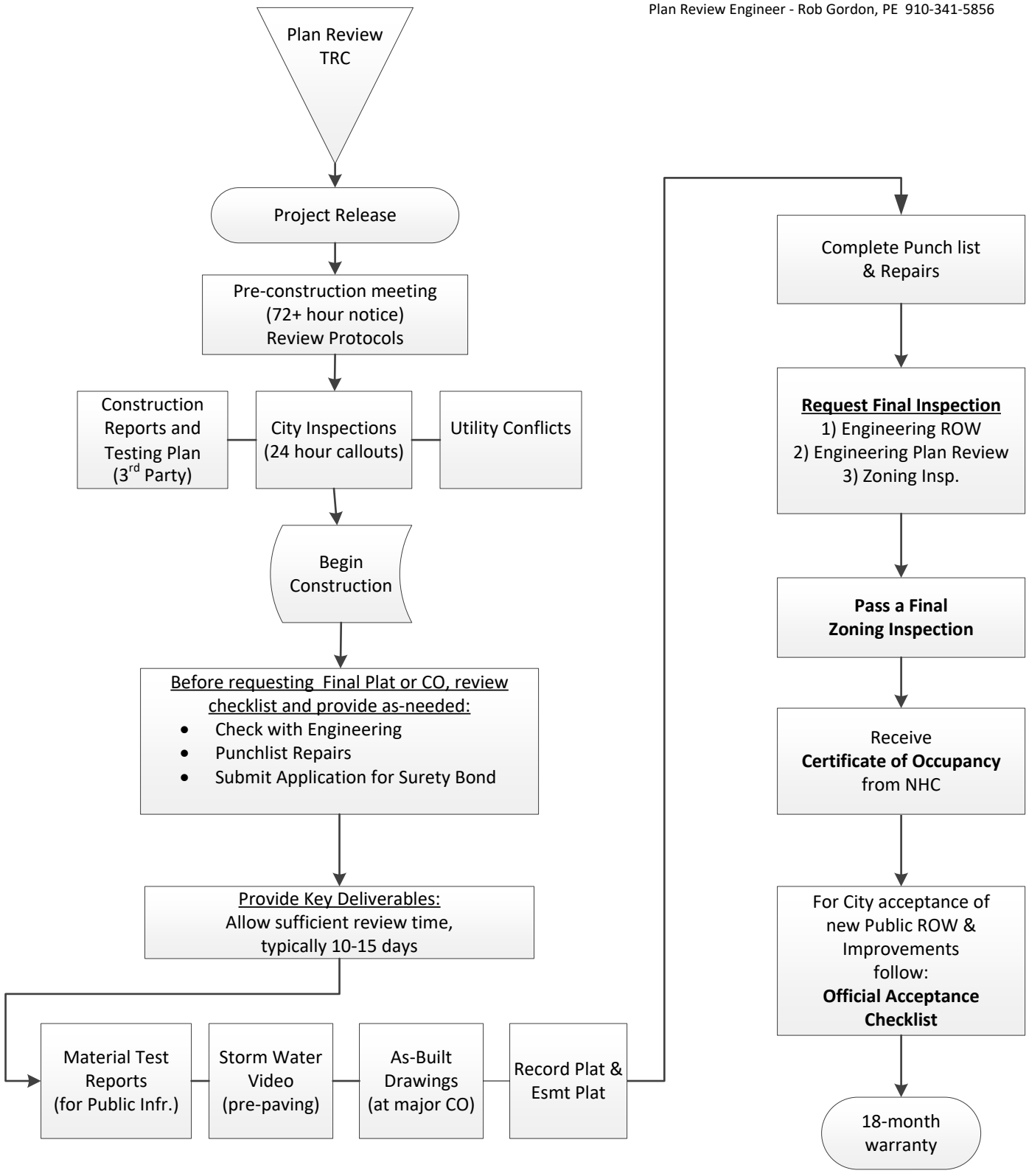
City of Wilmington
Design & Construction
929 N Front St | P.O. Box 1810
Wilmington, NC 28402-1810

910 341-7807
www.wilmingtonnc.gov

Construction Phase Sequence
Private Development

For questions contact:
Constr. Inspection Manager - Sean Winbourne 910-765-0706
Plan Review Engineer - Rob Gordon, PE 910-341-5856



