

Report to the Environmental Review Commission

Pursuant to S.L. 2014-120, Sec. 29 REFORM AGENCY REVIEW OF ENGINEERING WORK

January 14, 2015

Name of Local Government Unit: *City of Winston-Salem*

Approved/delegated program subject to reporting requirements:

☐ Sedimentation/erosion control

☐ Stormwater

☒ Water/sewer

☒ Cross-connection

☐ 401 certifications

☒ Other

Type program name *City of Winston-Salem/Forsyth County*
Utilities

Type name of person preparing report

Signature of report preparer



Michael T. Patton, P.E.

Type date

Date January 29, 2015

***Submit this report electronically to Mariah Matheson, Commission Assistant,
Environmental Review Commission, at Mariah.Matheson@ncleg.net.***

Name of local government unit: City of Winston-Salem/Forsyth County Utilities

*****Please attach any written procedures that may have been developed to implement the provisions of this law.*****

☐ Check to indicate that this plan review program implemented procedures whereby plan reviewers distinguish between plan changes that are required by statutory or other legal authority and those that the reviewer offers as suggestions for improvement. Refer to S.L. 2014-120, Section 29.(b)(1) for further details about this requirement.

☒ Check to indicate that this plan review program identifies the statutory or regulatory authority for any revisions or requests for additional information that are required by the program in order to grant the requested plan permit, approval, or license. Refer to S.L. 2014-120, Section 29.(b)(2) for further details about this requirement.

☐ Check to indicate that this plan review program implemented procedures for local governments to follow when (1) a Professional Engineer submits a sealed design or practice that is not in the local government's guidance, manuals, or standard operating procedures, and (2) the submitting Professional Engineer requests additional internal review of that design or practice. Refer to S.L. 2014-120, Section 29.(c)(1) for further details about this requirement.

☐ Check to indicate that this plan review program established a procedure whereby the plan reviewer's supervisor OR the approving/delegating state agency can provide further review and oversight of these design details. Refer to S.L. 2014-120, Section 29.(c)(1) for further details about this requirement.

☒ Check to indicate that this plan review program either employs a Professional Engineer who can conduct further review of these innovative designs, or maintains a list of consulting Professional Engineers of the local government unit's choice that may conduct this review, if requested by and paid for by the submitting Professional Engineer. Refer to S.L. 2014-120, Section 29.(c)(1) for further details about this requirement.

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☒ Check to indicate that this plan review program discontinued use of the word “engineer” in the job titles of all program employees whose responsibilities include review of plans in affected programs, *unless* those employees hold Professional Engineer licenses. Refer to S.L. 2014-120, Section 29.(h) for further details about this requirement.

Name of local government unit: [Type name]

☒ Check to indicate that this plan review program reviewed the titles of all employees conducting plan reviews for this program. Refer to S.L. 2014-120, Section 29.(h)(1) for further details about this requirement.

☒ Check to indicate that this plan review program proposed revisions to those employees’ job titles in order to eliminate use of the word “engineer” when publicly identifying those employees, if those employees do not hold Professional Engineer licenses. Refer to S.L. 2014-120, Section 29.(h)(2) for further details about this requirement.

Additional information: .

Attached is our current policy.

Response to items not checked:

Items 1 through 3 will be added to a revised Plan Submittal Requirement Policy within 30 days.



Item 4 The existing policy discusses the deviations due to design considerations review process. This will be clarified within 30 days.



Memorandum

To: Engineering and Development Community
From: Utilities Plan Review Section
Date: 08-03-2007
Subject: Plan Submittal Requirements

All construction plans submitted for Utilities review shall include a cover sheet, an overall utility plan, and a plan and profile sheet for each street and outfall, within the project limits, being on-site or off-site. The following criterion has been established as the **minimum** requirement for first plan review:

- All Sheets:
- 24" x 36" Sheet, Graphic Scale, North Arrow, Phase Lines, Match Lines, and Title Block
 - Labeled "Preliminary – For Review Only" (to be removed when all revisions are finalized)
- Title Block:
- Project and Street Names, Project Limits, Sheet Number, and the Drawing Scale
 - Submittal and Revision Dates, Initials of Designer, Drafter, and Checker
 - Appropriate Signature, Water/Sewer Permit, and Erosion Control Blocks
 - Revision list: number, date, and "Utility Comments" with annotation  at each revision
- Cover Sheet:
- Project Name, Jurisdiction, and Owner/Developer/Consulting Engineer Information
 - Vicinity Map with North Arrow, Legend, and Sheet Listing or Drawing Index
 - Map of Entire Project Area, which shall identify all existing and proposed features
- Utility Overall:
- Overall site plan of water and/or sewer layout, 40 or 60 scale (not to exceed 100 scale)
 - Overall storm layout to include pipe, culverts, structures, ditches, etc.
 - Street tree layout, symbolized with lighter/thinner line weight, typically with an  symbol
 - Streams, creeks, ponds, and other water features or crossings
 - Applicable City of WS standard notes, street section typical(s), and detail drawings
 - Erosion and/or Storm Water Ponds that impact or are in close proximity to SS mains
- Plan & Profile:
- Scale: 1"= 40' Horizontal / 1"= 4' Vertical
 - 100-Year Flood Elevation, Streams, Creeks, Ponds, and other water features or crossings
 - All elevations SHALL be based on an actual field survey using mean sea level datum
 - Profile elevations labeled at 10-ft grid interval with 1-ft interval (lighter, thinner) gridlines
 - Stationing along the survey baseline, on-site/off-site outfalls, and base of profile grid area
 - Profiles read left to right, low to high, and project directly below the plan view
 - North shall be orientated within the top 180° of the plan view
 - Street profiles show existing and proposed LT, RT, and CL elevation with differing line type
 - Outfall profiles show existing and proposed CL elevation only with differing line type
 - Profiles show length, size, material, and grade for every segment of sewer
 - Manholes are labeled with a number, station, rim elevation, and centerline invert
 - Other manhole labeling or note may be required for inverts, type, ring & cover, drop, etc.
 - Erosion and/or Storm Water Ponds that impact or are in close proximity to SS mains
- Utility Detail:
- Utility detail drawings, typical sections, and/or utility notes not found within the plan set
 - Signature/Approval block requirements are based on detail sheet content and may vary
 - This sheet may not apply to every plan set.

Minimum requirement for first plan review (continued):

- All Drawings:
- Proposed pipes, structures, fittings, services, etc, shown in heavier or thicker, solid lines
 - Proposed water and/or sewer mains labeled with size, material, and type (Water or SS)
 - Existing pipes, structures, fittings, services, etc, shown in lighter or thinner, dashed lines
 - Existing water and/or sewer mains labeled with (city or county) project or drawing number
 - One flow arrow per segment of SS shown on all existing or proposed sewer mains
 - Flow arrows shown on the sewer main, preferably at the point of entry to each manhole
 - Streets and Roads labeled with existing or approved name, to include SR number as it applies
 - Right-of-way, roadway, and easement limits, widths, and type clearly shown
 - Existing and proposed property lines and corners or boundary lines and markers
 - Existing and proposed lot lines, lot numbers, and lot frontages
 - Current owner information (name, block, and lot) on ALL adjacent property
 - Consistency in text, symbolism, and line: type, weight, size, font, hatching, etc.
- Unacceptable:
- Spelling errors, overlap, upside-down, unreadable, duplicate, or stray: text, symbols, or lines
 - Plotter/printer tracks, smudging, smearing, blurry, blotchy, cut-offs, or poor print quality
 - Folded plans are acceptable for review only (final plan sets shall be neatly rolled)
- Design:
- City of Winston-Salem, North Carolina, Department of Public Works, Engineering Division
 - Online at www.cityofws.org/Home/Departments/Engineering/Articles/Publications
 - Technical Specifications and Detail Drawings
 - Water Line and Sanitary Sewer Line Construction
 - Infrastructure Development Standards
 - Deviation due to design consideration shall be subject to approval during the review process
 - The consulting engineer is responsible for the design and shall conform to CCUC policy, which shall include, but is not limited, to the following:
 - Water and sewer mains shall generally be located 6-ft off the centerline of the roadway
 - Water and sewer mains shall in no case cross the centerline or curb line of any roadway
 - SS manholes shall not be located on the centerline of the roadway or under any curb
 - For state roads, water and sewer mains shall generally be located 5-ft back of pavement
 - Max hydrant spacing for single family is 700-ft, preferably at intersections and dead-ends
 - 500-ft spacing may be required in high density single family developments
 - Max hydrant spacing for multifamily is 500-ft, preferably at intersections and dead-ends
 - Storm pipe or structures shall not be in conflict with water and sewer mains or services
 - Infrastructure design shall mean water over storm and storm over sewer
 - Existing water and sewer mains, structures, services, and fittings shall be field located
- General:
- Forms, fees, applications, agreements, and permits are the responsibility of the consulting engineer or their duly appointed representative. Upon completion of all revisions, each sheet in the final plan set shall be original, sealed, signed, and dated by a Professional Engineer. Plans approved and signed by Utilities will only be returned when all matters of the plan review process have been satisfactorily resolved. Five copies (no blue prints) of approved and signed plans shall be returned to Utilities.

This guide is being provided as a general list of common areas in design and drafting that draw attention to City/County Utilities plan review process. This guide is not all-inclusive to every technical aspect of plan review, nor is it intended to serve as a technical specification to water line and sanitary sewer line construction. It is designed to provide a consistent outline of general acceptability of drafting and design in City/County Utilities jurisdiction for water and/or sewer permits.

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☐ Water/sewer

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☐ 401 certifications

☐ Other Type program name

Keith D. Huff

Signature:



January 27, 2015

Date:

1/27/2015

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Additional information: Please see the attached application form and applicable ordinance for the City of Winston-Salem.



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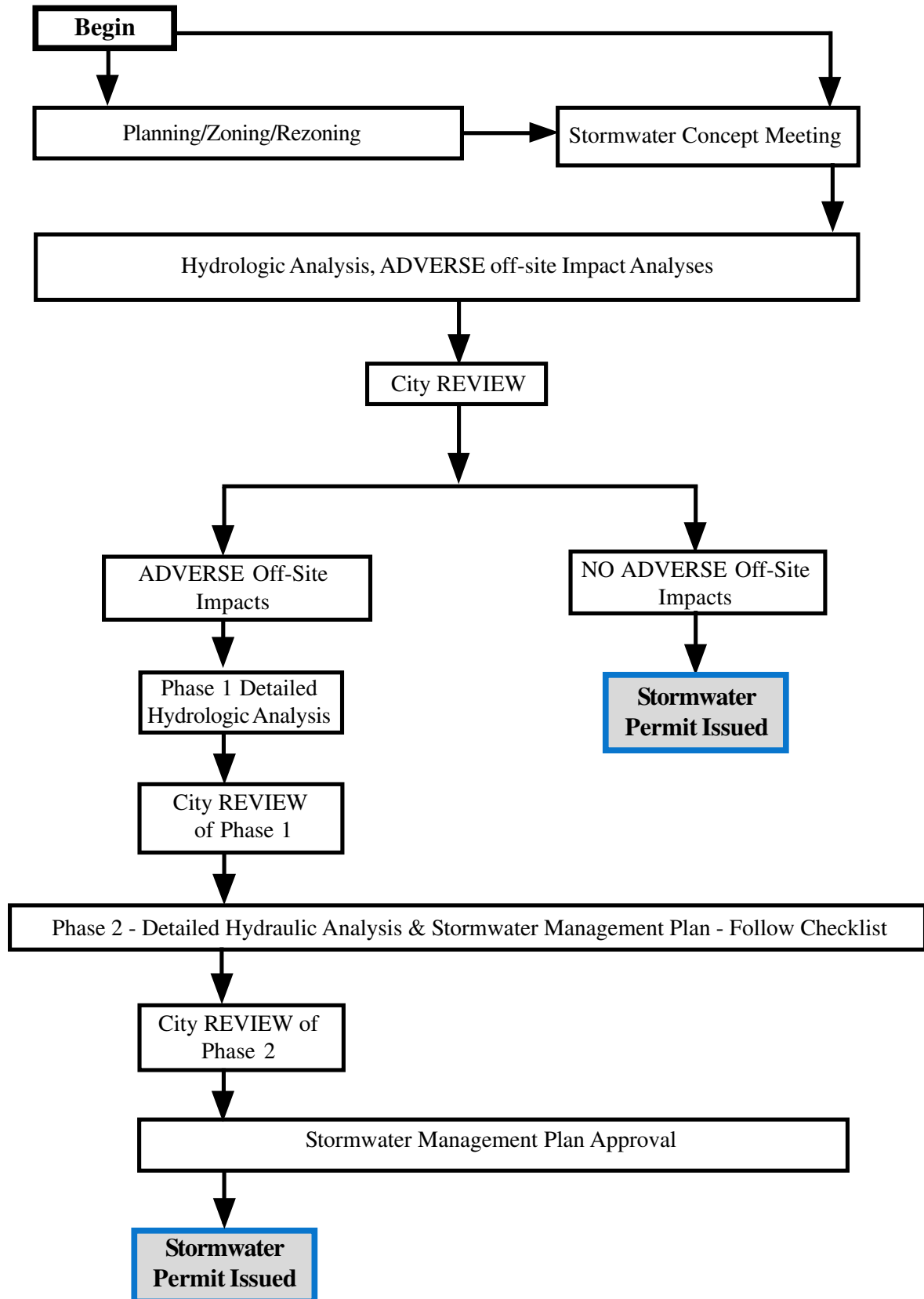
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City of WINSTON-SALEM NORTH CAROLINA Stormwater Submittal Flow Chart

This flow chart is provided to outline the stormwater submittal review process. The applicant is responsible for preparing complete submittals for stormwater reviews by the City.





