

Engineering Services

Guidelines & Plan Development Milestone Checklist

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00	March 4, 2026	Initial Issuance.	Rebecca L. Chambers, PE Keith Bryant, PE	Division Manager Division Manager
01	April 27, 2026	Minor formatting corrections.	Rebecca L. Chambers, PE Keith Bryant, PE	Division Manager Division Manager
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03	September 4, 2026	Landscape Mgmt. clarifications.	Rebecca L. Chambers, PE Keith Bryant, PE	Division Manager Division Manager

Notice of Accommodations

City of Charlotte does not discriminate on the basis of disability. We will provide auxiliary aids and services, written materials in alternative formats, and reasonable modifications in policies and procedures to persons with disabilities upon request. Contact Tabitha Warren at 980.333.7366 or tabitha.warren@charlottenc.gov to make arrangements.

1. INTRODUCTION

1.1 Project Details

- Please fill in the blanks to complete the following information:

PROJECT NAME:	
A/E:	
PROJECT MANAGER:	
PROJECT NUMBER:	

1.2 Document Purpose

- The following guidelines have been established to aid the Engineer/Designer/Manager in understanding the design process as it relates to Engineering Services work.
- These guidelines serve as the general minimum criteria by which standard design activities occur, however it is understood that each project is unique and may require special considerations.
- This document contains 4 distinct review sections that should be completed as the project design progresses. Each review section includes a general overview of intended project status, a list of required submittals, and checklists that detail specific requirements for various aspects of design.
- Each gateway review is required and must be completed by the Project Manager and the entire project team.
- At the end of each review section, a space is provided for "Notes and Assumptions." Please include supporting details to provide background or context on what you indicate on the checklist, even if it might be obvious to you. For example, if a line or section is not applicable, explain: why does it not apply in this particular instance? If your project design includes deviations from Engineering Services/General Services/City of Charlotte/NCDOT standards, elaborate: why is this anomaly necessary or preferred? How have pertinent risks been mitigated? When decisions are made, document: when, why, and with whom did this conversation occur?

2. FEASIBILITY PLANS REVIEW

2.1 General Overview

- This phase will include a concept design, Feasibility Report, high level estimate, draft scope definition memo, initial risk registry for mitigation, initial survey and utility coordination.
- The Consultant shall attend a preliminary kickoff meeting with the Client to ensure that the project goals, objectives, and deliverables are clearly understood and aligned with the City's expectations.
- Please fill in the blanks to complete the following information:

SUBMITTAL DATE:	
A/E:	
REVIEWER:	
REVIEW DATE:	

2.2 Required Submittals

- Use a check mark to indicate completion or select "N/A" if not applicable; if N/A, please provide explanation in section 2.5.

☐ Feasibility (Concept Design) Roll Plot
☐ Feasibility Report
☐ Draft Scope Definition Memo
☐ Engineer's Estimate (including quantities/calculations used)

2.3 Exhibit Maps (Concept Design/Roll Plot) Checklist

- Use a check mark to indicate completion or select "N/A" if not applicable; if N/A, please provide explanation in section 2.5.

☐ Project Name & Project Number
☐ List of graphical scale used
☐ North Arrow
☐ Proposed vertical and horizontal alignments

- _____ Proposed traffic lane lines, crosswalks, and stop bars
- _____ Proposed sidewalk, curb and gutter, and median locations
- _____ Proposed transit facilities
- _____ Proposed bicycle facilities
- _____ Typical roadway sections
- _____ Critical cross sections as directed by the City's Project Manager
- _____ Conceptual landscape plans prepared by Landscape Management's in-house landscape design group
- _____ Conceptual storm drainage improvements (including proposed pipes and ditches outside main roadway)
- _____ Conceptual facilities for compliance with the City of Charlotte Post-Construction Controls Ordinance
- _____ Major known utilities impacted (overhead and underground)

2.4 Feasibility Report Checklist

- Use a check mark to indicate completion or select "N/A" if not applicable; if N/A, please provide explanation in section 2.5.

- _____ Cover Page
- _____ Project Summary
- _____ Existing Conditions
- _____ Feasibility Issues and Initial Risk Registry
- _____ Exhibits of Each Alternative
- _____ Total project cost estimate for each alternative (prepared in conjunction with City's Project Manager)
- _____ Feasibility Conclusions and Recommendations
- _____ References
- _____ Appendices (as needed)

2.5 Notes and Assumptions

- Please use the next page to include supporting details that provide background or context on what you have indicated on this checklist.

