kernersville (beneficiary) for a specified amount and state the customer (account party).

C) The SBLC must clearly state it is an irrevocable Standby Letter of Credit.

D) The SBLC shall clearly indicate the obligation within the SBLC is for the payment of money in lieu of performance.

E) The SBLC must state the beneficiary has the right to draw on the SBLC from time to time upon written demand by the beneficiary indicating account parties failure to meet their obligations.

F) The SBLC shall state draws will be processed within a reasonable time period once beneficiary demands a draw.

G) The SBLC shall state the original amount may be reduced from time to time only upon written notice by the beneficiary to do so.

H) The SBLC shall state the obligation shall be in full effect up to 5:00 pm on the date of expiration as indicated within the SBLC and if said date falls on a holiday, weekend, or other day in which the beneficiary or issuer are closed for business, the expiration day shall be the following day that both beneficiary and issuer are open for business.

I) The SBLC shall state the SBLC shall be automatically extended, without any formal amendment or notice to the effect, from year to year, for successive periods of one (1) year each from the present or any future expiration date hereof, unless the issuer notifies the beneficiary 60-days prior to such expiration date in writing, via certified mail, return receipt requested that issuer has elected not to renew the SBLC and beneficiary has until 5:00 pm on or before the expiration date to draw the full amount hereunder.

Cash

Cash, or check made payable to the Town Kernersville.

Delivery of Surety

Surety shall be delivered in person to 134 E. Mountain Street, Kernersville or it can be delivered by certified mail to Town of Kernersville, Engineering Division, PO Box 728, Kernersville, NC 27285

APPENDIX 06

TOWN OF KERNERSVILLE

Town of Kernersville
P.O. Box 728
Kernersville, N.C. 27285-0728

134 East Mountain Street
Telephone (336) 996-3121
Fax (336) 996-4822

NO PRACTICAL ALTERNATIVES - RIPARIAN BUFFER AUTHORIZATION FORM

Date Submitted: Enter here

1. Project Information

Name of Project: Enter here.

Address of Project or Property: Enter here

Riparian Buffer rules applied to the Project: Enter here.

2. Owner Information

Name(s) of Property Owner: Enter here.

Address: Enter here

Phone: Enter here

E-mail address: Enter here

3. Applicant Information (if different from owner)

Applicant is: ☐ Agent ☐ Other, Specifiy

Name(s): Enter here.

Business name (if applicable): Enter here.

Address: Enter here.

Phone: Enter here

E-mail address: Enter here.

4. Project Information and Prior Project History

Property Identification No. (Tax PIN or Parcel ID): Enter here

Property size: Enter here sf Enter here Acres

Name of Local watershed to proposed project: Enter here

Water Quality Classification of watershed: Enter here

River Basin: Enter here.

Describe the existing conditions on the site and the general land use in the vicinity of the project at the time of this application:

List the total estimated linear feet of all existing streams (intermittent and perennial) on the property:

Explain the purpose of the proposed project:

5. Jurisdictional Determination

Have jurisdictional wetland or stream determinations by the Corps or State been requested or obtained for this property/project (including all prior phases) in the past?

☐ Yes ☐ No ☐ Unknown

If yes, who delineated the jurisdictional areas? Name (if known): Enter here

Agency/Consultant Company: Enter here

Other: Enter here

If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation.

Enter here

6. Project History

Have permits or certification been requested or obtained for this project (including all prior phases) in the past?

☐ Yes ☐ No ☐ Unknown

If yes, explain in detail:

Enter here

7. Future Project Plans

Is this a phased project? ☐ Yes ☐ No

If yes, explain:

Enter here

8. Proposed Buffer Impacts Inventory

Individually list all buffer impacts below. If any impacts require mitigation, then you must fill out the "Buffer Mitigation" section.

Buffer Impact Number Perm. (P) Temp.(T) (Select one)	Reason for Impact	Buffer Mitigation Required? (Select one)	Zone 1 Impact (square feet)	Zone 2 Impact (square feet)
B1 ☐ P ☐ T	Enter here	☐ Yes ☐ No	Enter here	Enter here
B2 ☐ P ☐ T	Enter here	☐ Yes ☐ No	Enter here	Enter here
B3 ☐ P ☐ T	Enter here	☐ Yes ☐ No	Enter here	Enter here
B4 ☐ P ☐ T	Enter here	☐ Yes ☐ No	Enter here	Enter here
B5 ☐ P ☐ T	Enter here	☐ Yes ☐ No	Enter here	Enter here
B6 ☐ P ☐ T	Enter here	☐ Yes ☐ No	Enter here	Enter here
B7 ☐ P ☐ T	Enter here	☐ Yes ☐ No	Enter here	Enter here

Comments:

Enter here

9. Impact Justification

Specifically describe measures taken to avoid or minimize the proposed impacts in designing project:

Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques:

10. Buffer Mitigation

Will the project result in an impact within a protected riparian buffer that requires buffer mitigation?

☐ Yes ☐ No

If yes, then identify the square feet of impact to each zone of the riparian buffer that requires mitigation. Calculate the amount of mitigation required.

Zone	Reason for Impact	Total Impact (square feet)	Multiplier	Require Mitigation (square feet)
Zone 1	Enter here.	Enter here	3	Enter here
Zone 2	Enter here	Enter here	1.5	Enter here .

If buffer mitigation is required, discuss what type of mitigation is proposed (e.g., payment of a compensatory mitigation fee to the Riparian Buffer Restoration Fund or to a private mitigation bank, donation or real property, or restoration or enhancement of a non-forested riparian buffer).

Comments:

11. Diffuse Flow Plan

Does the project include or is it adjacent to protected riparian buffers identified within one of the Town of Kernersville Buffer Protection Rules?

☐ Yes ☐ No

All buffer impacts and high ground impacts require diffuse flow or other form of stormwater treatment. Include a plan that fully documents how diffuse flow will be maintained. If a Level Spreader is proposed, attach a Level Spreader Supplement Form.

If due to site constraints, a BMP other than a level spreader is proposed, please provide a plan for stormwater treatment as outlined the NC Stormwater BMP Manual and attach a BMP Supplement Form.

Comments:

Applicant/Agent's Printed Name | Applicant/Agent's Signature | Date

(Agent's signature is valid only if an authorization letter from the applicant is provided)

APPENDIX 07
TOWN OF KERNERSVILLE

Town of Kernersville
Engineering Division
P.O. Box 728
Kernersville, N.C. 27285-0728

134 East Mountain Street
Telephone (336) 996-3121
Fax (336) 996-4822

Variance Request Form
(For Major and Minor Variances)

Protection and Maintenance of Riparian Areas Rules

☐ **Check the appropriate box below:**

☐ **Major Variance**

☐ **Minor Variance**

☐ **Town of Kernersville Unified Development Ordinance (UDO) - Chapter C, Article VI Riparian Buffer Protection Ordinance For Lands Within The Randleman Lake Watershed**

☐ **Town of Kernersville Unified Development Ordinance (UDO) - Chapter C, Article V Riparian Buffer Protection Ordinance For Lands Within The Jordan Watershed**

☐ **Town of Kernersville Unified Development Ordinance (UDO) - Chapter C, Article IV Stormwater Runoff**

☐ **Town of Kernersville Unified Development Ordinance (UDO) - Chapter C, Article III Watershed Protection**

Part 1: General Information
(Please include attachments if the room provided is insufficient.)

1. Applicant's name (the corporation, individual, etc. who owns the property):
_____

2. Print owner/Signing official (person legally responsible for the property and its compliance)

Name: _____
Title: _____
Street address: _____
City, State, Zip:_____
Telephone: ( )_____
Fax: ( )_____

3. Contact person who can answer questions about the proposed project:

Name: _____
Telephone: ( )_____
Fax: ( )_____
Email: _____

4. Project name (Subdivision, facility, or establishment name - consistent with project name on plans, specifications, letters, operation and maintenance agreements, etc.):

_____

5. Project location:

Street address: _____
City, State, Zip: _____
County: _____
Latitude/longitude: _____

6. Date property was purchased: _____

7. Stream to be impacted by the proposed activity:

Stream name (for unnamed streams label as "UT" to the nearest named stream):
_____

8. Which of the following permits/approvals will be required or have been received already for this project? (If permit received, submit copy with this request).

Required:	**Received:**	**Date received:**	**Permit Type:**
_____	_____	_____	401 Certification/404 Permit
_____	_____	_____	Stormwater/Wastewater Permit
_____	_____	_____	NPDES Permit
_____	_____	_____	Non-discharge Permit
_____	_____	_____	Stormwater/Watershed Variance
_____	_____	_____	Erosion/Sedimentation Control
			Others (specify) _____

Part 2: Proposed Activity
(Please include attachments if the room provided is insufficient.)

1. Description of proposed activity [Also, please attach a map of sufficient detail (such as a plat map or site plan in Adobe (pdf) format) to accurately delineate the boundaries of the land to be utilized in carrying out the activity, the location and dimension of any disturbance in the riparian buffers associated with the activity, and the extent of riparian buffers on the land.

_____
_
_____
_
_____
_
_____
_
_____
_
_____
_

2. Fill in the table below to identify the square footage of impact to Zones 1 & 2 in the protected riparian buffers and the required mitigation. (**Fill in the impact portion of the table, even if mitigation is not required):**

Zone of Impact	Impact in Square Feet	Buffer Impact Number (indicate on Plan Sheet)	Purpose for The Impact (From tables)	Multiplier	Required Mitigation
Zone 1				3	
Zone 2				1.5	
Total					

*Zone 1 extends out 30 feet perpendicular from the most landward limit of the top of bank or the rooted herbaceous vegetation; Zone 2 extends an additional 20 feet from the landward edge of Zone 1.

3. State reasons why this plan for the proposed activity cannot be practically accomplished, reduced or reconfigured to better minimize or eliminate disturbance to the riparian buffers:

_____
_____
_____
_____

4. Description of any best management practices to be used to control impacts associated with the proposed activity (i.e., control of runoff from impervious surfaces to provide diffuse flow, re-planting vegetation or enhancement of existing vegetation, etc.):

_____
_____

_____
_____

5. Please provide an explanation of the following:
(1) The practical difficulties or hardships that would result from the strict application of this Rule.
_____
_____
_____

(6) How these difficulties or hardships result from conditions that are unique to the property involved.
_____
_____
_____
_____

(7) If economic hardship is the major consideration, then include a specific explanation of the economic hardships and the proportion of the hardship to the entire value of the project.
_____
_
_____
_
_____
_
_____
_

Part 3: Stormwater

1. Provide all the Stormwater Management System Concept Plan documentation including a description of best management practices (BMPs) that will be used to control nutrients and sedimentation impacts associated with the proposed activity. Please ensure to include all applicable operation & maintenance agreements and worksheets drafts for the proposed BMPs. Also, include the BMPs on your plan sheets.
_____
_____
_____

2. Attach a description of how diffuse flow will be maintained through the protected riparian buffers. Please ensure to include all applicable operation & maintenance agreements and worksheets drafts for the proposed diffuse flow measure(s). Also, include the diffuse flow measure(s) on your plan sheets.