Ver. October 2026

CITY OF WILMINGTON
NORTH CAROLINA

Construction Management Section

City of Wilmington
Design & Construction
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Conditions of Construction in Right-of-Way

All new public infrastructure shall be built to current City Standards with acceptable quality workmanship. Contractors working in the City Right-of-Way (ROW) shall reference this guide and associated policies during construction and prior to requesting final inspection. Corresponding information can be found at: https://www.wilmingtonnc.gov/Government/Departments-Divisions/Engineering

PUBLIC ROW CONSTRUCTION REQUIREMENTS:

☐ CONTRACTOR IS REQUIRED TO COORDINATE WITH THE CITY ROW INSPECTOR FOR ALL PUBLIC INFRASTRUCTURE. THIS INCLUDES NOTIFICATION BEFORE EXCAVATION, UTILITY WORK, SOIL PLACEMENT, CONCRETE AND FORM WORK, ASPHALT PAVING, ETC. THE PROTOCOL FOR REQUESTING INSPECTIONS IS A 24-HOUR CALLOUT.

☐ GENERAL CONTRACTOR/DEVELOPER IS REQUIRED TO PROVIDE THE SAME PERMIT INFORMATION TO SITE CONTRACTORS & SUB-CONTRACTORS AND TO FACILITATE COORDINATION. ANY ITEMS NOT INSPECTED DURING CONSTRUCTION MAY BE SUBJECT TO REMOVAL.

☐ TEMPORARY CLOSURES OF A SIDEWALK/LANE/ROAD ARE SUBJECT TO TRAFFIC CONTROL AND DAILY PERMIT FEES. MAJOR ROADS AND SCHOOL ZONES IN THE CITY HAVE TIME RESTRICTIONS. See the city GIS gallery for reference.

☐ UTILITY AND EXCAVATION WORK IN THE STREET REQUIRES A ROW PERMIT.

☐ STREET CUTS ARE GUIDED BY THE CITY STREET CUT POLICY. ALL CUTS MUST BE SQUARE, OUT OF WHEELPATH, TO THE NEAREST LANE LINE AND HAVE A MIN. 12-INCH CUTBACK.

☐ TO HELP AVOID UNDERGROUND UTILITY CONFLICTS AND STRIKES, CONTRACTOR SHALL CALL NC811 BEFORE EXCAVATION, AND SPOT LOCATE OR EXPLORE FOR EXISTING UTILITIES IN ADVANCE OF THE WORK. Areas of concern on this project are….(to be discussed with Inspector)

☐ 3RD PARTY CONSTRUCTION MATERIALS TESTING IS REQUIRED BY POLICY AND ALL REPORTS SHALL BE CHECKED BY PROJECT ENGINEER AND SUBMITTED TO THE CITY.
The CMT requirements for this project are….(to be discussed with Inspector)

☐ CHANGES IN PROJECT DESIGN SHALL REQUIRE RESUBMITTAL TO CITY FOR PLAN REVIEW.

SITE WORK STANDARDS:

Contractor(s) shall reference this list during construction and complete all work with a quality of workmanship prior to requesting a walkthrough with Inspectors. Contractor shall coordinate in a timely manner to allow review and repairs for all punch list items prior to receiving a final CO.