STORMWATER MANAGEMENT PERMIT

Department of Public Works
Suite 53, City Hall,
101 North Main Street,
Winston-Salem, N.C. 27101
Telephone: (336) 747-7480
Fax: (336) 748-3173

Fee Paid: _____
Date Paid: _____
Permit #: _____
Approved By: _____
Approval Date: _____

*(for use by stormwater
division only)*

APPLICATION

1. Project/Site Information

Project/Site Name: _____

Project Location (Address): _____

Block/Lot(s): _____

Total Site Area (ac): _____ Total Proposed Disturbed Area (ac): _____

Existing Built-Up Area, BUA (ac): _____ Proposed BUA (ac): _____ Proposed BUA (%): _____

For Subdivisions: Number of lots _____ Lot density _____

Site within a Water-Supply Watershed: Y N Low Density Development: Y N

2. Engineer/Designer Information

Engineer Name: _____ NC PE License #: _____

Engineers Company/Firm: _____

Engineers Company/Firm Address: _____

Office Phone: _____ Cell Phone: _____ Fax: _____

E-mail: _____

Engineers Signature: _____ Date: _____

3. Project Owner Information

Owner Name: _____

Owner Company/Firm: _____

Owner Company/Firm Address: _____

Office Phone: _____ Cell Phone: _____ Fax: _____

E-mail: _____

Owner Signature: _____ Date: _____

4. Contractor Information (if available at time of application)

Contractor Name: _____

Contractor Company/Firm: _____

Contractor Company/Firm Address: _____

Office Phone: _____ Cell Phone: _____ Fax: _____

E-mail: _____

5. Posting of Financial Security for Required Stormwater Control Structure(s)[Applicant/Owner must provide adequate financial assurance in the form of a performance bond and/or other cash security for required stormwater control structure(s) prior to issuance of SWM Permit.] Refer to sections 75-402 and 75-404 of The City of Winston-Salem's Post Construction Stormwater Management Ordinance for details.

Applicant/Owner shall file with the City of Winston-Salem one of the following (**check one**):

- ☐ Performance bond
- ☐ Irrevocable letter of credit issued by a bank
- ☐ Establishment and funding of an escrow account

Amount of Financial Security Posted: \$ _____

Date Financial Security provided to City of Winston-Salem: _____

- ☐ Not applicable [No required stormwater control structure(s)]

6. Information Needed for SWM Concept Meeting (See section 75-203(a) of The City of Winston-Salem's Post Construction Stormwater Management Ordinance for more details)

Check the boxes to verify that the item has been addressed/submitted

- ☐ Plan of the proposed development site with approximate locations of property boundaries, roads, land use, topographic features, streams, water bodies, wetlands and any feature related to stormwater
- ☐ Drainage area map showing approximate location of proposed development and pertinent drainage areas, including off-site areas draining to the proposed development
- ☐ A conceptual plan for proposed stormwater management features that would enable the site to meet stormwater quantity and quality regulations. Note that this concept plan need only indicate what the designer plans to do to manage stormwater. For simple sites, a verbal description may suffice.

7. Submittal Requirements for Evaluation of a Downstream No Adverse Impact Study (See section 75-203(b)(2) of The City of Winston-Salem's Post Construction Stormwater Management Ordinance for more details).

Submit two copies of the report for review (Report to be spirally bound preferably. 3 ring binders not accepted)

Check the boxes to verify that the item has been addressed/included in the report

- ☐ Cover sheet with project title; project name and address; owner's name, address, email and phone number; preparer's name, address, email and phone number; and preparer's seal, signature and date
- ☐ Table of contents (with sequential numbering of pages) showing report sections, appendices, tables and figures
- ☐ Project narrative – brief description of project, pre and post development site conditions, hydrologic and hydraulic study
- ☐ Description of the methodologies, assumptions and procedures used in preparing the analysis
- ☐ Summary of any previous hydrologic/hydraulic studies or other information which may pertain to the development of the property
- ☐ Hydrologic information (including maps and plans), data and quantities for pre and post project conditions
 - ☐ Site and watershed topography
 - ☐ Drainage areas (mapped and quantified)
 - ☐ Land uses (mapped and quantified)

- ☐ Soils types (mapped and quantified, include hydrologic types)
- ☐ Drainage paths and lengths (mapped and quantified)
- ☐ Precipitation data (most recent data from NOAA website)
- ☐ Time of concentration (Tc) calculations for existing and proposed site conditions and drainage features
- ☐ Curve Number (CN) and/or Rational C analysis and determinations for existing and proposed site conditions (also show on the SWM Plan or separate map)
- ☐ Peak flows and hydrographs (as applicable) used to analyze to a no adverse impact conclusion
- ☐ Calculations and procedures used to determine a no adverse impact conclusion regarding downstream properties and conveyances with regard to flooding, erosion and also capacity of conveyances for events up to and including the 25 year, 6 hour rainfall event
- ☐ Provide hard copy summary information, digital hydrologic and hydraulic models, and any other stormwater analysis and design calculations as appropriate for the site to satisfy ordinance requirements

Hydraulic performance analyses for off-site impacts.

- ☐ Analyze to a suitable downstream point – typically the 10% point which is defined as the point downstream where the proposed site development or redevelopment represents less than 10% of the total watershed area draining to that point. Other study analysis points may be used if approved by the Stormwater Engineer in advance of submittal, but are less common. Refer to section 75-203(b)(2) of The City of Winston-Salem's Post Construction Stormwater Management Ordinance for more details.
- ☐ Evaluate road crossings for changes in service level due to proposed development. **Write N/A in check box if not applicable**
- ☐ Evaluate impacts to existing and/or off-site impounding structures. **Write N/A in check box if not applicable**
- ☐ Evaluate potential increases in structural flooding impacts. **Write N/A in check box if not applicable**
- ☐ Evaluate capacity of receiving conveyances such as pipes, culverts, swales etc. Provide design information and show increases in water surface elevations for receiving channels at suitable cross section intervals.
- ☐ Has the receiving natural channel or waterbody (on site and/or offsite to the 10% point) been evaluated to ensure that the downstream conveyances are not eroded and/or degraded by altered stormwater flows from the development or re-development? Mitigation measures shall be implemented where the volume of runoff from a post development 2 year, 1 hour rainfall event is 10% greater than the volume of the runoff from a predevelopment 2 year, 1 hour rainfall event. Calculations must be provided to validate no impacts. If mitigation is required detention systems are a satisfactory means to mitigate the impact. If the calculation shows detention systems are needed then the no adverse impact study no longer applies and the designer should follow the requirements of Section 8, 9, 10 and 11 of this application.

8. Submittal requirements for the Hydrologic and Hydraulic Analysis Report/Study for Non-Exempt Sites (Sites that will incorporate a stormwater management device) Note: Upon mutual agreement with the designer, the City will review hydrologic data and analysis prior to hydraulic analysis and design.

Submit two copies of the report for review. (Report to be spirally bound preferably. 3 ring binders not accepted)

Check the boxes to verify that the item has been addressed/included in the report

- ☐ Cover sheet with project title; project name and address; owner's name, address, email and phone number; preparer's name, address, email, and phone number; and preparer's seal, signature and date
- ☐ Table of contents (with sequential numbering of pages) showing report sections, appendices, tables and figures
- ☐ Project narrative – brief description of project, pre- and post-development site conditions, hydrologic and hydraulic study, and proposed SWM plan
- ☐ Description of the methodologies, assumptions and procedures used in preparing the analysis
- ☐ Summary of any previous hydrologic/hydraulic studies or other information which may pertain to the development of the property
- ☐ Geotechnical Engineering Analysis Report including details of subsurface exploration which shows the location of the seasonally high groundwater elevation. Borings or other approved means of subsurface exploration, shall be taken at, or as close as practicable to the immediate vicinity of each proposed stormwater management device

8.(a) Hydrologic Section: Hydrologic information (including maps and plans), data, and quantities for pre and post-project conditions

Check the boxes to verify that the item has been addressed/included in this section of the report

- ☐ Location map showing project in relation to adjacent properties, streets and nearby water features
- ☐ Site and watershed topography
- ☐ Drainage areas and site outfalls (mapped and quantified)
- ☐ Land uses (mapped and quantified)
- ☐ Soils types (mapped and quantified, include hydrologic types)
- ☐ Drainage paths and lengths (mapped and quantified)
- ☐ Precipitation data (most recent data from NOAA website)

- ☐ Time of concentration (Tc) calculations for existing and proposed site conditions and drainage features
- ☐ Curve Number (CN) and/or Rational C analysis and determinations for existing and proposed site conditions (also show on the SWM Plan or separate map)
- ☐ Peak flows and hydrographs (as applicable) to analyze and design site stormwater management features
- ☐ Calculations and procedures used to design permanent structural stormwater BMPs/controls (note: analysis and design of stormwater quality BMPs must be based on the latest version of the State of NC DWQ Stormwater BMP Practices Manual)
- ☐ Hydrologic data sheets, for both pre and post development conditions for each runoff concentration point including time of concentration calculations, rainfall intensities, runoff coefficients and curve numbers and peak discharges
- ☐ Summary table listing all runoff concentration points, corresponding drainage area, calculated peak discharges for pre and post development conditions and differences in discharges
- ☐ For sites that will have stormwater management quality devices, but for which the designer is submitting a downstream no adverse impact study to satisfy the quantity aspect of the site, a summary table for the downstream hydrologic analysis must be provided. This must include the drainage area, calculated peak discharges for pre and post development conditions and differences in discharges at the outfall(s) of the site, each downstream tributary junction and each public or major private downstream stormwater conveyance structure to the suitable downstream analysis point – typically the 10% point which is defined as the point downstream where the proposed site development or redevelopment represents less than 10% of the total watershed area draining to that point must be provided. Designer should reference and also complete section 7 of this checklist if this applies. **Write N/A in check box if not applicable**

8.(b) Hydraulics Section – Note: vegetative conveyances should be designed and used to the maximum extent practicable)

Check the boxes to verify that the item has been addressed/included in this section of the report

- ☐ Open channel design and capacity computations (for swales etc.) Note: if the development has a stormwater device designed for quantity controls for the 2, 10 and 25 year, 6 hour rainfall event, then the conveyance capacity designs must be based on the 25 year, 6 hour rainfall event. Also provide design information on type of liner to be used. Permanent diversions conveying off-site runoff around the site been developed must also meet the aforementioned design criteria.
- ☐ Design computations for all culverts, storm drains and inlets. Storm drain design shall include a labeled schematic of the storm drain network, design discharges, pipe capacities, pipe sizes, slopes and lengths, profiles, outlet velocities, upstream and downstream invert elevations and hydraulic grade line information. Note: if the development has a stormwater device designed for quantity controls for the 2, 10 and 25 year, 6 hour rainfall event, then the conveyance capacity designs must be based on the 25 year, 6 hour rainfall event. Permanent diversions conveying off-site runoff around the site been developed must also meet this design criteria.
- ☐ All supporting data, printouts, tables, nomographs, etc., which are referenced in the report

- ☐ Provide design calculations for all rip-rap aprons and include determination of rip-rap length, width, depth, D50 size and class of stone to be used. If other means of energy dissipation are used similar adequate design information is required to be provided in the report
- ☐ Provide hard copy summary information, digital hydrologic and hydraulic models, and any other stormwater analysis and design calculations as appropriate for the site to satisfy ordinance requirements

8.(c) Stormwater Management System Section

Check the boxes to verify that the item has been addressed/included in this section of the report

- ☐ Description of how the overall stormwater management plan and facilities design(s) will comply with the City of Winston-Salem's post construction stormwater ordinance regarding water quality, water quantity and release rates and channel protection.

Water Quality

- ☐ Does the development or redevelopment cumulatively disturb less than one acre and is not part of a larger common plan of development or sale. (If yes then development is exempt from water quality requirements). **Write Y for yes or N for no in the check box**
- ☐ Does the development or redevelopment cumulatively disturb less than one acre but the activity is part of a larger common plan of development or sale, even though multiple, separate or distinct activities take place at different times and on different schedules. (If yes then development is not exempt from water quality requirements) **Write Y for yes or N for no in the check box**
- ☐ Is the project a low density or high density development? Low density is defined as a project that has no more than 2 dwelling units per acre or 24% built upon area for all residential development and nonresidential development. Low density projects must comply with section 75-302(a) of The City of Winston-Salem's Post Construction Stormwater Management Ordinance. High density projects must comply with section 75-302(b) of The City of Winston-Salem's Post Construction Stormwater Management Ordinance. **Write L for low density or H for high density in the check box**
- ☐ Is the structural BMP(s) designed to treat the runoff volume leaving the project site for the first 1" of rain and is the BMP an approved device contained and referenced in the latest version of the State of NC DWQ Stormwater BMP Practices Manual. Provide detailed calculations in the report. **Write Y for yes or N for no in the check box** (If No then project is not in compliance and will need to be redesigned)
- ☐ For high density projects is the first inch storage volume from the BMP(s) discharged at a flow rate equal to or less than the predevelopment discharge flow rate for the 1 year, 24 hour rainfall event? **Write Y for yes, N for no or N/A for not applicable (if it's a low density project) in the check box** (If No then project is not in compliance and will need to be redesigned)
- ☐ Does the BMP(s) comply with and meet with all of the requirements of the State of NC DWQ Stormwater BMP Practices Manual for the chapter(s) relating to that particular BMP(s), including but not limited to the Major Design Elements section of the chapter? For example, one of the criteria for a wet pond design, is designing the pond for the runoff to drawdown in no less than 48 hours but no more than 120 hours? Provide detailed calculations in the report to satisfy all applicable major design elements of the chosen BMP(s). **Write Y for yes or N for no in the check box** (If No then project is not in compliance and will need to be redesigned).
- ☐ If a wet pond is chosen as the BMP(s) to serve the development or re-development has a level spreader and filter strip been designed at the outlet from the pond? Provide design calculations for them in the report. Note: if the wet pond is designed for 90% TSS (Total Suspended Solids) removal

- efficiency then the combination of the level spreader and filter strip is no longer required to be designed at the outlet and an energy dissipater device such as a rip-rap should be designed and provided at the outlet pipe. **Write Y for yes, N for no, or “90%” if pond is designed for that removal efficiency rate** (If No and the pond is designed for 85% TSS removal then project is not in compliance and will need to be redesigned to include a level spreader and filter strip or redesigned for 90% TSS removal)
- ☐ If a wet pond is chosen as the BMP(s) is the volume of the forebay equal to 20% of the total pond volume? Provide detailed calculations in the report. **Write Y for yes or N for no in the check box** (If No then project is not in compliance and will need to be redesigned).
 - ☐ Is the BMP designed to have a minimum of 85% TSS (Total Suspended Solids) removed? **Write Y for yes or N for no in the check box** (If No then project is not in compliance and will need to be redesigned).
 - ☐ Are all volume and surface area calculations provided? **Check the box to verify that the item has been addressed/included in this section of the report**
 - ☐ Is data such as total site area and total impervious surface area provided? **Check the box to verify that the item has been addressed/included in this section of the report**
 - ☐ Is there an overflow device or emergency spillway provided in the design? Verify for what storm event it is designed for and provide appropriate design data. **Check the box to verify that the item has been addressed/included in this section of the report**
 - ☐ Are all built upon areas meeting the landward buffer requirements for all perennial and intermittent surface waters, as stipulated in section 75-302(2) for low density projects and section 75-302(5) for high density projects, in the City of Winston-Salem’s Post Construction Stormwater Management Ordinance? Note: the buffer widths are based on disturbed area. Therefore if the plans show less than 10 acres disturbed during the construction of the development or redevelopment then the required landward buffer width, as measured from the top of stream bank, shall be 30 feet and the undisturbed buffer width (within the landward buffer and measured from the top of creek back) shall be 15 feet. For a disturbed area of 10 to 50 acres the buffer width shall be 50 feet and 25 feet respectively, etc. **Check the box to verify that the item has been addressed/included in this section of the report**
 - ☐ Is the site located within the Salem lake Water Supply Watershed? (If yes all requirements associated with the water supply watershed ordinance must be met.) **Write Y for yes or N for no in the check box**
 - ☐ Is stormwater runoff conveyed in and from the development via vegetated conveyances to the maximum extent practicable? **Check the box to verify that the item has been addressed/included in this section of the report**
 - ☐ Flow splitter designs or other means of bypassing flows must be provided with calculations used to determine weir wall elevations etc. (For example in the case of using a bio-retention cell to treat for the first inch of runoff and bypassing the flow above the first inch to a manifold device for quantity control). **Check the box to verify that the item has been addressed/included in this section of the report or write N/A in the box if not applicable**

Water Quantity

- ☐ Does this development or redevelopment cumulatively create less than 20,000 square feet for both residential and non-residential uses? **Write Y for yes or N for no in the check box** (If yes, then development is exempt from quantity management)
- ☐ If the project is a redevelopment activity, is the proposed impervious area equal to or less than the preexisting impervious area? **Write Y for yes or N for no in the check box** (If yes, then development is exempt from quantity management.)