Part 4: Proposed Impacts and Mitigation

Provide a description of how mitigation will be achieved at your site pursuant to Town of Kernersville Riparian Buffer Protection Rules for the corresponding Watershed.

If buffer restoration is the method you are requesting, be sure to include a detailed planting plan to include plant type, date of plantings, the date of the one-time fertilization in the protected riparian buffers and a plan sheet showing the proposed location of the plantings.

If payment into a buffer restoration fund is how you plan to achieve your mitigation requirement, then include an acceptance letter from the mitigation bank you propose to use stating they have the mitigation credits available for the mitigation requested.

Part 5: Deed Restrictions

By your signature in Part 6 of this application, you certify that all structural stormwater BMPs required by this variance shall be located in recorded stormwater easements, that the easements will run with the land, that the easements cannot be changed or deleted without concurrence from the Town of Kernersville, and that the easements will be recorded prior to the sale of any lot.

Part 6: Applicant's Certification

I, _____ (print or type name of person listed in Part I, Item 2), certify that the information included on this permit application form is correct, that the project will be constructed in conformance with the approved plans and that the deed restrictions in accordance with Part 5 of this form will be recorded with all required permit conditions.

Signature:_____

Date: _____

Title: _____

Part 7: Plan Sheets

Be sure to include a copy of all of your completed application form, plan sheets and maps in Adobe (pdf) format on a CD or floppy disk.

Part 8: Checklist

A complete application submittal consists of the following components. Incomplete submittals will be returned to the applicant. Initial below to indicate that the necessary information has been provided.

Applicant's Initial	Item
_____	• Original and two copies of the Variance Request Form and the attachments listed below.
_____	• A vicinity map of the project (see Part 1, Item 5)
_____	• Narrative demonstration of the need for a variance (see Part 2).
_____	• A detailed narrative or graphic description of the Stormwater Management Concept Plan (see Part 3).
_____	• Calculations and references supporting nutrient removal from proposed BMPs (see Part 3).
_____	• Location and details for all proposed structural stormwater BMPs (see Part 3).
_____	• Drafts of the applicable Supplement Form(s) and O&M Form(s) for each BMP and/or narrative for each innovative BMP (see Part 3).
_____	• Three copies of plans and specification, including:
_____	- Development/Project name
_____	- Engineer and firm
_____	- Legend and north arrow
_____	- Scale (1"=50' is preferred)
_____	- Revision number & date
_____	- Mean high water line (if applicable)
_____	- Dimensioned property/project boundary
_____	- Location map with named streets
_____	- Original contours, proposed contours, spot elevations, finished floor elevations.
_____	- Details of roads, parking, cul-de-sacs, sidewalks, and curb and gutter
_____	- Footprint of any proposed building or other structures
_____	- Wetlands delineated, or a note on plans that none exist
_____	- Existing drainage (including off-site), drainage easements, pipe sizes, runoff calculations
_____	- Drainage basins delineated
_____	- Perennial and intermittent streams, ponds, lakes, rivers and estuaries
_____	- location of forest vegetation along the streams, ponds, lakes, rivers and estuaries

APPENDIX 08 - a

STATE OF NORTH CAROLINA **Permit No._____**
COUNTY OF FORSYTH

OPERATION AND MAINTENANCE AGREEMENT

THIS AGREEMENT made pursuant to Town of Kernersville Watershed Protection Ordinance and entered into this _____ day of _____, 20___, by and between the TOWN OF KERNERSVILLE, a North Carolina Municipal Corporation, Party of the First Part, hereinafter referred to as "TOWN"; and _____ and _____, Parties of the Second Part, here-in after referred to as "Property Owner".

W I T N E S S E T H:

1. The Property Owner is the owner of certain lands lying in Tax Block _____, Tax Lot _____ as more particularly described in Deed Book _____, Page _____, in the Office of the Register of Deeds of Forsyth County, North Carolina upon which it is erecting and will make improvements, said development to be known as _____ (hereinafter the "PROPERTY").

2. The Property Owner desires to build engineered stormwater controls using wet detention ponds and related structures (hereinafter Stormwater Control Structure) to provide storage and treatment of stormwater runoff to serve the development on said Property, as required by the Kernersville Watershed Protection Ordinance (hereinafter the "ORDINANCE").

3. The Property Owner has applied to the TOWN for the issuance of a high density watershed permit to construct, maintain and operate the Stormwater Control Structure consistent with the plans and specifications of the Stormwater Control Structure and the Operation and Maintenance Agreement on file at the office of the Watershed Administrator and to develop lands within the _____ Watershed.

4. The Property Owner has conveyed unto the Town of Kernersville, or its successors or assigns an Easement and Right-of-Way establishing the right of ingress, egress and regress over the property for the purpose of inspection, repair, or maintenance of the stormwater control structure(s). A description of the area containing the stormwater control structure(s) within a drainage easement is contained within the Deed of Easement filed with the Register of Deeds together with all dedication(s) necessary for access to and from the storm-water control structure(s) and a public street. The detention pond, vegetative filters, all pipes and water control structures, including berms and dikes, and sufficient area to perform inspections, maintenance, repairs and reconstruction together with all Easements and Right-of-Way applying thereto has been described in the Deed of Easement.

5. The TOWN desires to assure that the Stormwater Control Structure(s) on the PROPERTY are properly constructed, maintained and operated in accordance with law, the ORDINANCE, and High Density Watershed Permit (hereinafter "PERMIT") provisions in order to protect the quality of the waters of the State and the public interest therein.

NOW, THEREFORE, in consideration of the promises and the benefits to be derived by each of the parties hereto, the TOWN and Property Owner do hereby mutually agree as follows:

1. The Property Owner shall construct the Stormwater Control Structure(s) in accordance with the ORDINANCE, PERMIT and plans and specifications hereafter issued and approved by the TOWN; and shall thereafter properly operate and maintain such systems and facilities in accordance with the ORDINANCE, and applicable PERMIT provisions, the plans and specifications of the Stormwater Control Structure(s), the Operation and Maintenance Agreement and State Law.

2. The Property Owner shall not transfer ownership and/or control of any lots until construction of the Stormwater Control Structure has been completed in accordance with the PERMIT and approved plans, and the Kernersville Watershed Administrator has inspected and the Town's Watershed Review Committee has approved of the facilities. In order to change the name of the permit holder, the Property Owner must request that the permit be re-issued to the property owners.

3. The Property Owner shall provide in an Operation and Maintenance Plan that the Stormwater Control Structure, appurtenances and access easements thereto shall thereafter be property maintained and operated in conformity with law and the provisions of the PERMIT for construction, operation, repair and maintenance of the Stormwater Control Structure.

4. The agreements set forth in numbered paragraphs 1,2,3,4 and 5 above shall be conditions of any PERMIT issued by the TOWN to the Property Owner for the construction, maintenance, repair and operation of the Stormwater Control Structure.

5. A copy of this Operation and Maintenance Agreement shall be filed at the Forsyth County Register of Deeds and in the office of the Watershed Administrator.

IN WITNESS WHEREOF, the parties have hereto set their hands and seals, this _____ day of _____, 20___:

PARTY OF THE FIRST PART:

TOWN OF KERNERSVILLE

By:_____
Dawn H. Morgan, Mayor

ATTESTED TO:

_____
Dale F. Martin, Town Clerk

PARTY OF THE SECOND PART:

_____(SEAL)

By:_____

ATTESTED TO:

_____

STATE OF NORTH CAROLINA)
COUNTY OF FORSYTH

I, _____, a Notary Public of Forsyth County, North Carolina, do hereby certify that _____personally came before me this day and acknowledged that she is the Town Clerk of the Town of Kernersville, a North Carolina municipal corporation, and that by authority duly given as the act of the Town of Kernersville, the foregoing instrument was signed in its name by its Mayor, sealed with its corporate seal and attested by her as its Town Clerk.

Witness my hand and official seal, this the _____ day of _____, 20___.

_____
Notary Public
Print/Type Name: _____

My Commission Expires:_____

==========
STATE OF NORTH CAROLINA)
COUNTY OF _____)

I, _____, a Notary Public of _____ County, North Carolina, do hereby certify that _____, the _____ of _____personally came before me this day and acknowledged the execution and sealing of the foregoing instrument as _____ on behalf of and as the act of the company referred to in this acknowledgment.

Witness my hand and notarial seal, this the _____ day of _____, 20___.

_____ My Commission Expires:_____
Notary Public
==========

(*or, if individual owner)*

STATE OF NORTH CAROLINA)

COUNTY OF _____)

I, _____, a Notary Public in and for said County and State, do hereby certify that _____ personally appeared before me this day and acknowledged the execution of the foregoing Deed of Easement.

Witness my hand and notarial seal, this the _____ day of _____, 20___.

_____ My Commission Expires:_____

Notary Public

APPENDIX 08 - b

STATE OF NORTH CAROLINA **Permit No._____**
COUNTY OF FORSYTH

HOMEOWNERS, AND OTHER ASSOCIATIONS OPERATION AND MAINTENANCE AGREEMENT

THIS AGREEMENT made pursuant to Town of Kernersville Watershed Protection and Storm Water Runoff Ordinances and entered into this _____ day of _____, 20___, by and between the TOWN OF KERNERSVILLE, a North Carolina Municipal Corporation, Party of the First Part, hereinafter referred to as "TOWN"; and _____, here-in after referred to as Developer, and _____, here-in after referred to as the "Association" Parties of the Second Part.

W I T N E S S E T H:

1. The Town of Kernersville under various state and federal laws, is required to regulate the maintenance of engineered stormwater controls and related structures (hereinafter Stormwater Control Structures) constructed to serve new or re-development within both the corporate limits of the Town of Kernersville and within the extra territorial zoning jurisdiction of the Town of Kernersville to ensure that, following initial construction, the Stormwater Control Structures are operated, maintained, and to the extent necessary, repaired in accordance with applicable state and federal laws.

2. The Town of Kernersville has determined that, to maintain the Town of Kernersville's compliance under applicable state and federal regulations, certain obligations are to be met by Developers and subsequent owners of Stormwater Control Structures.

