

WATER & WASTEWATER SYSTEMS

DEVELOPMENT ORDINANCE



MOORE COUNTY PUBLIC WORKS DEPARTMENT

Adopted: January 2013
Latest Revision: March 19, 2019

PREFACE

This Manual is for the Moore County Public Utilities and the East Moore Water District water and sewer systems, all of which are under the Moore County Public Works Department (MCPW).

The purpose of this Water and Wastewater Development Ordinance is to set forth the requirements which citizens and developers of residential, commercial, and industrial properties must satisfy in order to install water and/or wastewater infrastructure within Moore County. This Ordinance is adopted to maintain uniform standards and orderly procedures for the extension of water and wastewater services to the MCPW systems.

The standards and procedures established by this Policy are applicable to all citizens, developers, utility contractors, engineers and other professionals which design, install, or cause to be installed water and/or sewer facilities that connect to the MCPW water and/or wastewater system(s). The uniform standards and professional processes set forth herein are to ensure that the water and wastewater systems extended pursuant to this Ordinance provide years of low-cost maintenance for the MCPW and uninterrupted service to the customers of MCPW.

Although substantial effort was made to ensure that this Ordinance was comprehensive and reflective of the MCPW requirements for developers that wish to connect to the MCPW water and/or wastewater system(s), other rules and regulations may be applicable or may be adopted hereafter as amendments hereto or as separate policies. Furthermore, this Ordinance will be updated on a regular basis. As a result, contractors, engineers, developers and other professionals are encouraged to contact the Moore County Public Works on a regular basis to ensure that they are in compliance with the most current standards and processes. MCPW reserves the right to revise this Ordinance and any other related policies in order to ensure the integrity of the MCPW water and wastewater systems.

There may be circumstances whereby the design engineer may wish to propose changes or modifications to these standards. When this occurs, permission from the County Engineer shall be obtained prior to submission to the North Carolina Department of Environmental Quality (NCDEQ)

DISCLAIMER

To the best of its ability, the County has ensured that the material presented in this manual is accurate and reliable. However, the design of engineered facilities requires considerable judgment on the part of the designer. It is the responsibility of the design professional to ensure that techniques utilized are appropriate for a given situation. Therefore, neither the County of Moore nor any officer, employee or agent of the County accepts any responsibility for improper design, loss, damage, or injury as a result of the use of this manual.

TABLE OF CONTENTS

I. CITIZEN INITIATED WATER AND WASTEWATER EXTENSIONS

- A. EXTENSION POLICIES WITHIN MOORE COUNTY’S SERVICE AREA..... 1
- B. EXTENSIONS FOR NEED AND EXISTING DEVELOPMENTS 1

II. DEVELOPER OR MOORE COUNTY INITIATED WATER SYSTEM EXTENSIONS

- A. STANDARDS..... 2
- B. OWNERSHIP OF SYSTEMS 3
- C. WATER SYSTEM EXTENSION 3
- D. MANDATORY STANDARDS AND QUALITY CONTROL 4
- E. EASEMENTS 5
- F. SERVICE TAPS FOR NON-ADJACENT PREMISES 6
- G. DIVIDED HIGHWAYS 6
- H. CROSS-CONNECTION CONTROL..... 7
- I. METER POLICY 7
- J. FIRE HYDRANTS 7
- K. FIRE FLOW CALCULATIONS 8
- L. FIRE FLOW 8

III. DEVELOPER OR MOORE COUNTY INITIATED WASTEWATER SYSTEM EXTENSIONS

- A. STANDARDS..... 9
- B. OWNERSHIP OF SYSTEM 9
- C. WASTEWATER SYSTEM EXTENSION 9
- D. MANDATORY STANDARDS AND QUALITY CONTROL 11
- E. EASEMENTS 11
- F. SERVICE TAPS FOR NON-ADJACENT PREMISES 13
- G. SERVICE TAPS 13
- H. INDUSTRIAL PRETREATMENT 13
- I. GREASE, OIL AND SAND INTERCEPTOR..... 13
- J. WASTEWATER FACILITIES OWNED BY OTHERS 13
- K. FORCE MAIN CONNECTIONS, INTERCEPTOR CONNECTIONS AND MONITORING STATIONS 14
- L. LOW PRESSURE SEWER LIFT STATIONS 14
- M. BACKWATER VALVE..... 14

IV. DEVELOPMENT SUBMITTAL PROCEDURES

A. DEVELOPMENT PLAN..... 15

B. PRELIMINARY CONSTRUCTION PLANS..... 15

C. CONSTRUCTION PLANS 16

D. CONTRACTOR DOCUMENTS..... 19

E. PRE-CONSTRUCTION CONFERENCE..... 21

F. CONSTRUCTION..... 22

G. POST CONSTRUCTION..... 25

H. WARRANTY AND WARRANTY PROCESS 28

APPENDIX A..... 30

APPENDIX B 32

APPENDIX C 38

APPENDIX D..... 41

I. CITIZEN INITIATED WATER AND WASTEWATER EXTENSIONS

A. EXTENSION POLICIES WITHIN MOORE COUNTY'S SERVICE AREA

1. Moore County may provide the following basic facilities within the County's service area utilizing revenue bond, grant funds, current enterprise revenues, user charges, special assessments, availability fees and other available funds:
 - a. Wastewater Outfalls
 - b. Wastewater Lift Stations (designed for entire drainage basin)
 - c. Wastewater Force Mains
 - d. Wastewater Treatment Plants
 - e. Water Distribution Mains
 - f. Water Booster Pump Stations
 - g. Water Storage Tanks
 - h. Water Treatment Plants
2. The County will schedule the construction of the basic facilities described herein each year on the basis of need and subject to budgetary limits. If an applicant for service desires to have unscheduled and expanded facilities constructed by the County, he shall file an application (Letter of Intent) with the Moore County Public Works Department.
3. Water and/or Wastewater extensions from the basic facilities described herein to individual customer services may be made by or through the County for the following reasons:
 - a. The need to protect health, public safety and welfare.
 - b. Upon request of property owners of existing development.
4. Except as provided in this Ordinance, all applicants for connection to the County's water and/or wastewater system shall pay applicable fees in effect at the time the application is made.

B. EXTENSIONS FOR NEED AND EXISTING DEVELOPMENTS

1. All extensions from the basic facilities described herein to individual customer services for need or existing developments will be made by the County's Public Works Department or by a licensed contractor approved by the County.
2. Extensions of service within the County for existing developed areas shall be made as follows:
 - a. Property owners requesting water and/or wastewater service shall petition the County to provide services. The petition for extension of service shall be provided to the Public Works Department and shall designate the names,

addresses, and signatures of property owners requesting service in conformance with the provision of this Ordinance.

- b. Whenever it is determined by the Board of Commissioners or East Moore Water District (EMWD) Board of Directors based on evidence presented that an area is without service and that the protection of the public health requires that extensions be made into such area, the Board of Commissioners or EMWD Board of Directors may authorize the extension(s).
 - c. The Board of Commissioners or EMWD Board of Directors may adopt other such rules and regulations as are necessary to carry out the requirements of this Ordinance.
3. Extension of water and/or wastewater service outside the boundary limits of Moore County and/or the East Moore Water District shall be considered by special exception only.
 4. Extension request petitions outlined herein shall be reviewed by the Public Works Department. The Department shall prepare a feasibility study for the project, which includes cost estimates for extension(s) to serve the properties requesting service and a payback analysis. The payback analysis shall include project construction costs, connection fee revenue, monthly use revenue, wastewater disposal costs, and/or water supply costs. The feasibility of a project shall be determined by the Moore County Board of Commissioners or East Moore Water District (EMWD) Board of Directors based on the results of the payback analysis and/or the construction costs of the necessary improvements. A feasible project shall have a payback period less than 10 years or revenues generated from tap fees that total at least 50 percent of the cost of construction. Petitioners shall have the option to pay additional funds to Moore County or EMWD in order for the project to be able to meet the payback period of 10 years. Such additional funds will be designated for the specific project in question and shall be applied toward the overall cost of construction when calculating the payback period, as authorized by law.
 5. Projects may be disapproved if funds are not available to construct the necessary improvements.

II. DEVELOPER OR MOORE COUNTY INITIATED WATER SYSTEM EXTENSIONS

A. STANDARDS

Water facilities which will or may be owned and operated by Moore County shall be designed and constructed in accordance with the requirements of Title 15A 18C of the North Carolina Administrative Code, NCDEQ and Moore County Public Works Department (MCPW) policies, standards and specifications.

B. OWNERSHIP OF SYSTEMS

1. All water facilities constructed for the benefit of the public and to be maintained by Moore County Public Works Department shall become the property of Moore County upon acceptance by MCPW at the completion of the 1-year warranty period with dates established by the Deed of Dedication (DOD).
2. All extensions to the water system of Moore County shall be considered as public facilities up to and including the meter and meter box on the water service. Therefore, all such facilities must be installed in public street rights-of-way or easements having a minimum width as prescribed in the County's appropriate water and sewer standards.
3. Any proposed water infrastructure shall be approved by the County Engineer. All easements and encroachments for such shall be fully platted and recorded with the Moore County Register of Deeds.
4. All water service mains beyond the meter are the property of and responsibility of parties other than MCPW.
5. All fire mains beyond the right-of-way or easement are the property of and responsibility of the parties other than MCPW.