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3. PRELIMINARY DESIGN PLANS REVIEW

3.1 General Overview

- Note: Survey should be field verified prior to beginning of Preliminary Design with project core team members to assure it is correct and no improvements have been installed since survey was received. All review plans submitted must be 24" X 36" Black-Line (Originals or PDFs). Each sheet should have a "Plans Prepared By:" block and have the stamping "Preliminary Plans – Do Not Use for Construction," until the final plan set is issued.
- Please fill in the blanks to complete the following information:

FIELD VISIT (TO VERIFY SURVEY) COMPLETE:	☐
DATE OF VISIT:	
SENT PHOTOS TO PROJECT MANAGER:	☐

- This milestone has been set to ensure the Project Design is proceeding according to IPDS Project Plan, preset design criteria, and sound engineering judgment. At this milestone, conceptual designs should have evaluated multiple alternatives (if applicable) to determine which are the most cost-effective Preliminary Horizontal and Vertical Alignments based on the client's initial scope of work, design criteria and approved design exceptions. If not, the design should not proceed with plan production with cutting sheets.
- With the conceptual design approved, proceed with preparing plans. The design should be checked for constructability, utility conflicts and compliance with Storm Water Services design requirements. To meet this milestone requirement, initial storm drainage design should be completed with preliminary spread calculations and inlet locations with pipe layout and slopes.
- In addition, a written phasing for traffic control should be reviewed by CDOT to ensure the project can be constructed without temporary widening or overnight lane closures. Utility conflicts, above ground and underground, should be highlighted and discussed with the Utility Coordinator.
- Throughout the project limits, cut and fill lines should be imported to identify tree and environmental impacts as well as potential retaining wall or guardrail locations.
- Please fill in the blanks to complete the following information:

SUBMITTAL DATE:	
A/E:	
REVIEWER:	
REVIEW DATE:	

- The Preliminary Design Plans Review should include the following (see next section).

3.2 Required Submittals

- Use a check mark to indicate completion or select "N/A" if not applicable; if N/A, please provide explanation in section 3.4.

☐	Updated Design Assumptions or Design Criteria
☐	Listing of Required Permits of Special Reviews (select if applicable)
☐	Phase I Environmental Site Assessment
☐	Historical Agency Review
☐	NCDOT Encroachment Agreement
☐	401/404 Permit
☐	Erosion Control Permit
☐	PSCO
☐	Urban Forestry Permit
☐	Other
☐	Other
☐	Verification of Correspondence with Pertinent Utility Companies
☐	Vertical Clearance Calculations
☐	Preliminary Pavement Design
☐	Geotechnical Report (if applicable)
☐	Engineer's Estimate (to include itemized storm drainage items)
☐	Project Preliminary Design Plans
☐	Storm Drainage Calculations to include topo map with drainage areas
☐	Environmental Document needed (if project is receiving State or Federal funding)
☐	Summary of concerns noted in the Phase I ESA document (if applicable)

_____ Final Scope Definition Memo

3.3 Preliminary Design Plans Checklist

- Use a check mark to indicate completion or select "N/A" if not applicable; if N/A, please provide explanation in section 3.4.

_____ Verify latest CAD standards and sheet templates are used

_____ Update all items from Feasibility design that have changed

A. Title Sheet (use City of Charlotte Standard Cover Sheet)

_____ Vicinity Map is "complete" and "accurate;" includes at least two major streets and one intersection. Show North Arrow inside vicinity map.

_____ Index of Sheets (varies per project; see suggested layout below)

Suggested Layout:

Sheet 1	Title Sheet
Sheet 2, 2A, 2B, etc. (2 Series)	General Notes, Standard Abbreviations & Various Details (including ramp details)
Sheet 3, 3A, 3B, etc. (3 Series)	Typical Sections, Drainage Summary, other summary tables as needed and directed by the City
Sheets 4 thru XX	Plan & Profile Sheets
Sheets TCP1 thru TCPxx	Traffic Control Plans
Sheets PM1 thru PMxx	Pavement Marking & Signing Plans
Sheets EC1 thru ECxx	Erosion Control Plans
Sheets SIG1 thru SIGxx	Signal Plans
Sheets ITS1 thru ITSxx	ITS Plans
Sheets UC1 thru UCxx	Utility Construction Plans
Sheets UBO1 thru UBOxx	Utilities By Others Plans
Sheets S1 thru Sxx	Structures Plans
Sheets E1 thru Exx	Electrical Plans
Sheets X1 thru Xxx	Cross-Sections Sheets