3. The Developer is the owner of certain lands lying in Tax Block _____, Tax Lots _____ as more particularly described in Deed Book _____, Page _____, in the Office of the Register of Deeds of Forsyth County, North Carolina upon which it is erecting and will make improvements, said development to be known as _____ (hereinafter the "PROPERTY").

4. The Developer desires to build Stormwater Control Structures to provide storage and treatment of stormwater runoff to serve the development on said Property, as required by the Kernersville Watershed Protection and the Storm Water Runoff Ordinances (hereinafter the "ORDINANCE" and contained in Chapter C, Articles III and IV of the Kernersville Unified Development Ordinance).

5. The Developer has applied to the TOWN for the issuance of a high density watershed/Stormwater permit to construct, maintain and operate the Stormwater Control Structure consistent with the plans and specifications of the Stormwater Control Structure and the Operation and Maintenance Plan on file at the office of the Watershed/Stormwater Administrator.

6. The Developer has conveyed unto the Town of Kernersville, or its successors or assigns an Easement and Right-of-Way establishing the right of ingress, egress and regress over the property for the purpose of inspection, repair, or maintenance of the stormwater control structure(s). The Easement and Right-of-way for the Stormwater Control Structures are described in the final plat for _____, Plat Book ___, Page ____, which is recorded in the Office of the Register of Deeds of _____County, North Carolina.

7. The TOWN desires to assure that the Stormwater Control Structure(s) on the PROPERTY are properly constructed, maintained and operated in accordance with law, the ORDINANCE, and High Density Watershed Permit (hereinafter "PERMIT") provisions in order to protect the quality of the waters of the State and the public interest therein.

8. These Stormwater Control Structures are required to comply with the ORDINANCE and that failure to maintain the Stormwater Control Structure is a violation of the ORDINANCE potentially subjecting each lot owner of the Property to significant daily civil penalties and other enforcement actions.

9. After the completion of construction of the Stormwater Control Structures, the Developer may convey the Stormwater Control Structures to the Association.

NOW, THEREFORE, in consideration of the promises and the benefits to be derived by each of the parties hereto, the TOWN, the Developer and the Association do hereby mutually agree as follows:

1. The Developer shall construct the Stormwater Control Structure(s) in accordance with the ORDINANCE, PERMIT and plans and specifications hereafter issued and approved by the TOWN; and that Developer and Association assume specific maintenance, replacement, reconstruction and repair, responsibilities set forth in the Ordinance and with respect to the Stormwater Control Structure.

2. <u>Construction and Maintenance of the Stormwater Control Structure:</u> The Developer shall be responsible for the construction of the Stormwater Control Structure(s); and prior to conveying control of the Stormwater Control Structure, the Developer will be responsible for maintenance, repair, reconstruction, and replacement thereof. Following conveyance of the Stormwater Control Structure the Association and its members will be responsible for maintaining the Stormwater Control Structure, their appurtenances and vegetation in the manner specified herein and in strict compliance with the Ordinance. At all times, the Stormwater Control Structure shall perform as designed and shall at all times comply with all applicable laws, ordinances, regulations, rules and directives of governmental authorities.

3. <u>Ownership and/or Transfer of property:</u> Upon completion of the Stormwater Control Structure(s), the Developer has the option to convey that portion of the property on which the Stormwater Control Structure(s) are located to an Association to be formed for the purpose of administrating the provisions of a declaration of covenants to be imposed upon the Property, which declaration shall fully comply with all requirements of this contract as well as all applicable laws. The Declaration of Covenants, Conditions and Restrictions for Property, in reference to this contract and all applicable stormwater/watershed laws, shall be subject to review and approval by the Town of Kernersville Attorney.

Developer agrees that it shall not transfer ownership and/or control of the Stormwater Control Structure until construction has been completed in accordance with the PERMIT and approved plans; and as defined in the Ordinance, the Town of Kernersville has inspected and approved the Stormwater Control Structure. In addition, the Developer and Association and any new Owner must request that the Permit for the Stormwater Control Structure be re-issued to any subsequent Owner.

The Developer and Association agree not to transfer, convey, assign or otherwise relinquish or release its responsibility for the operation and maintenance of its Stormwater Control Structure until a Permit has been issued to Developer and Association's successor, or new owner at which time Developer and Association shall be released from any obligations hereunder arising from events or circumstances occurring after the date the Stormwater Control Structure is transferred and the Permit is reissued to the new Owner of the Propeterty.

4. Cost Estimates for Construction of the Stormwater Control Structure: The Developer's Engineer shall submit an estimate of construction costs for review and approval by the Town of Kernersville in accordance and regulations with the Ordinance. This cost estimate will be used to establish the level to which the escrow account shall be funded.

5. Establishment of an escrow account: For the purpose of insuring the availability of funds for the replacement and reconstruction of the Stormwater Control Structure, an escrow account must be established, which can be spent solely for sediment removal, structural, biological or vegetative replacement, major repair, or reconstruction of the Stormwater Control Structure(s). If the Stormwater Control Structure(s) is(are) not performing adequately or as intended or are not properly maintained, the Town of Kernersville in its sole discretion, may remedy the situation, and in such instances the Town of Kernersville shall be fully reimbursed from the escrow account.

Escrowed funds may be spent by the Property Owner for sediment removal, structural, biological or vegetative replacement, major repair, and reconstruction of the Stormwater Control Structure(s), provided that the Town of Kernersville shall first consent to the expenditure. Escrowed funds shall not be spent for routine landscaping maintenance items such as mowing.

The escrow account will be funded initially by a lump sum contribution of the Developer (the "Initial Payment"), and thereafter by annual sinking funds paid by the Association, if it has taken ownership or by the developer if it still retains ownership of the structure. The Developer shall deposit the Initial Payment in the escrow account and show proof of such payment:

(i) Prior to plat recordation of the Property; or
(ii) Before the issuance of building permits for the construction of improvements on the property. Whichever occurs first.

The Initial Payment shall be equal to $_____dollars (which is equal to fifteen percent (15%) of the initial construction costs of the Stormwater Control Structures).

The total sinking fund budget is defined as the amount required for the initial construction cost of the Stormwater Control Structures. The Association shall deposit funds at least annually in equal installments into the escrow account such that at least two-thirds (2/3) of the total amount of the sinking fund budget, as set in the Ordinance, shall be deposited into the escrow account within the first five (5) years and the full amount shall be deposited within ten (10) years following initial construction of the Stormwater Control Structures. A portion of the annual assessments of the Association shall include an allocation into the escrow account. Any funds drawn down from the escrow account shall be replaced in accordance with the schedule of anticipated work used to create the sinking fund budget.

6. The Developer shall provide in an Operation and Maintenance Plan that the Stormwater Control Structure, appurtenances and access easements thereto shall thereafter be properly maintained and operated in conformity with law and the provisions of the PERMIT for construction, operation, repair and maintenance of the Stormwater Control Structure.

7. The Developer and its successors shall grant to the Town of Kernersville a right of entry to inspect, monitor, maintain, repair, and reconstruct Stormwater Control Structures.

8. The Developer and its successor hereby authorize the Town of Kernersville to recover from the Developer or Association and its members, whichever is the responsible party, any and all costs the Town of Kernersville expends to maintain or repair the Stormwater Control structures or to correct any operational deficiencies. Failure to pay the Town of Kernersville all of its expended costs, after forty-five days written notice, shall constitute a breach of the agreement. The Town of

Kernersville shall thereafter be entitled to bring an action against the Association and its members to pay, or foreclose upon the lien hereby authorized by the agreement against the property, or both, in case of a deficiency. Interest, collection costs, and attorney fees shall be added to the recovery.

9. This Agreement shall not obligate the Town of Kernersville to maintain or repair any Stormwater Control Structure(s), and the Town of Kernersville shall not be liable to any person, firm, partnership, company, corporation, governmental agency, Association or entity for the condition or operation of Stormwater Control Structures.

10. This agreement shall not in any way diminish, limit, or restrict the right of the Town of Kernersville to enforce any of its ordinances as authorized by law.

11. Indemnification: Owners, Developer and/or Association agree to protect, defend, indemnify and hold the Town of Kernersville, its officers, employees and agents free and harmless from and against any losses, penalties, damages, settlements, costs, charges, professional fees or other expenses or liabilities in connection with or arising out of this Agreement and/or related to the Stormwater Control Structure(s), unless the Town of Kernersville has agreed in writing to assume the maintenance responsibility for the Stormwater Control Structure and has accepted dedication of any and all rights necessary to carry out that maintenance.

12. A copy of this Operation and Maintenance Agreement shall be filed at the _____County Register of Deeds and in the office of the Watershed/Stormwater Administrator.

IN WITNESS WHEREOF, the parties have hereto set their hands and seals, this _____ day of _____, 20___:

PARTY OF THE FIRST PART:

TOWN OF KERNERSVILLE

By:_____
Dawn H. Morgan, Mayor

ATTESTED TO:

_____
Dale F. Martin, Town Clerk

STATE OF NORTH CAROLINA)
COUNTY OF _____

I, _____, a Notary Public of Forsyth County, North Carolina, do hereby certify that _____personally came before me this day and acknowledged that she is the Town Clerk of the Town of Kernersville, a North Carolina municipal corporation, and that by authority duly given as the act of the Town of Kernersville, the foregoing instrument was signed in its name by its Mayor, sealed with its corporate seal and attested by her as its Town Clerk.

Witness my hand and official seal, this the _____ day of _____, 20___.

_____
Notary Public
Print/Type Name: _____

My Commission Expires:_____

PARTY OF THE SECOND PART:

DEVELOPER:

_____

By:_____(SEAL)

Name:_____

Its:_____(Title)

ATTESTED TO:

_____

STATE OF NORTH CAROLINA)
COUNTY OF _____)

DEVELOPER ACKNOWLEDGEMENT

I, _____, a Notary Public of _____ County, North Carolina, do hereby certify that _____, the _____ of _____personally came before me this day and acknowledged the execution and sealing of the foregoing instrument as _____ on behalf of and as the act of the company referred to in this acknowledgment.

Witness my hand and notarial seal, this the _____ day of _____, 20___.

_____
Notary Public

My Commission Expires:_____

(SEAL)

PARTY OF THE SECOND PART:

ASSOCIATION:

_____

By:_____(SEAL)

Name:_____

Its:_____(Title)

ATTESTED TO:

_____

STATE OF NORTH CAROLINA)
COUNTY OF _____)

ASSOCIATION ACKNOWLEDGEMENT

I, _____, a Notary Public of _____ County, North Carolina, do hereby certify that _____, the _____ of _____personally came before me this day and acknowledged the execution and sealing of the foregoing instrument as _____ on behalf of and as the act of the company referred to in this acknowledgment.

Witness my hand and notarial seal, this the _____ day of _____, 20___.