C. WATER SYSTEM EXTENSION

1. If there is no or inadequate water service available to the property desiring potable water service, the Developer shall furnish and install the infrastructure extensions needed to provide service to the property.
2. The water system shall provide a minimum system pressure of 20 psi at peak demand (fire flow) and 30 psi during peak flow at all points of the distribution system.
3. The size and capacity of the infrastructure extensions will be determined by Moore County to provide adequate water pressure and water quality, and to accommodate future growth projections. Dedication of additional utility easements may be required of the Developer.

Major transmission mains shall be sized for the future full development of the area unless more specific data is available in the Capital Improvement Plan. Water main extensions will be approved on the basis of current actual land use. The following procedures and criteria are to be used for sizing and hydraulic design of water mains:

- A. Determine Area and Population of Future Buildout to be served:
 - i. Outline the 20 Year Buildout areas on topographic maps.

- ii. Determine the acres to be served. If the area is undeveloped, reduce the area by 20% to account for streets. Further reduce the area by any acreage that is not considered developable (i.e. lakes, wetlands, greenways, recreation areas, etc.). If the area is developed, reduce the area as necessary to allow for existing streets.
 - iii. For the 20 Year Buildout areas, determine the existing population, land use and zoning. Consideration shall be given to the maximum anticipated capacity of commercial areas, of institutions, industrial parks, etc. Refer to the appropriate area Land Use Plan to determine trends in land use and zoning and for predictions of population growth rate.
 - iv. The NCDEQ standard demands shall be used to determine the total demand.
4. Water system infrastructure extensions may include the following:
- A. Water mains, elevated tanks, water booster pump stations, pressure reducing valves, altitude valves and other facilities as may be required to deliver the water service.
 - B. For subdivisions lots, water taps shall be provided to vacant and occupied lots.

D. MANDATORY STANDARDS AND QUALITY CONTROL

1. All water system extensions accepted by Moore County will have plans and specifications approved by NCDEQ Public Water Supply and bear the approval/permit stamp from NCDEQ and approval/permit stamp from MCPW.
2. All plans shall be designed and sealed by a Professional Engineer, licensed in the State of North Carolina.
3. All extensions by developers will be constructed by a licensed Utility Contractor approved by the County.
4. The Developer shall provide "Record Drawings" before water service is provided.
5. A designated representative of MCPW will review construction and will personally witness pressure tests and disinfection tests in accordance with the adopted Fee Schedule. The Developer's Engineer shall be responsible for day-to-day construction administration and inspection.
6. A (1) one year warranty period shall be established in the DOD from the date MCPW accepts the infrastructure for operation. See Section H. WARRANTY PERIOD for more details.

7. The Developer's Engineer shall certify that the work has been properly constructed to NCDEQ and Moore County standards.

E. EASEMENTS

Where public water mains and facilities are installed within or across private property, the developer or property owner will obtain and provide the County with all necessary easements or encroachments, as deemed necessary by the County.

Any easement will be centered upon the utility line, apparatus or equipment and will have a width of 20 feet unless otherwise provided in the table below. The easement will provide that the County has the right to enter upon the easement area for purposes of constructing, installing, reconstructing, operating, maintaining, inspecting, repairing, relocating, modifying, and removing wastewater apparatus and equipment. The easement will prohibit the developer or property owner from placing trees, shrubs, buildings, structures (e.g. docks or retaining walls), and obstructions (e.g. fences or paved surfaces) within the easement area. Additionally, the easement will permit the County to keep the easement area cleared of all trees, shrubs, undergrowth, buildings, structures, and obstructions. Where plants, buildings, structures, or obstructions have been placed within an easement, the County will not be responsible for their cost, repair, or replacement.

No shrubs, structures (e.g. docks or retaining walls), or obstructions (e.g. fences or paved surfaces) will be installed within an easement of the County without approval from the County and the execution of an encroachment agreement. Any such unapproved encroachments will be removed from the easement at the property owner's expense. Trees and buildings are not allowed within an easement of the County and those placed inside the easement will be removed at the property owner's expense. Naturally occurring shrubs and trees within the easement will be removed by the County at no charge to the property owner.

With regards to encroaching structures (e.g. docks or retaining walls) and obstructions (e.g. fences or paved surfaces) currently within an easement of the County as of October 3, 2017, those encroachments are acknowledged as existing and the County considers them as having been permitted by the County. Where access to the easement has been partially or completely denied due to the installation of a structure or obstruction, the property owner must provide the County with access to the easement (e.g. provide an alternative access easement or install a gate in a fence). Furthermore, in the event of an emergency, encroaching structures and obstructions will be removed if the County, in its sole discretion, determines that the removal is necessary to resolve the emergency. In the event the encroachment is removed, the property owner will be assessed the cost of removal and the County will prohibit a similar encroachment from being reinstalled within the easement.

All trees, shrubs, structures (e.g. docks or retaining walls), and obstructions (e.g. fences or paved surfaces) installed within the County's easement after October 3, 2017 will be removed from the easement at the owner's expense.

Trench Depth (feet)	EASEMENT WIDTH			
	2-12 Inch Dia. Pipe (feet)	14-20 Inch Pipe Dia. (feet)	24-36 Inch Pipe Dia. (feet)	=/> 42 Inch Pipe Dia. (feet)
0-6	20	25	25	30
6-12	25	30	30	40
12-18	30	35	40	45
> 18	Need Approval	Need Approval	Need Approval	Need Approval

F. SERVICE TAPS FOR NON-ADJACENT PREMISES

A water service tap may be provided to serve a lot not adjacent to a roadway or utility easement, containing a water main, which is separated by one intermediate property owner. To acquire this water tap the following condition must be met:

1. The County Engineer must approve the tap location.
2. A utility easement shall be obtained from the intermediate property owner(s).
3. A copy of the easement is to be provided to the County Engineer.
4. After collecting the water tap fee, MCPW will make a tap and provide a meter and meter box at the edge of roadway right-of-way or easement right-of-way with the user providing and paying for the service from the meter to the building to be served.
5. The one intermediate property owner crossing can be increased to two or more lots with approval from the Public Works Director.

G. DIVIDED HIGHWAYS

1. Where a divided highway contains an existing water main located on one side of the roadway, a single dwelling on the opposite side of the roadway may obtain a water tap for a single service, if approved by the North Carolina Department of Transportation (NCDOT).
2. To obtain a water main connection across a divided highway for a development, the Developer shall construct a water main of sufficient size to provide fire protection. Refer to the appropriate Fire Marshal for determination of fire flow requirements.

H. CROSS-CONNECTION CONTROL

1. Cross-connection control shall comply with the following:
 - a. Federal Safe Drinking Water Act of 1974 (P.L. 93-523).
 - b. North Carolina State Administrative Code (Title 15A, Subchapter 18C-.0709).
 - c. North Carolina State Building Code (Volume II, Appendix D, Subsection 102.4.)
 - d. Moore County Cross Connections Control Ordinance

I. METER POLICY

1. Separate Meters - Meters furnished for a given lot shall be used on that lot only. Each customer's service shall be separately metered at a single delivery and metering point. That single delivery and metering point shall be supplied by a single tap or connection to the water main along the roadway separately for each lot. No other metering point shall be connected to this single tap.
2. Master Meters - For commercial, industrial, apartment and other complexes, mobile home parks or recreation parks, a master meter is allowed if the complex or park is owned and services are maintained by a single person or organization.
3. By-Pass Meters - In the case of a master meter requiring a bypass main, the bypass shall be equipped with a meter installed between two shut-off valves.
4. Irrigation Meters - Meters used on a lot for outside purposes that do not result in the water entering the wastewater collection system shall be used on that lot only. A Backflow preventer will be required after the meter in accordance with the Moore County Cross Connection Control Ordinance. Each customer's irrigation service that has public sewer shall be separately metered at a single delivery and metering point unless the Owner provides documentation that the land was platted before July 1, 2009. Houses that have sewer septic tanks are allowed by law (after October 1, 2017) to connect their irrigation system to their domestic service line and not required to have a separate irrigation meter. Such installations shall require a lockable valve within two (2) feet of the domestic water meter.

J. FIRE HYDRANTS

1. A fire hydrant should generally be located at a street intersection and in accordance with NCFC 2018.
2. All fire hydrants shall be installed on a minimum six-inch water main.
3. A hydrant shall be located within 50 feet of the "Fire Department Connection" for automatic fire sprinkler systems.

4. A “Fire Department Connection” shall be located outside of the anticipated collapse zone of a building containing a sprinkler system and approved by the Fire Marshal.
5. All hydrants shall be located within a highway right-of-way unless otherwise approved by Moore County Public Works. All hydrants and mains that are located on private property shall be maintained by the private property owner.
6. All hydrants shall have a safety red barrel with a 5 inch Storz Adaptor for connection.
7. Hydrant valves shall be located as close to the hydrants as practical.
8. Water services of any type shall not be installed on fire hydrant legs or fire mains unless approved by the County Engineer.

NOTES: No one except Moore County Public Works Department personnel, an authorized agent of Moore County or qualified Fire Department personnel are authorized to operate any of the water distribution system fire hydrants. This requirement is in accordance with the N.C. Register 10 NCAC 10D.1066 (b)(7).

