

FLOOD STUDY SUBMITTAL CHECKLIST

Stormwater Management Division
c/o Development Services Department

One Exchange Plaza, 4th Floor
Raleigh, NC 27601
Telephone (919) 996-3773

I. PROJECT INFORMATION

Project Name: _____ Phase: _____
Project Address: _____ Disturbed Area (sf): _____
PIN: _____ Case #: _____ Submittal Date: _____
Previous Permit numbers (if applicable): _____
Zoning District: _____
Legal Name of Owner: _____
Owner Contact: _____ Phone: _____
Owner Address: _____
Design Contact Person: _____ Phone: _____
Design Contact Email: _____
The regulatory drainage basin in which the site is located: _____
The water supply watershed in which the site is located: _____

This Flood Study can be categorized as (check one):	
<input type="checkbox"/>	Local
<input type="checkbox"/>	No-Impact
<input type="checkbox"/>	FEMA LOMR/CLOMR

II. **SUBMITTAL REQUIREMENTS**- - See UDO Article 9.3 and COR Stormwater Management Design Manual Chapter 7 for additional guidance. This completed checklist shall be submitted to the City of Raleigh with any Flood Study. All files shall also be submitted electronically via CD or flash drive.

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Items to be included in Flood Study Submittal:	
<input type="checkbox"/>	<p>The flood study narrative shall (at a minimum) include the following elements:</p> <ol style="list-style-type: none"> 1. Description and purpose of the study stream 2. Description of topographic data sources used 3. Description of any relevant history of flooding 4. Description of hydrologic and hydraulic modeling methodology (including version and source of all engineering models used) 5. Description of methodology used for development of corrected effective and proposed conditions models
<input type="checkbox"/>	<p>Summary of findings showing (at a minimum) the following information:</p> <ol style="list-style-type: none"> 1. Existing condition results 2. Proposed condition results 3. Comparison tables between existing and proposed conditions 4. Minimum SFHA elevation on lots, horizontally within the 1% SFHA boundary and respective Regulatory Flood Protection Elevation 5. Statement of projects impact upstream, downstream or throughout the proposed site
<input type="checkbox"/>	Hydrologic work map(s) (1 inch = 200 ft maximum scale) that show all contributing subbasins labeled, area, times of concentration flow paths, soils and land-use information and points of analysis used to generate peak flows in the flood study
<input type="checkbox"/>	Hydrologic calculations and/or model used to generate flows used in the flood study
<input type="checkbox"/>	Hydraulic workmap(s) (1 inch = 50 ft maximum scale) that show existing and proposed topography, existing and proposed stream crossings, proposed site plan, labeled cross sections, centerline stationing, inundation limits, and existing and proposed floodplain/floodway limits
<input type="checkbox"/>	Location of temporary or permanent benchmarks (must be NAVD 88)
<input type="checkbox"/>	Description of Manning's n values used for modeling (Note: this should also be included in the submittal)
<input type="checkbox"/>	Hydraulic model outputs (i.e., supporting tables, graphs, profiles etc.) that demonstrate the flood study modeling results
<input type="checkbox"/>	Include adjustments in HEC-RAS modeling of culverts to reflect incorporation of submerged culverts to meet 404/401 permitting requirements
<input type="checkbox"/>	If study incorporates overtopping of private roadway, include downstream embankment stabilization and overtopping protection

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In addition to including the above elements, FEMA Flood Studies (No-Impact, CLOMR, LOMR) shall (at a minimum) include the following elements:	
<input type="checkbox"/>	Completed application forms as applicable (i.e., MT2 forms, structure no impact certification, revised hydrology statement, sediment transport consideration, no-impact certification, etc.)
<input type="checkbox"/>	In addition to the items listed above, the FEMA flood study narrative shall (at a minimum) include the following elements: <ol style="list-style-type: none"> 1. Version and source of HEC-RAS engineering models used 2. Description of methodology used for development of corrected effective and proposed conditions models 3. Description of modeling results and proposed floodplain/floodway impacts
<input type="checkbox"/>	All hydrologic and hydraulic updates are based on effective FEMA models and mapping data
<input type="checkbox"/>	DFIRM panels showing site to confirm FEMA flood zones as applicable
<input type="checkbox"/>	Summary of results showing (at a minimum) the proposed floodplain and floodway changes between the Effective or Preliminary model, the Duplicate Effective model, the Proposed Conditions model, and the Post Project model (for LOMRs only)
<input type="checkbox"/>	For CLOMRs, cross-section data showing differences between the Corrected Effective model and the Proposed Conditions model
<input type="checkbox"/>	For LOMRs, cross-section data showing differences between the Proposed Conditions model and the As-Built Conditions model
<input type="checkbox"/>	Approved hydraulic model (HEC-RAS) computation results
<input type="checkbox"/>	Certified Topographic Workmap showing (at a minimum) the following information: <ol style="list-style-type: none"> 1. Floodway-delineation 2. Limits of varying topographic sources 3. Tie-in points 4. All applicable floodplain profile delineations 5. Labeled cross-sections
<input type="checkbox"/>	For CLOMRs - signed/sealed design plans
<input type="checkbox"/>	For LOMRs - No-Impact Analyses and As-Built plans
<input type="checkbox"/>	Annotated DFIRM panels, annotated FIS data, and annotated flood profiles as applicable
<input type="checkbox"/>	FIS shapefiles of stream centerline, floodway, floodplain, and cross-sections
<input type="checkbox"/>	PDF copy of any applicable survey plots or cross-sections
<input type="checkbox"/>	Compiled report containing (at a minimum) the items identified in this section, as applicable

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III. PROFESSIONAL CERTIFICATION

Name: _____

Contact Email: _____

Contact Phone Number: _____

Professional Seal:



FOR REVIEW ONLY