- ☐ Does the development or redevelopment disturb less than 3 acres and is not part of a larger common plan of development, redevelopment or sale and is less than 24% built upon area? **Write Y for yes or N for no in the check box** (If yes, then the standards for stormwater quantity shall be limited to controlling only the pre versus post development peaks for the 2 and 10 year design storms. If no, then the pre versus post development peaks for the 2, 10 and 25 year design storms must be controlled as well as managing the difference between the pre versus post development increase in the 25 year design storm volume)
- ☐ Is the BMP designed to manage the 2, 10 and 25 year storm events of minimum 6 hour duration? Provide detailed calculations in the report. **Check the box to verify that the item has been addressed/included in this section of the report**
- ☐ Is the BMP designed to limit the post development peak discharge rates to equal to or less than the pre development rates for the 2, 10 and 25 year storm events? Provide detailed calculations in the report. **Check the box to verify that the item has been addressed/included in this section of the report**
- ☐ Is the BMP designed to detain the stormwater runoff volume equal to the difference between the pre and post development volume for the 25 year storm of 6 hour duration and is the volume detained released over a period of no less than 48 hours but no longer than 120 hours? Provide detailed calculations in the report. **Check the box to verify that the item has been addressed/included in this section of the report**
- ☐ Does the development of the site increase flooding impacts to affected structures in the 100-year flood event for properties upstream and downstream of the site? **Check the box to verify that the item has been addressed/included in this section of the report**
- ☐ Description and calculations provided of measures taken to prevent discharge from any stormwater collection system or structure into any natural or surface drainage channel or feature that may cause damage to the receiving system? If designer anticipates no damage then adequate calculations must be provided to validate his/her opinion. **Check the box to verify that the item has been addressed/included in this section of the report**
- ☐ Has the receiving natural channel or water body (on site and/or off site) been evaluated to ensure that downstream conveyances are not eroded and/or degraded by altered stormwater flows from the development or redevelopment? Mitigation measures shall be implemented where the volume of runoff from a post development 2 year, 1 hour rainfall event is 10% greater than the volume of the runoff from a predevelopment 2 year, 1 hour rainfall event. Calculations must be provided to validate no impacts. Note: Detention systems shall satisfy this requirement. If no detention is provided then calculations need to be provided to validate his/her opinion. **Check the box to verify that the item has been addressed/included in this section of the report**
- ☐ Detailed reservoir routing stage storage and other calculation sheets for all required design storms provided. **Check the box to verify that the item has been addressed/included in this section of the report**
- ☐ Plotted inflow and outflow hydrographs (preferable superimposed) provided. **Check the box to verify that the item has been addressed/included in this section of the report**
- ☐ Are any water impounding structures (dams) designed in accordance with NC Dam Safety standards and if required reviewed and approved by the NC Dam Safety Engineer? **Write Y for yes or N for no in the check** (If yes, provide a copy of approval from the State)
- ☐ If retaining walls are utilized, are free body diagrams showing all forces, moments and computations provided for determining factors of safety against sliding and overturning. **Check the box to verify that the item has been addressed/included in this section of the report**

9. Submittal requirements for the Site/Stormwater Management Plan set

Submit two copies of the plans for review (Plan sheets should be 36" x 24")

Check the boxes to verify that these items have been addressed/included at a minimum in the submitted proposed Site/Stormwater Management plan sets. More information may be required by the City of Winston-Salem as directed.

- ☐ Plan sheet(s) clearly labeled as "Stormwater Management Plan(s)" on cover sheet. Plan sets must include the following sheets at a minimum: Existing site plans, proposed site plan, grading and drainage plan, utility plan, stormwater management plan, easement plan, erosion control plans, details sheets for stormwater management and other relevant drainage conveyances to the stormwater management system, drainage delineation sheets etc. Other sheets may be required by the City of Winston-Salem if necessary
- ☐ Sealed and certified plan set: All plan sheets shall be signed and sealed by a professional engineer or landscape architect, to the extent that the General Statutes, Chapter 89A, allow
- ☐ Date(s) of preparation and all revisions
- ☐ Vicinity map (upper right corner of top sheet)
- ☐ North arrow
- ☐ Appropriate scale
- ☐ Appropriate legend identifying features and layers for all plan sheets.
- ☐ Established benchmark of known elevation to which every other elevation is referenced
- ☐ Property boundary lines for the proposed development/redevelopment site, along with adjacent property lot lines and street right of way lines. Indicate if streets are private or public on the plans.
- ☐ Existing and proposed zoning and land use
- ☐ Location(s) of existing easements (temporary and permanent, public and private). **Write N/A in check box if not applicable**
- ☐ Proposed access locations/easements for future maintenance of stormwater management facilities (15-ft minimum maintenance and access easements required for and to surround all permanent stormwater BMP(s) and all conveyances to the BMP(s) and the maintenance and access easements must connect to a public right-of-way)
- ☐ Existing and proposed utilities
- ☐ Existing and proposed stormwater discharge points (surface and subsurface flows)
- ☐ Existing and proposed drainage basins, sub basins and land use boundaries. (Contributing basins that extend beyond the site boundaries may be delineated on a separate map)
- ☐ Drainage paths and lengths used to determine the time of concentration. Include items depending on method used (rational, TR55 etc.) such as upper and lower elevations, length of sheet flow,

shallow concentrated flow, channel flow, land slope, channel slope, dimensions of channel (piped and open channel), surface descriptions (paved/unpaved) etc.

- ☐ Identify and delineate drainage area and flow paths of runoff to each structural BMP/control, where applicable
- ☐ Streams, lakes, ponds, impoundments, drainage swales, conveyances, floodplains (including 100-year floodplain, floodway fringe, 50% flood fringe line (also called the “floodplain no fill line”, etc.)) wetlands, natural storage and other physical or environmentally sensitive features within or adjacent to the project area. **Write N/A in check box if not applicable**
- ☐ Delineation of all existing and proposed impervious surfaces including locations of buildings, roads, parking areas and other permanent impervious structures or ground coverings.
- ☐ Existing and proposed site topography showing existing and proposed drainage patterns, including drainage area boundaries and flow patterns (Note: utilize a contour interval appropriate for the site conditions, typically 2-ft unless specific site conditions dictate otherwise, and extend contours a minimum of 200 feet beyond the limits of the proposed development.)
- ☐ Identify and label all proposed stormwater drainage systems including but not limited to storm drainage inlets, catch basins, junction boxes etc. showing their location, details, profiles, cross-sections and other specifications as necessary to be able to construct all of the proposed major and minor stormwater management conveyance systems (Indicate type and size of conveyance, e.g. storm drainage pipe, grass swale, diversion, channel lining, storm sewer etc.) Note the conveyances must be designed for the 25 year event unless otherwise exempt.
- ☐ Roof drainage directions and roof leader locations
- ☐ Proposed limits of disturbance
- ☐ Estimated seasonal high groundwater elevation (documented in geotechnical report) in areas to be used for stormwater retention, detention or infiltration. Show this elevation in the profile view of the proposed BMP(s)
- ☐ Hydraulic data summary for all proposed pipes and/or channels. (Designed for 25 year event unless otherwise exempt)
- ☐ Construction notes, specifications and design details for any existing stormwater system components if applicable. **Write N/A in check box if not applicable**
- ☐ Recommendations from any soils engineering or engineering geology report incorporated in the plans and/or specifications if applicable. **Write N/A in check box if not applicable**
- ☐ Dates and reference number of the soils report(s) together with the names, addresses and phone numbers of the firm(s) or individual(s) who prepared the report(s). **Write N/A in check box if not applicable**
- ☐ Details of all components of the proposed stormwater management system including:
 - Plan views showing the proposed BMP(s) locations, in combination with the site plan map.
 - Detailed cross-sections and profiles for each BMP showing critical design features, side slopes, structural components, soil profiles, design elevations including temporary water quality elevations, 2, 10 and 25 year event peak elevations, spillway elevations, riser dimensions and

elevations, orifice and weir dimensions elevations and details, seasonal high water table elevations etc. Details shown on the profile can vary depending on type of BMP chosen. For instance, a wet pond will typically entail all of the aforementioned items as it can attenuate for both quality and quantity. However a bio-retention cell for example, is typically designed to provide quality control for the first inch of runoff only. Therefore the volume and peak attenuation is typically achieved by bypassing the overflow above the first inch to another BMP designed to control for quantity such as an underground manifold device. Therefore detailed profiles will be required for both the bio-cell and manifold device with applicable design elevations referenced in each profile. Details of flow splitters/bypass weirs etc. should also be provided on the plans.

- If the chosen BMP(s) requires a forebay per the State of NC DWQ Stormwater BMP Practices Manual, ensure it is shown and labeled and the surface area and volume are shown on the plan for both the forebay and the entire device. For example in the case of a wet pond the forebay volume must be 20% of the total pond volume, therefore the total pond volume as well as the forebay volume must be indicated
- Average water depth (if applicable to your chosen BMP(s))
- Permanent pool surface area (if applicable to your chosen BMP(s))
- To avoid short circuiting of a wet pond (if that is one of the BMP(s) utilized on site) ensure that the plans show that the length of flow path between the inlet and the outlet is maximized. Baffles may be required in certain designs.
- Details of inlet pipes/conveyances.
- Provide a detailed landscaping plan for the BMP(s) that clearly follow all State of NC DWQ Stormwater BMP Practices Manual specifications. Reference the chapter relating to the chosen BMP for landscaping requirements and also specifically to Chapter 6 of the Manual for landscape and soil composition specifications. Section 6.4.1 of Chapter 6 must be referenced for items that are required be shown on the landscape plan.
- No trees or shrubs must be planted within 10 feet of inlet or outlet pipes, or manmade drainage structures such as spillways or flow spreaders.
- For wet ponds, no trees must be planted on the pond shelf or on any of the pond embankment, interior or exterior.
- Show locations and specifications for sediment depth indicators where applicable.
- Proposed outfall conveyance system with size, lengths, slopes and grades.
- Show and provide specifications for all permanent energy dissipation devices on the stormwater management plans
- If a wet pond is chosen as a BMP(s) and is designed for 85% TSS removal a level spreader and vegetated filter strip combination must be provided at the outlet from the pond and detailed specifications provided for each that meets the requirements of Chapter 8 of the State of NC DWQ Stormwater BMP Practices Manual. This item is not necessary for a wet pond designed for 90% TSS removal
- Aquatic shelf dimensions (where applicable, e.g. in the case of a wet pond) and elevations, slope etc. must be referenced on the plan and profile view of the BMP
- If a bio-retention cell is chosen as a BMP to treat for water quality, clearly indicate if the cell shall be landscaped/mulched or sodded and show details as appropriate to meet the requirements of the State of NC DWQ Stormwater BMP Practices Manual. If the cell is to be sodded, then

clearly show on the plans provisions and specifications for the sign(s) to be permanently posted at the cell(s) with the words “DO NOT FERTILIZE” clearly readable on the sign(s). These signs must be large enough and located in a position where they can be easily seen and read by a landscape contractor. Indicate the locations of the postings on the stormwater management plan.

- Detailed construction and sequencing notes explaining necessary procedures to be followed to properly implement the plan, including planting and landscaping specifications, timing and sequencing of construction and any temporary measures needed to protect BMP’s during the construction phase as well as detailed notes explaining the transitioning and sequencing of a BMP(s) that is used as a sediment and erosion control device to a permanent stormwater control BMP(s).
- The following statement is required on all stormwater management plans “The developer shall contact the City Stormwater Engineer when the best management practice(s) are constructed and about to become operational so an inspection to determine compliance with the approved plan can be performed”.
- The following statement is required on all stormwater management plans “Adequate drainage, erosion and sediment control measures, best management practice(s) and/or other stormwater management facilities shall be provided and maintained at all times during construction. Damages to adjacent property and/or the construction site caused by the contractor’s or property owner’s failure to provide and maintain adequate drainage and erosion/sediment control for the construction area shall be the responsibility of the property owner and/or contractor”.