K. FIRE FLOW CALCULATIONS

Fire Flow requirements for building or portions of building and facilities shall be determined by the ISO Fire Suppression Rating schedule, NFPA 1142, or approved method.

L. FIRE FLOW

1. Needed Fire Flow:
The Developer/Engineer shall submit information to the MCPW on the development’s Needed Fire Flow and calculations to confirm that the Needed Fire Flow is available to service the development.
2. Available Fire Flow:
The Developer/Engineer shall be responsible for contacting MCPW to determine the Available Fire Flow at the point of connection to the MCPW water system, and to confirm whether the system can meet the Needed Fire Flow for the proposed development. MCPW, in conjunction with the Fire Marshal, will provide certified water model results for the development. MCPW will also provide fire flow information to the Developer/Engineer based on actual field data (hydrant tests) in the vicinity of the proposed development if the developer pays the fire flow test fee.
3. The Fire Marshal, or their appointee, shall make the final decision of the Needed Fire Flow requirement for site specific conditions. For fire hydrants locations see the Fire Marshal.

III.DEVELOPER OR MOORE COUNTY INITIATED WASTEWATER SYSTEM EXTENSIONS

A. STANDARDS

Wastewater facilities which will or may be owned by Moore County shall be designed and constructed in accordance with the requirements of Title 15A 2T of the North Carolina Administrative Code, Department of Environmental Quality, “Waste Not Discharged to Surface Waters” (latest revision) and Moore County Public Works Department (MCPW) policies, standards and specifications.

B. OWNERSHIP OF SYSTEM

1. All wastewater infrastructures constructed for the benefit of the public and to be maintained by Moore County Public Works Department shall become the property of Moore County upon acceptance by MCPW at the completion of the 1-year warranty period.
2. All extensions to the wastewater collection system of Moore County shall be considered as public facilities up to and including the cleanout on the service main. Therefore, all such facilities shall be installed in public street rights-of-way or easements.
3. Any proposed wastewater collection system infrastructure shall be approved by the County Engineer. All easements and encroachments for such shall be fully platted and recorded with the Moore County Register of Deeds.
4. All wastewater service mains beyond the cleanout connection are the property of and responsibility of parties other than MCPW.

C. WASTEWATER SYSTEM EXTENSION

1. Collection System Hydraulic Design and Route Selection
Generally, sewer outfalls and trunk mains shall be sized for the future full development of the natural basin using the following criteria unless more specific data is available. These design and peak flow calculations are not to be used to calculate flows for wastewater permits. Wastewater extensions will be approved on the basis of current actual land use and flow allocations as required by NCDEQ standards and regulations. The following procedures and criteria are to be used for sizing and hydraulic design of gravity sanitary sewers:

A. Determine Drainage Basin and Population to be served:

- i. Outline the major basin on topographic maps. Identify and outline all sub-basins and identify any other basins or sub-basins that will be pumping into the sewer being designed.

- ii. Determine the acres to be served. Include the basins or sub-basins that will be pumped into the sewer. If the area is undeveloped, reduce the area by 20% to account for streets. Further reduce the area by any acreage that is not considered developable (i.e. lakes, wetlands, greenways, recreation areas, etc.). If the area is developed, reduce the area as necessary to allow for existing streets.
- iii. For each basin and sub-basin, determine the existing population, land use and zoning. Consideration shall be given to the maximum anticipated capacity of commercial areas, of institutions, industrial parks, etc. Refer to the appropriate area Land Use Plan to determine trends in land use and zoning and for predictions of population growth rate.
- iv. NCDEQ flow rates shall be used to determine the total flow.

2. Lift Station Design:

In situations where gravity flow to an existing sewer is not feasible, MCPW will consider the installation of a wastewater pumping station and a force main. Certain factors must be addressed by the developer for the project for consideration by MCPW. The factors include the influent flow calculated from the collection system shall be used. Pumps shall be sized for a minimum of 20 year build out or as approved by the County Engineer.

- 3. If there is no or inadequate wastewater service available to the property desiring wastewater service, the Developer shall provide the infrastructure extensions and upgraded lift station infrastructure needed to provide service to the property.
- 4. Wastewater services, 4-inch minimum diameter, shall be installed with service cleanouts at the Right-of-Way on new wastewater main extensions between existing infrastructure and new developments to provide requesting owners with service connections.
- 5. For commercial, industrial, apartment complex, etc., one service cleanout is allowed per building if the building is owned and the service is maintained by a single person or organization.
- 6. Wastewater infrastructure extensions to be owned by others shall provide a monitoring station or lift station with flow metering capabilities built to MCPW specifications, or shall pay MCPW sewer fees based on water use.
- 7. Wastewater system infrastructure extensions may include:
 - A. Wastewater mains, manholes, cleanouts, services, sewage lift stations, force mains, air release valves, monitoring stations and other facilities as may be required to provide sewer service.

- B. For subdivisions lots, wastewater service mains with cleanouts shall be provided to vacant and occupied lots with a four inch sewer service connection.

D. MANDATORY STANDARDS AND QUALITY CONTROL

1. All wastewater system extensions accepted by Moore County will have plans and specifications approved by NCDEQ Water Quality and bear the approval/permit stamp from NCDEQ and approval/permit stamp from MCPW.
2. All plans shall be designed and sealed by a Professional Engineer, licensed in the State of North Carolina.
3. The Developer shall provide "Record Drawings" before wastewater service is provided.
4. The designated representative of MCPW will review construction and will personally witness manhole vacuum tests, air leak test, mandrel tests, force-main tie-ins, manhole construction over existing wastewater mains and wastewater main extension in accordance with the adopted Fee Schedule. The Developer's Engineer shall be responsible for day-to-day construction administration and inspection.
5. A (1) one year warranty period shall be established in the DOD from the date MCPW accepts the infrastructure for operation. See Section H. WARRANTY PERIOD for more details.
6. The Developer's Engineer shall certify that the work has been properly constructed to NCDEQ and Moore County standards.

E. EASEMENTS AND ENCROACHMENTS

Where public wastewater mains and facilities are installed within or cross private property, the developer or property owner will obtain and provide the County with all necessary easements or encroachments, as deemed necessary by the County.

Any easement will be centered upon the utility line, apparatus or equipment and will have a width of 20 feet unless otherwise provided in the table below. The easement will provide that the County has the right to enter upon the easement area for purposes of constructing, installing, reconstructing, operating, maintaining, inspecting, repairing, relocating, modifying, and removing wastewater apparatus and equipment. The easement will prohibit the developer or property owner from placing trees, shrubs, buildings, structures (e.g. docks or retaining walls), and obstructions (e.g. fences or paved surfaces) within the easement area. Additionally, the easement will permit the County to keep the easement area cleared of all trees, shrubs, undergrowth, buildings, structures, and obstructions. Where plants, buildings, structures, or obstructions have been placed within an easement, the County will not be responsible for their cost, repair, or replacement.

No shrubs, structures (e.g. docks or retaining walls), or obstructions (e.g. fences or paved surfaces) will be installed within an easement of the County without approval from the County and the execution of an encroachment agreement. Any such unapproved encroachments will be removed from the easement at the property owner's expense.. Trees and buildings are not allowed within an easement of the County and those placed inside the easement will be removed at the property owner's expense. Naturally occurring shrubs and trees within the easement will be removed by the County at no charge to the property owner.

With regards to encroaching structures (e.g. docks or retaining walls) and obstructions (e.g. fences or paved surfaces) currently within an easement of the County as of October 3, 2017, those encroachments are acknowledged as existing and the County considers them as having been permitted by the County. Where access to the easement has been partially or completely denied due to the installation of a structure or obstruction, the property owner must provide the County with access to the easement (e.g. provide an alternative access easement or install a gate in a fence). Furthermore, in the event of an emergency, encroaching structures and obstructions will be removed if the County, in its sole discretion, determines that the removal is necessary to resolve the emergency. In the event the encroachment is removed, the property owner will be assessed the cost of removal and the County will prohibit a similar encroachment from being reinstalled within the easement.

All trees, shrubs, structures (e.g. docks or retaining walls), and obstructions (e.g. fences or paved surfaces) installed within the County's easement after October 3, 2017 will be removed from the easement at the owner's expense.

Trench Depth (feet)	EASEMENT WIDTH (Centered upon the utility line)				
	8-12 Inch Dia. Pipe (feet)	15-18 Inch Dia. Pipe (feet)	21-27 Inch Dia. Pipe (feet)	30-36 Inch Dia. Pipe (feet)	=/> 42 Inch Dia. Pipe (feet)
0-6	20	20	25	25	30
6-8	20	20	25	25	30
8-10	20	25	25	25	30
10-12	20	25	25	30	30
12-14	25	30	30	35	35
14-16	30	35	35	35	40
16-18	30	35	40	40	40
18-20	30	40	45	45	45
> 20	Need Approval	Need Approval	Need Approval	Need Approval	Need Approval

F. SERVICE TAPS FOR NON-ADJACENT PREMISES

A Wastewater Service Tap may be provided to serve a building not adjacent to a roadway or utility easement that is separated by only one intermediate property owner. To acquire this wastewater tap the following must be met:

1. The County Engineer must initially approve this tap for location and pipe size.
2. A utility easement shall be obtained from the intermediate property owner for the service.
3. A copy of the easement is to be provided to the County Engineer.
4. After collecting the wastewater tap fee, MCPW will make a tap and provide a cleanout at the edge of roadway right-of-way or easement right-of-way with the user providing and paying for the service from the cleanout to the building to be served.
5. The one intermediate property owner crossing can be increased to two or more lots with approval from the Public Works Director.