- _____ Project Name & Project Number (place in two locations)
 - _____ As a heading under the City logo (centered at the top of the sheet)
 - _____ Vertically along the right-hand border
- _____ Standard Specification Date (most current publication of "NCDOT Standard Specifications for Roads & Structures")
- _____ Signature Block containing City Engineer's approval signature and date (unsigned at this point in the project)
- _____ List of Graphical Scales used for the project
- _____ Label Project Name and Number along right side of sheet
- _____ Add "Preliminary Design Plan" label to top right-hand corner of sheet
- _____ Level B Utility Survey information incorporated with Survey Data (per ASCE 38-22 and 75-22)
- _____ Survey Description (complete information in "Survey Prepared By:" block)
- _____ Project Features: place under Project Name & Number in heading. Below is a comprehensive list of key project features that may be used on the title sheet. Note: this should only include major features specific to this type of project. Select from the following:
 - _____ Grading
 - _____ Concrete Sidewalks
 - _____ Concrete Curb Ramps
 - _____ Concrete Curb and Gutter
 - _____ Concrete Driveway
 - _____ Concrete Pedestrian Refuge
 - _____ Concrete Truck Aprons
 - _____ Concrete Multi-Use Path
 - _____ Concrete Bike Ramp
 - _____ Milling
 - _____ Asphalt Pavement
 - _____ Pavement Markings Storm Drainage Roundabout
 - _____ Traffic Signal Pedestrian Signals

- _____ Pedestrian Hybrid Beacon
- _____ PCSO: choose applicable items from list below:
 - _____ Bioretention
 - _____ Wet Pond
 - _____ Engineered Wetland
 - _____ Underground Sand Filter
 - _____ Surface Sand Filter
 - _____ Underground Pipe Detention
 - _____ Dry Pond
- _____ Signage
- _____ Guardrail
- _____ Utilities (water and sewer)
- _____ Retaining Wall
- _____ Bridge
- _____ Structures (type)
- _____ Decorative Paving/Pavers
- _____ Location Map (shows project layout on numbered, superimposed sheets to include the following:
 - _____ Project Alignment for all proposed construction (include Stations for -L- lines, -Y- lines, detours, etc.)
 - _____ Existing Roads and Streets affected by construction (include all: those included in the project scope and those that are not a part of the project)
 - _____ Show major proposed work with shading (do not show any associated text or other details)
 - _____ Street Names, Route Numbers, Survey Line Names & Numbers
 - _____ Alignment equality stations
 - _____ Streams and rivers
 - _____ Railroads
 - _____ City Limits
 - _____ Beginning and ending stations for the project

_____ North Arrow with survey designation (NAD83 with year designation matching survey info)

B. General Notes (Details and Typical Sections to be shown in the "2 & 3 Series" of sheets)

- _____ Legend of conventional symbols; ensure line types are shown correctly
- _____ Provide a list of standards to be used on the project
- _____ Provide details for retaining walls, non-standard catch basins and culvert improvements
- _____ Provide details for other non-standard items not covered under NCDOT specs
- _____ Label detail sheet with description of details included on sheet within the title block

C. Typical Sections (to be shown in the "3 Series" of sheets)

- _____ Provide Typical Roadway Section(s). Include road name, construction alignment reference identification and stations. Label pavement types, curb & gutter, sidewalk, etc. to match items listed in the Preliminary Material Schedule
- _____ Provide Material Schedule (Refer to NCDOT Roadway Design Manual Section 3.5.2)
- _____ Provide Preliminary Drainage Summary

D. Plan and Profile Sheets

- _____ In general, show Existing Features with dashed and/or "screened" lines and proposed features with heavier solid lines and/or shading. Use City of Charlotte layering standards.
- _____ Sheets are ½ Plan (at the bottom of sheet) and ½ Profile (at the top of the sheet) unless project lends itself to separate plan and profile sheets. The Horizontal Scale should be 1" = 20' and the Vertical Scale should be 1" = 4'. Any variance from these scales should be approved by the Program Manager.
- _____ Existing Plan Survey Features (to be field verified by designer):
 - _____ Streets, roads, driveways, sidewalks (names, labels, etc.)
 - _____ Houses, buildings, garages, sheds (names, labels, etc.)
 - _____ Fences, walls (labels)

