

CITY OF ASHEBORO

WATER LINE SPECIFICATIONS

A. GENERAL

The work involved in the construction of water lines shall include the furnishing of all materials, labor, tools and equipment necessary for the complete construction of the water lines and appurtenances shown on the plans and specified herein.

All work within rights-of-way of streets maintained by the N. C. Department of Transportation shall be done in accordance with their specifications and the applicable encroachment agreement. The contractor shall notify the local Department of Transportation office prior to construction and obtain any permits or bond that may be required. After construction, the contractor shall notify the local Department of Transportation office and obtain approval of work completed.

The contractor shall provide the City a traffic control plan that meets all MUTCD requirements prior to starting work on any public street right-of-way maintained by the City or the NCDOT.

Work must be coordinated to cause the least inconvenience to the public, and safe traffic flow must be maintained at all times. The City Engineering Department must be notified prior to construction, and interruptions to fire or domestic service must be reported to the City Utilities Inspections Department in advance. **The contractor must give residents and businesses a 24 hour notice when water service will be interrupted to minimize inconvenience and liability to affected users.** The City of Asheboro will provide printed door tags to the contractor along with a list of residents that will be affected by the interruption to ensure all residents are notified.

Construction should be scheduled so that no street or block of a street is left in an incomplete condition in excess of 45 days. Construction work must be scheduled to be performed Monday thru Friday during daylight hours.

The contractor will be responsible for properly safeguarding the public against accidents and shall save harmless the City and shall assume responsibility for any suits or actions for damages or other lawsuits, which may be instituted against the City because of any incident arising from the construction.

Work shall be done in accordance with the Rules Governing Public Water Supplies as administered by the N. C. Department of Environment and Natural Resources, Division of Environmental Health, Public Water Supply Section.

Manufacturer's names and model numbers of items specified herein are provided to designate the type and quality of items desired to conform with the City of Asheboro's water system and parts

inventory. Where other specifications are referenced, the latest revision shall apply. Alternate items will be considered, but approval must be obtained from the City Engineer prior to use.

All materials and work performed shall be guaranteed by the contractor for a period of one (1) year after acceptance by the City. Work and/or materials found defective or unsuitable within this period shall be corrected by the contractor, or at the contractor's expense.

Prior to installation of any materials, the contractor shall provide two (2) copies of shop drawings and/or submittals designating the brand, model, type and specifications of all materials to be used. A representative of the City will review these drawings and return one (1) copy to the contractor marked approved, approved as noted or not approved. Corrected submittals shall be provided for any items not approved.

B. WATER LINE MATERIALS

DUCTILE IRON PIPE

Ductile iron pipe shall be furnished with mechanical or "push on" type joints and meets current applicable ANSI and AWWA standards for materials, joints, and thickness design. Unless noted otherwise, pipe shall be thickness class 50 or pressure class 350 designed for a working pressure of at least 200 psi.

Fittings shall be Cast Iron or Ductile Iron with mechanical joints conforming to AWWA C110 or C153 Standards, designed for a working pressure at least equal to that required for the pipe.

Pipe and fittings shall have an interior cement-mortar lining in compliance with AWWA C104 standards. Outside coating shall be of bituminous material.

POLY VINYL CHLORIDE (PVC) PIPE (SIZE 2")

PVC pipe shall conform to ASTM D 2241 (Dimension Ratio), ASTM D 1784 (Class 12454-A PVC compound material), and ASTM D 1869 (Rubber Coupling Rings). Unless noted otherwise, pipe shall be class 315 SDR 13.5, with elastomeric gasket couplings.

All 2-inch PVC pipe shall bear the National Sanitation Foundation (NSF) PW logo.

Fittings shall be PVC manufactured by the pipe manufacturer.

C. WATER LINE INSTALLATIONS

EXISTING UTILITIES

Verify location and existence of all underground utilities, as information provided may not constitute existence or definite location.

Take necessary precautions to protect existing utilities and property from damage due to construction activity. Damage to any property that results from construction must be fixed at the contractor's expense.

USE OF EXPLOSIVES

The contractor shall obtain a blasting permit from the Asheboro Fire Inspection Department (146 North Church Street, (336) 626-1201 ext. 240) prior to using explosives and shall make sure that insurance coverage on the use of explosives is provided.

Contractor shall have a copy of blasting permit on site during working hours.

Store, handle, and use explosives in accordance with local and state regulations.

Conduct survey and document existing conditions of facilities prior to blasting. Provide seismographic monitoring during progress of blasting operations.