G. SERVICE TAPS

A new sewer service can only be provided if there is also a water service for the same lot, unless approved otherwise by the Moore County Public Works Director.

H. INDUSTRIAL PRETREATMENT

Refer to Moore County Sewer Use Ordinance.

I. GREASE, OIL AND SAND INTERCEPTOR

Refer to Moore County Sewer Use Ordinance

J. WASTEWATER FACILITIES OWNED BY OTHERS

Wastewater lift stations, force mains, monitoring stations and other components of the wastewater collection system owned by others that discharge into the MCPW wastewater collection system shall meet NCDEQ and MCPW standard specifications for design, construction and maintenance.

K. FORCE MAIN CONNECTIONS, INTERCEPTOR CONNECTIONS AND MONITORING STATIONS

1. With approval from the County Engineer, regional lift station force main connection can be made to an existing force main. Individual Wastewater Services for homes, business, etc. are not permitted to connect to the force main.
2. Individual Wastewater Services for homes, business, etc. are not permitted to connect to the Interceptor at any location (pipe or manhole).
3. With approval from the County Engineer, wastewater collector mains (8" or larger) can connect to the Interceptor. These connections shall be made at manholes only, not in the pipe.
4. A Flow Monitoring Station shall be constructed at all Interceptor connections, consisting of a manhole, flow meter and flow monitoring equipment, ultrasonic sensor, flow transmitter, telemetry/SCADA equipment, electrical works, yard hydrant (if water service is available to the site), fencing, wastewater main from the monitoring station to the interceptor manhole and appurtenances.
5. Monitoring Stations for Wastewater systems shall be designed to MCPW standards and furnished and installed by the Developer. MCPW will maintain and collect meter readings for billing and monthly usage payment.
6. If an existing Monitoring Station needs to be upgraded due to increased flow from Developer, the Developer shall be required to design and construct the improvement as approved by the County Engineer.
7. Moore County will become the owner of the monitoring station after the one year warranty and acceptance by MCPW.

L. LOW PRESSURE SEWER LIFT STATIONS

MCPW will permit installation of Low Pressure Sewer Lift Stations with force mains, where wastewater gravity mains are not possible, that are individually owned for small commercial and residential developments with prior approval from MCPW. The operation and maintenance of this unit shall be the responsibility of the Owner up to the connection to the gravity main.

M. BACKWATER VALVE

A Backwater Valve is required by the owner for their wastewater service main if the first up-stream manhole top elevation is higher than the floor elevation of the service building.

IV. DEVELOPMENT SUBMITTAL PROCEDURES

A. DEVELOPMENT PLAN

Refer to the development review procedures established by the appropriate jurisdiction's Planning Department.

B. PRELIMINARY CONSTRUCTION PLANS

1. Letter of Intent to Develop:

The first step required of a developer is to submit a completed "Letter of Intent to Develop" form (See Appendix A). The form is to be forwarded to the County Engineer, Moore County Public Works, P.O. Box 1927, Carthage, N.C., 28327.

2. Sketch Plan:

The sketch plan of a proposed development should be provided and contain or be accompanied by the following information:

- a. Maps of property for proposed development including north arrow and graphic scale;
- b. Vicinity or location map;
- c. Tract boundaries and total acreage;
- d. The name and number of all abutting NC Department of Transportation, Municipal, private or public road rights-of-way;
- e. Closest available existing water and wastewater utilities and where proposed utilities are to be connected to public utilities.

3. Calculations:

The following information for the proposed project should accompany the Letter of Intent to Develop:

- a. Potable Water Demands
- b. Fire Flow Requirements
- c. Wastewater Flow Rates

It is the responsibility of the Developer's Engineer to provide calculations and proof that the existing and proposed water and wastewater systems can provide the needed water and wastewater service to the proposed development. Water calculations for average and maximum day demands and fire flows shall be clearly denoted. Wastewater calculations for peaking factors used for pump station flows shall be clearly denoted. The County will model the submitted data in their overall system models.

The Developer shall provide MCPW with all necessary information to add the proposed development in the County water model. The County will provide the Developer with the water model results.

The Developer shall provide MCPW with all necessary information to add the proposed development in the County sewer model. The County will provide the Developer with the sewer model results.

4. Fees:

To defray the cost of reviewing and processing the Letter of Intent to Develop, Sketch Plan, and Calculations, the fees shall be paid to MCPW in accordance with the adopted Fee Schedule.

5. Response to Letter of Intent:

Once MCPW has reviewed the Developer's information noted above, a Flow Tracking Form can be generated.

A project will be considered cancelled and removed from active status if the project has not begun construction within a 24 month period from the date of approval, unless proper documentation has been provided to the County Engineer demonstrating that the project is being actively developed. Cancellation includes wastewater flow allocation and potable water assurance. Once the project is cancelled, future return to active status will require that the project be resubmitted as a new project with new fees being assessed.

C. CONSTRUCTION PLANS

1. General:

The construction plans of a proposed water and/or wastewater construction project shall be clearly and legibly drawn to maximum scale of one (1) inch equals (50) feet horizontal and (1) inch equals (10) feet vertical on twenty-four inches by thirty-six inches (24 x 36) plan sheet. Plan and profile views shall be submitted for all wastewater collection projects. If the construction plan requires more than one sheet, a key diagram showing location of the sheets relative to each other shall be provided on the cover sheet.

2. Content:

The Construction Plan shall contain the following information:

- a. Name of owner of record.
- b. Name of subdivision, date, north arrow, graphic scale, and vicinity map.
- c. Name, registration number, and seal for Professional Land Surveyor and/or Professional Engineer as appropriate.
- d. Sufficient data to determine readily and reproduce on the ground the location, bearing, and length of every street and alley line, lot line, easement, boundary line, whether curved or tangent, and sewer and/or water infrastructure

improvement. This shall include the radius, point of tangent, and other data for curved property lines and curved streets, to an appropriate accuracy and in conformance with surveying practice.

- e. Names of owners of record of all adjoining land and all property boundaries, water courses, easements, utilities and other such improvements, which cross or form any boundary line of track being developed.
- f. Streets and alleys, right-of-way, and street names.
- g. All lengths shall be to the nearest one hundredth of a foot and angles to the nearest second.
- h. Accurate description of the location of all property monuments and/or markers.
- i. All platted information shall conform to the appropriate jurisdiction's Planning Department subdivision and land use regulations.
- j. Proposed utility easements, showing the accurate dimensions in hundredths of feet and including notation of any limitations on such easements. Easements shall be a minimum width no less than 20 feet, minimum 10 feet each side of pipe. See the MCPW Specifications for any additional width requirements.
- k. Plan and profile sheets along the center line of proposed roadway shall be provided. Such sheets shall show natural and finished pavement grade with typical road right-of-way section shown. Show profiles of water and sewer crossings or other utility crossings.
- l. Water system design shall indicate pipe size and all special appurtenances, valves, tees, and bends. The water system design shall also indicate the location of fire hydrants, air relief valves, and any special appurtenances. Sufficient data shall be provided to determine and readily reproduce the location on the ground.
- m. Wastewater plan and profile sheets will contain the following information: elevations relative to mean sea level (with benchmarks) for inlet invert, outlet invert, manhole rim, 100 year flood; all pipe crossings; percent grade; and length and type of pipe. Plan view will show service connection location with reference to existing utilities and utility easements. Station numbers shall be shown numbered to a minimum interval of 100 feet. Sufficient data shall be provided to readily reproduce the location on the ground.
- n. Site plans shall be provided for water booster pumps stations, water tanks, wastewater lift stations, monitoring and metering stations, and other facilities. Site plans shall include proposed dimensions, benchmarks, delineation of boundaries and designation of the ownership of the property on which the site is located. The 100 year flood elevation shall be shown. Detailed design of

facilities shall include site grading, storm drainage, roadway access, fencing, plan and section views of structures, electrical, mechanical, and architectural design, as applicable. Provide detailed design for tie-ins, construction details and specifications.

- o. For wastewater force mains, provide plan and profile sheets; include type of pipe, utility crossings, air relief valves and details. Sufficient data shall be provided to determine and readily reproduce location on the ground.
 - p. Show all items of work that are to proposed to be installed in phases.
3. Accompanying Information:
Detailed information shall be provided identifying necessary construction specifications and procedures along with the required construction documents, Performance and Payment Bonds, General and Special Conditions, etc.
- a. NCDOT Encroachment Permit Application Form, if applicable.
 - b. Railroad Encroachment Permit Application Form, if applicable.
 - c. Municipal Encroachment Application Form, if applicable.
 - d. NCDEQ Public Water Supply Application
 - e. NCDEQ Water Quality Application
 - f. NCDEQ Land Quality Application
 - g. Engineering Report to cover the basic factors and principles considered in planning of the project.
 - h. NCDEQ – Public Water Supply Authorization to Construct.
 - i. NCDEQ – Water Quality Authorization to Construct.
 - j. Moore County Subdivision Review Board Approval, if applicable.
 - k. Municipal Review Board Approval, if applicable.
 - l. The County or Municipal Fire Marshall’s Letter of Approval.
 - m. Submittal of all shop drawings for materials used in project must be approved prior to scheduling the Pre-Construction Conference.
 - n. Power Company easement approving High Transmission Line crossing, if applicable.
4. Fees:
To defray the cost of reviewing the construction plans, reviewing the accompanied information, and providing the needed field inspection and testing, Engineering fees shall be paid to MCPW in accordance with the adopted Fee Schedule.
5. Approval of Construction Plan:
Preliminary plan review shall be obtained from MCPW staff with at least a 30 day review period. All requirements of this Manual must be satisfied and plans/specifications shall be stamped “MCPW approved” before construction can begin.