_____	All shrubs and trees 8" DBH and larger within project limits and up to 25" from cut/fill line including in wood line areas. Tree species and size labels required.
_____	Utilities (above and below ground; include type, size, and material if known)
_____	Storm Drainage Facilities (size, type, and invert elevations)
_____	Sanitary Sewer Facilities (size, type, and invert elevations, smart manholes)
_____	Water Line Facilities (size, type, and invert elevations, smart manholes)
_____	Property Lines, Exist. R/W Lines, Exist. Permanent Easement Lines (Show Monumentation found with label – ex. ½" EIP)
_____	Property Owner Information (use City of Charlotte standard parcel block info)
_____	Railroads (show tracks to scale)(label ownership)
_____	Bodies of water (rivers, creeks, streams, lakes, ponds, etc.) (give name, width, direction of flow, etc.)
_____	Any other existing features relative to the project
_____	Survey Plan Information (shown at the correct location on the plan sheet)
_____	Survey Control Points (symbol, point name, material, N, E, Elev.) (ex. TP-2 (60d Nail) with N, E, and Elev.)
_____	Survey Benchmarks (symbol, name, alignment reference, and Elev.) (ex. BM-2 (-L- Sta 10+53 34' Rt.) (Elev. = 750.56')
_____	North Arrow
_____	Proposed Plan Features
_____	Horizontal Alignment(s) Proposed Design/Construction Alignment(s) to include:
_____	Heavy solid line(s) showing Proposed Alignment (Designate with -L-, -Y- or multiple with -L1-, -Y1-, etc.)
_____	Beginning and Ending Stations (with Coordinates) (ex. -L- POT Sta. 10+00.00) (N = , E =)

_____	Equality Stations (with Coordinates) (ex. -L- POC Sta. 13+26.54 = -
_____	Y- POT Sta. 10+85.63) (N = , E =)
_____	Event Point Stations (i.e. PC, PT, PCC, PRC, PINC, etc.)
_____	Bearings and Distances on Tangents
_____	Horizontal Curve Data (Show in Curve Info. Box)
_____	Number each curve and provide delta angle, radius, length of
_____	curve, and tangent length) (Optional: chord distance, chord
	bearing
_____	Proposed Plan Improvements such as curb and gutter, sidewalk,
	driveways, etc. (show with appropriate line weight and shading)
_____	Label center of proposed driveways at EOP with width, material, station,
	and standard (i.e. Prop. 15' Conc. Dwy, Sta. 11+45.80, CLDSM 10.25A)
_____	Label tie-in material of driveway if material other than concrete
_____	Label pavement widths and tapers/transitions
_____	Show the limits of construction by placing slope-stake lines on the plans.
	(lines should be designated as cut or fill by linetype)
_____	Show retaining wall limits if determined necessary
_____	Add required tree protection
_____	Show pavement removal with appropriate hatching
_____	Show accessible ramp locations
_____	Show super elevation at correct plan location(s) (if applicable)
_____	Show guard rail and retaining wall location(s) (if applicable)
_____	Label utility poles to be relocated "by others"
_____	Highlight aboveground and underground utilities that conflict with the
	proposed improvements
_____	Show and label preliminary proposed drainage system with structure
	numbers, pipe material, length, slope and class in both plan and profile
_____	Potential/feasible PCSO locations shown on plan sheets (provide
	approximate sizing)
_____	Preliminary Right-of-Way & Easement lines, and RE parcel numbers
	shown with standard parcel block information, ensuring to match plats
_____	Locations of pavement cores or borings (if needed)

- ___ ___ Proposed pavement markings shown on plan sheets at this phase
- ___ ___ Draft signal pole layout (if needed)
- ___ ___ Match Lines (reference station number and sheet number)
- ___ ___ Turning Templates at intersections/critical locations (if applicable)
- ___ ___ Existing Profile Features
 - ___ ___ Dashed Line(s) labeled Existing Grade along -L-, -Y-, etc. (show existing centerline elevations every 25')
 - ___ ___ Existing Drainage or Utility Structures and Pipes (show to scale) (label size, type, material, and top/rim and invert elevations)
- ___ ___ Proposed Profile Features
 - ___ ___ Vertical Alignment(s) (Show on a project-by-project basis)
Proposed Design/Construction Alignments to include:
 - ___ ___ Heavy solid line(s) labeled "Proposed Grade" (designate with -L-, -Y- or multiple with -L1-, -Y1-, etc.)
 - ___ ___ Label proposed grades along grade line, PVC, PVT, and PVI Stations and Elevations
 - ___ ___ Vertical Curves – label PVI station/elevation, K value, algebraic difference in grade, length of curve, low/high point station/elevation
 - ___ ___ Proposed Elevations every 25'

E. Traffic Control (written phasing scheme only)

- ___ ___ List by phase the proposed approach to accommodating the traffic control during the life of the project. Phases should be consistent with general construction guidelines and practices
- ___ ___ Show proposed detours if required

F. Signal Plan Sheets

- ___ ___ Follow all CDOT Implementation requirements for signal plans
- ___ ___ Traffic Signal Cover sheet per location (embedded within ES title block);
Note: this would be sheet SIG-1.
 - ___ ___ Index of Sheets
 - ___ ___ Vicinity Map
 - ___ ___ Any additional information required by CDOT Signal