Use explosives in such a way to minimize vibration to existing utilities and structures.

Provide only experienced personnel for blasting in accordance with accepted practices.

Contractor is responsible for safety of life and damage to property resulting from the use of explosives.

EXCAVATION

Excavation shall comprise the removal of all materials as necessary to provide a minimum of 48 inches of cover over the pipe, or to the grade indicated on the plans. The banks of the trench shall be kept as nearly vertical as practicable, and where required shall be properly sheeted and braced. The width of the trench from the bottom of the pipe to 2 feet above the pipe shall be no greater than the width of the pipe plus 18". Above this level the width shall be wider as necessary for safe construction.

The bottom of the trench shall be accurately graded to provide uniform bearing for each section of the pipe, with hand excavated depressions for pipe joints. When rock excavation is required, carry excavation a minimum of 6 inches below grade and backfill with suitable material. When unstable soil is encountered, it shall be removed or stabilized as required by the engineer.

The Contractor is particularly cautioned that the use of dynamite to shatter any rock that may be encountered will be permitted only to the extent that property and streets are not damaged. Use of dynamite will be at the Contractor's risk and any damage to the roadway or property that appears as a result of the use of dynamite will be repaired at the Contractor's expense to the satisfaction of the North Carolina Department of Transportation and/or City officials.

PIPE LAYING

Pipe shall be installed according to the manufacturer's recommendations.

Materials at all times shall be handled in such a manner as to protect them from damage. Pipe and fittings should be handled with mechanical equipment where work sites permit. At no time shall pipe and fittings be dropped or pushed into ditches or from hauling equipment.

Pipe and fitting interiors shall be protected from foreign matter and will be inspected for damage and defects prior to installation. In the event that foreign matter is present in pipe and fittings, it shall be removed before installation.

Water mains shall be laid at least 10 feet laterally from existing or proposed sewers, unless local conditions or barriers prevent a 10-foot lateral separation—in which case:

- (1) The water main is laid in a separate trench, with the elevation of the bottom of the water main at least 18 inches above the top of the sewer; or
- (2) The water main is laid in the same trench as the sewer with the water main located at one side on a bench of undisturbed earth, and with the elevation of the bottom of the water main at least 18 inches above the top of the sewer.

Whenever it is necessary for a water main to cross over a sewer, the water main shall be laid at such an elevation that the bottom of the water main is at least 18 inches above the top of the sewer, unless local conditions or barriers prevent an 18 inch vertical separation--in which case both the water main and sewer shall be constructed of ferrous materials and with joints that are equivalent to water main standards for a distance of 10 feet on each side of the point of crossing.

Whenever it is necessary for a water main to cross under a sewer, both the water main and the sewer shall be constructed of ferrous materials and with joints equivalent to water main standards for a distance of 10 feet on each side of the point of crossing. A section of water main pipe shall be centered at the point of crossing.

Pipe shall be cut when necessary per manufacturer's recommendations, and the ends shall be beveled after cutting.

Manufactured adaptors shall be furnished when different types of pipe are joined together.

Use 3000 psi concrete blocking for tees, bends, hydrants and other fittings as required by plans, details and specifications.

All concrete blocking shall be formed using rigid forming material as per detail.

WATER LINE INSTALLATIONS BORED UNDER STREETS

Steel casing pipe shall be furnished and installed when boring under streets is required.

Casing pipe shall be smooth wall or spiral welded steel having a minimum yield strength of 35,000 psi.

The minimum size of casing pipe required is as follows:

<u>Carrier Pipe Size ID (Inches)</u>	<u>Minimum Casing Pipe Size OD (Inches)</u>	<u>Minimum Casing Wall Thickness (Inches)</u>
4	12	.188
6	16	.250
8	18	.250
10	20	.250
12	24	.250
14	26	.312
16	28	.312

Carrier pipe inside casing shall be restrained joint ductile iron pipe. Install carrier pipe through casing by the use of spiders manufactured to support the carrier pipe. Place spiders at intervals sufficient to support carrier pipe without sagging. Install spiders sized to raise the carrier pipe bells above the encasement pipe invert to prevent damage to pipe bells. Install at least three spiders on each individual piece of carrier pipe as per detail. Seal ends of casing with 8" brick masonry.

Casings shall be furnished and installed in accordance with the Policies and Procedures for Accommodating Utilities on Highway Rights of Way, per the N. C. Department of Transportation.