D. CONTRACTOR DOCUMENTS

The standards listed herein define a number of documents and standards that Contractors must possess.

1. Contractor's License:

All Contractors must be licensed as a Public Utilities Contractor by the North Carolina Licensing Board for General Contractors. The MCPW reserves the right to accept or reject the Contractor selected to perform work on systems to be conveyed to the MCPW based upon past performance and experiences.

2. Federal I.D. Number:

Contractors shall provide their Federal Identification Number, if applicable.

3. Performance Bond:

Performance Bond, if required by the contract documents, in the amount of one hundred percent (100 percent) of the contract amount, conditioned upon the faithful performance of the contract in accordance with specifications and conditions of the contract is required. The bond shall be in the name of Moore County.

4. Payment Bond:

Payment Bond, if required by the contract documents, in the amount of one hundred percent (100%) of the contract amount, conditioned upon the faithful payment of the contract in accordance with specifications and conditions of the contract is required. The bond shall be in the name of Moore County.

5. Certificate of Insurance:

The Contractor, at his sole expense, shall provide an original signed certificate of insurance, if required by the contract documents.

a. Workers' Compensation – Statutory Limits – Employers' Liability - \$2,000,000.

b. Coverage shall be provided under a Comprehensive General Liability or Commercial General Liability and Automobile Liability form of Insurance, such as is usual to the practice of the Insurance Industry, including (but not limited to) all the usual coverage referred to as:

- Comprehensive/Commercial Form;
- Premises/Operations Liability (M&C);
- Underground Explosion & Collapse Hazard;
- Products/Completed Operations;
- Blanket Contractual;
- Broad Form Property Damage;
- Personal Injury;
- Automobile Liability, Including Coverage for owned, non-owned, leased or hired vehicles, and

- Garage/Garage keepers, Bailers, or Ship keepers Liability, if applicable
- c. Minimum Limits of Protection must be:
- \$2,000,000 – Professional Liability
 - \$1,000,000 – Bodily Injury Liability
 - \$ 500,000 – Property Damage Liability
 - \$3,000,000 – Combined single Limit bodily Injury and Property Damage
- d. Policy period must cover the term of contract
- e. The County of Moore shall be given not less than 30 days’ notice of any change, cancellation, expiration or renewal of the policy.
- f. Enforcement:
1. A copy of the fully completed Endorsement must be provided. The Endorsement must name the County of Moore as an Additional Insured, identify the policy number and be signed by an authorized representative. The Certificate of Insurance and Endorsement must be submitted as one document. To expedite approval, a Binder (ACORD #75) for the Endorsement will be accepted for 90 days until the actual policy is issued, or
 2. The broker/agent submits a certified copy of the insurance policy, which includes the County of Moore as an additional insured.
6. Observation of Laws:
The Contractor shall at all times observe and comply with all Federal, State, and local laws, ordinances, regulations, and all such decreed as exist at present or as may be enacted during the period of construction, by bodies or tribunals having any jurisdiction or authority over the work, in any manner effecting the conduct of the work or those employed on the work. No plea of misunderstanding will be considered on account of their ignorance thereof.
7. Indemnity:
To the fullest extent permitted by law and regulations, the Contractor shall indemnify and hold harmless the County and its officials, agents, and employees from and against all claims, damages, losses, and expenses, direct, indirect, or consequential (including but not limited to fees and charges of engineers or architects, attorneys, and other professionals and costs related to court action or arbitration) arising out of or resulting from the performance of a Contract or the actions of the Contractor or its officials, employees, or Subcontractors.

The Contractor shall comply with the North Carolina Workers’ Compensation Act. In the event the Contractor is excluded from the requirements of such Act and does not voluntarily carry workers’ compensation coverage, the Contractor shall carry or cause its employees to carry adequate medical/accident insurance to cover any injuries sustained by its employees or agents during the performance of service.

E. PRE-CONSTRUCTION CONFERENCE

A pre-construction conference shall be scheduled with MCPW by the Developer's Engineer when the construction plans have been approved by MCPW, NCDOT, NCDEQ, and other permitting agencies. A minimum five business days of advance notification to MCPW is required to schedule the conference. Upon notification of the pre-construction conference by the Developer's Engineer, MCPW will review the project to see if all requirements set forth have been met.

The appropriate jurisdiction's Planning Department will schedule the preconstruction conference. Those in attendance include representatives of the following: General Contractor, Subcontractor(s), Developer, Developer's Engineer, County Engineer, appropriate jurisdiction's Inspection personnel, and Moore County Public Utilities personnel. Others who may be in attendance are representatives of the NC Division of Highways, Municipality, and applicable utility companies and regulatory agencies.

Topics to be discussed at the meeting include the scope of the project, safety (being the Contractor's responsibility), inspection, preliminary progress schedule, preliminary schedule of shop drawings and submittals, insurance and bonds, project close-out procedures and additional issues that the attending parties feel need to be addressed. Contractor's safety plan shall include specific requirements with which Contractor and others must comply while at the Site.

The Contractor shall provide shop drawings for all materials required for the execution of the work prior to construction. The Developer's Engineer and MCPW will review all shop drawings with at least a two week review period. The Developer's Engineer and MCPW's approval of any shop drawing shall not release the Contractor from responsibility to strictly adhere to the mandated standards and regulations.. Any changes to the approved project documents shall be submitted to the County Engineer for approval prior to implementation into the project.

Construction shall not begin until the shop drawing or submission has been approved by the Developer's Engineer and MCPW. A copy of each approved shop drawing shall be kept in good order by the Contractor at the site and shall be available to inspectors and engineers.

The Contractor is reminded that before digging, all contractors are required by state law to notify the North Carolina One Call Center at 811 or 1-800-632-4949 in order to request locations from each utility company to make an on-site visit for the purpose of locating all existing underground utilities. The Contractor is responsible to ensure that all subcontractors follow this requirement. No construction will begin until the pre-construction conference is held, and the Developer's Engineer and the County Engineer are notified.

F. CONSTRUCTION

1. Interpretation of Plans:

The approved plans will show the locations, details, and dimensions of the work contemplated, which shall be performed in strict accordance therewith and in accordance with the approved specifications. Interpretations of the plans and specifications shall be the responsibility of the Developer's Engineer. Any deviations from the approved plans, specifications, etc., in all cases will be determined by the Developer's Engineer, with the approval of the County Engineer. A set of approved plans shall be kept at the job site during construction.

2. Construction Layout:

The Contractor shall furnish all lines and grade necessary to construct the project. The work, as completed, shall conform to the approved construction plans except where grade and/or alignment are changed to avoid obstructions and such changes have been previously approved by the County Engineer in writing.

3. Field Changes:

If the project work site requires any field changes, then all such changes must be approved by the County Engineer in writing. Major changes must be addressed by re-submitting the revised plans to MCPW, NCDOT, NCDEQ and other permitting agencies for the necessary approval. Minor changes, as determined by MCPW, may be documented on the as-built record drawings once the construction is completed.

4. General Inspection:

Moore County Public Works Department Personnel will make periodic observations, during construction to ensure that the Contractor is complying fully with project design and specifications, as well as the policies and procedures herein established that the materials and methods used in the construction are of acceptable quality.

Public Works Department personnel shall at all times have access to the work. In addition, authorized representatives and agents of any participating Federal or State Agency shall be permitted to inspect all work, materials, and other relevant data and records. The Contractor shall provide proper access for observation of the work and for testing thereof.

Public Works Personnel shall be present to observe the following items of work:

- a. All concrete pads
- b. All concrete blocking
- c. All bolted fittings and appurtenances
- d. All utility, roadway and creek crossings
- e. All tie-ins
- f. All stations, vaults, manholes and major Structures
- g. All testing as required below

If any underground work is covered prior to proper observation by the Public Works Department Personnel, it must, if requested, be uncovered for their observation and replaced at the Contractor's expense.

5. Preliminary Final Inspection:

A preliminary final inspection may be requested by the Contractor for the purpose of preparing a "punch list" of items to be completed prior to final inspection. This inspection does not authorize the Developer or Contractor to discharge wastewater into the County sewer system or to transmit potable water by County water system. After the final construction is approved by the County, easements are dedicated, the Deed of Dedication has been approved by the Board and NCDEQ has issued final approval, the County will accept wastewater from and/or transmit potable water to the proposed development.