- ____ Signal Layout Sheet(s) showing:
 - ____ Preliminary proposed roadway geometry
 - ____ Preliminary pole and equipment locations
 - ____ Signal poles
 - ____ Down guys (as applicable)
 - ____ Signal cabinet
 - ____ Meter base
 - ____ Pull boxes
 - ____ Conduit runs
 - ____ Pedestrian signal poles & buttons
 - ____ Existing and proposed R/W and easements
 - ____ Signal heads and numbering per CDOT phasing
 - ____ Proposed span attachment heights (as applicable)
- ____ Mast arm or steel pole detail sheets (as applicable)

G. ITS Plan Sheets

- ____ ITS Cover sheet per location (embedded within ES title block);
Note: this would be sheet ITS-1.
- ____ Index of Sheets
- ____ Vicinity Map/Project Locations
- ____ General Notes and Standards Sheet
- ____ Traffic Control Notes Sheet (if done outside of typical traffic control)
- ____ Summary of quantities (may be combined with other sheets if spacing allows)
- ____ Typical details
- ____ Individual splice details
- ____ Fiber Optic Cable Testing Documentation
- ____ Schematic of fiber cable routing, splicing, and testing
- ____ Cable Routing Plan sheets
 - ____ Pull boxes
 - ____ Conduit routes
 - ____ Poles

- _____ Fiber cable size and route
- _____ Traffic management cameras
- _____ Ethernet switches

H. Cross-Sections Sheets

- _____ In general, show Existing Features with dashed and/or "screened" lines and proposed features with heavier solid lines and/or shading. Use City of Charlotte layering standards.
- _____ Scale should be 1" = 5' (Horizontal and Vertical). Any variance from this scale should be approved by the Program Manager.
- _____ Show Existing Ground Line (give existing elevation at construction alignment location(s))
- _____ Show critical cross sections as identified by the Project Manager at a minimum (locations with large obstacles such as trees, signs, retaining walls, culverts, driveways, or locations with high cut/fill lines)
- _____ Show Proposed Ground Line (templates with no labeling at this point in the project)
- _____ Add daylight lines for Cut/Fill slopes
- _____ Provide proposed elevation at construction alignment location(s)
- _____ Show proposed retaining wall or guardrail locations
- _____ Sections should be shown at min. 50' increments (25' increment are required for projects < 1 mile and all sidewalk projects along the construction alignment(s) (i.e. 10+00, 10+50, 11+00, etc.)
- _____ Label alignment designation and station on each cross section (i.e. 10+50 -L-)
- _____ Check to ensure sight distance requirements have been met (per the design criteria) at intersections and major entrances with large traffic volumes
- _____ Label existing right-of-way ("R/W")

I. General

- _____ "Preliminary Plans- Do Not Use for Construction" is noted on all sheets
- _____ Same project number is shown on all sheets
- _____ Date plans printed shown in the title block
- _____ Fill out the title block information.(Drawn by, Checked by, Approved by)

_____ Verify latest CAD standards and sheet templates are used

J. Sidewalk & Bike Mileage (measured in miles to the nearest 0.1 and should be counted per side of the roadway to be listed on the Cover Sheet)

Quantity of new sidewalk the project is proposing

Quantity of new SUP the project is proposing

Quantity of new bike lanes the project is proposing

Quantity of new cycle track (each way) the project is proposing

K. Preliminary Utility by Others (UBO) Plans

_____ Label all utility conflicts with UBO boxes

_____ Include in the construction set as separate plans if needed due to plan sheet clutter

_____ Check plans to ensure only work to be performed by others (not the contractor) is indicated with heavy lines and text)

_____ Show other pertinent plan information with background or gray-scale symbology

_____ Confirm proposed lighting is in ROW/Easement or indicate if not (if applicable)

3.4 Notes and Assumptions

- Please use the next page to include supporting details that provide background or context on what you have indicated on this checklist.