- ☐ ALL CONCRETE FORMS SHALL BE INSPECTED PRIOR TO POUR. CONCRETE SHALL HAVE CORRECT THICKNESS, FINISH, EXPANSION AND TOOL JOINTS.
- ☐ CONTRACTOR SHALL REPLACE THE EXISTING OR NEWLY POURED CONCRETE WHICH IS NON-ADA COMPLIANT, NON-STANDARD, OFF- GRADE, CRACKED OR UNDERMINED SIDEWALK, DRIVEWAY OR CURB & GUTTER (5-FOOT MINIMUM).
- ☐ STORM WATER STRUCTURES SHALL BE BUILT TO GRADE, WITH PROPER CONCRETE MORTAR AND JOINT ALIGNMENT. PUBLIC STORM SYSTEMS ARE TO BE CLEANED AND VIDEOED, GENERALLY PRIOR TO PAVING, WITH A VIDEO AND FINDINGS REPORT CHECKED BY THE PROJECT ENGINEER AND DELIVERED TO THE CITY.
- ☐ ALL METER BOXES, CLEANOUTS, HANDHOLES, POLES, CABINETS, VALVES, HYDRANTS, ETC. IN THE RIGHT OF WAY OR CITY EASEMENTS SHALL NOT BE LOCATED IN SIDEWALK OR DRIVEWAYS AND A MINIMUM OF 18-INCHES OFF BACK OF CURBLINE AND ADJUSTEDTO FINISHED GRADE.
- ☐ STREETS, SIDEWALKS, GUTTER, PLAZA AREAS AND CASTINGS SHALL BE CLEAR AND CLEANED OF ANY CONSTRUCTION DEBRIS, ROCKS, TRASH, SEDIMENT AND ALL EXCESS ASPHALT AND TACK.
- ☐ A WALKTHROUGH IS REQUIRED PRIOR TO ALL PAVEMENT MARKINGS.
- ☐ A WALKTHROUGH IS REQUIRED PRIOR TO ALL TRAFFIC SIGN INSTALLATIONS.
- ☐ A WALKTHROUGH IS REQUIRED PRIOR TO ALL SIGNAL & LIGHT POLE INSTALLATIONS.
- ☐ PLAZA AREAS SHALL BE BACKFILLED TO TOP OF SIDEWALK AND CURB, ALSO FERTILIZED AND SEEDED.

PROJECT: _____ **CONTRACTOR:** _____

NOTES: _____

_____

_____

_____

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CITY OF WILMINGTON NORTH CAROLINA

Construction Materials Testing and Documentation Guide

The City of Wilmington promotes the development of sustainable infrastructure and provides the following guidance on construction materials testing (CMT) and documentation practices for roadway and underground utility construction.

Materials Testing and Documentation Guide

This guide implements quality control (QC) requirement during construction by providing the minimum applications, targets and frequencies. Additional requirements may be required for necessary to meet industry standards. Generally, CMT services shall be provided by the Utility/Owner separately from the construction contractor, i.e. another 3rd party specializing in testing procedures. The various testing reports and material documents shall be complimentary to provide complete assurance. Other unique conditions or design specifications such as NCDOT standards may apply and could supersede this policy. Without other specific instructions, the following guidelines include:

- Table 1 is attached as a minimum guide to assist with CMT plans and testing resources on a project. Other needs not listed may exist.
- Utility/Owner must coordinate CMT plans before and during construction with the City.
- Utility/Owner shall ensure coordination of test schedules and communication of test results within 48 hours with City Inspector or other responsible personnel.
- Utility/Owner shall manage failing/non-passing tests to rectify situation with contractor(s) and ensure a passing result is obtained.
- Where failing tests occur or no conclusive passing tests exist, the City reserves the right to require further testing or retests, at no cost to the City.
- As part of construction deliverables, copies of test reports, submittals or other requested documents shall be furnished to the City. Such reports shall be professional, organized and shall typically contain the following:
    - Written Summary of Results
    - Test Reports- (compiled/quantified by test type, time, etc.)
    - Materials Received Reports – (submittals, certifications, truck tickets, etc.)
- This guide does not release the utility, owner or contractor from completing all the necessary submittals, construction steps, inspection and testing necessary to meet the standard details, policies and specifications required for all products used for the installation of public infrastructure.

