CITY OF WILMINGTON
ENGINEERING PLAN REVIEW CHECKLIST
Version 2.4 (Sept 2023)

Name of Project: _____

Required Submittal Information
A completed application must be submitted for all projects requiring stormwater permit and drainage plan review. Make sure to identify the type of permit on the application. The documents required for Engineering/Stormwater submittal are outlined on page 5 of the application.

Drainage Plan
Drainage plan review is required for any project proposing less than 10,000 square feet, but more than 2,500 square feet of newly constructed impervious surface. They are required to be constructed in accordance with the City's Technical Standards and Design Specifications Manual but are not subject to the full requirements of the City's Comprehensive Stormwater Ordinance unless triggered by the applicability criteria outlined in 18-735 of City Code. A drainage plan review is primarily a grading and drainage review. Site drainage shall be conveyed through vegetated swales or underground pipes of sufficient size to the nearest storm drain or appropriate outfall. All applicable checklist items below shall be submitted for drainage plan review.

Minimum Plan Set Requirements
(The following items are required on multiple sheets throughout the plan set)

- Location Map with named streets and NCSR numbers
- North arrow with plans consistently oriented so North is approximately toward the top of the plan sheet
- Scale (bar and numerical)
- Revision number and dates
- All existing and proposed property boundaries, including right-of-way boundaries
- All existing and proposed easements
- All proposed construction entrances and access points
- Existing and proposed structures, paved areas, sidewalks etc. (including offsite improvements)
- All surface waters have been identified (delineate the normal pool elevation of impounded structures, the banks of streams and rivers, the MHW or NHW line of tidal waters, and any coastal wetlands landward of the MHW or NHW lines.
- Delineate all vegetated buffer or conservation resource setbacks.
- Wetlands delineated, or a note on the plans that none exist. (Must be delineated by a qualified person).
- Delineate all applicable Conservation Resource Setbacks
- All flood plain areas with zone and elevation noted (if available)
- Details of roads, drainage features, collection systems, and stormwater SCM's.

Existing Conditions Plan

_____ Dimensioned property/project boundary with bearings & distances.

_____ Existing Impervious

_____ Site Inventory per Section 18-136 of the Land Development Code (attached for reference)

_____ Tree Survey

_____ Existing contours (1' interval)

_____ Existing drainage features - ditches, streams, drainage easements and pipes (w/ type & size)

_____ All existing utilities with sufficient location/depth to identify conflicts or impacts to the r/w.

Site Layout Plan

_____ Proposed structures, paved areas, sidewalks etc. – all newly constructed impervious area (including offsite improvements)

_____ Finish floor elevations for all structures

_____ Dimensions of all structures and impervious area (typical dimensions may be used).

_____ A complete site data table per 18-588 C.3.b, including all impervious area listed in square feet

Grading Plan

_____ Proposed structures, paved areas, sidewalks etc.

_____ Existing Contours at 1' increments (grayscale/screened)

_____ Proposed contours at 1' increments resolved w/existing grades (spot elevations acceptable for sites with low relief)

_____ For parking areas, spot elevations provided at top of curb and edge of pavement every100 ft and at all grade breaks

_____ For driveways, spot elevations provided along the edge of pavement, along both sides of the sidewalk and 5-10' inside the sidewalk to show grade transitions.

_____ Proposed roadways have a longitudinal slope between 0.3 – 7.0%

_____ Proposed driveway slopes: 15% max (residential) 8% max (commercial)

_____ ADA compliant sidewalk and ramps shown with spot elevations to demonstrate constructability.

_____ All proposed stormwater management structures shown (pipes, culverts, swales, ditches, SCM's etc.)

_____ Size, slope and cross section provided for all proposed swales

_____ 10' (min) maintenance and access shoulder and 5' (min) landscape buffer provided around the perimeter of open basin type stormwater BMPs (wet ponds, infiltration basins, stormwater wetlands etc.) per Sec V-4 (g & h) of the technical standards

_____ Limits of Disturbance delineated

_____ All vegetated side slopes are 3 to 1 or flatter or stabilization method provided

_____ Show trees to be removed and preserved. Grading does not conflict with tree preservation plan

_____ Placement of tree protection fencing shown on grading plan

Roadway and Offsite Turn Lane Improvements

_____ Spot elevations are provided at the top of curb, edge of pavement and at the centerline every 100 ft and at all grade breaks