--

4. RIGHT-OF-WAY PLANS REVIEW

4.1 General Overview

- Note: Survey should be field verified again prior to beginning Right-of-Way Plans to assure no improvements have been installed since the survey was received and the last field visit occurred. A cursory review of previous milestone reviews should be completed prior to proceeding with the next milestone review to ensure changes and additions have been updated or corrected.
- Please fill in the blanks to complete the following information:

FIELD VISIT (TO VERIFY SURVEY AND DESIGN) COMPLETE:	☐
DATE OF VISIT:	
SENT PHOTOS TO PROJECT MANAGER:	☐

- At this milestone, final mark-ups and comments from utility companies, Storm Water Services and Landscape Management should be fully incorporated into the project design.
- The submittal should include updated detailed plans, drainage (horizontal and vertical), traffic control (including written phasing and associated diagrams), pavement marking, and erosion control plans.
- An updated engineer's estimate must be prepared, including revised real estate costs.
- Project grading limits should be reviewed to determine the total area disturbed; if the area exceeds one acre, an erosion control permit is required. All required permit applications (e.g., 401/404) should be prepared, and any necessary fees and check requests should be submitted. This milestone precedes the preparation of plats and easement exhibits for real estate acquisition.
- Please fill in the blanks to complete the following information:

SUBMITTAL DATE:	
A/E:	
REVIEWER:	
REVIEW DATE:	

4.2 Required Submittals

- Use a check mark to indicate completion or select "N/A" if not applicable; if N/A, please provide explanation in section 4.4.

- _____ Project Right-of-Way Plans
- _____ Updated Right-of-Way Plans engineer's estimate
- _____ Project Special Provisions
- _____ Final Storm Drainage Calculations
- _____ ROW/easement quantities (spreadsheet)
- _____ Final Pavement Design Calculation
- _____ Permit Applications that do not require final signed plans such as 401/404 permit. Other permits typically wait until final plans are completed. Verify with Project Manager which permit submittals are needed.
- _____ Ramp Calculations
- _____ ADA Inventory Spreadsheet
- _____ ICE review/reconciliation on all projects with construction cost \$2.5M or greater
- _____ Update on list of required Permits or Special Reviews
- _____ Verification of Correspondence with Pertinent Utility Companies

4.3 Right-Of-Way Plans Checklist

- Use a check mark to indicate completion or select "N/A" if not applicable; if N/A, please provide explanation in section 4.4.

- _____ Verify latest CAD standards and sheet templates are used
- _____ Update all items from previous checklist that have changed

A. Title Sheet

_____ Update label to Right-of-Way Plans on top right-hand corner

B. Typical Sections & Details (to be shown in the "2 and 3 Series" of sheets)

_____ All necessary dimensions shown on pavement, subgrade, shoulders, slopes, centerline, medians, sidewalks, utility strips, curb & gutter, etc.

_____ All necessary dimensions shown on pavement, subgrade, shoulders, slopes, centerline, medians, sidewalks, utility strips, curb & gutter, etc.

_____ Milling limits shown

_____ All slopes shown on pavement, sidewalk, shoulders, subgrade, hinge point grading, ditches, cut & fills

_____ All grade points shown

_____ All variable limits shown

_____ Provide Details for retaining walls, non-standard catch basins, and culvert improvements. (update from previous milestone reviews)

_____ Provide Details for special ditches (lateral and berm ditches). Provide alignment, station, offset, and quantities such as drainage ditch excavation, rip rap, and filter fabric (Note: Project Manager may choose to show this information on the plan sheets)

_____ Provide Details for other non-standard items not covered under NCDOT Specifications. Some that may be considered are sidewalk taper, pipe trench detail for storm drainage pipe, and pavement overlay or wedging

_____ Ramp details

_____ Curb return details and profiles (ensure no low points without appropriate drainage)

_____ Drainage Summary (Pipes and Structures) (Standard NCDOT or City formats)

_____ Update List of standards used on project

_____ Update typical sections and material schedule

C. Plan & Profile Sheets: Plan Information

_____ Turn off pavement markings on plan sheets since PM plans are created

_____ Update the limits of construction by placing slope-stake lines on the plans. (lines should be designated as cut or fill by linetype)

_____ Show berm and lateral ditches if required. Insert corresponding ditch details

- _____ Show and label pipe inlet and outlet devices such as headwalls, endwalls, flared-end sections, false sumps, rip rap and filter fabric requirements and quantities
- _____ Label radii measured to face of curb
- _____ Label proposed utility poles to be relocated "by others" at the specified locations indicated by utility companies
- _____ Guardrail shown & labeled
- _____ Show and label signal items to be installed by roadway contractor (ped bases, pull boxes, conduit, etc.) Note: if signal is to be included in construction contract, separate signal plan to be provided by CDOT. These items shall be shown, but labels are not required as plan should reference SIG sheets for signal items.
- _____ Show curb return elevations (if necessary). Label elevation on plan at 10' increments along lip of curb or shown on a curb return profile on a separate sheet
- _____ Check to ensure all proposed work is clearly indicated. Such items overlooked to this point might include: fence relocations/additions, tree removal/protection & trimming needs, sign relocations/removal/additions, pipes to be removed/plugged/extended/, sealing abandoned wells, driveway reconnections, driveway pipes, etc.
- _____ Final Right-of-way & Easement lines, and RE parcel numbers shown with standard parcel block information, ensuring to match plats
- _____ Check to ensure no property has been landlocked with proposed improvements
- _____ Areas to remain undisturbed with the right-of-way clearly marked
- _____ Finalize proposed drainage. Label all pipes (parallel and cross-pipes) with size, material, length, slope, and class of pipe in plan view
- _____ Provide top/rim and invert elevations for all drainage structures in profile view. Label NCDOT or CLDSM standards required (i.e. NCDOT Std. 840.01)
- _____ Retaining walls shown & labeled
- _____ Ramps shown accurately on plan sheet with type of ramp labeled and reference to WCR sheet
- _____ Easements shown accurately (permanent and temporary). Temporary easements should include all needs for removal of trees and for utility