- ☐ Show ownership information for site and adjacent properties
- ☐ Show existing and proposed built-upon areas and other proposed site improvements
- ☐ Note existing and proposed built-upon area in terms of total acreage and % built-upon area
- ☐ Designated water-supply watershed classification, if applicable. **Write N/A in check box if not applicable**
- ☐ Note allowable limits on BUA % (if applicable). **Write N/A in check box if not applicable**
- ☐ Show landward buffer widths from all perennial and intermittent surface waters and also indicate the undisturbed buffer widths as measured from top of bank (if applicable). **Write N/A in check box if not applicable**
- ☐ Regulatory floodways and floodplains (as applicable). Identify and label 100-year Base Flood Elevations (BFEs) where available. Show limits of both the floodway and floodplain along with BFEs where available. **Write N/A in check box if not applicable**
- ☐ Note if site drains to a 303(d) listed stream identified by the North Carolina Division of Water Quality (see NC DWQ Website for more information - <http://h2o.enr.state.nc.us/tmdl/>). **Write N/A in check box if not applicable**
- ☐ Identify and note the watershed area for any off-site runoff that flows onto the proposed development site (note: applicant must also provide watershed delineation and mapping for any off-site runoff that flows onto the proposed site). **Write N/A in check box if not applicable**
- ☐ Show and label where runoff from the developed site (including outflows from BMPs, where applicable) safely connects into downstream receiving drainage systems and/or open stream channels

- ☐ Identification of the entity responsible for long-term maintenance of permanent structural stormwater BMP(s)/control(s). Show preferably on the stormwater management sheet

10. Other Items Required prior to issuance of a Stormwater Management Permit

- ☐ A signed and sealed Operation and Maintenance Agreement must be provided prior to City issuance of a Stormwater Management Permit. The Agreement must also be filed and recorded with the Forsyth County Register of Deeds, in accordance with Section 75-402 of the City of Winston-Salem's Post Construction Stormwater Ordinance. Note: Typically it is advisable to wait until the plans and design have been approved before submitting the Operation and Maintenance Agreement for signatures as changes to the plans/design may impact or require changes to the Agreement. However, it can be submitted at any time if the designer chooses to do so. A copy of the standard agreement may be found on the stormwater divisions website at the following web address: <http://www.cityofws.org/Home/Departments/Stormwater/Post-Construction/Articles/PostConstruction> **Check the box to verify that you are aware that this item will need to be addressed and will be, or has already been submitted for review**
- ☐ An Operation and Maintenance Manual shall be provided by the applicant/developer for each permanent structural stormwater BMP/control, where applicable, to accompany the Operation and Maintenance Agreement, indicating what operation and maintenance actions are needed, what specific quantitative criteria will be used for determining when those actions are to be taken and, consistent with the Operation & Maintenance Agreement, who is responsible for those actions. The Plan shall also clearly indicate the steps that will be taken for restoring a stormwater control structure to design specifications if a failure occurs. The Operation and Maintenance Manual once signed and notarized, must be referenced and included as an exhibit to the Operation and Maintenance Agreement. A manual must be submitted for each BMP used in the stormwater management plan. Note: Typically it is advisable to wait until the plans and design have been approved before submitting the Operation and Maintenance Manual for approval as changes to the plans/design may impact or require changes to the Manual – e.g. elevations may change in the plan review period directly impacting changes to the manual. However, it can be submitted at any time if the designer chooses to do so but it may be subject to re-submittal if changes are required. Copies of various BMP manuals (wet pond manual, sand filter manual etc.) may be found on the stormwater divisions website at the following web address: <http://www.cityofws.org/Home/Departments/Stormwater/Post-Construction/Articles/PostConstruction> **Check the box to verify that you are aware that this item will need to be addressed and will be, or has already been submitted for review**
- ☐ All of the proposed easements that will be required to allow for maintenance and access of the stormwater management system must be reviewed and recorded prior to issuance of a stormwater management permit. The easements must be referenced as an exhibit in the Operation and Maintenance Agreement. **Check the box to verify that you are aware that this item will need to be addressed and will be, or has already been submitted for review**
- ☐ A review fee of \$220, in the form of a check, made payable to "The City of Winston-Salem" needs to be included with the application. Submittal of a package without a review fee is not complete and review will not begin until the fee is received. **Check the box to indicate that the fee has been submitted with the application**

- ☐ Variance Petition form(s) to request a variance granting permission to use land in a manner otherwise prohibited by The City of Winston-Salem's Post Construction Stormwater Management Ordinance, if applicable. See Section 75-306 of that ordinance for qualification requirements for a variance. Variance request forms may be found at the following web address: <http://www.cityofws.org/Home/Departments/Stormwater/Post-Construction/Articles/PostConstruction> Write N/A in the check box if not applicable

11. Requirements Prior to Issuance of Certificate of Occupancy

Check the boxes to verify that the designer and owner are aware that the following items will need to be addressed prior to issuance of a certificate of occupancy by the building inspector

- ☐ Certified as-built plans of the site and stormwater management BMPs/controls shall be submitted to the Stormwater Division for review. The as-built plans should show the final design specifications for the entire stormwater management system, including the field location, size depth and planted vegetation of all structural BMP(s) and other measures, controls, conveyances and devices as installed. Refer to Section 75-203(d) of The City of Winston-Salem's Post Construction Stormwater Management Ordinance for more details.
- ☐ Final inspection of the site and stormwater management BMPs/controls scheduled with and completed by the City Stormwater Director. This inspection shall occur before the release of any performance securities. Refer to Section 75-203(d) of The City of Winston-Salem's Post Construction Stormwater Management Ordinance for more details.
- ☐ Copies of any/all applicable local, state, and federal permits/permit applications must be submitted. (Note: this would include 404/401 permits for work in regulated waters/wetlands, State Dam Safety permits, floodplain development permits, and/or other as applicable)

CITY OF WINSTON-SALEM Mayor: Allen Joines. City Council: Vivian H. Burke, Mayor Pro Tempore, Northeast Ward; Dan Besse, Southwest Ward; Robert C. Clark, West Ward; Derwin L. Montgomery, East Ward; Molly Leight, South Ward; Denise D. Adams, North Ward; Wanda Merschel, Northwest Ward; James Taylor Jr., Southeast Ward. City Manager: Lee Garrity

ORDINANCE AMENDING CHAPTER 75 OF THE CITY CODE OF ORDINANCES
RELATED TO STORMWATER

BE IT ORDAINED, by the City Council of Winston-Salem as follows:

SECTION 1. SECTION 75 OF THE CITY CODE OF ORDINANCES IS AMENDED BY ADDING ARTICLE IV (POST CONSTRUCTION STORMWATER ORDINANCE) THERETO

ARTICLE IV: POST CONSTRUCTION STORMWATER

SECTION 1: GENERAL PROVISIONS

75-101 TITLE

This Ordinance shall be officially known as “The Post Construction Stormwater Ordinance.” It is referred to herein as *Ordinance*.

75-102 AUTHORITY

The *City* is authorized to adopt this *Ordinance* pursuant to North Carolina law, including but not limited to Article 14, Section 5 of the Constitution of North Carolina; North Carolina General Statutes 143-214.7 and rules promulgated by the Environmental Management Commission there under Session Law 2006-246; Chapter 160A, §§ 174, 185 ; as well as Chapter 113A, Article 4 (Sedimentation Pollution Control); Article 21, Part 6 (Floodway Regulation); Chapter 160A, Article 19 (Planning and Regulation of Development); Chapter 153A, Article 18.

75-103 FINDINGS

It is hereby determined that:

Development and *Redevelopment* alter the hydrologic response of local watersheds and increase stormwater runoff rates and volumes, flooding, soil erosion, stream channel erosion, nonpoint and point source pollution, and sediment transport and deposition, as well as reducing groundwater recharge;

These changes in stormwater runoff contribute to increased quantities of water-borne pollutants and alterations in hydrology which are harmful to public health and safety as well as to the natural environment;

These effects can be managed and minimized by applying proper design and well-planned controls to manage stormwater runoff from *Development* and *Redevelopment* sites; and

The Federal Water Pollution Control Act of 1972 (“Clean Water Act”) and federal Phase II Stormwater Rules promulgated under it, as well as rules of the North Carolina Environmental Management Commission promulgated in response to federal Phase II requirements, compel certain urbanized areas, including the *City*, to adopt the minimum stormwater controls such as those included in this *Ordinance*.

Therefore, the *City’s* Council establishes this *Ordinance* to regulate the quality and quantity of stormwater runoff and discharge to meet the state and federal requirements.

75-104 PURPOSE

(A) General

The purpose of this *Ordinance* is to protect, maintain and enhance the public health, safety, environment and general welfare by establishing minimum requirements and procedures to control

the adverse effects of increased *Post Construction* stormwater runoff and nonpoint and point source pollution associated with *Development* and *Redevelopment*. It has been determined that proper management of construction-related and *Post Construction* stormwater runoff can safeguard the public health, safety, and general welfare; minimize damage to public and private property and infrastructure; and protect water and aquatic resources. This *Ordinance* is intended to not contradict the intent or direction of the Legacy Comprehensive Plan.

(B) Specific

This *Ordinance* seeks to meet its general purpose through the following specific objectives and means:

- (1) Establish decision-making processes and standards for *Development* and *Redevelopment* that protects the integrity of watersheds and preserves the health of water resources;
- (2) Require that new *Development* and *Redevelopment* maintain the pre-construction hydrologic response in their *Post Construction* state as nearly as practicable for the applicable design storm(s) in order to reduce flooding, streambank erosion, point and nonpoint source pollution and increases in stream temperature, and to maintain the integrity of stream channels and aquatic habitats;
- (3) Establish minimum *Post Construction* stormwater management standards and design criteria for the regulation and control of stormwater runoff quantity and quality;
- (4) Establish design and review criteria for the construction, function, and use of *Structural BMPs* that may be used to meet the minimum *Post Construction* stormwater management standards;
- (5) Encourage the use of low impact site design practices, such as the use of vegetated stormwater conveyances and the preservation of green space and other conservation areas to the maximum extent practicable;
- (6) Establish provisions for the long-term responsibility for and maintenance of the *Stormwater Management Systems* to ensure that they continue to function as designed, are maintained appropriately, and pose no threat to public safety or public health;
- (7) Establish administrative procedures for the submission, review, and approval of *Stormwater Management Systems*, for the inspection of approved projects, and to assure appropriate long-term maintenance.
- (8) Assign responsibility and processes for approving the creation and maintenance of adequate drainage and flood damage prevention.

75-105 APPLICABILITY AND JURISDICTION

(A) General

- (1) Beginning with and subsequent to its effective date, this *Ordinance* shall be applicable to all *Developments* and *Redevelopments*, including, but not limited to, site plan applications, subdivision applications, and grading applications, unless exempt or excluded pursuant to Subsections (D) and (E) below. Nothing contained in this *Ordinance* shall relieve an *Owner* of any obligations or duties imposed under any other statutory or common law, such as, but not limited to, duties imposed by the riparian rights of adjoining property owners.
- (2) Regardless of reference to a specific state statute, violation of this *Ordinance* shall not subject the *Owner* or person in violation to a misdemeanor or infraction, but any remedy due the *City* or penalty imposed by the *City* shall be limited to Section 5, Enforcement and Violations of this *Ordinance*.

(B) No Development or Redevelopment Until Compliance and Permit

No *Development* or *Redevelopment* shall occur unless it is in compliance with the provisions of this *Ordinance* and any permit issued pursuant to this *Ordinance*.

(C) Geographic Application

The provisions of this *Ordinance* shall apply within the corporate limits of the *City*, as well as extraterritorial jurisdictional areas.

The Stormwater Director shall keep on file a map that shows the locations of all Structural BMP's permitted under this ordinance.

(D) Exemptions

The following instances of *Development or Redevelopment* are determined to be exempt and not subject to the provisions of this *Ordinance*:

- (1) A *Development* that cumulatively disturbs less than one acre and is not part of a *Larger Common Plan of Development, Redevelopment or Sale* is exempt from the quality management provisions of this *Ordinance* (Section 75-302);
- (2) A *Development or Redevelopment* that cumulatively disturbs less than one acre is not exempt if such activities are part of a *Larger Common Plan of Development, Redevelopment or Sale*, even though multiple, separate or distinct activities take place at different times on different schedules;
- (3) A *Development* that cumulatively disturbs less than 20,000 square feet for residential and nonresidential uses is exempt from the quantity management provisions of this *Ordinance* (Section 75-303);
- (4) Any *Redevelopment* activity for which the proposed impervious area is equal to or less than the preexisting impervious area; and
- (5) Activities exempt from permit requirements of Section 404 of the federal Clean Water Act, as specified in 40 CFR 232 (primarily, ongoing farming and forestry activities).
- (6) For a *Development or Redevelopment* that i) cumulatively disturbs less than 3 acres; ii) is not part of a *Larger Common Plan of Development, Redevelopment or Sale*; and iii) is less than 24 percent *Built-upon area*; the standards for stormwater quantity management, as set out in Section 75-303 below, shall be limited to controlling only the 2 year and 10 year design storms. However, all other provisions of this ordinance shall apply.

(E) Exclusions

Development or Redevelopment conducted pursuant to one of the following authorizations that was obtained prior to the effective date of this *Ordinance* is determined to be excluded and is not subject to the provisions of this *Ordinance*:

- (1) A grading permit or building permit;
- (2) A site-specific *Development or Redevelopment* plan or site specific phased *Development or Redevelopment* plan submitted prior to the effective date of this *Ordinance*, and approved within 6 months of the effective date of this ordinance and which has *Substantial Progress* made within two years of the site plan approval;
- (3) Any *Development or Redevelopment* activity which has received stormwater management plan approval prior to the effective date of this *Ordinance* and *Substantial Progress* is made within two years of the effective date of this *Ordinance*;
- (4) A right that has vested under statutory or local law prior to the effective date of this *Ordinance*.

75-106 INTERPRETATION

(A) Authority for Interpretation

The *City's Stormwater Director* has authority to determine the interpretation of this *Ordinance*. Any person may request an interpretation by submitting a written request to the *Stormwater Director* who should respond in writing within 30 days. The *Stormwater Director* shall keep on file a record of all written interpretations of this *Ordinance*.

(B) Delegation of Authority

Any act authorized by this *Ordinance* to be carried out by the *Stormwater Director* may be carried out by his or her designee.

(C) Meaning and Intent

All provisions, terms, phrases, and expressions contained in this *Ordinance* shall be construed according to the general and specific purposes set forth in Section 75-104, Purpose. If a different or more specific meaning is given for a term defined elsewhere in the *City's* Code of Ordinances, the meaning and application of the term in this *Ordinance* shall control for purposes of application of this *Ordinance*.