6. Tests Required:

The Contractor shall provide, at his expense, the necessary testing required. Public Works Department Personnel shall observe the following tests:

- a. Water system Pressure Test
- b. Water system Bacteriological Sampling
- c. Water system Tracer Wire Test
- d. Wastewater System Mandrel Test
- e. Wastewater System Air Leak Test
- f. Wastewater System Manhole Vacuum Test

If the contract documents, laws, ordinances, regulations or request of any public authority having jurisdiction require any work to be inspected, tested, or approved by someone other than the Contractor, the Contractor will give MCPW timely notice of readiness. The Contractor will then furnish to the Developer's Engineer and MCPW the required certificates of inspection and testing.

7. Responsibilities of MCPW Personnel:

Moore County Public Works Department Personnel are authorized to observe all work performed and materials furnished. Authorized MCPW personnel shall be assigned to the project to report the progress of the work and the manner in which it is being performed. They will report problems immediately whenever it appears that the material and/or work performed by the Contractor fail to fulfill the requirements of the standards and specifications, and to call to the attention of the Contractor such failure. Such observation, or any failure to provide such observation, however, shall not relieve the Contractor or Developer from their obligations to perform all work strictly in accordance with the requirements of the approved Construction Plans and Specifications.. The Authorized MCPW personnel is not authorized to revoke, alter or waive any of the requirements of the Developer's Contract with his Contractor, to approve or accept any portion of the completed project, or to give any instructions to the Contractor which are contrary to the approved construction plans and specifications. They shall have the authority to reject inferior materials and to refer

other items to the County Engineer. Any advice or instructions which MCPW personnel may give the Contactor shall not be construed as binding upon the County in any way, or releasing the Contactor or Developer from meeting the requirements of the County standards and specifications.

8. Responsibilities of the Design Engineer:

The Design Engineer shall interpret the intent of the contract documents. He is responsible for certifying that the project was constructed in accordance with the plans and specifications at the end of construction. The Developer's Engineer is expected to perform the construction administration and inspection services for the construction of the project, including the following:

- a. Attend and provide input during the preconstruction conference
- b. Review shop drawings and coordinate review comments with MCPW
- c. Schedule and run construction progress meetings
- d. Issue change orders to change the scope of the work, as needed
- e. Inspect the work to ensure compliance with County and NCDEQ requirements
- f. Assist County with Preparation of punch lists for work to be completed
- g. Coordinate start-up of equipment and facilities
- h. Deliver certification to Moore County to submit to NCDEQ that the project is built in conformance with the project plans and specifications
- i. Prepare Record Drawings

9. Responsibilities of the County and Stop Work Orders:

MCPW will direct the observation of the work to ensure compliance with County standards and specifications.

MCPW may issue a Stop Work Order, with approval of the Public Works Director, (written or verbal with written follow-up) instructing the Developer/Contractor to immediately cease work if such work poses a threat or hazard to the public, on-site personnel or property; is being performed without proper approvals; is not following approved plans and specifications; is not following Moore County standards and specifications; or if there is no current set of approved plans onsite. In the event work is undertaken prior to appropriate approvals being secured or is not properly inspected, the Contractor may be required to remove and reinstall all work not properly inspected or approved and may receive a Stop Work Order for all new construction at the site until the matter in question has been fully corrected to MCPW and the Director's approval.

The Stop Work Order may also include instructions for remedial work or repairs deemed necessary to correct such threats or hazards. In the event that corrective measures are not taken properly or in a timely manner, County reserves the right to implement such corrective measures and to pursue any and all legal means to seek reimbursement for any costs to the County incurred as a result. The County will not bear any responsibility for consequential damages incurred by the Developer/Contractor or others resulting from issuance of a Stop Work Order, such

damages including, but not limited to, lost time or liquidated damages, loss of materials, payroll and overhead costs, equipment rental cost, permit cost, fines or legal costs, etc.

10. Public Convenience and Safety:

Safety is the Contractor's responsibility. Contractor's safety plan shall advise Owner and others of the safety requirements while on site. Contractors shall adhere to OSHA requirements.

The Contractor shall, at all times, conduct the work in such a manner as to allow proper vehicular and pedestrian traffic in accordance with NCDOT standards. Submit traffic control plans and receive approvals from appropriate parties when encroaching in a dedicated right-of-way or easement. The convenience of the general public and of the residents along and adjacent to the work area shall be satisfactorily provided for, including provisions for and maintenance of access to passageways and entrances into public and private property. The Contractor shall provide, erect, and maintain all necessary barricades, suitable and sufficient warning lights and danger signals, provide workmen, and take all precautions necessary for the protection of the work and safety of the public. Any necessary signs shall be suitable mounted and shall be conspicuously placed adjacent to the work where traffic will be alerted.

The Contractor shall, at their own risk and expenses shore up and otherwise protect buildings, bridges, fences, walls, property monuments, pipes, and other structures and objects legally existing along the pipe or adjacent to the work; and in the event of any damage to such public or private property by reason of, or consequent upon any act, omission, neglect or misconduct in the execution of the work provided for herein, the Contractor shall, at their own cost and expense, make all such repairs as may be necessary to restore such property to its former condition. Failure on the part of the Contractor to make all necessary repairs, or to satisfy any legal demand or liability, shall confer upon the MCPW the right to disallow the connection of the project to the County's system.

It is clearly understood that it is the responsibility of the Contractor to maintain reasonable cleanliness of all streets which are used in the construction of the project. When, in the opinion of the Engineer's representative, any street inside or outside of the project becomes excessively dusty or unclean due to its use by the Contractor's equipment, the Contractor shall, at their own expense, furnish employees and equipment to clean (flush, etc.) said street to a degree acceptable. At the completion of the project, the Contractor shall thoroughly clean the above mentioned streets to a degree acceptable to the County Engineer, Municipal Officer and Department of Transportation standards. The inspection of these streets will be a part of the overall inspection.

G. POST CONSTRUCTION

1. Final Inspection:

- a. It is recommended that the Developer's Engineer make an inspection of the project to determine items that require attention and to require that such items are subsequently completed by the Contractor prior to notifying MCPW and NCDEQ.
 - b. A pre-final inspection will be conducted by Public Works Personnel, at the Developer's Engineer's request, in order to list all remaining items; provide minimum 48 hour notice.
 - c. After completion of the punch list items, it is recommended that the Developer's Engineer call for a final inspection. The final inspection shall be conducted by the County Engineer and Developer, with other agencies and parties of interest, such as NCDEQ, Municipality, NCDOT, Railroad, project inspectors, etc., minimum 48 hour notice. A preliminary Record Drawings (As-Built) shall be supplied by the Developer's Engineer to MCPW at this time to verify the accuracy of same and to make the necessary changes for final submittal. The Engineer's Certification shall be submitted to Moore County. Final Approval will be submitted to NCDEQ by MCPW stating that all work has been performed in accordance with the plans and specifications.
2. Final Approval by Other Agencies:
- a. NCDEQ approval letter has been issued and copies are on file in the MCPW office.
 - b. NCDOT approval of work performed under their Encroachment Agreement.
 - c. Railroad approval of work performed under their Encroachment Agreement.
 - d. Municipality approval of work performed under their Encroachment Agreement and policies.
3. Final Records:
- a. Record Drawings (As-Built) shall accurately depict the locations and condition of the project. The plans shall be noted "Record Drawings", dated and signed by the Developer's Engineer. All valves, manholes (including final depth) service connections and appurtenances shall be located by station number and by distance from at least two permanent structures that are readily visible near the appurtenance, and supply G.P.S. points.
 - b. A Digital PDF file and a paper hard copy of the Record Drawings shall be provided to the County Engineer.
 - c. The encroachments to be recorded in Moore County Register of Deeds, must include a certificate of ownership and dedication to Moore County Public Works, and be placed on the cover sheet of the plans. This certificate must be

signed and dated by the Developer, and must use the text written in the following paragraph:

Certificate of Ownership and Dedication – I hereby certify that I am the owner of the property shown and described herein. That I certify the land shown hereon is within the planning jurisdiction of Moore County, North Carolina and that I hereby adopt this plan of subdivision with my free consent, establish minimum building lines, and dedicated all streets, alleys, walks, parks and other sited and easements to public or private use as noted. Furthermore, I hereby dedicate all sanitary sewer and water mains to the County of Moore.

<i>Date</i>	<i>Owner</i>
-------------	--------------

Also, the Deed of Dedication (DOD-See Appendix B) shall be signed and dated by the Developer and approved by the appropriate Moore County or EMWD Board. The completed DOD will be recorded by Moore County in the Moore County Register of Deeds with fee paid by the Developer. The commitment of flow for a land subdivision is made at the time the Deed of Dedication is executed and recorded and the appropriate fees are paid by the Developer. For other development, the commitment of flow is made at the time the application for service is made and the connection fees are paid.

- d. One original of deeds or easements and plat prepared by the Developer’s Attorney for conveyance of property to the County. Property to be conveyed includes pump/lift station site, well site, elevated storage tank site, or other facility site to be operated and maintained by the County. Provide appropriate notations for transfer and recording by the Moore Clerk of Court, indicating the date and time of recording, the plat book and location thereof and instrument number.
- e. Cost of Water and Sewer Infrastructure that was installed with a detailed breakdown of all items and their associated cost with a Total Cost for the County assets list.
- f. Release and Waiver of All Claims and Liens signed by the Contractor and the Developer.
- g. MCPW will receive final approval from NCDEQ,
- h. Water and Wastewater utilities will be activated only after all Post Construction requirements are met.