_____ **My Commission Expires:_____**
Notary Public

(SEAL)

APPENDIX 09

NORTH CAROLINA)
)
FORSYTH COUNTY)

DEED OF EASEMENT

THIS EASEMENT made this the _____ day of _____, 20___, by and between _____, and _____, Parties of the First Part, and the TOWN OF KERNERSVILLE, Party of the Second Part;

W I T N E S S E T H:

WHEREAS, the Parties of the First Part are owners of certain real property located in Kernersville Township, Forsyth County, North Carolina; and whereas, the said Parties of the First Part now desires to convey a twenty foot (20') access easement to the Party of the Second Part in accord with the requirements of the Watershed Protection Ordinance of the Town of Kernersville (Section 15.8-1), and

WHEREAS, the Party of the First Part is owner of a certain tract of property lying and being in the Kernersville Township, Forsyth County, North Carolina and said property is more particularly described in a Deed as recorded in Deed Book ___, Page _____, Forsyth County Registry, hereinafter referred to as "Property";

WHEREAS, the purpose of the easement is to provide the Town of Kernersville with access from a public right-of-way to and around all storm water control devices, including the storm water control devices, located on the Property of the Parties of the First Part;

WHEREAS, pursuant to the Town of Kernersville Watershed Protection Ordinance, hereinafter referred to as Ordinance, easements are needed for the benefit of the Party of the Second Part for the operation and maintenance of storm water control devices located upon the property of the Party of the First Part;

NOW, THEREFORE, the said Parties of the First Part for and in consideration of the sum of Ten Dollars and other valuable considerations to them paid including the agreement contained herein, do hereby give, grant and convey unto the Party of the Second Part, their heirs and assigns, a perpetual right and easement for the purpose of ingress and egress over Property more particularly described as follows:

> **Easement not less than twenty feet (20') in width over that property as described in Deed Book _____, Page _____of the Forsyth County Registry and which description is attached hereto.**

TO HAVE and to hold said right and easement to them, the said Party of the Second Part, their heirs and assigns forever; it being agreed that the right and easement hereby granted is appurtenant to and runs with the Property now owned by the Party of the Second Part and hereinabove referred to.

It is the intent of the Grantor that the access easement herein granted from the public right of way be confined to that area designated and intended for vehicular traffic to and from the Permanent Storm Water Control Structure Area to and from *(insert name of public street or highway)*, that being the public road that currently provides access to the property, and further to provide an easement not less than twenty feet (20') in width surrounding the Permanent Storm Water Control Structure Area. Notwithstanding the foregoing, all easements given herein shall be subject to the provisions of the

Watershed Protection Ordinance and shall allow the Town the access needed to perform its duties pursuant to the ordinance regarding Storm Water Control Structures. Grantor acknowledges that the Town shall have no obligation to repair, replace or maintain any portion of the property subject to the easement or to repair any damage occasioned by its exercise of this grant of easement.. Grantor shall hold the Town of Kernersville safe and harmless and shall indemnify the Town against any and all claims for damages arising from this grant of easement or occurring on said easement.

This agreement between the parties shall be binding upon the heirs, assigns and successors of all parties hereto.

IN TESTIMONY WHEREOF, the said Parties of the First Part have hereunto set their hands and seals the day first above written.

PARTIES OF THE FIRST PART:

By:_____(SEAL)

_____(SEAL)

_____(SEAL)

_____(SEAL)

STATE OF NORTH CAROLINA)

COUNTY OF _____)

I, _____, a Notary Public of _____County, North Carolina, do hereby certify that _____*(insert name of authorized signer)*_____, the __*(insert title)*_____of ___*(insert entity name)*_____ personally came before me this day and acknowledged the execution and sealing of the foregoing instrument as ___*(insert title)*_____ on behalf of and as the act of the company referred to in this acknowledgement.

Witness my hand and notarial seal, this the _____ day of _____, 20___.

_____ My Commission Expires:_____

Notary Public

(*or, if individual owner)*

NORTH CAROLINA

FORSYTH COUNTY

I, _____, a Notary Public in and for said County and State, do hereby certify that _____ personally appeared before me this day and acknowledged the execution of the foregoing Deed of Easement.

Witness my hand and notarial seal, this the _____ day of _____, 20___.

_____ My Commission Expires:_____

Notary Public

EXHIBIT A PROPERTY
DESCRIPTION

(PER DEED)

APPENDIX 10 - a

Operation and Maintenance Plan:

"*Name of the Pond or development*" : Wet Detention Pond

Dam Safety

Preserving the structural integrity of the wet detention pond's dam is important in protecting downstream life and property. There are at least four aspects of the dam that require specific attention: (1) *assessment of hazard potential* due to changes in downstream development; (2) *leakage and seepage*; (3) *dam material problems*; and (4) *vegetation growth* on the dam embankments.

Assessment of Hazard Potential
Before any dam is constructed, the design engineer is responsible for notifying the NC State Dam Safety Office of the proposed dam. If the dam falls under State Dam Safety jurisdiction, the dam must be constructed, maintained, and operated according to their design and construction guidelines. Even if the dam does not fall under the NC Dam Safety Office's jurisdiction, the dam should be designed and constructed in accordance with current proper engineering practices. The City has requirements concerning the maintenance of dams associated with required wet detention ponds. As new development occurs downstream of the pond, the chance of significant property damage or danger to human life may increase if catastrophic failure of the dam occurs. Although the dam may be initially exempt from regulation by the State, the owner is responsible for reporting to the State Dam Safety Office downstream development that may affect the hazard classification of the dam.

Leakage and Seepage
The downstream side of the dam should be inspected regularly for evidence of significant leakage or seepage. Seepage can emerge anywhere below the normal pool elevation, including the downstream slope of earth dams, areas beyond the toe of the dam, and around the spillway or pond outlet conduit. Indications of significant seepage include areas where the soil is saturated or where there is a flowing "spring" or leak. If "sinkholes" in the dam embankment are noticed, or if constant flowing water is noticed on the downstream side of the dam, then seepage has become excessive and professional engineering advice should be sought immediately to avert a major structural problem or a catastrophic failure of the dam.

Dam Material Problems
For earthen dams, pronounced cracks on the embankment surface indicate the first stages of potential dam failure. Transverse cracks (running perpendicular to the embankment face) generally indicating differential settlement of the dam, can provide pathways for excessive seepage. Longitudinal cracks (running parallel to the embankment face) may be due to inadequate compaction of the dam during construction or shrinkage of the clay (desiccation) in the top of the embankment during prolonged dry conditions. These cracks may eventually lead to slope failure, such as sliding or sloughing. For reinforced concrete dams, the concrete should be checked for pronounced cracking, leakage from the joints, and displacement (noticeable

leaning or bulging). Also, excessive seepage, leakage, or springs just downstream of the concrete dam could be indicative of potential seepage-related "piping" problems under the dam. If such problems or other structural problems are observed, professional engineering advice should be sought.

Vegetative Growth

Trees and other woody vegetation are not permitted on the top, slopes, or embankments of earthen dams. Large root systems from woody vegetation can weaken the dam structure and provide seepage pathways. Thick vegetative cover can also provide a haven for burrowing animals such as groundhogs and muskrats. These animals can create a network of burrows in the dam embankments that can significantly weaken the dam, by creating seepage paths, which may eventually lead to dam failure. **Mowing of the dam embankments should occur, at a minimum, once every 6 months to prevent woody vegetation from becoming established.**

Pollution Prevention Activities

To assist the wet detention pond in improving the quality of stormwater runoff, every effort should be made to reduce the pollutant load entering the pond system. The following onsite efforts should be made to reduce pollutants from entering the pond:

· Outside trash dumpsters should be kept covered, and the area around the dumpster should be kept neat and clean.

· Chemicals, petroleum products, and other pollution sources (such as machinery) should be stored in a covered area away from possible stormwater contact. Spent chemicals are to be properly disposed or recycled.

· Fertilizers and pesticides should be used conservatively on the property grounds. Excessive amounts of these chemicals can be washed away with stormwater runoff, increasing the nutrient load to the pond.

· Chemicals such as copper sulfate used to inhibit algal growth in the pond degrade water quality. Since the pond's main function is to enhance water quality, these chemicals should not be used. Rather, reducing the amount of fertilizer application and ensuring that the pond outlets are properly functioning so the pool is flushed periodically will help to deter algal growth.

· Trash and vegetative floatables (grass clippings, leaves, limbs, etc.) should be cleaned from the pond surface and surroundings periodically to promote a healthy, aesthetically pleasing environment, and to prevent blockage of the pond outlets. Studies have shown that people are less likely to litter ponds that are aesthetically pleasing and support wildlife.

Stabilization of Wet Detention Pond Drainage Area

The area draining to the wet detention pond should remain stabilized to prevent excessive sediment from entering the pond. When bare soil is directly exposed to precipitation, the sediment concentration in runoff is much higher than for soil that is covered and stabilized. A stabilized area is covered by impervious surfaces (pavement, buildings), grass cover, landscaping (mulch, pine straw), etc. It is in the best interest of the pond owner to reduce onsite sediment runoff to the pond, as this will reduce the life span of the pond and result in the need for more periodic, expensive dredging.

Embankments

If pond embankments are not kept well vegetated with grasses, erosion may occur. Erosion can be repaired by filling the small channels and gullies with suitable soil, compacting, and seeding. It may be necessary to install temporary erosion control (such as hay bales) along heavily eroded areas to allow the repaired areas to stabilize. It is especially important to inspect for and

immediately repair any erosion on the dam embankments.

Pipe Inlet and Outlet areas
Where erosion causes the undercutting of the downstream end of pipe, the undercut should be stabilized immediately to prevent the end pipe section from “breaking” off. Eroded areas should be filled with good compactable soil and covered with geotextile fabric and rip-rap.

Open Channel Flow
Eroded areas should be seeded/sodded and protected with temporary velocity dissipation (such as excelsior matting, straw bales, etc.). If erosion continues, a more robust lining should be used.

Blockage of Outlets
Wet detention ponds are designed for the water to exit the pond through the low flow orifice(s), the principal spillway, and the emergency spillway.
It is important to check all three outlets for blockage that would impair the pond’s water quality and hydraulic functionality.