BACKFILLING

Backfill with suitable material free from blasted rock, broken concrete, pavement or other hard materials having any dimension greater than 6 inches; or large clods of earth, debris, or frozen material. Insure that trench is free of water prior to backfilling.

Hand tamp backfill under and around pipe. Backfill and compact remainder of trench in lifts not exceeding 6 inches loose thickness.

Perform pneumatic tamping evenly on both sides of pipe to top of excavation with care such that pipe will not be damaged or displaced.

Water ponding for backfill consolidation will not be permitted.

Whenever it is necessary for a water main to cross under an existing structure such as a storm sewer, sanitary sewer, curb, sidewalk or other structure, flowable fill shall be installed from bottom of ditch to the spring line of the existing pipe or to the bottom of the structure for stability.

COMPACTION

Compact all trench backfill within street rights of way, in areas under paved roads, road shoulders, parking areas, sidewalks and other structures as directed by the Engineer to a density of at least 95 percent of standard density as determined by AASHTO Method T99 except that backfill material placed within eight (8) inches of the pavement subgrade shall be compacted to 100% of standard density. In locations where trench will not be under paved areas, or street rights of way, compact trench backfill to a minimum 90 percent of maximum dry density as determined by AASHTO Method T99. Insure that backfill material has moisture content in range of 5 percent above to 3 percent below optimum moisture at time it is placed.

The contractor is required to pay for the services of a qualified geo-technical firm to certify that compaction of utility trenches within the pavement of NCDOT roads meets required standards. Backfill that does not meet the above requirements must be removed, corrected, and retested at the expense of the contractor.

Within subdivisions and new developments, the owner and/or developer is required to pay for the services of a qualified geo-technical firm to certify that compaction of utility trenches, embankments, stone base and pavement meets required standards. Construction that does not meet the above requirements must be removed, corrected, and retested at the expense of the contractor.

PAVEMENT CUTS AND REPAIR

All pavement cuts shall be made to true line and the pavement removed just prior to the trenching operation. The Contractor will be allowed to excavate no more trench width than the pipe outside diameter plus 18 inches in all paved areas. The pavement will be trimmed an additional six inches (6") beyond the trench edge on each side to give firm bearing for the patching operations.

It shall be the contractor's responsibility to provide drag boxes, ditch jacks, sheeting, etc., as required to maintain the trench width as specified. It shall be the contractor's responsibility to maintain all pavement cuts in good order until asphaltic patching is completed. At the time of patching, all broken down, ragged edges shall be trimmed to true line.

The Contractor shall backfill all trenches within asphalt paved areas to a point fourteen inches (14") below the existing pavement and then backfill with crushed stone flush with the existing pavement (or 2" below existing pavement if asphalt repair can begin immediately), unless shown otherwise on the plans or by requirements of the NCDOT. The aggregate base course shall be compacted to a density equal to at least 100% as required by the NCDOT Standard Specifications. The contractor shall dry or add moisture to the aggregate as required to produce a maximum density and uniform compaction.

Driveways and road shoulders shall be stabilized or paved to a condition equal to or better than existed prior to construction. Asphalt paving shall be patched with Type S-9.5A or S-9.5B asphalt paving 2 inches thick per NCDOT specifications, unless shown otherwise on the plans or by requirements of the NCDOT.

PRESSURE TESTING

After installation and backfilling of the pressure mains, each section (as divided between valves) of the pipeline system shall be subject to a hydrostatic pressure test equal to 200 psi unless noted otherwise. The pressure shall be maintained in the section tested for a period of two (2) hours. Allowable leakage in the two (2) hour period shall not exceed the following:

<u>PIPE DIAMETER (INCHES)</u>	<u>LEAKAGE PER 1000 FEET (TOTAL GALLONS IN 2 HOUR PERIOD)</u>
2	.42
4	.86
6	1.28
8	1.70
10	2.12
12	2.56
16	3.4
20	4.24
24	5.10
30	6.38

The hydrostatic test shall be conducted by the Contractor in accordance with procedures outlined in AWWA C600 standards under the Inspector's observation. Any defective material causing excessive leakage shall be repaired or replaced and the test repeated. All visible leaks are to be repaired regardless of the amount of leakage.

DISINFECTION

All water lines and appurtenances added to or replaced in the City of Asheboro water system shall be properly chlorinated in accordance with AWWA C651 and Rule .1003 of the *Rules Governing Public Water Systems*, before being placed in service. The chlorination procedure shall be performed by the Contractor under the supervision of the Inspector or his designee.