Table 1 - Materials Testing and Documentation Guide					
Test Type:	Application:	Test Target:	Frequency and Test Sections:	Method/Spec:	Documentation:
Soils					
Lab Tests					
Soil Proctors	'Unit Weight" necessary for soil density tests	Maximum Dry Density (MDD) Optimum Moisture Content (OMC)	backfill and grading materials each project, where soils change	AASHTO T-99(standard) AAHSTO T-180(modified) ASTM D-698(standard) ASTM D-1557(modified)	Soil Profile Tests (lab)
Field Tests					
Proof roll for undercut soil	subgrade	visual check of stability and uniformity	within 7 days of stone laydown and no rain	Loaded tandem truck (typ.)	Proof roll report
Compaction for Backfill-Nuclear Gauge	embankments	≥ 95% compaction	1 / block or every 500'	NCDOT STD Specs	Test Result reports
	pipe trench and overfill	≥ 95% compaction	per lift (12" max.) every 100'	NCDOT Nuclear Density Testing Manual - Base Course/Select Materials	
	subgrade (final 12" fill)	≥ 98% compaction	4 / block or every 500' where pvmt ≤ 32' width or 8 / block or every 500' where pvmt ≥ 32' width	Nuclear Gauge Testing-ASTM D-6938	
Compaction - alternates	see above	see above	see above	Sand Cone Method - ASTM D-1556 or; Ballon Density-ASTM D-2167	Test Result reports
Dynamic Cone Penetrometer	excavations, shallow foundations	bearing capacity # blow counts	areas of proposed shallow foundation	ASTM STP - 399	Test Result reports
Stone					
Lab Tests					
Stone Proctors	'Unit Weight" necessary for stone density tests	Maximum Dry Density (MDD) Optimum Moisture Content (OMC)	road base (ABC) and backfill materials	AAHSTO T-180(modified) ASTM D-1557(modified)	Soil Profile Tests (lab) or NCDOT M&T certifications
Field Tests					
Stone Delivery/Laydown	subgrade, backfill areas, rip rap, etc.	check of spread rate/thickness verify product	install and maintain, avoid saturation compaction required within 48-hours	NCDOT STD Specs Section 1000	Collect truck tickets
Fine grading	subgrade	± 1/2 inch of grades	7 days max. prior to asphalt laydown and no rain	check stakes construction survey	Daily Inspection reports
Compaction - Nuclear Gauge	road base (ABC)	≥ 98% compaction	4 / block or every 500' where pvmt ≤ 32' width or 8 / block or every 500' where pvmt ≥ 32' width	NCDOT Nuclear Density Testing Manual - Base Course/Select Materials	Test Result reports
	curblines (ABC)	≥ 98% compaction	4 / block or every 500'	Nuclear Gauge - ASTM D-6938	

Test Type:	Application:	Test Target:	Frequency and Test Sections:	Method/Spec:	Documentation:
Concrete					
Lab Tests					
Concrete Mix Design	curbing, sidewalks, driveways	strength (psi) of concrete required by contract	proprietary standards (each plant) or Form 312U Mix design.	NCDOT STD Specs Section 1000	Proprietary mix or JMF
Compressive Strength	curbing, sidewalks, driveways	breaks results ≥ required strength (Class AA, 4500psi) (Class A, 3000psi) (Class B, 2500psi)	pass/fail 7 day break (typically ≥ 75% of strength) 28 day break ≥ design strength average of 2 cyclinders	ASTM C39	Concrete Break reports
Field Tests					
Concrete Delivery/Pour	curbing, sidewalks, driveways	check forms, grades verify product	Common test sequence below:	NCDOT STD Specs Section 1000	Collect truck tickets
Air Test		5.0 ±1.5%, per mix design	truck #1; air, slump, temp, cylinders	Pressure Air Meter - ASTM C231	Daily Inspection reports
Slump Test		up to 5", per mix design	trucks #2-4; air	Slump Test - ASTM C143	Test Result reports
Temperature	concrete/ ambient temp.	concrete delivered ≥ 50° and ≤ 95° air temp to be ≥ 35°	truck #5; air, slump		
Cylinder Making & Curing	see above	4" x 8" cylinders typical	5 cylinders per day/batch for every 50 cubic yards	Sampling & Testing ASTM C172; ASTM C31; ASTM C39	When needed: NCDOT M&T 903 (Batch Tix) 250 Daily Plant Report
Asphalt					
Lab Tests					
Asphalt Mix Design	roadway/path	surface layer up to 3" depth intermediate up to 4" depth base layer up to 8" depth	NCDOT asphalt standards	NCDOT STD Specs Section 600 NCDOT Asphalt QMS Manual	Standard mix type or JMF
Field Tests					
Asphalt Delivery/Laydown	roadway/path	check stakes, grades check asphalt temperatures	observe each layer and paver laydown Air temp 40° in the shade and rising	NCDOT STD Specs (see above)	Collect truck tickets
Temperature	on hauling trucks	Typical 225° to 315° (± 25° of JMF from the plant)	test before placement, also, no wet pavement affecting bonding		Asphalt Daily Reports: City Report or NCDOT M&T 605
Density - Nuclear Gauge	roadway/path	90% density - S9.5B 92% density - S9.5C, S9.5D, I19.0C, B25.0C	QC = 5 nuclear gauge shots per 500'/each paver laydown width / lot QA = verification	NCDOT Nuclear Density Manual ASTM D-2950	Test Result reports
Core control and control strips when needed		thickness & density requirements	For control strip reference NCDOT Standard Specs Section 609-7 QC = 1 core check per 500'/each paver laydown width	Bulk Density (Cores) - ASTM D-2726	When needed: NCDOT QA/QC-5, QC-5, QA-515, 516QC, etc.