Low Flow Orifice(s)
Unless an inverted orifice is used, some type of trash guard is to be maintained over the low flow orifice(s) to prevent clogging. When the orifice becomes clogged the water level rises to the principal spillway elevation and the benefits associated with temporary storage and its gradual release are lost. To preserve “extended detention” the low flow orifice should be inspected for blockage **monthly, or after every runoff-producing rainfall event.**

Principal and Emergency Spillway
Principal and emergency spillways are designed to safely convey one-inch rainfall events, and those larger storms that produce runoff which exceed the water quality volume of the wet detention pond. If these spillways are blocked so they do not operate at full capacity, the risk of dam overtopping or other uncontrolled releases may result. To ensure the hydraulic capacity of the spillways, the spillways should be inspected for blockage **monthly, or after every runoffproducing rainfall event.**
If a riser/barrel is used for the principal spillway, a trash rack is to be maintained on the riser. Vegetative growth in the riser should be removed promptly so that the design capacity of the spillway is maintained. The emergency spillway and outlet area where the barrel projects from the fill slope should be clear of woody vegetation, tree limbs, sediment accumulation, etc.

Sediment Accumulation
To preserve the wet detention pond’s pollutant removal capability, sediment must be removed in areas where the capacity of the design sediment storage volume has been exceeded. The pond forebay helps to improve the removal efficiency of the pond system by trapping the majority of coarser suspended solids behind a rock baffle. When sediment deposition in the forebay exceeds the designed sediment storage capacity for the forebay, the forebay must be dredged. Typically, forebays will need to be dredged every 5 to 10 years. Depth measurements relative to the normal surface elevation (bottom of water quality orifice) should be taken at several locations around the pond. The sediment is to be removed when the measured depth is less than the design permanent water depth. Most wet detention ponds are designed for a three to four foot permanent water depth. As sediment accumulates in the pond, the permanent water depth is reduced along with the pond's ability to treat pollutants in the runoff. If a forebay is used at the inlet area of the pond

and is regularly dredged, the frequency of dredging the entire pond could be greatly reduced. Check water depth at various points in the pond **semi-annually**. If depth is reduced to 75 % of the original design depth, sediment must be removed to at least the original design depth. Sediment from most sources is usually not hazardous or contaminated, however, it is very "soupy" and is difficult to manage. It is good idea to provide a storage area near the wet detention pond to place sediment once it is dredged to allow it to dry. If desired, sediment may be land applied and seeded, while following all pertinent soil and erosion control regulations. If land applied on-site, it should be within the drainage area to the pond so sediment that runs off can be recaptured.

Wet Detention Pond Maintenance

Routine Maintenance

Routine maintenance shall include minor upkeep such as mowing; trash and debris removal; minor slope repair and stabilization; periodic structural inspections of the valves, gates, dam, etc.; and tree and brush removal from the dam, spillway, inlet(s), and outlet. These maintenance items may be performed by the owner without review of a Professional Engineer.

Non-Routine Maintenance

Non-routine maintenance shall include such items as sediment clean-out (dredging); channel stabilization; and problems regarding the principal spillway conduits, emergency spillway, dam failure, and seepage. These items require a Registered Professional Engineer to prepare a plan and/or details and to certify completion of the maintenance. All revisions and repairs to permanent runoff control structures shall be done in accordance with Town of Kernersville guidelines and specifications.

<u>Maintenance Schedule: (estimated schedule - certain ponds may require more or less frequent Attention).</u>

I. Monthly, or after every runoff-producing rainfall event.

A. Remove trash and debris from the trash rack.
B. Check and clear the orifice of any obstructions.
C. Check the pond side slopes for erosion and remove trash from around the pond.
D. Inspect principal and emergency spillways for blockage.

II. **Quarterly**, or after major storm events (more than 2 inches of rain).

A. Inspect the collection system (e.g. catch basins, piping, grassed swales) for proper functioning. Clear accumulated trash from basin grates and basin bottoms, and check piping for obstructions.
B. Check pond inlet pipes for undercutting, replace rip-rap that is choked with sediment, and repair broken pipes.
C. Check the operation of the gate valve. All valves should be operated from the fully closed to the fully open position.
D. Remove woody vegetation (trees and brush) from dam embankment surfaces and spillway(s).

III. **Semi-Annually**

A. Remove accumulated sediment from the bottom of the outlet structure.
B. Check for presence of rip-rap at inlet pipes and replace if necessary.
C. Check pond depth at various points in the pond. If mean depth is reduced to 75 % of the original design depth, sediment will be removed to at least the original design depth.
D. Check riser and barrel for improper alignment, elongation and displacement of joints, cracks, leaks, loss of protective coating, corrosion, and blockage - repair as necessary.

IV. **General**

A. Mow side slopes according to the season. Maximum grass height should be nine (9) inches.
B. Riparian and aquatic vegetation (willows, alders, cattails, etc.) are encouraged along the perimeter of the pond at the water's edge. However, the dam, emergency spillway, inlet(s), and water control structure should be kept clear of all woody vegetation.
C. In case the ownership of the pond should change, the current owner should, within thirty (30) days of transfer of ownership, notify the Town of Kernersville, Stormwater Division of such ownership transfer.
D. Excessive plant growth, algae blooms, odors, discoloration, perceived animal pests, etc. should be addressed with the Stormwater Division on an as-needed basis. Solutions to these problems should be non-chemical and deemed safe to our drinking water supply.

Any and all amendments to this Operation and Maintenance Plan shall first be submitted to and approved by Town of Kernersville Stormwater Division.

ANNUAL WET POND INSPECTION CHECKLIST
Date: _____
Time: _____
(Project Name): _____Wet Retention Pond # ____,
Kernersville, NC

SPILLWAYS – DRAINS – OUTLETS

Check/Circle Condition Noted	Observations	Action – Repair	Action – Monitor	Action -- Investigative
Principal Spillway	**Type:**			
Trash Racks/Debris/ Rust/Deterioration				
Cracks/Deterioration				
Joint Deterioration				
Improper Alignment				
Cracks/Deterioration				
Seepage/Piping				
Undercutting				
Erosion				
Debris				
Pond Drain/Other Outlets	**Type:**			
Gates/Valves				
Operability				
Rip Rap				

General Comments, Sketches & Field Measurements

_____

_____

_____

_____

_____

ANNUAL WET POND INSPECTION CHECKLIST
Date: _____
Time: _____
(Project Name): _____Wet Retention Pond # ____,
Kernersville, NC

EMBANKMENT -- Pool

Check/Circle Condition Noted	Observations	Action – Repair	Action – Monitor	Action -- Investigative
U/S Slope	**Type:**			
Vegetation/Riprap				
Beaching/Slides/Cracks				
Undermining/erosion				
Rodent burrows				
Crest	**Type:**			
Ruts/Erosion				
Cracks/Settlement				
Poor Alignment				
D/S Slope	**Type:**			
Vegetation/Erosion				
Rodent burrows				
Sloughs/Slides/Cracks				
Seepage/Wetness				
Pool	**Type:**			
Erosion				
Sedimentation				
Water Quality				
Aquatic Plants				
Mosquito Controls				
Abutment	**Type:**			
Vegetation/erosion				
Slough/Slides/Cracks				
Seepage/Wetness				

General Comments, Sketches & Field Measurements

_____

_____

_____

_____

_____

ANNUAL WET POND INSPECTION CHECKLIST
Date: _____
Time: _____
(Project Name): _____Wet Retention Pond # ____,
Kernersville, NC

ANNUAL BUDGET AND REPLACEMENT FUND

Item	**Yearly Cost**	
	Budget	**Actual**
Mowing		
Seeding		
Fertilizer/Lime		
Embankment Repair		
Trash Removal		
Sediment Removal		
Outlet Structure Maintenance (includes Rip Rap)		
Pest Control		
Deposit in Capital Reserve Fund		
Inspector Fee		
Total Annual Budget		

Date: _____ Balance in Capital Reserve Fund: _____

Bank: _____

Report Prepared By: _____ Deposit in Capital Reserve Fund

IN WITNESS WHEREOF, the Grantor has hereunto set their hands and seals, this the day and year first above written.

Grantor:

_____(Seal)

"*Development Name*" Owners Association

By:_____(Seal)

North Carolina, _____ County
I certify that the following person(s) personally appeared before me this day, each acknowledging to me that he or she voluntarily signed the foregoing document for the purpose stated therein and the capacity indicated:
Date: _____, 2014.

Place notary seal below this line:

_____
Notary Public
Print/Type Name:_____

My Commission Expires:_____

North Carolina, _____ County
I certify that the following person(s) personally appeared before me this day, each acknowledging to me that he or she voluntarily signed the foregoing document for the purpose stated therein and the capacity indicated: ( ), **President of "Owner Association or private owner of BMP"**

Date: _____, 2014.

Place notary seal below this line:

_____
Notary Public
Print/Type Name:_____

My Commission Expires:_____

APPENDIX 10 - b

(Name of the Bio-Cell) BIORETENTION AREA

OPERATION AND MAINTENANCE PLAN

The goals of this O&M Plan for a BMP structure is to specify all operation and maintenance work necessary for the storm water control structure(s) and to provide guidance to the current and any subsequent property owner on the requirements for BMP inspection and maintenance. Also provide an estimation of the Annual Budget and Replacement Fund necessary for the annual operation, inspection and maintenance activities for the BMP.

Effective long-term operation of infiltration practices requires a dedicated and routine maintenance inspection schedule with clear guidelines and schedules, as shown later in this Plan. Where possible, facility maintenance should be integrated into routine landscaping maintenance tasks.

The filter media and surface cover are the two most important elements of a Bioretention facility in terms of long-term performance.

Common Maintenance Issues

Bioretention facilities require plant, soil, mulch, and under-drain maintenance to ensure optimal infiltration, storage, and pollutant removal capabilities. Bioretention maintenance requirements are typical landscape care procedures and include:

1. Watering: Plants should be selected to be tolerant of the bioretention facility's particular conditions. Watering should not be required after establishment (about 2 to 3 years). However, watering may be required during prolonged dry periods after plants are established.

2. Erosion Control: Inspect flow entrances, ponding area, and surface overflow areas periodically. Replace soil, plant material, and/or mulch in areas where erosion has occurred. Erosion problems should not occur with proper design except during extreme weather events. If erosion problems do occur, the following issues should be re-assessed: flow volumes from the contributing drainage area and bioretention size; flow velocities and gradients within the bioretention facility; flow dissipation and erosion protection methods in the pretreatment and in-flow areas. If sediment is deposited in the bioretention facility, immediately determine the source, remove excess deposits, and correct the problem.

3. Plant Material: Depending on plants selected and aesthetic requirements, occasional pruning and removal of dead plant material may be necessary.

Replace all dead plants. However, if specific plants consistently have a high mortality rate, assess the cause and replace with appropriate species. Periodic weeding is necessary until groundcover plants are established. Weeding should become less frequent if an appropriate plant density has been used.