Any pipe subjected to contaminating materials shall be treated as directed by the Inspector. Should such treatment fail to cleanse the pipe, the contractor shall replace the pipe at no cost to the City.

The chlorination of a completed line shall be performed by the Contractor in the following manner:

1. Taps will be made at the control valve in the up stream end of the line and at all extremities of the line. These taps shall be located in such a manner as to allow HTH solution to be introduced into all parts of the line.
2. A water solution containing high test hypochlorite (65%) available chlorine shall be introduced into the line by regulated pumping at the control valve tap. The solution shall contain a concentration of HTH that will produce a uniform concentration of 50 PPM total chlorine as listed below:

<u>Pipe Size (Inches)</u>	<u>(65% HTH Pounds/1000FT of Line)</u>
2 -----	0.11
4 -----	0.42
6 -----	0.94
8 -----	1.67
10 -----	2.85
12 -----	3.76
14 -----	5.13
16 -----	6.71
20 -----	10.46
24 -----	15.07
30 -----	23.5
36 -----	33.92
48 -----	60.30

The HTH solution shall be circulated in the line by systematically manipulating hydrants and taps at the extremities. The HTH solution must be pumped into the line at a constant rate for each discharge rate in order that a uniform concentration will be maintained in the line.

Water laterals shall be sterilized by the Contractor using methods acceptable to the Inspector. The Contractor shall bear the same responsibility for water laterals as he bears for the water mains and appurtenances, including any costs for corrective measures needed to comply with the bacteriological requirements.

The HTH solution shall remain in the lines for a minimum of 24 hours. If directed by the Engineer/Inspector, the HTH solution shall remain in the lines longer than 24 hours. At the end of this period the free residual chlorine shall be a minimum of 10 PPM or the lines shall be rechlorinated.

The Contractor shall exercise extreme caution at all times in order to prevent the HTH solution from entering the City of Asheboro's existing water system.

FLUSHING AND BACTERIOLOGICAL SAMPLING:

The contractor may proceed with flushing of the lines after the 24-hour or longer period outlined above, provided the free residual chlorine analysis is satisfactory. The flushing shall continue until the chlorine check shows that the lines contain only the normal chlorine residual, at which time the lines will be valved off, and allowed to sit for a 24 hour period. NOTE: All line flushing should release chlorinated water in such a way that does not harm the surrounding environment physically or biologically. After the 24 hour period the residual chlorine content will again be checked. If the residual chlorine content is still sufficient, a water sample will be taken and analyzed for bacterial content. If the chlorine content is not sufficient the line shall be rechlorinated.

Bacterial results will be available 48 hours after the water samples have been taken by the City of Asheboro Water Treatment testing personnel. If the test results are unsatisfactory, the Contractor shall immediately rechlorinate the lines and proceed with such measures as are necessary to secure sterile lines. All laterals shall be rechlorinated in this process.

At the satisfactory completion of the bacteriological testing, all valves shall be fully opened and the lines shall be placed in service under the supervision of the Inspector.

NOTE: The City of Asheboro lab is a State-Approved, certified lab per Rule .1001 of the *Rules Governing Public Water Systems*.

CLEAN UP

Upon completion of the work, the site shall be restored as nearly as possible to its original condition and paved areas shall be flushed to remove all dirt and debris.

All debris and materials unsuitable for backfill shall be disposed of by the contractor.

D. WATER VALVES

GENERAL

Valves shall be furnished and installed where shown on the plans or designated by the Engineer. Valves shall include actuators, piping connections, stems, anchors, operating nuts, valve box and all else required for complete installation. Valves deeper than six feet from top of operating nut on the valve to the top of valve box set on grade must have a valve extension stem installed.

Each valve shall include a cast iron valve box and cover with the word "Water" cast into the cover. Valve boxes shall be set on tamped backfill to enclose the valve operating nut, but not be in direct contact with the valve or water main. The top of the box shall be set to be approximately $\frac{1}{2}$ inch above the surface of the ground in areas not paved and flush with paving in paved areas. A two feet square by six inches thick concrete collar or pre-cast concrete collar shall be provided for each valve box not located in paved areas. Edge of concrete collar must be set flush with surrounding grade.

GATE VALVES (SIZE 3" - 12")

Gate valves shall meet AWWA C500 or AWWA C509 standards and be mechanical joint, double disc or resilient seat, o-ring seal, open counter-clockwise and non-rising stem with 2 inch square operating nut. Valves shall be designed for a working pressure of 200 psi and 400 psi test pressure.