(D) Text Controls in Event of Conflict

In the event of a conflict or inconsistency between the text of this *Ordinance* and any heading, caption, figure, illustration, table, or map, the text shall control.

(E) References to Statutes, Regulations, and Documents

Whenever reference is made to a resolution, ordinance, statute, regulation, manual (including the *Design Manual*), or document, it shall be construed as a reference to the most recent edition of such that has been finalized and published with due provision for notice and comment, unless otherwise specifically stated.

(F) Usage of Words

(1) Mandatory and Discretionary Terms

The words “shall,” “must,” and “will” are mandatory in nature, establishing an obligation or duty to comply with the particular provision. The word “should” is an indication of what action the ordinance encourages to be taken. The word “may” is permissive in nature.

(2) Conjunctions

Unless the context clearly indicates the contrary, conjunctions shall be interpreted as follows: The word “and” indicates that all connected items, conditions, provisions or events apply. The word “or” indicates that one or more of the connected items, conditions, provisions or events apply.

(3) Tense, Plurals, and Gender

Words used in the present tense include the future tense. Words used in the singular number include the plural number and the plural number includes the singular number, unless the context of the particular usage clearly indicates otherwise. Words used in the masculine gender include the feminine gender, and vice versa.

(G) Computation of Time

The time in which an act is to be done shall be computed by excluding the first day and including the last day. If a deadline or required date of action falls on a Saturday, Sunday, or holiday observed by the *City*, the deadline or required date of action shall be the next day that is not a Saturday, Sunday or holiday observed by the *City*. References to days are calendar days unless otherwise stated.

75-107 Definitions

When used in this *Ordinance*, the following words and terms shall have the meaning set forth in this section, unless other provisions of this *Ordinance* specifically indicate otherwise.

Building Inspector

The Director, or his designee, of the Forsyth County/Winston-Salem Building Inspection Department established and authorized pursuant to Part 5. Building Inspection of Article 19. Development of Chapter 160A of the North Carolina General Statutes.

Built-upon area (BUA)

That portion of a *Development* or *Redevelopment* project that is covered by impervious or partially impervious surface including, but not limited to, buildings; pavement and gravel areas such as

roads, parking lots, and paths; and recreation facilities such as tennis courts. The *BUA* does not include a wooden slatted deck, the water area of a swimming pool, or pervious or partially pervious paving material to the extent that the paving material absorbs water or allows water to infiltrate through the paving material.

City

The City of Winston-Salem, a North Carolina Municipal Corporation located in Forsyth County.

City Manager

The Manager of the City as appointed by the City Council.

Department

The State of North Carolina Department of Environment and Natural Resources.

Design Manual

The stormwater design manual prepared and disseminated by the *Department* for the proper implementation of the requirements of the federal Phase II stormwater program.

Development

Any land disturbing activity for construction of one or more buildings, structures or parking lots which adds to or changes the amount of impervious or partially pervious cover on a land area or which otherwise decreases the infiltration of precipitation into the soil, other than rebuilding activity that does not qualify as *Redevelopment*.

Disturbed Area

Any land area which had been cleared, grubbed, graded, disturbed or otherwise altered for the purposes of *Development* or *Redevelopment*.

Division

The North Carolina Division of Water Quality, a division of the *Department*.

High-density project

Any project that exceeds the *Low Density Project* threshold, as defined below, for dwelling units per acre or *BUA*.

Larger Common Plan of Development, Redevelopment or Sale

Any area where multiple separate and distinct construction or land disturbing activities will occur under one plan. A plan is any announcement or document, including, but not limited to, a site plan, marketing plan, sign, public notice or hearing, sales presentation or promotion, advertisement, loan application, drawing, permit application, zoning request, or computer design, or any physical demarcation, including, but not limited to, boundary signs, lot stakes, or surveyor markings, indicating that construction activities may occur on one or more tracts of land.

Lot area

Lot area refers to the amount of horizontal land area contained inside the lot lines of a lot or site.

Low-density project

A project that has no more than two dwelling units per acre or twenty-four percent *BUA* for all residential and non-residential *Development* or *Redevelopment*.

1-year, 24-hour storm

The surface runoff resulting from a 24-hour rainfall of an intensity expected to be equaled or exceeded, on average, once in 12 months and with a duration of 24 hours.

Owner

The legal or beneficial owner of property on which a Development or Redevelopment is to occur or any other person or entity holding proprietary or possessory rights in the property or having legal power of management and control of the property. Unless shown otherwise, the person or entity making application for a Stormwater Management Permit for the property or the person or entity who is contractually responsible to operate and maintain a Stormwater Management System on the property shall be deemed to be an "Owner" for enforcement purposes.

Post Construction

The condition of a *Development* or *Redevelopment* once the land disturbing activity is complete as it relates to the management and control of stormwater runoff quantity and quality.

Redevelopment

Any land disturbing activity at an already existing *Development*, other than activity that results in no net increase in *BUA*, that provides equal or greater stormwater control than the previous *Development*.

Stormwater Appeals Board

The appeals board established by the City Council in Article III, Division 12 of the *City's* Code of Ordinances, pursuant to NCGS 160A-146, and whose purpose is to hear and decide appeals from and review any order, requirement, decision, or determination made by the Stormwater Director.

Stormwater Management System

Stormwater management practices such as *Structural BMPs*, non structural BMPs, structures, appurtenances and any form of conveyance, such as grass channels, swales, underground piping, open ditches and storm drains, that exist outside of the public right of way, whether the right of way is maintained by the *City* or the State of North Carolina, as these management practices are designed and proposed to be utilized in a proposed *Development* or *Redevelopment* to comply with the stormwater quality and quantity standards set out in this *Ordinance*.

Structural Best Management Practice (BMP)

A physical device designed to trap, settle out, or filter pollutants from stormwater runoff; to alter or reduce stormwater runoff velocity, amount, timing, or other characteristics; to approximate the pre-construction hydrology on a developed site; or to achieve any combination of these goals. *Structural BMP* includes physical practices such as constructed wetlands, wet ponds, vegetative practices, filter strips, grassed swales, and other methods installed or created on real property. *Structural BMP* is synonymous with "structural practice", "stormwater control facility," "stormwater control practice," "stormwater treatment practice," "stormwater management practice," "stormwater control measures," "structural stormwater treatment systems," and similar terms used in this *Ordinance*.

Substantial progress

For the purposes of determining whether substantial progress has been made on an approved plan, one or more of the following construction activities toward the completion of a site or subdivision plan shall occur: obtaining a grading permit and conducting grading activity; installation and approval of on-site infrastructure; or obtaining a building permit for the construction and approval of a building foundation. Substantial progress for purposes of

determining whether an approved plan is null and void is not necessarily the same as “substantial expenditures” used for determining vested rights pursuant to applicable law.

75-108 DESIGN MANUAL

(A) Reference to Design Manual

The *Stormwater Director* shall use the policy, criteria, information and technical specifications and standards found in the *Design Manual* as the basis for approving or disapproving stormwater management permits and the design, implementation and performance of *Stormwater Management Systems*. The *Design Manual* includes a list of acceptable stormwater treatment practices, including specific design criteria for each stormwater practice. Stormwater treatment practices that are designed, constructed, and maintained in accordance with these design and sizing criteria found in the *Design Manual* will be presumed to meet the minimum water quality performance standards of this *Ordinance*.

(B) Relationship of Design Manual to Other Laws and Regulations

(Reserved for future use.)

(C) Changes to Standards and Specifications

If the standards, specifications, guidelines, policies, criteria, or other information in the *Design Manual* are amended subsequent to the submittal of an application for approval pursuant to this *Ordinance*, but prior to approval, the amended *Design Manual* shall control and shall be utilized to review, approve or disapprove the application.

(D) Amendments to Design Manual

The *Design Manual* may be updated and expanded by the State of North Carolina from time to time, based on advancements in technology and engineering, improved knowledge of local conditions, or local monitoring or maintenance experience. Prior to amending or updating the *Design Manual*, proposed changes are expected to be publicized by the State and made available for review. An opportunity for comment by interested persons should be provided.

75-109 RELATIONSHIP TO OTHER LAWS, REGULATIONS AND PRIVATE AGREEMENTS

(A) Conflict of Laws

This *Ordinance* is not intended to modify or repeal any other ordinance, rule, regulation or other provision of law. The requirements of this *Ordinance* are in addition to the requirements of any other ordinance, rule, regulation or other provision of law. Where any provision of this *Ordinance* imposes restrictions different from those imposed by any other ordinance, rule, regulation or other provision of law, whichever provision is more restrictive or imposes higher protective standards for human or environmental health, safety, and welfare shall control.

(B) Private Agreements

This *Ordinance* is not intended to revoke or repeal any easement, covenant, or other private agreement. However, where the regulations of this *Ordinance* are more restrictive or impose higher standards or requirements than such easement, covenant, or other private agreement, then the requirements of this *Ordinance* shall govern. Nothing in this *Ordinance* shall modify or repeal any private covenant or deed restriction, but such covenant or restriction shall not legitimize any failure to comply with this *Ordinance*. In no case shall the *City* be obligated to enforce the provisions of any easements, covenants, or agreements between private parties.

75-110 SEVERABILITY

If the provisions of any section, subsection, paragraph, subdivision or clause of this *Ordinance* shall be found to be invalid by a court of competent jurisdiction, such judgment shall not affect or invalidate the remainder of any section, subsection, paragraph, subdivision or clause of this *Ordinance*.

75-111 EFFECTIVE DATE AND TRANSITIONAL PROVISIONS

(A) Effective Date

This *Ordinance* is effective four months after the date of adoption.

(B) Final Approvals, Complete Applications

All *Development* and *Redevelopment* projects for which complete and full site plan applications were submitted to the *City* prior to the effective date of this *Ordinance*, and approved within 6 months of the effective date of this ordinance and which has *Substantial Progress* made within two years of the site plan approval, shall be exempt from complying with all provisions of this *Ordinance*.

(C) Violations Continue

Any violation of provisions existing on the effective date of this *Ordinance* shall continue to be a violation under this *Ordinance* whereas each day shall constitute a new and separate offense and be subject to penalties and enforcement under this *Ordinance* unless the use, *Development*, *Redevelopment*, construction, or other activity complies with the provisions of this *Ordinance*.

SECTION 2: ADMINISTRATION AND PROCEDURES

75-201 REVIEW AND DECISION-MAKING ENTITIES

(A) Stormwater Director

(1) Designation

The *Stormwater Director* shall be designated by the *City Manager* to administer and enforce this *Ordinance*.

(2) Powers and Duties

In addition to the powers and duties that may be conferred by other provisions of the *City's* code of ordinances and other laws, the *Stormwater Director* shall have the following powers and duties under this *Ordinance*:

- a. To review and approve, approve with conditions, or disapprove applications for approval of plans pursuant to the standards set out in this *Ordinance*;
- b. To make determinations and render interpretations of this *Ordinance*;
- c. To establish application requirements and schedules for submittal, to review applications and appeals, and to review and make recommendations to the *Stormwater Appeals Board* on applications for *Development* or *Redevelopment* approvals;
- d. To enforce the provisions of this *Ordinance* in accordance with its enforcement provisions;
- e. To maintain records, maps, and official materials as related to the adoption, amendment, enforcement, interpretation, and/or administration of this *Ordinance*;
- f. To provide expertise and technical assistance to the *City's* Council and Stormwater Appeals Board, if such a Stormwater Appeals Board is established. The *City's Stormwater Appeals Board* shall function as the Stormwater Appeals Board;
- g. To designate appropriate other person(s) who shall carry out the powers and duties of the *Stormwater Director*; and
- h. To take any other action necessary to administer the provisions of this *Ordinance*.

75-202 REVIEW PROCEDURES

(A) Permit Required; Must Apply for Permit

A stormwater management permit is required for all *Development* and *Redevelopment* unless exempt or excluded pursuant to this *Ordinance*. A permit may only be issued subsequent to a properly submitted and reviewed permit application.

(B) Effect of Permit

A stormwater management permit shall govern the design, installation, construction and maintenance of the *Stormwater Management System* for all *Developments* and *Redevelopments*. The permit is intended to provide a mechanism for the review, approval, and inspection of the *Stormwater Management System*, consistent with the requirements of this *Ordinance*. The permit does not continue in existence indefinitely after the completion of the project; rather, compliance after project construction is assured by the operation and maintenance provisions of this *Ordinance*.

(C) Authority to File Applications

All applications required pursuant to this *Ordinance* shall be submitted to the *Stormwater Director* by the *Owner* or the *Owner's* duly authorized agent.

(D) Establishment of Application Requirements, Schedule, and Fees**(1) Application Contents and Form**

The *Stormwater Director* shall establish requirements for the content and form of all applications and shall amend and update those requirements from time to time as required. At a minimum, the application shall describe in detail how the *Post Construction* stormwater runoff will be controlled and managed, the design of the *Stormwater Management System*, and how the proposed project will meet the requirements of this *Ordinance*.

(2) Permit Review Fees

The *City Council* shall establish permit review fees as well as policies regarding refund of any fees upon withdrawal of an application, and may amend and update the fees and policies from time to time.

(3) Administrative Manual

For applications required under this *Ordinance*, the *Stormwater Director* shall compile the application requirements, submission schedule, fee schedule, a copy of this *Ordinance*, and information on how and where to obtain the *Design Manual* in an administrative manual, which shall be made available to the public.

(E) Submittal of Complete Application

Applications shall be submitted to the *Stormwater Director* in the form established by the *Stormwater Director*, along with the permit review fee. An application shall be considered as submitted only when it contains all elements of a complete application pursuant to this *Ordinance*, along with the permit review fee. If the *Stormwater Director* finds that an application is incomplete, the applicant shall be notified of the deficient elements and shall be provided with an opportunity to submit a complete application.

(F) Review

Within 30 days after a complete application is submitted, the *Stormwater Director* should review the application and determine whether the application complies with this *Ordinance*.

(1) Approval

If the *Stormwater Director* finds that the application complies with this *Ordinance*, the *Stormwater Director* shall approve the application and notify the applicant in writing. The *Stormwater Director* may impose conditions of approval as needed to ensure compliance with this *Ordinance*. The conditions shall be included as part of the approval.

(2) Fails to Comply

If the *Stormwater Director* finds that the application fails to comply with this *Ordinance* or if the application is incomplete, the *Stormwater Director* shall notify the applicant in writing and shall indicate how the application fails to comply. The applicant shall have an opportunity to submit a revised application.