4. Nutrients and Pesticides: The soil media and plant material should have been selected for optimum fertility, plant establishment, and growth within the particular conditions of each bioretention facility. Nutrient and pesticide inputs should NOT be required and will degrade the pollutant processing capability of the bioretention facility, as well as contribute to additional pollutant loading to receiving waters. By design, bioretention facililities are typically specified in watersheds where phosphorous and nitrogen levels are often elevated. Therefore, these should not be limiting nutrients with regard to plant health. If in question, have the soil analyzed for fertility.

5. Mulch: Bioretention areas should be mulched once the planting of trees and shrubs has occurred. Replace mulch annually in Bioretention facilities where heavy metal deposition is likely (e.g., drainage areas that include commercial/industrial uses, parking lots, or roads). In residential or other settings where metal deposition is not a concern, replace or add mulch as needed to maintain a 2 to 4 inch depth at least once every two years.

6. Soil media: Soil mixes for bioretention facilities are design to maintain long-term fertility and pollutant processing capability. Estimates from metal attenuation research indicates that metal accumulation should not present a toxicity concern for at least 20 years in bioretention facilities (USEPA 2000). Further, replacing mulch where heavy metal deposition is likely provides an additional factor of safety for prolonged bioretention performance. If in question, have soil analyzed for fertility and pollutant levels.

With soil testing the accumulation of toxins and heavy metals can be detected or prevented. Over a period of time, heavy metals and other toxic substances will tend to accumulate in the soil and the plants. Data from other environs such as forest buffers and grass swales suggest accumulation of toxins and heavy metals within five years of installation. However, there is no methodology to estimate the level of toxic materials in the bioretention areas since runoff, soil, and plant characteristics will vary from site to site.

As the toxic substances accumulate, the plant biologic functions may become impaired, and the plant may experience dwarfed growth followed by mortality. The biota within the soil can also become void and the natural soil chemistry may be altered. The preventative measures would include the removal of the contaminated soil. In some cases, removal and disposal of the entire soil base as well as the plant material may be required.

When the filtering capacity diminishes substantially (e.g., when water ponds on the

surface for more than 12 hours), remedial actions must be taken. One possible problem is that underdrain pipe systems can become clogged. Annual flushing through pipe cleanouts is recommended to facilitate unclogging of the pipes without disturbing the bioretention areas. If the water still ponds for more than 12 hours, the top few inches of material should be removed and replaced with fresh material. The removed sediments should be disposed of in an acceptable manner (e.g., landfill). If that does not solve the problem, more extensive rebuilding is required.

Examples of When to Perform Maintenance

• Replace gravel when it has become clogged with sediment.
• Remove top layer of fill media when the pool does not drain quickly. The pool is normally designed to drain within 12 hours.

Sample Operation and Maintenance Provisions

Important operation and maintenance procedures:

− Immediately after the Bioretention cell is established, the plants will be watered twice weekly if needed until the plants become established (commonly six weeks).

− Snow, mulch or any other material will NEVER be piled on the surface of the Bioretention cell.
− Heavy equipment will NEVER be driven over the Bioretention cell.

− Special care will be taken to prevent sediment from entering the Bioretention cell.

− Once a year, a soil test of the soil media will be conducted.

After the Bioretention cell is established, it should be inspected once a month and within 24 hours after every storm event greater than 1.0 inches (or 1.5 inches if in a Coastal County). Records of operation and maintenance will be kept in a known set location and will be available upon request.

Ongoing monitoring and maintenance is vital to the overall success of bioretention areas. Annual maintenance will be required for plant material, mulch layer, and soil layer. Inspection activities shall be performed as follows. Any problems that are found shall be repaired immediately.

Table Sample Operation and Maintenance Provisions for Bioretention Areas
NCDENR Stormwater BMP Manual

Reference from: N.C. Division of Water Quality BMP Manual

BMP element:	Potential problems:	How to remediate the problem
The entire BMP	Trash/ debris is present.	Remove the trash/ debris.
The perimeter of the bioretention cell	Areas of bare soil and / or erosive gullies have formed.	Regrade soil if necessary to remove the gully, and then plant a ground cover and water until it is established. Provide lime and a one-time fertilizer application.
The inlet device: pipe, stone verge or swale	The pipe is clogged (if applicable).	Unclog the pipe. Dispose of the sediment off-site.
	The pipe is cracked or otherwise damaged (if applicable)	Replace the pipe.
	Erosion is occurring in the swale (if applicable).	Regrade the swale if necessary to smooth it over and provide erosion control devices such as reinforced turf matting or riprap to avoid future problems with erosion.
	Stone verge is clogged or covered in sediment (if applicable)	Remove sediment and clogged stone and replace with clean stone.
The pretreatment area	Flow is bypassing pretreatment area and / or gullies have formed.	Regrade if necessary to route all flow to the pretreatment area. Restabilize the area after grading.
	Sediment has accumulated to a depth greater than three inches.	Search for the source of the sediment and remedy the problem if possible. Remove the sediment and restabilize the pretreatment area.
	Erosion has occurred.	Provide additional erosion protection such as reinforced turf matting or riprap if needed to prevent future erosion problems.
	Weeds are present.	Remove the weeds, preferably by hand.
The bioretention cell: vegetation	Best professional practices show that pruning is needed to maintain optimal plant health.	Prune according to best professional practices.
	Plants are dead, diseased or dying.	Determine the source of the problem: soils, hydrology, disease, etc. Remedy the problem and replace plants. Provide a one-time fertilizer application to establish the ground cover if a soil test indicates it is necessary. If sod was used, check to see that it was not grown on clay or impermeable soils. Replace sod if necessary.
	Tree stakes/wires are present six months after planting	Remove tree stake/wires (which can kill the tree if not removed).

Table continued
Sample Operation and Maintenance Provisions for Bioretention Areas

Reference from: N.C. Division of Water Quality BMP Manual

BMP element:	Potential problems:	How to remediate the problem
The bioretention cell: soils and mulch	Mulch is breaking down or has floated away.	Spot mulch if there are only random void areas. Replace whole mulch layer if necessary. Remove the remaining mulch and replace with triple shredded hard wood mulch at a maximum depth of three inches.
	Soils and / or mulch are clogged with sediment.	Determine the extent of the clogging – remove and replace either just the top layers or the entire media as needed. Dispose of the spoil in an appropriate off-site location. Use triple shredded hard wood mulch at a maximum depth of three inches. Search for the source of the sediment and remedy the problem if possible.
	An annual soil test shows that pH has dropped or heavy metals have accumulated in the soil media.	Dolomitic lime shall be applied as recommended per the soil test and toxic soils shall be removed, disposed of properly and replaced with new planting media.
The underdrain system (if applicable)	Clogging has occurred.	Wash out the underdrain system.
The drop inlet	Clogging has occurred.	Clean out the drop inlet. Dispose of the sediment off-site.
	The drop inlet is damaged.	Repair or replace the drop inlet.
The receiving water	Erosion or other signs of damage have occurred at the outlet.	Contact the NC Division of Water Quality 401 Oversight Unit at 919-733-1786.

ANNUAL BIORETENTION AREA INSPECTION CHECKLIST

Date: _____
Time: _____
(Project Name): _____Bio-Cell # ____, Kernersville, NC

PERIMETER OF THE BIORETENTION CELL INLETS–DRAINS–OUTLETS

Check/Circle Condition Noted	Observations	Action – Repair	Action – Monitor	Action -- Investigative
Bio-Cell Perimeter	**Type:**			
Trash /Debris/				
Areas of bare soil/erosion				
Bio-Cell Inlets	**Type:**			
Pipe clogged				
Cracks/Deterioration				
Erosion in verge swale				
Stone verge clogged				
Others				
Bio-Cell Drain/Other Outlets	**Type:**			
Level Spreader/Filter strip				
Overflow Structure				
Rip Rap				
Under-drain system				
Receiving Water				
Others				

General Comments, Sketches & Field Measurements

_____
_____
_____
_____
_____
_____
_____
_____

ANNUAL BIORETENTION AREA INSPECTION CHECKLIST

Date: _____
Time: _____
(Project Name): _____Wet Retention Pond # ____,
Kernersville, NC

PRETREATMENT AREA-BIORETENTION CELL-SLOPES

Check/Circle Condition Noted	Observations	Action – Repair	Action – Monitor	Action -- Investigative
Pretreatment Area	**Type:**			
Weeds are present				
Beaching/Slides/Cracks				
Undermining/erosion				
Sediment accumulation				
Bypassing flow				
Bioretention Cell	**Type:**			
Vegetation				
Soils and mulch				
Slopes	**Type:**			
Vegetation/Erosion				
Rodent burrows				
Sloughs/Slides/Cracks				
Seepage/Wetness				
Others				

General Comments, Sketches & Field Measurements

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

NAME OF BIO-CELL

Date: _____
Time: _____
(Project Name): _____Bio-retention Area # ____,
Kernersville, NC

ANNUAL BUDGET AND REPLACEMENT FUND

Item	**Yearly Cost**	
	Budget	**Actual**
Mowing and/or pruning		
Seeding		
Fertilizer/Lime		
Replacement of plants		
Trash Removal		
Sediment Removal		
Inlet Structure Maintenance (Stone verge, pipes and/or Rip Rap)		
Media soil replacement		
Outlet Structure Maintenance (overflow structure and/or Rip Rap)		
Pest Control		
Deposit in Capital Reserve Fund		
Inspector Fee		
Other cost		
Total Annual Budget		

Date: _____ Balance in Capital Reserve Fund: _____

Bank: _____

Report Prepared By: _____ Deposit in Capital Reserve Fund

IN WITNESS WHEREOF, the Grantor has hereunto set their hands and seals, this the day and year first above written.

Grantor:

_____(Seal)

_____Name of Owner or Owners Association

By:_____(Seal)

North Carolina, _____ County
I certify that the following person(s) personally appeared before me this day, each acknowledging to me that he or she voluntarily signed the foregoing document for the purpose stated therein and the capacity indicated:
Date: _____ _____, 2014.

Place notary seal below this line:

_____
Notary Public
Print/Type Name:_____

My Commission Expires:_____

North Carolina, _____ County
I certify that the following person(s) personally appeared before me this day, each acknowledging to me that he or she voluntarily signed the foregoing document for the purpose stated therein and the capacity indicated: ( ), **President of "_____"**

Date: ___ _____, 2014.