4. Final Approval:

- a. All items must be constructed per the approved construction drawings and specifications and final punch list items completed before MCPW will issue the final approval.
- b. If there are items that are to be installed in phases, then that needs to be delineated on the approved plans.
- c. Meters will be set only after there has been a final approval and warranty issued

H. WARRANTY AND WARRANTY PROCESS

This article pertains to the Developers and Contractors that are constructing utility projects to be owned by the County. Upon completion of construction, acceptance of As-Builts and execution of the Deed of Dedication and Release and Waiver of All Claims and Liens, a (1) one year warranty period shall begin on all material, equipment and work performed from the date MCPW accepts the infrastructure for operation. No water meters shall be set, wastewater services connected or DOD recorded until all required final inspection punch list items are completed and required documentation submitted to the County, unless approved by the Director of Public Works.

It shall be the sole responsibility of the Developer to ensure that the water and/or wastewater utilities are in the same condition as when accepted for operation (not ownership) by Moore County and shall remain in said condition, less normal wear, for a period of one (1) year from the date of acceptance for operation. The warranty shall cover all incidental repairs needed, including, but not limited to, incidents such as a power company damaging a meter box or a car accident damaging a fire hydrant.

During the eleventh (11th) month following acceptance of operation by Moore County, Moore County and the Developer shall conduct a field inspection. All items noted in the inspection punch list shall be the responsibility of the Developer. All items noted in the inspection punch list shall be addressed by the end of the twelfth (12th) month of the warranty period or a fine of \$100 per day will be assessed to the Developer. In the alternative to the fine, if such items fail to be addressed by the Developer or its Contractor, the County may elect to disconnect the services and return the dedicated system to the Developer.

Once the inspection punch list items have been addressed to the satisfaction of Moore County, Moore County will send the Developer a letter to inform him that the warranty period has ended and that Moore County has accepted the water and/or wastewater infrastructure for ownership as a permanent part of the Moore County system. Equipment and manufacturer warranties will apply in addition to the one (1) year Developer and Contractor warranties. The steps below shall be adhered to for the warranty process.

Warranty Process Steps

- 1) Construction Completed
- 2) Construction Final Inspection
- 3) Final Inspection Punch List
- 4) Final Inspection Punch List Completed
- 5) Submit As-Builts
- 6) Submit all Equipment and Manufacturer Warranties
- 7) Execution of the Deed of Dedication and the Release and Waiver of All Claims and Liens
- 8) Infrastructure Acceptance by Moore County for Operation
- 9) One Year Warranty Start Date Set
- 10) Eleventh (11th) Month Inspection
- 11) Eleventh (11th) Month Inspection Punch List
- 12) Punch List Completed by the End of the Twelfth (12th) Month
- 13) Fine of \$100 per Day if Punch List is Not Completed by the End of the Twelfth (12th) Month or the dedicated system may be

APPENDIX A

LETTER OF INTENT TO DEVELOP

1. PROPOSED PROJECT NAME: _____

2. CONTACT PERSON: (Name, address and telephone number)

3. DEVELOPER OR DEVELOPMENT FIRM: (Name, address and telephone number)

4. PROPERTY OWNER(s): (Name, address and telephone number)

5. LICENSED ENGINEER OR ENGINEER FIRM: (Name, address and telephone number)

6. PLAT SHOWING LOCATION OF PROPERTY TO BE DEVELOPED: (Acreage, tax map, lot number, road name/number, location map, adjacent property owners, zoning, existing water and sewer location):

7. NATURE OF PROPOSED DEVELOPMENT OR COMMERCIAL/INDUSTRIAL BUSINESS: (Subdivision, mobile home park, apartment, number of residential units, etc...) (Shopping center, retail square footage, restaurant seating, motel /number of rooms, commercial and industrial square footages, etc...)

8. DISTANCE TO NEAREST WATER MAIN AND SIZE: _____

9. FIRE FLOW CALCULATIONS: _____

10. DISTANCE TO NEAREST SEWER MAIN AND SIZE: _____

11. WILL ROADS BE DEDICATED TO :
 City
 State
 Public
 Private
 Other

12. ANTICIPATED COMPLETION DATE: _____

14. ANTICIPATED BUILD OUT DATE: _____

15. IF PROJECT IS TO BE PHASED, LIST THE NUMBER OF UNITS TO BE
CONSTRUCTED FOR EACH PHASE AND DATE PLANED FOR THE START AND
COMPLETION OF EACH PHASE:

This Letter of Intent to Develop is valid for one year of Date of filing.
(To be signed and dated by MCPW)

Name

Date

APPENDIX B

Template Developer Deed of Dedication and Easement

[See the following five pages.]

The following is a template generated by the County Attorney's Office. Only the description of the property may be changed, as necessary, to successfully complete the Deed of Dedication. If other changes are necessary, those changes must be approved by the County Attorney's Office.

DEED OF DEDICATION AND EASEMENT

This instrument prepared by: _____, Attorney
Return to: Moore County Attorney's Office, P.O. Box 905, Carthage, NC 28327

THIS DEED OF DEDICATION is made the ____ day of _____, 20____, by and between:

<u>GRANTOR</u>	<u>GRANTEE</u>
_____ _____ _____ _____ _____	COUNTY OF MOORE , a political subdivision of the State of North Carolina 1 Courthouse Square P.O. Box 905 Carthage, NC 28327

WITNESSETH:

WHEREAS, Grantor is the owner and developer of a tract or parcel located in the _____ Township, Moore County, North Carolina, known as " _____ " (the "Property"); and

WHEREAS, Grantor has caused to be installed water and/or sewer utility lines and equipment under or across a portion of the Property; and

WHEREAS, Grantor wishes to obtain water and/or sewer service from Grantee for the Property; and

WHEREAS, Grantee has adopted a policy regarding water distribution systems and sewer collection systems under the terms of which includes that in order to obtain water and/or sewer service for the Property, Grantor must convey title to the water distribution system and/or sewer collection systems and all necessary easements to Grantee through an instrument acceptable to Grantee; and

NOW, THEREFORE, Grantor, in consideration of Grantee accepting said water and/or sewer collection systems and making water and/or sewer service available to the Property, does hereby convey to Grantee, its lawful successors and assigns, the following described property:

All water and/or sewer mains, equipment, and apparatuses used in the water distribution system and/or sewer collection system that is/are constructed upon the Property (the "Facilities"), which is/are more fully depicted in the plat recorded at Plat Cabinet _____, Slide _____, and which is hereby incorporated by reference as if fully set forth herein.

A perpetual and non-exclusive easement under, along, and upon the entire area of the roads, streets and cul-de-sac rights-of-ways as depicted in the plat recorded at Plat Cabinet _____, Slide _____ (the "Easement Area").

TO HAVE AND TO HOLD said property and easement above described together with the privileges and appurtenances thereto belonging to Grantee forever.

The Grantee shall have the right to construct, install, reconstruct, operate, maintain, inspect, repair, relocate, modify, and remove water distribution and/or wastewater collection pipeline, apparatus, and equipment within the Easement Area. The easement granted to the Grantee includes the following rights: 1) ingress and egress over the Easement Area and over adjoining portions of the Property (using lanes, driveways, and paved areas where practical, as determined by the Grantee); 2) to relocate the Facilities and Easement Area on the Property to conform to any future highway or street relocation, widening, or improvement; 3) to keep clear from the Easement Area, now or at any time in the future, trees, shrubs, undergrowth, buildings, structures (e.g. docks or retaining walls), and obstructions (e.g. fences or paved areas); and 4) all other rights and privileges reasonably necessary or convenient for the Grantee's safe, reliable, and efficient installation, operation, and maintenance of the Facilities and for the enjoyment and use of the Easement Area for the purposes described herein. Grantee will not be responsible for the costs, repair, or replacement of plants, buildings, structures, or obstructions located within the Easement Area, including those that may occur as a result of the Grantee's use of the easement.

Grantor will not place shrubs, structures (e.g. docks or retaining walls), or obstructions (e.g. fences or paved areas) within the easement area without the express written consent of the Grantee. Grantor will not place trees or buildings within the easement area.

Furthermore, Grantor does hereby covenant that it is seized of said real property and personal property described above in fee simple and has the right to convey the same in fee simple, that the same are free and clear of encumbrances, and that it will warrant and defend the title to the same against all persons whomsoever.

Grantor agrees and understands that Grantee conditionally accepts the personal property and easement being dedicated by Grantor. Grantor is responsible for maintaining the personal property for one year beginning _____, 20____. Grantee will have until _____, 20____, to inspect the personal property and easement for any needed repairs. Grantor will be provided with a list of items that must be resolved prior to the Grantee's final acceptance of the personal property and easement. If Grantor fails to resolve the items as required by Grantee, then Grantee may, in its sole discretion, revoke this Deed of Dedication and Easement.

[Intentionally left blank. Signatures on the following page.]

IN WITNESS WHEREOF, the Grantor has caused this instrument to be duly executed as of the day and year first written above.

GRANTOR

By: _____(Print)

STATE OF NORTH CAROLINA

COUNTY OF MOORE

I, a Notary Public of the County and State aforesaid, do hereby certify that _____ personally came before me this day, and I have seen satisfactory evidence of the principal's identity, by a current state or federal identification with the principal's photograph in the form of a _____; and he/she has acknowledged that he/she is the Organizer of _____, a North Carolina _____ company, and that he/she, as Organizer, being authorized to do so, executed the foregoing on behalf of _____.