(3) Revision and Subsequent Review

A complete revised application should be reviewed by the *Stormwater Director* within 30 days after its re-submittal and shall be approved, approved with conditions, or disapproved. If a revised application is not re-submitted within 30 days from the date the applicant was notified, the application shall be considered withdrawn, and a new submittal for the same or substantially the same project shall be required along with the permit review fee. One re-submittal of a revised application may be submitted without payment of an additional permit review fee. Any re-submittal after the first re-submittal shall be accompanied by an additional permit review fee as established pursuant to this *Ordinance*.

75-203 APPLICATIONS FOR APPROVAL

(A) Concept Plan and Consultation Meeting

Before a stormwater management permit application is deemed complete, the *Stormwater Director* or *Owner* may request a consultation on a concept plan for the *Stormwater Management System*. This consultation meeting should take place prior to submitting the preliminary plan of subdivision, special use re-zoning or other early step in the *Development* or *Redevelopment* process. The purpose of this meeting is to discuss generally the *Stormwater Management System* necessary for the proposed *Development* or *Redevelopment*, as well as to discuss and assess constraints, opportunities and potential approaches to *Stormwater Management System* before formal site design engineering is commenced. The meeting is not intended to provide a total review of the final development plan. Local watershed plans, and other relevant resource protection plans may be consulted in the discussion of the concept plan. To accomplish this goal, the following information should be included in the concept plan, which should be submitted to the *Stormwater Director* at least five business days in advance of the consultation meeting:

(1) Existing Conditions / Proposed Site Plans

Existing conditions and proposed site layout sketch plans, which illustrate at a minimum: existing and proposed topography; perennial and intermittent streams; existing and proposed drainage conveyances; existing *Stormwater Management Systems*; mapping of predominant soils from soil surveys (when available); boundaries of existing predominant vegetation and proposed limits of clearing and grading; and location of existing and proposed roads, buildings, parking areas and other impervious surfaces.

(2) Natural Resources Inventory

A written and/or graphic inventory of the natural resources at the site and surrounding area as it exists prior to the commencement of the project. This description should include a discussion of soil conditions, forest cover, geologic features, topography, wetlands, and native vegetative areas on the site, as well as the location and boundaries of other natural feature protection and conservation areas such as lakes, ponds, floodplains, stream buffers and other setbacks (e.g., drinking water well setbacks, septic setbacks, etc.). Particular attention should be paid to environmentally sensitive features that provide particular opportunities or constraints for *Development* or *Redevelopment*.

(3) Stormwater Management System Concept Plan

A written or graphic concept plan of the proposed *Stormwater Management System* including the location of floodplain/floodway limits; relationship of site to upstream and downstream properties and drainages; and preliminary location of proposed stream channel modifications, such as bridge or culvert crossings.

(B) Assessment of Impact

Each concept plan shall include an assessment of *Post Construction* stormwater impacts upon downstream and upstream properties. The assessment of stormwater quality and quantity impacts shall be based on the standards contained within this *Ordinance*, at a minimum.

(1) Assessment and Control of Stormwater Quality Impacts

All *Stormwater Management Systems* proposed to be include in any *Development* or *Redevelopment*, not otherwise exempt or excluded, shall assess and satisfy the applicable stormwater quality management requirements as indicated in §75-302 of this Ordinance, at a minimum.

(2) Assessment and Control of Stormwater Quantity Impacts

All *Stormwater Management Systems* proposed to be include in any *Development* or *Redevelopment*, not otherwise exempt or excluded, shall assess and satisfy the applicable stormwater quantity management requirements as indicated in §75-303 of this Ordinance, at a minimum.

An appropriately qualified professional for the *Owner* must prepare the assessment of stormwater quantity impacts for review by the *Stormwater Director*. The assessment of upstream impacts must be provided, at a minimum, for property or properties located immediately upstream and/or adjacent to the proposed *Development* or *Redevelopment*. The *Stormwater Director* shall require that the impact assessment be extended for properties further upstream if site-specific conditions may cause an unreasonable impact on those properties further upstream. The assessment of downstream impacts shall be made by evaluating a site's contribution to stormwater runoff to a "suitable downstream point" considering the following guidelines:

- (a) A point downstream where the proposed site *Development* or *Redevelopment* represents less than ten (10) percent of the total watershed area draining to that point (10% Guideline).
- (b) A point downstream where drainage from the *Development* or *Redevelopment* site enters a Federal Emergency Management Agency (FEMA) established floodway.
- (c) A point where the *Stormwater Director* knows of no existing stormwater problems that the proposed *Development* or *Redevelopment* is likely to exacerbate.
- (d) A point where there are no public road crossings or other public infrastructure that may be adversely impacted by an increase in runoff from the proposed *Development* or *Redevelopment*.

This determination shall not alter any requirements related to stormwater quality management. These guidelines are intended to avoid unreasonable impacts wherever they might occur.

(C) Stormwater Management Permit Application

The stormwater management permit application shall detail how *Development* or *Redevelopment* stormwater runoff will be controlled and managed and how the proposed project will meet the requirements of this Ordinance. All such plans shall be prepared by a qualified registered North Carolina professional engineer, surveyor or landscape architect, and the engineer, surveyor or landscape architect shall perform services only in their area of competence, and shall verify: 1) that the design of the *Stormwater Management System* meets the submittal requirements for complete applications; 2) that the designs and plans are sufficient to comply with applicable standards and policies found in the *Design Manual*; and 3) that the proposed *Stormwater Management System* ensures compliance with this *Ordinance*. The submittal shall include all of the information required in the submittal checklist established by the *Stormwater Director*.

(D) As-Built Plans and Final Approval

Upon completion of a project and before a certificate of compliance, as defined in NCGS §160A-423, shall be granted by the *Building Inspector*, the *Owner* shall, except as provided for in subsection (E) of this section, certify that the completed project is in accordance with the approved *Stormwater Management System*, and shall submit actual as-built plans for the entire *Stormwater Management System* once construction is completed. The as-built plans shall show the final design specifications for the entire *Stormwater Management System*, including the field location, size, depth, and planted vegetation of all *Structural* BMP's and other measures, controls, conveyances and devices, as installed. The designer of the *Stormwater Management System* shall certify, under seal, that the as-built *Stormwater Management System* is in compliance with the approved *Stormwater Management System* and with the requirements of this *Ordinance*. A final inspection and approval by the *Stormwater Director* shall occur before the release

of any performance securities. The final inspection shall occur within a reasonable time frame in order to expedite release of performance securities.

(E) Other Permits

No certificate of compliance shall be issued by the *Building Inspector* working in consultation with the *Stormwater Director* without final, as-built plans and a final inspection and approval by the *Stormwater Director*, except where multiple units are served by the *Stormwater Management System*, in which case the *Building Inspector* may elect to withhold a percentage of certificates of compliance until as-built plans are submitted and approved by the *Stormwater Director*.

75-204 APPROVALS

(A) Effect of Approval

Approval authorizes the *Owner* to go forward with only the specific plans and activity authorized in the permit. The approval shall not be construed to exempt the *Owner* from obtaining other applicable approvals from local, state, and federal authorities.

(B) Time Limit/Expiration

An approved stormwater plan and permit shall become null and void if the *Owner* has failed to make *Substantial Progress* on the site within two years after the date of approval. The *Stormwater Director* may grant a single, one-year extension of this time limit, for good cause shown, upon receiving a written request from the *Owner* before the expiration of the approved plan. In granting an extension, the *Stormwater Director* shall require compliance with standards adopted since the original application was submitted unless the change in standards would infringe upon the applicant's vested rights.

75-205 APPEALS

(A) Right of Appeal

Any aggrieved person affected by any decision, order, requirement, or determination relating to the interpretation or application of this Ordinance and made by the *Stormwater Director* may file an appeal to the *Stormwater Appeals Board* within 30 days of the *Stormwater Director's* decision, order, requirement or determination.

(B) Filing of Appeal and Procedures

(1) Appeals shall be taken within the specified time period by filing with the *Stormwater Director* a notice of appeal and the grounds for the appeal. The *Stormwater Director* shall transmit the appeal, the grounds therefore and all documents related to the appeal (the record on appeal) to the *Stormwater Appeals Board*.

(2) An appeal stays all proceedings in furtherance of the action appealed from, unless the *Stormwater Director* certifies to the *Stormwater Appeals Board*, after notice of appeal has been filed with him, that because of facts stated in the certificate a stay would, in his opinion, cause imminent peril to life or property or that because the violation charged is transitory in nature a stay would seriously interfere with enforcement of this Ordinance. In that case proceedings shall not be stayed except by a restraining order, which may be granted by the *Stormwater Appeals Board* or by a court of record on application, on notice to the *Stormwater Director* and on due cause shown.

(3) The *Stormwater Appeals Board* shall fix a reasonable time for the hearing of the appeal, give due notice thereof to the parties, and decide it within a reasonable time. The *Stormwater Appeals Board* may reverse or affirm, wholly or partly, or may modify the order, requirement, decision, or determination appealed from, and shall make any order, requirement, decision, or determination that in its opinion complies with this Ordinance. To this end the *Stormwater Appeals Board* shall have all the powers of the *Stormwater Director*.

(4) The concurring vote of four-fifths of the members of the *Stormwater Appeals Board* shall be necessary to reverse any order, requirement, decision, or determination of the *Stormwater Director*.

or to decide in favor of the applicant any matter upon which it is required to pass under this *Ordinance*, or to grant a variance from the provisions of the *Ordinance*. For the purposes of this subsection, vacant positions on the board and members who are disqualified from voting on a quasi-judicial matter shall not be considered "members of the board" for calculation of the requisite supermajority if there are no qualified alternates available to take the place of such members.

(5) A member of the *Stormwater Appeals Board* shall not participate in or vote on any quasi-judicial matter in a manner that would violate affected persons' constitutional rights to an impartial decision maker. Impermissible conflicts include, but are not limited to, a member having a fixed opinion prior to hearing the matter that is not susceptible to change, undisclosed ex parte communications, a close familial, business, or other associational relationship with an affected person, or a financial interest in the outcome of the matter. If an objection is raised to a member's participation and that member does not recuse himself or herself, the remaining members shall by majority vote rule on the objection.

(6) Witnesses shall testify under oath or affirmation to be administered by the court reporter, notary or another duly authorized official.

(C) REVIEW BY CITY COUNCIL Any aggrieved person affected by any decision, order, requirement, or determination relating to the interpretation or application of this ordinance and made by the Stormwater Appeals Board may file an appeal to the City Council within 30 calendar days of the *Stormwater Appeals Board's* decision, order, requirement or determination. Appeals shall be taken within the specified time period by filing a notice of appeal and specifying the grounds for appeal on forms provided by the City of Winston-Salem. The Assistant City Manager/Public Works shall then, forthwith, transmit to the City Council all the appropriate documents explaining the decision that is being appealed and shall serve as the City Council's technical advisor. The hearing conducted by the City Council shall be conducted in the nature of a quasi-judicial proceeding with all findings of fact supported by competent, material evidence.

(D) Review by Superior Court

Every decision of the City Council shall be subject to review by the Forsyth County General Court of Justice, Superior Court Division by proceedings in the nature of certiorari. Any petition for review by the Superior Court shall be filed with the Clerk of Superior Court within 30 days after the decision of the City Council is filed in such office as this *Ordinance* specifies, or after a written copy thereof is delivered to every aggrieved party who has filed a written request for such copy with the Assistant City Manager/Public Works at the time of its hearing of the case, whichever is later. The decision of the City Council may be delivered to the aggrieved party either by personal service or by registered mail or certified mail return receipt requested.

SECTION 3: STANDARDS

75-301 GENERAL STANDARDS

All *Development* and *Redevelopment* to which this *Ordinance* applies shall comply with the standards of this section for both quality and quantity.

(A) Best Available Technology/Information

The best available technology and information shall be used for analysis and design of a *Stormwater Management System* to meet the requirements of this *Ordinance*.

(B) Stormwater Management in Perpetuity

The approval of the stormwater management permit shall constitute an enforceable restriction on property usage that runs with the land, such as recorded deed restrictions and protective covenants,

to ensure that future *Development* and *Redevelopment* maintains the site consistent with the approved project plans.

(C) Operations and Maintenance Plan

The *Owner* shall provide an operations and maintenance plan, as well as an agreement and contractual lien for the approved *Stormwater Management System*, for review and approval by the *Stormwater Director*. Once approved by the *Stormwater Director*, the operations and maintenance plan shall be implemented by the *Owner*.

(D) Additional Requirements

As part of the approval process, the *Stormwater Director* may impose additional requirements related to a proposed *Stormwater Management System* to address such issues as maintenance, drainage, inspection, operation, access easements, and restrictive covenants to ensure compliance with this *Ordinance*.

(E) Low-Impact Development Practices

Owners of *Development* and *Redevelopment* projects are hereby encouraged to use Low Impact Development (LID) practices where practicable that will aid stormwater quality and quantity management by reducing impervious surfaces, increasing the use of natural conveyances, maintaining natural vegetation areas, increasing infiltration of surface waters to replenish ground waters, and conserving stormwater for alternative compatible uses.

(F) Regional Stormwater Control Facilities

The use of regional stormwater control facilities may be allowed when space is available, in order to treat multiple parcels of land which are subject to the provisions of this *Ordinance*. Regional facilities may be allowed as joint ventures between private entities and/or public and private entities.

75-302 STANDARDS FOR STORMWATER QUALITY MANAGEMENT

(A) Development Standards for Low-Density Projects

Low-density projects shall comply with each of the following standards:

- (1) Stormwater runoff from the *Development* or *Redevelopment* shall be transported from the *Development* or *Redevelopment* by vegetated conveyances to the maximum extent practicable.
- (2) Other than for those limited exceptions set out in paragraph (3) below, all *BUA* for every *Development* or *Redevelopment* shall be set back in accordance with the standards labeled “Required Landward Buffer Widths” and “Undisturbed Buffer”, at a minimum, as stated in the Table 1 below, as measured from the top of the stream bank of all perennial and intermittent surface waters.