Place notary seal below this line:

_____
Notary Public
Print/Type Name:_____

My Commission Expires:_____

APPENDIX 11

MAINTENANCE ESCROW AGREEMENT

For *(Insert BMP(s) name and Development Name)*

Account # _____

THIS AGREEMENT made pursuant to Town of Kernersville Stormwater Runoff Ordinance ,and entered into this _____ day of _____ **,** 20___ ____, by and between The TOWN OF KERNERSVILLE, a North Carolina municipal corporation, party of the first part (hereinafter referred to as "TOWN"; and *[Insert Name of Developer]* (hereinafter referred to as "Developer"), and *[Insert Homeowners or Association name]* (hereinafter referred to as the "Association" parties of the second part, hereby employ *[Insert Name of the Escrow Officer]* of [*Insert Name of the Bank*], as Escrow Agent party of the third part (hereinafter called "Escrow Agent"), whit its principal place of business at *[Insert Full Address of Escrow Officer office]*, and in connection with the Stormwater Management Structure(s) of *[Insert Name of the Development or project]* project at *[Insert Full Address of Project or development]*.

WITNESSETH:

WHEREAS, the Storm Water Runoff Ordinance of the Town, requires the establishment of an escrow account to ensure that adequate funds are available to provide for the long-term maintenance and replacement of Stormwater Best Management Practices Structures, (hereinafter "BMPs") (such as, but not limited to sediment removal, structural, biological or vegetative replacement, major repair, or reconstruction).

WHEREAS, the Storm Water Runoff Ordinance of the Town, requires both an initial Developer contribution (the "Initial payment) and either Association payment of annual sinking funds to fund the escrow account (if it has taken ownership) or annual payment by the developer if it still retains ownership of the Stormwater Management Structure BMPs.

WHEREAS, the Storm Water Runoff Ordinance of the Town requires the Developer to pay into the escrow account an initial payment equal to fifteen (15) per cent of the initial construction cost of the structural BMPs prior to plat recordation or issuance of construction permits.

WHEREAS, the Storm Water Runoff Ordinance of the Town requires the Association, if it has taken ownership, or Developer, if it still retains ownership of the structure, to pay into the escrow account the total amount of sinking fund budget (corresponding to eighty-five (85) per cent of the initial construction cost of the structural BMPs) according to the following schedule: two-thirds (2/3) shall be

deposited into the escrow account within the first five (5) years and the full amount shall be deposited within ten (10) years following initial construction of the structural BMPs.

WHEREAS, the Developer is developing a *[Insert type of Project]* known as *[Insert Name of the Project]* project, and desires to provide the Town a financial guarantee to assure that adequate funds are available to provide for the long-term maintenance and replacement of Stormwater Management Structures, BMPs at [*Insert Location of BMPs*] and has established an Escrow Account for such purpose.

WHEREAS, the parties have agreed that the Escrow Agent is acceptable to all parties to act in such capacity;

NOW, THEREFORE, in consideration of the foregoing premises, it is hereby agreed:

1. The Developer has deposited in escrow the sum of _____ dollars ($_____) with the Escrow Agent, to guarantee that adequate funds are available to provide for the long-term maintenance and replacement (sediment removal, structural, biological or vegetative replacement, major repair, or reconstruction) of Stormwater Management Structures, BMPs as require by the Storm Water Runoff Ordinance of the Town of Kernersville and in accordance with approved construction plans and specifications.

2. The Association, if it has taken ownership or Developer, if it still retains ownership of the Stormwater Management Structure(s) shall pay the sum of _____dollars ($_____) to the Escrow Agent within ten (10) years following initial construction of the BMPs (funds shall be deposited each year into the escrow account) to guarantee that adequate funds are available to provide for the long-term maintenance and replacement (sediment removal, structural, biological or vegetative replacement, major repair, or reconstruction) of Stormwater Management Structures, BMPs as required by the Storm Water Runoff Ordinance of the Town of Kernersville and in accordance with approved construction plans and specifications.

3. The Escrow Agent agrees to hold said funds and to pay out said funds only upon receipt of "Proper Authorization" as hereinafter defined. "Proper Authorization" shall mean authority in written form from the Town of Kernersville stating that a disbursement is authorized either:

(a) To the Association, or to any party designated in writing by the Association, upon delivery of "Proper Authorization" from the Town of Kernersville authorizing such payment. The Town of Kernersville, through the Stormwater Division, shall issue such "Proper Authorization" upon acceptance of the expenditure.

(b) To the Town of Kernersville upon delivery of a "Proper Authorization" from the Stormwater Division of the Town, upon its determination that the Stormwater Management Structures, BMPs, are not performing adequately or as intended or are not properly maintained in accordance with the Storm Water Runoff Regulations and the Town of Kernersville has determined that pursuant to the Ordinance it must take over and perform any such uncompleted maintenance and/or repairs and use the escrow funds on deposit with the Escrow Agent for such purposes.

4. The Developer or the Association, whichever is responsible agrees to comply with the requirement of the Ordinance that any funds drawn down from the escrow account shall be replaced in accordance with the schedule of anticipated work used to create the sinking fund budget by the Association.

5. The Escrow Agent hereby acknowledges that it will hold the funds referred to in Items 1 and 2 above and represents that it has no obligation whatsoever to any of the parties hereto except to release said funds within 10 days upon delivery of "Proper Authorization" from the Town of Kernersville, and the Developer or Association does hereby release and hold the Escrow Agent harmless from any and all claims whatsoever by it against the Escrow Agent for releasing such funds to the Town of Kernersville in accordance with the terms of this Agreement.

6. In the event that this escrow agreement should fail for any reason to cover the costs of maintenance or repair, including any deficiency as to form or execution, then Developer and the Association and Developer, and their successors, transferees, or assigns, acknowledge that whichever party is deemed responsible by the Town is subject to being charged for the costs of such maintenance and repair; and such costs shall be enforced in the nature of a debt as provided by the applicable Ordinances and State laws.

IN WITNESS WHEREOF, the parties have hereto set their hands and seals, this _____day of _____, 20_____.

PARTY OF THE FIRST PART:

TOWN OF KERNERSVILLE

By:_____
Dawn H. Morgan, Mayor

ATTESTED TO:

_____
Dale F. Martin, Town Clerk

STATE OF NORTH CAROLINA)
COUNTY OF _____)

I, _____, a Notary Public of Forsyth County, North Carolina, do hereby certify that _____personally came before me this day and acknowledged that she is the Town Clerk of the Town of Kernersville, a North Carolina municipal corporation, and that by authority duly given as the act of the Town of Kernersville, the foregoing instrument was signed in its name by its Mayor, sealed with its corporate seal and attested by her as its Town Clerk.

Witness my hand and official seal, this the _____ day of _____, 20___.

_____
Notary Public
Print/Type Name: _____

My Commission Expires:_____

(SEAL)

PARTY OF THE SECOND PART:

DEVELOPER:

_____

By:_____(SEAL)

Name:_____

Its:_____(Title)

STATE OF NORTH CAROLINA)
COUNTY OF _____)

DEVELOPER
ACKNOWLEDGEMENT

I, _____, a Notary Public of _____ County, North Carolina, do hereby certify that _____, the_____ of _____personally came before me this day and acknowledged the execution and sealing of the foregoing instrument as

_____ on behalf of and as the act of the company referred to in this acknowledgment.

Witness my hand and notarial seal, this the _____ day of _____, 20___.

_____ My Commission Expires:_____
Notary Public

(SEAL)

PARTY OF THE SECOND PART:
ASSOCIATION:

_____

By:_____(SEAL)

Name:_____

Its:_____(Title)

STATE OF NORTH CAROLINA)
COUNTY OF _____)

ASSOCIATION
ACKNOWLEDGEMENT

I, _____, a Notary Public of _____ County, North Carolina, do hereby certify that _____, the _____ of _____personally came before me this day and acknowledged the execution and sealing of the foregoing instrument as _____ on behalf of and as the act of the company referred to in this acknowledgment.

Witness my hand and notarial seal, this the _____ day of _____, 20___.

_____ My Commission Expires:_____
Notary Public

(SEAL)

PARTY OF THE THIRD PART:

NAME OF THE BANK

_____

ESCROW AGENT:

By:_____(SEAL)

Name:_____

Its:_____(Title)

STATE OF NORTH CAROLINA)
COUNTY OF _____)

ESCROW AGENT
ACKNOWLEDGEMENT

I, _____, a Notary Public of _____ County, North Carolina, do hereby certify that _____, the _____ of _____personally came before me this day and acknowledged the execution and sealing of the foregoing instrument as _____ on behalf of and as the act of the company referred to in this acknowledgment.

Witness my hand and notarial seal, this the _____ day of _____, 20___.

_____ My Commission Expires:_____
Notary Public

(SEAL)

APPENDIX 12
WATERSHED/STORMWATER MANAGEMENT PERMIT APPLICATION PROCESS

Obtain approval of "Stormwater Management System Concept Plan"

See Appendix 02 "Stormwater Management System Concept Plan Review Submittal".

Does the project comply with the Development Standards for the Low Density Option in accordance with the Town of Kernersville regulations?

NO

A High Density Watershed/Stormwater Permit is required for a project exceeding the requirements of the Low Density option.

See Appendix 03 "Watershed/Stormwater Permit Application Forms" and Appendices 04–a and 04–b "Stormwater Design Construction Plans Submittal Checklist" and "High Density Watershed/Stormwater Permit Submittal Checklist"

The project is required to implement Engineered Stormwater Control devices (BMPs) to treat Stormwater runoff.

Submit the following items to the Watershed Administrator or Designee for review:
- –High Density Watershed/Stormwater Application with corresponding Watershed–Stormwater Fees
- –Stormwater Design Construction Plans (including design of BMPs)
- –Draft of the O&M Agreement for the BMPs
- –Draft of the O&M Plan for the BMPs
- –Contractor's estimated cost for construction of BMP(s)
- –Draft of Deed of Easement document
- –Any additional applicable documentation required for the project.

See Appendices 08 "BMPs O&M Agreement Models", 09 "Deed of Easement Model", and Appendix 10 "O&M Plan Models"

Will the BMPs structures be owned and maintained by a homeowner's association, property owners' association, or similar entity?

YES

Submit a copy of the draft document for Association Covenants, Conditions and Restrictions and a copy of the draft document for the Maintenance Escrow Agreement for review by the Watershed Administrator or designee.

See Appendix 11 "Maintenance Escrow Agreement Model"

NO

Review of Stormwater Design Construction Plans, Watershed/Stormwater Application and any additional required submitted documentation by Watershed Administrator or Designee and the Watershed Review Committee.

Disapproved

Review Comments issued to developer or designer based on Watershed Administrator or Designee reviews.

RESUBMIT
Multiple Iterations may be necessary.

Approved

Submit a performance surety for BMPs, recorded Operation and Maintenance Agreement, recorded Deed of Easement and signed and notarized Operation and Maintenance Plan. Also, submit recorded Association Covenants, Conditions and Restrictions and recorded Maintenance Escrow Agreement if applicable.