Gate valves shall be Mueller A-2360-20, Mueller A-2370-20, Mueller A-2380-20, M & H 67-01, M & H 3067-01, American AVK Series 2500 or Clow Model F-6100.

TAPPING VALVES

Tapping valves shall meet the above-mentioned standards for gate valves. Tapping valves shall be Mueller A-2360-19, M & H 4751-01 or American AVK Series 25-xxx-30081. (See Section F for tapping sleeve information)

VALVES (SIZE 2")

2" valves shall be all brass ball type curb valves manufactured by Mueller B-25170, McDonald 6102WT or Ford B41-777-Q.

E. HYDRANTS

Hydrants shall conform to or exceed AWWA C502 standards designed for a working pressure of at least 150 psi. Each hydrant shall include the following items:

1. 1 $\frac{1}{2}$ " National Standard pentagon operating nut with weather seal
2. Open Counter-clockwise

3. Sealed oil or grease reservoir with external filler plug for lubrication of stem threads
4. One 4^{1/2}" and two 2^{1/2}" diameter hose nozzles with caps (without retainer chains)
5. National standard nozzle thread
6. Sufficient barrel length as required for installation
7. Break away ground line flange and rod coupling (traffic model)
8. 5^{1/4}" diameter main valve opening
9. Bronze to Bronze seating threads
10. Two drain valve openings
11. 6" mechanical joint shoe connection
12. Fire hydrant red paint with white bonnet and white nozzle caps

Install hydrants as shown on the plans; plumb and properly located with the large pumper nozzle facing the street. Include concrete blocking, a minimum of ¹/₃ cubic yard of washed gravel surrounding the hydrant drain holes, and a 6" gate valve. Use restrained joint fittings and/or clamps on all joints of hydrant installation. Install hydrant so breakaway flange is not less than 2" or more than 6" above finished grade.

Hydrants shall be Mueller Centurion # A-423, Dresser M & H Style 929, American AVK 2780 or Clow Medallion.

F. WATER SERVICE TAPS

Service connections shall be made perpendicular to the water main. Service connections of 2" and smaller diameters that cross existing pavement shall be made by boring and jacking. Each service connection shall include the following items as specified:

TAPPING SLEEVES

Furnish and install mechanical joint, cast iron tapping sleeves. Tapping sleeves must be placed a minimum of 5' from an existing pipe joint to avoid pipe splitting. Sleeves furnished shall be manufactured for type of pipe into which tap is made in the following sizes and models:

<u>Size</u>	<u>Description</u>	<u>Mueller</u>	<u>JCM</u>	<u>M & H</u>
4"x4"-24"x24"	MJ Tapping Sleeve for CI Pipe	H-615	414	1674
4"x4"-24"x24"	MJ Tapping Sleeve for AC Pipe	H-619	414	1674

Install tapping valves as specified in section D. After installing tapping sleeve and valve, an air pressure test shall be performed at a minimum of 100psi. for 5 minutes. After pressure test is approved by the Inspector, re-install air test plug using Teflon tape and proceed with tapping

operations. Upon completion of tapping existing pipe, the tap plug must be given to the Inspector for a visual inspection. Concrete thrust blocking must be poured behind the tapping sleeve with allowable time to cure prior to backfilling and tamping.

SERVICE SADDLES

Ductile iron pipe: No service saddle is required for direct taps of ¾" and 1" unless the ductile iron pipe is less than 4" diameter. For any tap exceeding 1" size on 3" D.I. pipe, and any tap exceeding 2" on 4" D.I. pipe a tee must be cut in. All taps larger than 1" must be installed using an approved service saddle.

<u>Size</u>	<u>Description</u>	<u>Smith-Blair</u>	<u>Romac</u>	<u>Ford</u>
¾"	Service Saddle with ¾" CC (O.D. X ¾")	313-001	202NU	FS202
1"	Service Saddle with 1" CC (O.D. X 1")	313-001	202NU	FS202
1 ½"	Service Saddle with 1½" CC (O.D. X 1½")	313-001	202NU	FS202
2"	Service Saddle with 2" CC (O.D. X 2")	313-001	202NU	FS202

Asbestos Cement: No direct taps are allowed on any size pipe. All taps on AC to include the installation of an approved service saddle.

<u>Size</u>	<u>Smith-Blair</u>	<u>Romac</u>	<u>Ford</u>
¾"	CC 317	202NS	FS202
1"	CC 317	202NS	FS202
1 ½"	CC 317	202NS	FS202
2"	CC 317	202NS	FS202

PVC pipe 1 ½" & 2" SCH. 13.5: All taps must have an approved service saddle installed.