Witness my hand and official seal, this ____ day of _____, 20____.

Signature of Notary Public

(NOTARY SEAL)

Printed Name of Notary Public

My Commission Expires: _____

ACCEPTANCE OF DEED

This Deed of Dedication and accompanying Affidavit was accepted by the Moore County Board of Commissioners on the ____ day of _____, 20____.

COUNTY OF MOORE

ATTEST:

_____, Chair
Moore County Board of Commissioners

Laura M. Williams
Clerk to the Board

STATE OF NORTH CAROLINA

AFFIDAVIT

COUNTY OF MOORE

_____, a North Carolina _____ (LLC, Inc., etc.), with an office and place of business located at _____ and conducting business in Moore County, North Carolina (the "Affiant"), being first duly sworn, hereby deposes and says under oath as follows:

1. That it is the owner of certain property located in _____ Township, Moore County, North Carolina, known as "_____" containing lots numbered ___ through ___, as more particularly described in a Deed of Dedication in favor of the County of Moore of even date herewith.
2. That it has caused to be installed water and/or sewer mains under and along the road right-of-ways for the property hereinafter described and referenced:

All water and/or sewer mains, equipment, and apparatuses used in the water distribution system and/or sewer collection system that is constructed upon the property more fully depicted in the plat recorded at Plat Cabinet ___, Slide ___, which plat is hereby incorporated by reference as if fully set forth herein.

3. All the work which has been performed in the construction and installation of said water and/or sewer mains described in paragraph 2, above, has been fully paid for and there are now no liens of any kind, including any lien for labor or material, against the subdivision property, which would in any way jeopardize title of Affiant to the property in said subdivision nor are there any legal actions pending against Affiant or any contractor arising out of any work performed in said subdivision or the water and/or sewer mains installed therein which would in any way jeopardize title to the subdivision or the water and/or sewer mains located therein.

[Intentionally left blank. Signature on the following page.]

IN WITNESS WHEREOF, the Affiant has caused this instrument to be duly executed by its authorized officer, this the ____ day of _____, 20__.

GRANTOR

By: _____ (Print)

STATE OF NORTH CAROLINA

COUNTY OF MOORE

I, a Notary Public of the County and State aforesaid, do hereby certify that _____ personally came before me this day, and I have seen satisfactory evidence of the principal's identity, by a current state or federal identification with the principal's photograph in the form of a _____; and he/she has acknowledged that he/she is the Organizer of _____, a North Carolina _____ company, and that he/she, as Organizer, being authorized to do so, executed the foregoing on behalf of _____.

Witness my hand and official seal, this ____ day of _____, 20__.

Signature of Notary Public

(NOTARY SEAL)

Printed Name of Notary Public

My Commission Expires: _____

APPENDIX C

TEMPLATE DEVELOPER RELEASE AND WAIVER OF ALL CLAIMS AND LIENS

[See the following two pages.]

The following is a template generated by the County Attorney's Office. Only the description of the property may be changed, as necessary, to successfully complete the Waiver. If other changes are necessary, those changes must be approved by the County Attorney's Office.

DEVELOPER RELEASE AND WAIVER OF ALL CLAIMS AND LIENS

The County of Moore (the "County") is willing to accept a Deed of Dedication of water and/or sewer mains and easement access to the water and/or sewer mains from _____ (the "Developer"), as described in the Deed of Dedication and Easement executed by the Developer on _____. In exchange for the acceptance and operation of the water distribution system and/or sewer collection system, the Developer executes this Release and Waiver of All Claims and Liens.

The Deed of Dedication from the Developer to the County is for the following property:

All water and/or sewer mains, equipment and apparatuses used in the water distribution system and/or the sewer collection system that is constructed upon the property more fully depicted in the plats recorded at Plat Cabinet ____, Slide(s) ____, which plats are hereby incorporated by reference as if fully set forth herein. A perpetual and exclusive easement that is _____ feet in total width, _____ feet in width on both and all sides of the constructed and installed equipment and water and/or sewer mains as the same are located over, upon and under the real property more further described in the plats recorded at Plat Cabinet ____, Slide(s) _____.

The property described above, which includes, but is not limited to, all water and/or sewer mains, equipment and apparatuses shall hereinafter be referred to as the "Property."

The Developer agrees for itself, its assigns, heirs, contractors, vendors, suppliers, materialmen, laborers and other persons or entities providing services, labor, parts or materials, that there are no claims, demands or liens existing, pending or threatened against the Property. Further, the Developer agrees that all invoices, including purchases, supplies, parts and labor concerning the Property have been paid in full.

For and in consideration of the County's acceptance of the Property and the County's agreement to operate the water distribution system and/or sewer collection system, the Developer, for itself and its assigns, heirs, subcontractors, vendors, suppliers, materialmen, laborers and other persons or entities providing services, labor, parts or materials, hereby releases and forever discharges the County, its agents, affiliates, representatives, officers, directors, attorneys and employees from any and all claims, demands or causes of action that might exist, arise out of, or in any way be related to the Property as of the date this release is executed.

To the fullest extent permitted by law and regulation, the Developer agrees to indemnify and hold harmless the County and its officials, agents, and employees from and against any and all claims, damages, losses and expenses, direct, indirect or consequential (including but not limited to fees and charges of engineers or architects, subcontractors, attorneys and other professionals

and costs related to court action or arbitration) arising out of or resulting from the Property or from the Property being transferred to the County.

In addition to this Release and Waiver of All Claims and Liens, in exchange for the County accepting the water and/or sewer mains, the Developer will provide the County with a one-year warranty on labor and repair of the water and/or sewer mains, equipment and apparatuses.

IN WITNESS WHEREOF, this Release and Waiver has been executed this ____ day of _____, 20____.

DEVELOPER

ATTEST:

By: _____ (Print)

By: _____ (Print)

APPENDIX D

TEMPLATE CONTRACTOR RELEASE AND WAIVER OF ALL CLAIMS AND LIENS

[See the following two pages.]

The following is a template generated by the County Attorney's Office. Only the description of the property may be changed, as necessary, to successfully complete the Waiver. If other changes are necessary, those changes must be approved by the County Attorney's Office.

CONTRACTOR RELEASE AND WAIVER OF ALL CLAIMS AND LIENS

The County of Moore (the “County”) is willing to accept a Deed of Dedication of water and/or sewer mains and easement access to the water and/or sewer mains from _____ (the “Developer”), as described in the Deed of Dedication executed by the Developer on _____. In exchange for the acceptance and operation of the water distribution system and/or sewer collection system, the Developer’s Contractor, _____, a North Carolina _____ (Inc., LLC, etc.) executes this Release and Waiver of All Claims and Liens.

The Deed of Dedication from the Developer to the County is for the following property:

All water and/or sewer mains, equipment and apparatuses used in the water distribution system and/or the sewer collection system that is constructed upon the property more fully depicted in the plats recorded at Plat Cabinet ____, Slide(s) ____, which plats are hereby incorporated by reference as if fully set forth herein. A perpetual and exclusive easement that is _____ feet in total width, _____ feet in width on both and all sides of the constructed and installed equipment and water and/or sewer mains as the same are located over, upon and under the real property more further described in the plats recorded at Plat Cabinet ____, Slide(s) ____.

The property described above, which includes, but is not limited to, all water and/or sewer mains, equipment and apparatuses shall hereinafter be referred to as the “Property.”

The Contractor agrees for itself, assigns, heirs, subcontractors, vendors, suppliers, materialmen, laborers and other persons or entities providing services, labor, parts or materials that there are no claims, demands or liens existing, pending or threatened against the Property. Further, the Contractor agrees that all invoices, including purchases, supplies, parts and labor concerning the Property have been paid in full.

For and in consideration of the County’s acceptance of the Property, and the County’s agreement to operate the water distribution system and/or the sewer collection system, the Contractor agrees for itself, assigns, heirs, subcontractors, vendors, suppliers, materialmen, laborers and other persons or entities providing services, labor, parts or materials, hereby releases and forever discharges the County, its agents, affiliates, representatives, officers, directors, attorneys and employees from any and all claims, demands or causes of action that the Contractor has or might have arising out of or in any way related to the Property and has submitted this separate Release and Lien Waiver forever releasing the County from and against any and all claims, liens, demands, judgments or suits at law and equity, in connection with or related to the Property, effective as of the date this release is executed.

To the fullest extent permitted by laws and regulations, the Contractor agrees to indemnify and hold harmless the County and its officials, agents, and employees from and against all claims, damages, losses, and expenses, direct, indirect or consequential (including but not limited to fees and charges of engineers or architects, subcontractors, attorneys and other professionals and costs related to court action or arbitration) arising out of or resulting from the Property or from the Property being transferred to the County.

In addition to this Release and Waiver of All Claims and Liens, in exchange for the County accepting the water and/or sewer mains, the Contractor will provide the County with a one-year warranty on labor and repair of the water and/or sewer mains, equipment and apparatuses.

IN WITNESS WHEREOF, this Release and Waiver has been executed this ____ day of _____, 20____.

CONTRACTOR

ATTEST:

By: _____ (Print)

By: _____ (Print)