CITY OF WILMINGTON ENGINEERING

REQUIREMENTS FOR VIDEO INSPECTION and REPORTING OF STORM SEWER SYSTEMS

General

1. All stormwater video formatting and reporting shall be completed in accordance with NASSCO Pipeline Assessment and Certification Program (PACP) guidelines. https://www.nassco.org/pipeline-assessment-and-certification-program.
2. Generally, the public storm pipe and structures shall be videoed a minimum 20-30 days after installation and 45 days prior to construction of curbing, streets or sidewalks, allowing sufficient time to assemble reports, conduct engineering review and make repairs as needed.
3. Pipe cleaning operations shall be performed prior to the video inspection, and shall fully clean the pipes and structures as to remove all sediment, debris, etc. This may require dewatering of pipes.
4. The City of Wilmington (COW) reserves the right to refuse any recording or reports on the basis of improper formatting, substandard quality or compatibility with technology.
5. In the event of needed repairs to the pipe or structures, the contractor shall obtain written approval by the City Engineer for all site-specific repair methods before proceeding.
6. Certain conditions may warrant equipment beyond what is specifically noted herein. Failure to adhere to COW requirements, the identification of defects or concerns with any repairs made, may result in the contractor being required to conduct additional video-inspection(s).

Execution

1. All equipment used for cleaning and video inspection shall be specifically designed for the work described herein. All cameras shall be self-powered units with color, pan-and-tilt, minimum resolution of 640x480 min., and the ability to operate in 100% humidity (wet) conditions. The lens shall have not less than a 65-degree viewing angle with either automatic or remote focus and iris controls
2. Inspections of each pipe segment shall run from center of the starting drainage structure to the center of the ending drainage structure. The camera shall be moved through the line in either direction at a uniform rate but not greater than 30 feet per minute (0.5 ft/sec).
3. The camera shall be stopped at each pipe joint, structure, defect, etc. At these locations, the camera shall be panned, tilted and rotated to fully view and document the condition of the joints, defects, etc.
4. CCTV software shall be a commercially available product. CCTV video shall be captured in MPEG format with a clear and stable image and be compatible with Windows Media Player. Still pictures shall be captured in JPEG format at 640x840 min. resolution.
5. Videos shall follow NASSCO standard formatting and codes for file naming, screen text including start, stop and running screens, header displays and observation codes. For each file, a constant overlay display of the street name, drainage structure designations (i.e. MH start#/ CB end#), date and distance shall appear on the screen. The inspector shall move the constant overlay display, so it does not interfere with the inspection review. Observation(s) and defect(s) text shall display for a minimum of 4 seconds.
6. A video inspection report produced from the CCTV software shall be submitted in a separate file for each pipe segment videoed. At a minimum, observation/defect notes shall include general info and codes, distance within the pipe segment, description, a severity rating, and a still photograph. In situations where reverse inspection is necessary, the reverse inspection shall be provided in a separate video file.

Deliverables

1. Video inspection files (MPEG) along with electronic written reports (JPEG) shall be delivered to the City, preferably on a flash drive. These reports shall typically be delivered 30 days prior to any roadway construction. See above. These deliverables shall be provided with correspondence from the Engineer of Record confirming that he/she has reviewed the video inspection package for compliance, made an evaluation and provided recommendations for repair.