Table 1

<i>Development or Redevelopment Size</i>	Required Landward Buffer Widths	Undisturbed Buffer Widths (Within Landward Buffer)
0-10 Acres	30 Feet	15 Feet
10-50 Acres	50 Feet	25 Feet
Greater than 50 Acres	100 Feet	50 Feet

- (3) Right of way crossings, below ground level utility crossings or encroachments, and greenways, if approved pursuant to a stormwater management permit or pursuant to a *Development* or a *Redevelopment* site plan, may be located within the landward buffer. Other than approved right of way and utility crossings, these exceptions to the landward buffer may not be located within the undisturbed buffer.

- (4) A perennial or intermittent surface water shall be present if the feature is approximately shown on either the most recent version of the soil survey map prepared by the Natural

Resources Conservation Service of the United States Department of Agriculture or the most recent version of the 1:24,000 scale (7.5 minute) quadrangle topographic maps prepared by the United States Geologic Survey (USGS), or is determined by the *City* or the *Division* to exist in the field. An exception to this requirement may be allowed when surface waters are not present in accordance with the provisions of 15A North Carolina Administrative Code 2B .0233 (3) (a) or similar site-specific determination made using *Division*-approved methodology.

(B) Development Standards for High-Density Projects

High-density projects shall implement stormwater control measures that comply with each of the following standards:

- (1) The *Stormwater Management Systems* shall control and treat stormwater runoff volume leaving the project site for the first one inch of rain. Runoff volume drawdown time shall be a minimum of 48 hours, but not more than 120 hours.
- (2) *High-density* projects must discharge the storage volume at a rate equal to or less than the predevelopment discharge rate for the one-year, 24-hour storm.
- (3) All *Stormwater Management Systems* used to meet the requirements of this *Ordinance* shall be designed to have a minimum of 85% average annual removal for Total Suspended Solids;
- (4) General engineering design criteria for all projects shall be in accordance with 15A North Carolina Administrative Code 2H .1008(c), as explained in the *Design Manual*;
- (5) Other than for those limited exceptions set out in paragraph (6) below, all *BUA* for every *Development* or *Redevelopment* shall be set back in accordance with the standards labeled “Required Landward Buffer Widths” and “Undeveloped Buffer”, at a minimum, as stated in the Table 1 below, as measured from the top of the stream bank of all perennial and intermittent surface waters.

Table 1

<i>Development or Redevelopment Size</i>	Required Landward Buffer Widths	Undisturbed Buffer Widths (Within Landward Buffer)
0-10 Acres	30 Feet	15 Feet
10-50 Acres	50 Feet	25 Feet
Greater than 50 Acres	100 Feet	50 Feet

(6) Right of way crossings, below ground level utility crossings or encroachments, and greenways, if approved pursuant to a stormwater management permit or pursuant to a *Development* or a *Redevelopment* site plan, may be located within the landward buffer. Other than approved right of way and utility crossings, these exceptions to the landward buffer may not be located within the undisturbed buffer.

(7) A perennial or intermittent surface water shall be present if the feature is approximately shown on either the most recent version of the soil survey map prepared by the Natural Resources Conservation Service of the United States Department of Agriculture or the most recent version of the 1:24,000 scale (7.5 minute) quadrangle topographic maps prepared by the United States Geologic Survey (USGS), or is determined by the *City* or the *Division* to exist in the field. An exception to this requirement may be allowed when surface waters are not present in accordance with the provisions of 15A North Carolina Administrative Code 2B .0233 (3) (a) or similar site-specific determination made using *Division*-approved methodology.

(C) Water-Borne Trash and Debris

To reduce the amount of water-borne trash and debris, the *Owner* shall develop, implement and maintain an approved trash and debris collection and disposal program for the *Development* or *Redevelopment*.

(D) Oxygen Depleting Organic Material

To reduce the oxygen depleting impacts of organic material decay on receiving waters, the *Owner* shall develop, implement and maintain an approved leaf and vegetation collection and disposal program for the *Development* or *Redevelopment*.

(E) Water Supply Watershed Regulations Compliance

On-site stormwater management for water quality purposes shall meet all pertinent regulations associated with the Water Supply Watershed Regulations.

(F) Jurisdictional Waters Regulations Compliance

Any proposed impacts to jurisdictional wetlands and/or jurisdictional waters of the United States shall be reviewed and approved by appropriate regulatory agencies such as the US Army Corps of Engineers (wetlands – Clean Water Act, Section 404) and the *Department* or *Division* (water quality certification – Clean Water Act, Section 401). Proof of compliance with this requirement shall be provided by the *Owner* before the *Building Inspector* shall issue a certificate of compliance.

75-303 STANDARDS FOR STORMWATER QUANTITY MANAGEMENT

If a project has been found to require mitigation of stormwater quantity impacts following review per Section 75-203(B), and in order to mitigate adverse impacts of stormwater runoff from a *Development* or *Redevelopment*, the *Stormwater Management System* prepared by the *Owner* shall be designed to meet the criteria described in this Section and shall satisfy the review criteria set forth in Section 75-203(B).

(A) Design Storm Events

The quantity of stormwater runoff from a *Development* or *Redevelopment* shall be based on the 2-year, 10-year, and 25-year storm events, of minimum 6-hour duration. Depending upon site conditions, storm duration may be lengthened.

(B) Peak Discharge Control

Post Construction peak discharge rates in the 2-year, 10-year, and 25-year storm events shall be controlled so as not to exceed pre-*Development* or pre-*Redevelopment* peak discharge rates for the same storm events.

(C) Volume Control

A stormwater runoff volume equal to the difference between the pre- *Development* or pre-*Redevelopment* and *Post Construction* volume for the 25-year event, 6-hour duration, shall be detained on site so that the detention basin(s), or other appropriate *Structural BMP*, releases detained stormwater over a period of at least 48 hours (2 days) and no longer than 120 hours (5 days).

(D) 100-year Flood Potential

The *Development* or *Redevelopment* shall not increase flooding impacts to structures on properties upstream and downstream of the site during a 100-year flood event.

(E) Protection of Point of Discharge

Discharge from any on-site *Stormwater Management System* into any natural or surface drainage channel or feature, shall be designed and constructed so that the discharge does not cause damage to the receiving system.

(F) Protection of Receiving Channels and Water Bodies

Receiving natural channels and water bodies (on-site and/or off-site) shall be evaluated to ensure that downstream conveyances are not eroded and/or degraded by altered stormwater flows from *Development* or *Redevelopment*. Mitigation measures shall be implemented where the volume of runoff from a *Post Construction*, 2-year, 1-hour rainfall event is 10% greater than the volume of runoff from a

pre-*Development* or pre-*Redevelopment*, 2-year, 1-hour rainfall event. Acceptable mitigation alternatives include on-site detention to reduce *Post Construction* runoff rates and volumes and natural channel stabilization measures to control channel degradation. Where allowed by other State and Federal agencies (e.g. US Army Corps of Engineers and the *Department*), armoring of receiving channels is permissible.

(G) Design of Water Impounding Structures (Dams)

Any proposed water impounding structure (dam) shall be designed in accordance with NC Dam Safety standards, and if required, shall be reviewed and approved by the NC Dam Safety Engineer. Proof of compliance with this requirement shall be provided by the applicant before the *Building Inspector* may issue a certificate of compliance.

75-305 STANDARDS FOR STORMWATER CONTROL MEASURES

(A) Evaluation According to Contents of Design Manual

All *Stormwater Management Systems* required under this *Ordinance* shall be evaluated by the *Stormwater Director* according to the policies, criteria, information, including technical specifications and standards, and the specific design criteria for each stormwater practice found in the *Design Manual*. The *Stormwater Director* shall determine whether they will be adequate to meet the requirements of this *Ordinance*.

(B) Determination of Adequacy; Presumptions and Alternatives

Stormwater Management Systems that are designed, and constructed, and maintained in accordance with the criteria and specifications in the *Design Manual* will be presumed to meet the minimum water quality and quantity performance standards of this *Ordinance*. Whenever an *Owner* proposes to utilize a practice or practices not designed and constructed in accordance with the criteria and specifications in the *Design Manual*, the *Owner* shall have the burden of demonstrating that the practice(s) will satisfy the minimum water quality and quantity performance standards of this *Ordinance*. The *Stormwater Director* may require the *Owner* to provide such documentation, calculations, and examples as necessary for the *Stormwater Director* to determine whether such an affirmative showing is made.

75-306 VARIANCES

(A) Variance Petition

(1) Any person may petition the *Stormwater Director* for a variance granting permission to use land in a manner otherwise prohibited by this *Ordinance*. To qualify for a variance, the petitioner must show all of the following:

- (a) Unnecessary hardships would result from strict application of this *Ordinance*.
- (b) The hardships result from conditions that are peculiar to the property, such as the location, size, or topography of the property.
- (c) The hardships did not result from actions taken by the petitioner.
- (d) A lack of practical alternatives which may be shown by demonstrating that, considering the potential for a reduction in size, configuration, or density of the proposed activity and all alternative designs, the basic project purpose cannot be practically accomplished in a manner which would avoid or result in a less adverse impact to surface waters.
- (e) The requested variance is consistent with the spirit, purpose, and intent of this *Ordinance*; will secure public safety and welfare; and will preserve substantial justice.

(2) Notwithstanding subdivision (1) of this section, variances shall be granted from the requirement that a *BUA* be 30-feet landward of all perennial and intermittent surface waters in any of the following instances:

- a. When there is a lack of practical alternatives for a road crossing, railroad crossing, bridge, airport facility, or utility crossing as long as it is located, designed, constructed, and maintained to minimize disturbance, provide maximum nutrient removal, protect against erosion and sedimentation, have the

least adverse effects on aquatic life and habitat, and protect water quality to the maximum extent practicable through the use of *Structural BMPs*; or

b. When there is a lack of practical alternatives to locate an element of the *Stormwater Management System* or to locate an easement to locate, construct and maintain a utility service, including, but not limited to, water, sewer, or gas, as long as the *Stormwater Management System* or utility is located 15 feet landward of all perennial and intermittent surface waters and as long as it is located, designed, constructed, and maintained to minimize the disturbance to the surface waters, to provide maximum nutrient removal, to protect against erosion and sedimentation, to have the least adverse effects on aquatic life and habitat, and to protect the water quality to the maximum extent practicable through the use of *Structural BMPs*.

(B) Variance Conditions and Safeguards

The *Stormwater Director* may impose reasonable and appropriate conditions and safeguards upon any variance it grants to ensure compliance with this *Ordinance*.

75- 307 ONSITE WASTEWATER

(A) Operation and Maintenance Requirements

New or replaced onsite systems for domestic wastewater treatment that are installed after the effective date of this *Ordinance* shall be subject to the same requirements for operation and maintenance as are *Stormwater Management Systems*, including, at a minimum, annual inspection reports and a recorded operation and maintenance agreement, pursuant to Section 4 of this *Ordinance*.

(B) Standards for Operation and Maintenance

Domestic wastewater treatment systems located within a Development or *Redevelopment* covered by this *Ordinance* shall be operated and maintained so as to avoid adverse effects on surface water and groundwater, including nutrient contamination of surface water and microbial or nitrate contamination of groundwater. Septic tank residuals shall be pumped whenever necessary to assure the proper operation of the system to meet the standards of this *Ordinance*, and the seepage shall be reused or disposed of in a manner that does not present significant risks to human health, surface water or groundwater.

SECTION 4: MAINTENANCE

75-401 GENERAL STANDARDS FOR MAINTENANCE

(A) Function of *Structural BMPs* as Intended

The *Owner* of each *Structural BMP* installed pursuant to this *Ordinance* shall maintain and operate it so as to preserve and continue its function in controlling stormwater quality and quantity at the degree or amount of function for which the *Structural BMP* was designed.

(B) Annual Maintenance Inspection and Report

The person responsible for maintenance of any *Structural BMP* installed pursuant to this *Ordinance* shall submit to the *Stormwater Director* an inspection report from a qualified registered North Carolina professional engineer, surveyor, or landscape architect performing services only in their area of competence. The inspection report shall contain all of the following:

- (1) The name and address of the *Owner*;
- (2) The recorded book and page number of the lot of each *Structural BMP*;
- (3) A statement that an inspection was made of all *Structural BMPs*;
- (4) The date the inspection was made;
- (5) A statement that all inspected *Structural BMPs* are performing properly and are in compliance with the terms and conditions of the approved maintenance agreement required by this *Ordinance*; and
- (6) The original signature and seal of the engineer, surveyor, or landscape architect.

All inspection reports shall be on forms supplied by the *Stormwater Director*. An original inspection report shall be provided to the *Stormwater Director* beginning one year from the date of as-built certification and each year thereafter on or before the date of the as-built certification.

75-402 OPERATION AND MAINTENANCE AGREEMENT

(A) In General

Prior to the conveyance or transfer of any portion of a *Development* or *Redevelopment* to be served by a *Stormwater Management System* pursuant to this *Ordinance*, and prior to issuance of any permit for a *Development* or *Redevelopment* requiring a *Stormwater Management System* pursuant to this *Ordinance*, the *Owner* must execute an operation and maintenance agreement that shall be binding on all subsequent *Owners* of the whole or a portion of the *Development* or *Redevelopment* served by the *Stormwater Management System*. Until the transference of all property, sites, or lots served by the *Stormwater Management System*, the original *Owner* shall have primary responsibility for carrying out the provisions of the maintenance agreement. The operation and maintenance agreement shall require the *Owner* to maintain, repair and, if necessary, reconstruct the *Stormwater Management System*, and shall state the terms, conditions, and schedule of maintenance for the *Stormwater Management System*. In addition, it shall grant to the *City* a right of entry in the event that the *Stormwater Director* has reason to believe it has become necessary to inspect, monitor, maintain, repair, or reconstruct the *Stormwater management System*. However, in no case shall the right of entry confer an obligation on the *City* to assume responsibility for the *Stormwater Management System*. The operation and maintenance agreement must be approved by the *Stormwater Director* prior to plan approval, and it shall be referenced on the final plat and shall be recorded with the county Register of Deeds upon final plat approval. A copy of the recorded maintenance agreement shall be given to the *Stormwater Director* within 14 days following its recordation.