See Appendix 05 "Guidelines for Surety Posting"

Watershed/Stormwater permit issued. Construction may proceed. (see Appendix 13 "Stormwater Management Construction and Construction Inspection Process"). Watershed/Stormwater permit is valid for twelve (12) months.

YES

Submit Stormwater Design Construction Plans, any additional applicable documentation, and Low Density Watershed/Stormwater Application with corresponding Watershed/Stormwater Permit Fees for review by Watershed Administrator or Designee.

See Appendix 03 "Watershed/Stormwater Permit Appication Forms" and Appendix 04–a "Stormwater Design Construction Plans Submittal Checklist"

Review of Stormwater Design Construction Plans, Watershed/Stormwater Application and any additional required documentation by Watershed Administrator or Designee.

Disapproved

Review Comments issued to developer or designer based on Watershed Administrator or Designee reviews.

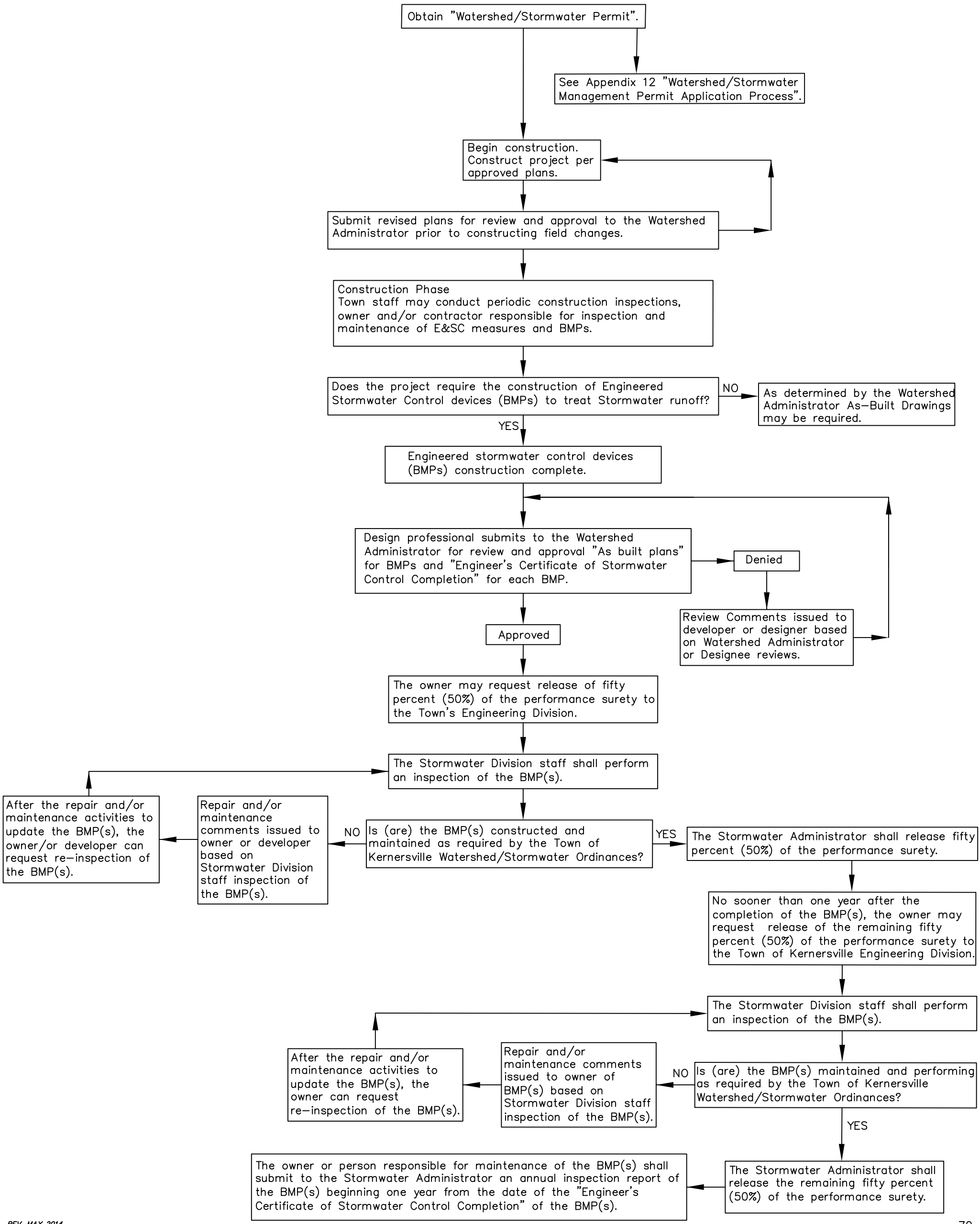
RESUBMIT
Multiple Iterations may be necessary.

Approved

Watershed/Stormwater permit issued. Construction may proceed. (see Appendix 13 Stormwater Management Construction and Construction Inspection Process).

REV. APRIL 2014

APPENDIX 13
STORMWATER MANAGEMENT CONSTRUCTION AND CONSTRUCTION INSPECTION PROCESS



APPENDIX 14

TOWN OF KERNERSVILLE

Town of Kernersville
P.O. Box 728
Kernersville, NC 27285-0728

134 East Mountain Street
Telephone (336)996-3121
Fax (336)996-4822

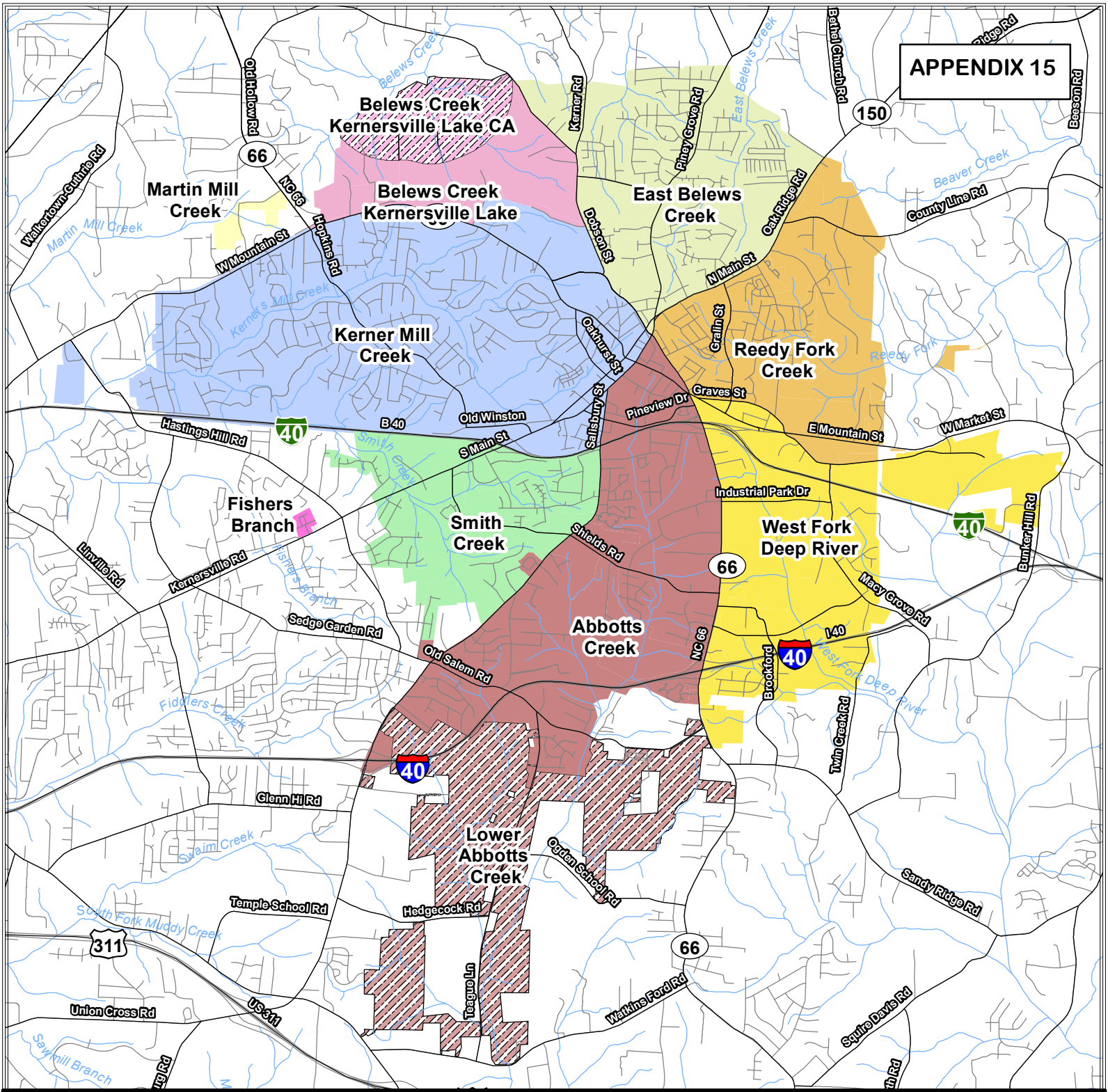
ENGINEER'S CERTIFICATE OF STORMWATER CONTROL COMPLETION

I_____, certify that, pursuant to generally accepted engineering standards in the community, it is my professional opinion that the storm water control structure(s) labeled as_____ and located on this plat (or on name of plat) as recorded in PB _____,PG _____ in the Office of _____ County Register of Deeds has been completed in conformance with the approved plans and specifications meeting all requirements of Kernersville Watershed Ordinance, has its full design volume available, and is functioning as designed.

Witness my hand and seal this _____day of_____, 20_____.

_____
Engineer or Landscape Architect

Notice: This property is located in a Watershed (WS------) public Water Supply Watershed. Development restrictions apply. This property is subject to restrictive covenants and contractual lien requiring maintenance and annual inspection of a storm water control structure.



N

20140205
Map Not To Scale

TOWN OF KERNERSVILLE WATERSHED MAP

- Abbotts Creek WS III - BW
- Lower Abbotts Creek WS III - BW
- Belews Creek Kernersville Lake WS IV - BW
- Belews Creek Kernersville Lake WS IV - CA
- East Belews Creek C
- Fishers Branch WS III - BW
- Kerner Mill Creek WS III - BW
- Martin Mill Creek WS III - BW
- Reedy Fork Creek WS III - BW
- Smith Creek WS III - BW
- West Fork Deep River WS IV - BW

**Note: The critical area idetified on themap in the Belews Creek watershed is symbolic. All cases should be evaluated on a site specific basis to determine if the property is within the one-half critical area. This map is subject to revision at any time. Check with the Community Development Department for the most current watershed boundaries.