relocation. Temporary Easements needed for only a specific duration (i.e. tree removal) shall be labeled as such.

D. Plan & Profile Sheets: Profile Information

- _____ Show curb line grades if different from proposed design-line grade line
- _____ Label proposed edge of pavement elevations for left and right lip lines
- _____ Show proposed lateral ditches with beginning, ending, and PVI stations and elevations. Label proposed lateral ditch grades
- _____ Update proposed drainage. Make sure drainage structure number corresponds with that shown in plan view.
- _____ If a retaining wall is needed show the wall envelope. Ensure that the top, bottom and steps in the wall are accurately shown with station and elevations. Wall profile may be shown on separate sheets.

E. Erosion Control Plans

- _____ Preferred scale 1"=40'.
- _____ Erosion Control Notes & Legend Key (use symbology consistent with the [Erosion & Sediment Control Planning & Design Manual](https://www.deq.nc.gov/about/divisions/energy-mineral-and-land-resources/erosion-and-sediment-control/erosion-and-sediment-control-planning-and-design-manual)) (find in PM Handbook References or online at <https://www.deq.nc.gov/about/divisions/energy-mineral-and-land-resources/erosion-and-sediment-control/erosion-and-sediment-control-planning-and-design-manual>)
- _____ Erosion Control measures shown on plan view. Erosion control plan must be sufficient to obtain plan approval and required erosion permits from NCDEQ
- _____ Erosion Control Details - if standard, note standard number on Sheet 2 Series (General Notes and details)
 - _____ Temporary Wattle Check Dam/Inlet Protection
 - _____ Temporary Silt Fence
 - _____ Temporary and Permanent Seeding Specifications
 - _____ Other
- _____ Narrative (if necessary)
- _____ Construction Sequence (if necessary)
- _____ Check to ensure all erosion control measures are contained within existing or proposed right-of-way and easements

F. Pavement Marking Plan

- _____ Pavement Marking Plan preferred scale 1" = 40'
- _____ Legend matches NCDOT pavement marking schedule
- _____ Legend matches plan view symbology

G. Traffic Control

- _____ Standard Traffic Control General Notes & Project Notes modified per project
- _____ Traffic control phasing is consistent with general construction practices
- _____ Traffic control custom phase drawings and/or CDOT WATCH diagrams correctly referenced per written phasing
- _____ If on an NCDOT street, be sure notes and work hours are updated for NCDOT requirements. (Note S: add NCDOT Engineer, Note T: change 2' to 5', Revise works hours restricted 6:00 am - 9:00 am and 4:00 pm – 8:00 pm or as directed by NCDOT.)

H. Cross-Sections Sheets

- _____ Label cut & fill slopes and varying pavement cross slopes
- _____ Label pertinent proposed elevations such as lip elevations and grade break point elevations
- _____ Show berm and lateral ditches
- _____ Show additional critical cross-sections at driveways and other critical areas such as drainage inlets
- _____ Label any non-typical existing or proposed features such as retaining walls, buildings, headwalls, channel changes, etc.
- _____ Label Right-of-Way and easement locations on cross-sections
- _____ If NCDOT street, follow NCDOT Cross Section Guidelines
- _____ Show volumes for embankments, unclassified excavation, and known undercut excavation on each cross-section
- _____ Provide dimensions as needed (required on NCDOT streets)

I. Signal Plan Sheets

- _____ Update signal plans including pole locations signal plans, fiber optic cable splicing plans, and signal & low voltage wiring diagrams
- _____ Follow all CDOT Implementation requirements for signal plans

J. ITS Plan Sheets

- ___ ___ Update signal plans including pole locations signal plans, fiber optic cable splicing plans, and signal and low voltage wiring diagrams