(B) Special Requirement for Homeowners' and Other Associations

For all *Stormwater Management Systems* required pursuant to this *Ordinance* and that are to be or are owned and maintained by a homeowners' association, property owners' association, or similar entity, the required operation and maintenance agreement shall include the following provisions:

- (1) Acknowledge that the association shall continuously operate and maintain the entire *Stormwater Management System*, even though the association is required to escrow funds based on the cost to construct, maintain, operate, repair and inspect only the *Structural BMPs*;
- (2) Establish an escrow account, which shall be used to maintain, operate, repair inspect or reconstruct the *Stormwater Management System*;
- (3) Prior to plat recordation or issuance of construction permits, whichever shall first occur, require the *Owner* to pay into the escrow account, at a minimum, an amount equal to fifteen (15) per cent of the initial construction cost of the *Structural BMPs*;
- (4) Require the home owners association to contribute into the escrow account, at a minimum, an amount satisfactory to support the operation, maintenance and annual inspection of the *Structural BMPs* such that:
 - (a) Two-thirds (2/3) of the total amount required to fund the escrow account 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*;
 - (b) The association shall allocate a portion of the association's annual assessments to the escrow account; and
 - (c) Any funds drawn down from the escrow account shall be replaced in accordance with the schedule of anticipated work used to originally fund the escrow account;
- (5) Grant to the *City* a right of entry to inspect, monitor, maintain, repair, and reconstruct *Stormwater Management System*;
- (6) Allow the *City* to recover from the association and its members, any and all costs the *City* expends to maintain or repair the *Stormwater Management, System*, pursuant to Section 5, Enforcement and Violations, below;

- (7) A statement that this agreement shall not obligate the *City* to maintain or repair any *Stormwater Management System*, and the *City* shall not be liable to any person for the condition or operation of *Stormwater Management System*;
- (8) A statement that this agreement shall not in any way diminish, limit, or restrict the right of the *City* to enforce any of its ordinances as authorized by law; and
- (9) A provision indemnifying and holding harmless the *City* for any costs and injuries or claims arising from or related to the *Stormwater Management System*, unless the *City* has agreed in writing to assume the maintenance responsibility for the *Stormwater Management System* and has accepted dedication of any and all rights necessary to carry out that maintenance.

75-403 INSPECTION PROGRAM

Inspections and inspection programs by the *City* 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 or safety laws. Inspections may include, but are not limited to, reviewing maintenance and repair records; sampling discharges, surface water, groundwater, and material or water in *Structural BMPs*; and evaluating the condition of *Structural BMPs*. If the *Owner* of any property refuses to permit such inspection, the *Stormwater Director* shall proceed to obtain an administrative search warrant pursuant to NCGS §15-27.2, or its successor. No person shall obstruct, hamper or interfere with the *Stormwater Director* while carrying out his official duties.

75-404 PERFORMANCE SECURITY FOR INSTALLATION AND MAINTENANCE

(A) May Be Required

The *City* may, at its discretion, require the submittal of a performance security or bond with surety, cash escrow, letter of credit or other acceptable legal arrangement prior to issuance of a stormwater management permit in order to ensure that the *Stormwater Management System* is:

- (1) installed by the *Owner* as required by the approved stormwater management plan, and/or
- (2) maintained by the *Owner* as required by the operation and maintenance agreement.

(B) Amount

(1) Installation

The amount of an installation performance security shall be the total estimated construction cost of the *Stormwater Management System* approved under the stormwater management permit, plus 25%.

(2) Maintenance

The amount of a maintenance performance security shall be the present value of an annuity of perpetual duration based on a reasonable estimate of the annual cost of inspection, operation and maintenance of the *Stormwater Management System* approved under the stormwater management permit, at a discount rate that reflects the jurisdiction's cost of borrowing minus a reasonable estimate of long term inflation.

(C) Uses of Performance Security

(1) Forfeiture Provisions

The performance security shall contain forfeiture provisions for failure, after proper notice, to complete work within the time specified, or to initiate or maintain any actions which may be required of the *Owner* in accordance with this *Ordinance*, approvals issued pursuant to this *Ordinance*, or an operation and maintenance agreement established pursuant to this *Ordinance*.

(2) Default

Upon default of the *Owner* to construct, maintain, repair and, if necessary, reconstruct any portion of the *Stormwater Management System* in accordance with the applicable permit or operation and maintenance agreement, the *Stormwater Director* shall obtain and use all or any portion of the security to make necessary improvements based on an engineering estimate. 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 security, the *City* shall not return any of the unused deposited cash funds or other security, which shall be retained for maintenance.

(3) Costs in Excess of Performance Security

If the *City* takes action upon such failure by the *Owner*, the *City* may collect from the *Owner* the difference should the amount of the reasonable cost of such action exceed the amount of the security held.

(4) Refund

Within sixty days of the final approval, the installation performance security shall be refunded to the *Owner* or terminated, with the exception of any amount attributable to the cost (plus 25%) of landscaping installation and ongoing maintenance associated with the *Stormwater Management System* covered by the security. Any such landscaping shall be inspected one (1) year after installation with replacement for compliance with the approved plans and specifications and, if in compliance, the portion of the financial security attributable to landscaping shall be released.

75-405 NOTICE TO OWNERS

(A) Deed Recordation and Indications on Plat

The applicable operations and maintenance agreement, conservation easement, or dedication and acceptance into public maintenance (whichever is applicable) pertaining to the *Stormwater Management System* shall be referenced on the final plat and shall be recorded with the county Register of Deeds upon final plat approval. If no subdivision plat is recorded for the site, then the operations and maintenance agreement, conservation easement, or dedication and acceptance into public maintenance, (whichever is applicable) shall be recorded with the county Register of Deeds so as to appear in the chain of title of all subsequent purchasers under generally accepted searching principles.

(B) Signage

Where appropriate, to assure compliance with this Ordinance, as determined by the *Stormwater Director*, all or a portion of the Stormwater Management System shall be posted with a conspicuous sign stating who is responsible for required maintenance and annual inspection. The sign shall be maintained so as to remain visible and legible.

75-406 RECORDS OF INSTALLATION AND MAINTENANCE ACTIVITIES

The *Owner* of each *Stormwater Management System* shall keep records of inspections, maintenance, and repairs for at least five years from the date of creation of the record and shall submit the same upon reasonable request to the *Stormwater Director*.

75-407 NUISANCES

The *Owner* of each *Stormwater Management System* shall maintain it so as not to create or result in a nuisance condition.

75-408 MAINTENANCE EASEMENTS

Every *Stormwater Management System* installed pursuant to this Ordinance shall be made accessible for adequate maintenance and repair by a maintenance easement. The easement shall be recorded and its terms shall specify who may make use of the easement and for what purposes.

SECTION 5: ENFORCEMENT AND VIOLATIONS

75-501 GENERAL

(A) Authority to Enforce

The provisions of this Ordinance shall be enforced by the *Stormwater Director* or any authorized agent of the *City*.

(B) Violation Unlawful

Any failure to comply with an applicable requirement, prohibition, standard, or limitation imposed by this *Ordinance*, or the terms or conditions of any permit or other *Development* or *Redevelopment* approval or authorization granted pursuant to this *Ordinance*, is unlawful and shall constitute a violation of this *Ordinance*.

(C) Each Day a Separate Offense

Each day that a violation continues shall constitute a separate and distinct violation or offense.

(D) Responsible Persons/Entities

Any person who erects, constructs, reconstructs, alters (whether actively or passively), or fails to erect, construct, reconstruct, alter, repair or maintain all or any portion of a *Stormwater Management System* in violation of this *Ordinance* shall be subject to the remedies, penalties, and/or enforcement actions in accordance with this section. Persons subject to the remedies and penalties set forth herein may include the *Owner* as well as any architect, engineer, builder, contractor, developer, agency, or any other person who has control over, the responsibility for, or the use of the property on which the violation occurs and who participates in, assists, directs, creates, causes, or maintains a condition that results in or constitutes a violation of this *Ordinance*, or fails to take appropriate action, so that a violation of this *Ordinance* results or persists.

(E) Civil penalties and costs collected pursuant to this *Ordinance* shall be credited to the *City's* stormwater enterprise fund.

75-502 PROCEDURES

(A) Initiation/Complaint

Whenever a violation of this *Ordinance* occurs, or is alleged to have occurred, any person may file a complaint. Such complaint shall state fully the alleged violation and the basis thereof, and shall be filed with the *Stormwater Director*, who shall record the complaint. The complaint shall be investigated promptly by the *Stormwater Director*.

(B) Inspection

The *Stormwater Director* shall have the authority, upon presentation of proper credentials, to enter and inspect any land, building, structure, or premises to ensure compliance with this *Ordinance*.

(C) Notice of Violation and Order to Correct

When the *Stormwater Director* finds that any building, structure, or land is in violation of this *Ordinance*, the *Stormwater Director* shall notify, in writing, the *Owner* and/or other person violating this *Ordinance*. The notification shall indicate the nature of the violation, contain the address or other description of the site upon which the violation is occurring, order the necessary action to abate the violation, and give a deadline for correcting the violation. If civil penalties are to be assessed, the notice of violation shall also contain a statement of the amount and basis for the civil penalties to be assessed, the time of their accrual, and the time within which they must be paid or be subject to collection as a debt. The *Stormwater Director* may deliver the notice of violation and correction order personally, by the local law enforcement, by certified or registered mail, return receipt requested, or by any means authorized for the service of documents by Rule 4 of the North Carolina Rules of Civil Procedure. Refusal to accept the notice shall not relieve the violator of the obligations set forth herein. If a violation is not corrected within a reasonable period of time, as provided in the notification, the *Stormwater Director* may take appropriate action under this *Ordinance* to correct and abate the violation and to ensure compliance with this *Ordinance*.

(D) Extension of Time

A person who receives a notice of violation and correction order, or the *Owner*, may submit to the *Stormwater Director* a written request for an extension of time for correction of the violation. On determining that the request includes enough information to show that the violation cannot be corrected within the specified time limit for reasons beyond the control of the person requesting the extension, the *Stormwater Director* may extend the time limit as is reasonably necessary to allow timely correction of the violation, up to, but not exceeding 60 days. The *Stormwater Director* may grant 30-day extensions in addition to the foregoing extension if the violation cannot be corrected within the permitted time due to circumstances beyond the control of the person violating this *Ordinance*. The *Stormwater Director* shall grant an extension only by written notice of extension. The notice of extension shall state the date prior to which correction must be made, after which the violator will be subject to the penalties described in the notice of violation and correction order.

(E) Enforcement After Time to Correct

After the time has expired to correct a violation, including any extension(s) if authorized by the *Stormwater Director*, the *Stormwater Director* shall determine if the violation is corrected. If the violation is not corrected, the *Stormwater Director* may act to impose one or more of the remedies and penalties authorized by this *Ordinance*.

(F) Emergency Enforcement

If delay in correcting a violation would seriously threaten the effective enforcement of this *Ordinance* or pose an immediate danger to the public health, safety, or welfare, then the *Stormwater Director* may order the immediate cessation of a violation. Any person so ordered shall cease any violation immediately. The *Stormwater Director* may seek immediate enforcement, without prior written notice, through any remedy or penalty authorized by this article.

75-503 REMEDIES AND PENALTIES

The remedies and penalties provided for violations of this *Ordinance* shall be cumulative, in addition to any other remedy provided by law, and may be exercised in any order.

(A) Remedies

(1) Withhold a Certificate of Occupancy

The *Building Inspector* may refuse to issue a certificate of compliance for the building or other improvements constructed on the *Development* or *Redevelopment* and served by a *Stormwater Management System* until the *Owner* has taken the remedial measures set forth in the notice of violation or has otherwise cured the violations described therein.

(2) Disapprove Subsequent Permits and Development Approvals

As long as a violation of this *Ordinance* continues and remains uncorrected, the *Stormwater Director*, the Planning Board, the Engineering Division, or the Inspections Division may deny any request for permit or *Development* or *Redevelopment* approval or authorization provided for by this *Ordinance*.

(3) Injunction, Abatements, etc.

Pursuant to NCGS §160A-175, the *Stormwater Director* may seek an injunction or an order of abatement to correct a violation of this *Ordinance* and recover the costs associated with this remedy.

(4) Correction as Public Health Nuisance, Costs as Lien, etc.

Pursuant to NCGS §160A-193, the *Stormwater Director* may summarily abate or remedy a violation of this *Ordinance* and recover the costs associated with this remedy.

(5) Stop Work Order

Pursuant to NCGS §160A-421, the *Stormwater Director* may issue a stop work order to the person(s) violating this *Ordinance*.

(B) Civil Penalties

Violation of this *Ordinance* may subject the violator to a civil penalty to be recovered in a civil action in the nature of a debt if the violator does not pay the penalty within 30 days after notice of the violation is issued by the *Stormwater Director*. Civil penalties for violation of the provisions of this ordinance may total up to \$1000 per day, with each day consisting of a separate and distinct violation. The amount of the civil penalty will be based on aggravating and mitigating circumstances, as set out in subsection (C) below. Civil penalties may be assessed up to the full amount of any penalty to which the City is subject for violations of its Phase II Stormwater permit.

(C) Aggravating and Mitigating Circumstances

(1) The Civil Penalty assessed by the *Stormwater Director* shall be based on the following Aggravating Circumstances:

- (a) The degree and extent of harm to the quality of surface or ground waters;
 - (b) The degree and extent of harm to public health and property;
 - (c) Cost to public to rectify damage;
 - (d) Amount of money saved by noncompliance;
 - (e) Whether the violation was committed willfully or intentionally;
 - (f) Prior record of the violator in complying or failing to comply with regulatory programs;
 - (g) Cost to the City of the enforcement procedures; and
 - (h) If the violation occurs in a Water Supply Watershed the overall penalty will increase 25%.
- (2) The Civil Penalty assessed by the *Stormwater Director* shall be reduced by the following

Mitigating Circumstances:

- (a) Where the violator took immediate action to abate or to resolve the violation, the penalty assessed above shall be reduced by 10%;
 - (b) Where the violator worked to the maximum extent possible to abate or to resolve the violation, the penalty assessed above shall be reduced by 10%;
 - (c) Where the violator constructed or implemented a *Stormwater Management System* to abate or to resolve the violation, the penalty assessed above shall be reduced by 10%; and
 - (d) Where the violator cooperated with appropriate regulatory agencies, including but not limited to the *Stormwater Director*, the penalty assessed above shall be reduced by 10%.
- (3) The *Stormwater Director* shall maintain a schedule of penalties based on the aggravating and mitigating factors set out above, which schedule may be amended from time to time as authorized by the *City Manager* and which shall be made available as part of the administrative manual compiled by the *Stormwater Director* pursuant to §75-202(D)(3) above or to anyone upon demand.

Section II. This Ordinance shall take effect upon approval and pursuant to Section 75-111 herein.