_____ Plan sheets show alignment, alignment data, dimensions, superelevation and runoff

_____ Typical sections with dimensions, slopes, station to station limits, etc.

_____ Profile sheets with existing and proposed grades, alignment with slopes, curve data, etc.

_____ Cross-sections at a legible scale with proposed grades, slope tie ins and

_____ Drainage and Erosion control

_____ Utilities and utility relocations
_____ Signage and pavement marking plans
_____ All pertinent details

Storm Pipes and Catch Basins

_____ Sizes, lengths, inverts and slopes shown for all proposed pipes (provide chart if necessary)
_____ Stormwater collected behind the property line. Runoff may not sheet flow over a sidewalk or property line.
_____ Roof drains are directed to stormwater system
_____ All storm pipes greater than 12” in diameter
_____ Storm pipes greater than 5 ft from utilities. Any conflicts with utilities resolved.
_____ Manhole and inlet spacing < 400 ft (< 60” pipes)
_____ Pipe cover meets DOT or manufacture minimum
_____ Curb Inlets located at the upstream sides of intersecting streets (no flow across intersecting street or around corners)
_____ Center of inlets min 5 ft from point of tangent on public streets
_____ Grate size appropriate for type of curb. Grate may not protrude beyond edge of pavement.
_____ Headwalls or flared end sections are provided at all pipe inlets and outlets. All public systems 30” or greater shall use a headwall on the upstream end.
_____ Easements shown for public drainage across private property and meet the width requirements specified on page 5-3 of the technical standards
_____ Energy Dissipaters designed for the 10-yr flow provided at each outlet
_____ Appropriate outfall provided for each system (r/w conveyance, drainage easement or naturalized channel)

Drainage Basin Plan

_____ Existing and proposed contours shown (1’ interval)
_____ Inlet drainage areas (including offsite) listed, labeled and boundaries delineated for each storm drain inlet, ditch, swale and culvert
_____ Entire Pre-Development watershed map.
_____ Drainage areas (including offsite) listed, labeled and boundary delineated for each Stormwater SCM.
_____ Entire Post-Development watershed map
_____ All drainage area with sufficient detail shown to confirm limits
_____ Soil types identified and their respective areas delineated
_____ The proposed spot elevations and contours support drainage areas shown
_____ Off-site drainage delineated and conveyed through property

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Utility Plan

_____ Meters, valves, cleanouts etc. in public right of way shall not be located in sidewalk or driveway

_____ 18” setback required for above ground utilities (hydrant, power poles etc.) from back of curb, driveway or sidewalk

_____ 24” Vertical separation of Sanitary Sewer from storm drains otherwise DIP or structural bridging required.

Details

_____ City standard driveway detail (appropriate for type of development)

_____ Appropriate details (NCDOT or City Standard) for all drainage structures proposed

_____ Typical road section (if applicable)

_____ Pavement section(s)

_____ Typical sidewalk and curb ramp details

_____ Edge treatment details (curbing, wheel stops, turn-down sidewalk, pavement widening)

_____ Energy dissipater detail

_____ Stormwater SCM details

_____ All details current from City of Wilmington or NCDOT website

Stormwater Calculations

_____ Supporting calculations for pipe system provided. All design data shown on Charts F-4 and F-5 on pages 5-26 & 27 of the Technical Standards must be provided. Appropriate tailwater must be considered in the analysis.

_____ 10 and 50-yr HGL provided for storm drain system.

_____ All rim elevations above 10-yr HGL

_____ 50-yr HGL does not cause flooding of any structures or emergency access concerns

_____ 10 and 50-yr Culvert Calculations.

_____ Pipe data on plans, calculations and inlet drainage area map all agree

_____ Supporting calculations for each stormwater control measure. SCS method preferred for routing analysis. Appropriate tailwater must be considered in the analysis.

_____ All proposed swales have a non-erosive velocity

_____ 10-yr energy dissipater calculations for each outlet

Landscape Plan

_____ Landscape plan shows how SCM landscaping conforms to SD 15-16 (for all infiltration basins and wet ponds)

_____ SCM landscaping meets requirements of NCDENR Stormwater SCM manual

_____ 5-10’ landscape zone as required by Sec. V-4(g) of the technical standards

_____ Tree Protection Detail SD 15-08

_____ Temporary and permanent vegetative stabilization methods and including seedbed preparation. Must be appropriate for this area