K. Utility Construction Plans (Water and Sewer Plans)

- ___ ___ Check to ensure only work to be performed by the contractor is indicated with heavy lines and text
- ___ ___ Show other pertinent plan information with background or gray-scale symbology

L. Utility By Others (UBO) Plans

- ___ ___ Label all utility conflicts with UBO boxes
- ___ ___ Include in the construction set as separate plans if needed due to plan sheet clutter
- ___ ___ Check to ensure only work to be performed by others (not the contractor) is indicated with heavy lines and text
- ___ ___ Show other pertinent plan information with background or gray-scale symbology
- ___ ___ Lighting Plan (if applicable)

4.4 Notes and Assumptions

- Please use the next page to include supporting details that provide background or context on what you have indicated on this checklist.

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5. CONSTRUCTION PLANS REVIEW

5.1 General Overview

- The purpose of this milestone is to finalize construction plans, engineer's estimate, project special provisions, and any other items necessary to submit to Bid Phase. It incorporates review comments from the Right-Of-Way plans review and external reviews such as NCDOT Encroachment Agreement.
- Prior to this review, right-of-way and easement needs have been determined and incorporated into the plans, plats and exhibits have been prepared, and Real Estate Phase is well underway. Coordination has occurred for landscaping needs, traffic signal work, and utility relocations.
- This review should present a clear picture of the project design with all necessary details for successful construction.
- Please fill in the blanks to complete the following information:

SUBMITTAL DATE:		
A/E:		
REVIEWER:		
REVIEW DATE:		

5.2 Required Submittals

- Use a check mark to indicate completion or select "N/A" if not applicable; if N/A, please provide explanation in section 5.5.

- | | |
|--------------------------|--|
| ☐ | Submit Permit Applications (May include Erosion Control, NCDOT encroachment, Municipal Agreement, PCSO) |
| ☐ | Final Engineer's Estimate (all computations included) |
| ☐ | Written Project Special Provisions |
| ☐ | Final Project Construction Plans with signed/sealed mylar cover sheet and final review stamp on remaining sheets |

5.3 Final Plans Checklist

- Use a check mark to indicate completion or select "N/A" if not applicable; if N/A, please provide explanation in section 5.5.

A. Title Sheet

- ____ Updated Index of Sheets
- ____ Project Stakeholder signatures under the "Recommended for Construction" block
- ____ City Engineer's approval signature
- ____ When submitting cover sheet, update label to Final Plans on top. Right-hand corner; otherwise may note as 100% Plans if part of review set

B. Details (to be shown in the "2 Series" of sheets)

- ____ List of Standard Drawings pertinent to project (NCDOT or CMLDS)
- ____ Revise details as needed to match plans

C. Plan and Profile Sheets

- ____ Plan Information
 - ____ All cross-reference notes are correct
 - ____ All utility relocations/adjustments labeled and clearly identified as work the contractor is to perform or as work to be done by others
 - ____ Make any changes from RE agreements
- ____ Profile Information
 - ____ All cross-reference notes are correct if separate plan & profile sheets

D. Traffic Control Plans

- ____ Update to reflect any changes from Right-Of-Way Plan review or to address any access issues

E. Pavement Marking Plans

- ____ Clearly denote markings to be removed (include line item(s) & quantities in engineer's estimate)
- ____ Check for any temporary markings needed (include line item(s) & quantities in engineer's estimate)
- ____ Check for the need of permanent pavement markers (raised or snow plowable)

- _____ Reference Standard Drawings (if applicable)
- _____ Clearly identify signs to be installed by the contractor & signs to be installed by others

F. Signal Plans

- _____ Update all signal sheets

G. ITS Plan Sheets

- _____ Update all ITS sheets

H. Permits

- _____ Submit final plans and application to NCDEQ for EC permit when disturbance is greater than 1 acre
- _____ Prepare NCDOT encroachment forms (EA161B, VCER, NPDES) if any part of project is on an NCDOT maintained street
- _____ Prepare/submit for any other necessary permits; list here:
- _____ Updated NEPA document (if applicable)
- _____ USACE 404 Permit
- _____ Other
- _____ Other
- _____ Other

I. All Other Sheets

- _____ Update/review for accuracy

5.4 Final Proposed Sidewalk & Bike Mileage (measured in miles to the nearest 0.1 and should be counted per side of the roadway)

- Please fill in the blanks to complete the following information:

Quantity of new sidewalk the project is proposing

Quantity of new SUP the project is proposing

Quantity of new bike lanes the project is proposing

Quantity of new cycle track (each way) the project is proposing

5.5 Notes and Assumptions

- Please use the next page to include supporting details that provide background or context on what you have indicated on this checklist.