<u>Smith-Blair</u>	<u>Romac</u>	<u>Ford</u>
315	101NS	FC101

CORPORATION STOPS

Corporation stops shall be all brass with AWWA C800 standard threads manufactured in the following sizes and models:

<u>Size</u>	<u>Mueller</u>	<u>McDonald</u>	<u>Ford</u>
¾"	H-15008	4701T	F-1000-3-Q
1"	H-15008	4701T	F-1000-4-Q
1½"	H-15013	4701T	FB-1000-6-Q
2"	H-15013	4701T	FB-1000-7-Q

SERVICE PIPE

Service pipe shall be seamless copper Type “K” as specified by ASTM B88.

CURB STOPS

Curb stops shall be all brass manufactured in the following sizes and models:

<u>Size</u>	<u>Mueller</u>	<u>McDonald</u>	<u>Ford</u>
3/4”	B-25172	6102 WT	B41-333-Q
1”	B-25172	6102 WT	B41-444-Q
1 1/2”	B-25172	6102 WT	B41-666-Q
2”	B-25172	6102 WT	B41-777-Q

METER SETTERS

Meter setters shall be manufactured in the following sizes and models:

<u>Size</u>	<u>Mueller</u>	<u>McDonald</u>	<u>Ford</u>
3/4”	B-2404-2A	20-209WDDD33	VBHC72-9W-11-33
1”	B-2404-2A	20-412JMDD44	VBHC74-12W-11-44
1 1/2”	H-2423-2	20B615WDF666	VBHH76-12B-11-66
2”	H-2423-2	20B715WDF776	VBHH77-12B-11-77

METER BOXES

Meter boxes shall be manufactured in the following sizes and models:

<u>Size</u>	<u>Russell</u>	<u>Vulcan</u>	<u>Sumter Machine</u>
3/4”	MBX-2	V8404-2	MB2-MBC2
1”	MBX-2	V8404-2	MB2-MBC2
1 1/2”	MBX-5	VMB-3	MB8-MBC8
2”	MBX-5	VMB-3	MB8-MBC8

Locate meter boxes at the street right of way, property line or as specified on plans or detail. Install box flush with ground carefully supported by brick or as per detail.

G. EROSION CONTROL

All precautions are to be taken to avoid excessive siltation of water courses during construction. The erosion control used shall comply with the rules and regulations outlined by the N. C. Sedimentation and Pollution Control Act of 1973, and as amended. Erosion Control measures will be required as shown on the plans or as necessary to prevent erosion of sediment. Temporary measures shall be removed after areas are stabilized and the possibility of erosion has passed.

The following measures should be considered and implemented by the contractor:

1. Install preliminary controls in advance or concurrent with clearing and grubbing.
2. Prohibit pumping of ditches directly into any stream or lake. Provide settling basins.
3. Require excavated materials to be piled uphill from ditch - NOT on stream side of ditch.
4. Protect backfill material against accelerated erosion.
5. Tamp, seed and mulch as rapidly as possible after line is installed.
6. Maintain buffer zone protection until area is stabilized.

H. GRASSING

All unpaved areas disturbed by construction shall be seeded with limestone, fertilizer, mulch and tack. Preparation of seedbed and application of these items shall be performed in accordance with N. C. Department of Transportation Standard Specifications. Limestone and fertilizer must be thoroughly incorporated into the soil.

Type of seed to be used and the application rates of seed, fertilizer, limestone, mulch and tack shall vary seasonally according to the following table, unless modified by the NC Department of Transportation for streets maintained by the NCDOT:

GRASSING SCHEDULE (APPLICATION RATES PER 100 SQUARE YARDS)

August 15 to February 15

3 Lbs. Fescue
 25 Lbs. Type 10-20-20 or 8-24-24 Fertilizer
 (or 50 Lbs. Type 5-10-10 Fertilizer)
 80 Lbs. Limestone

- 1 Bale per 400 Sq. Ft. Mulch
- 2 Gallons Emulsified Asphalt Tack to Anchor 400 Sq. Ft Mulch

February 1 to May 15

- 2 Lbs. Fescue
- 1 Lb. Korean or Kobe Lespedeza
- 25 Lbs. Type 10-20-20 or 8-24-24 Fertilizer
(or 50 Lbs. Type 5-10-10 Fertilizer)
- 80 Lbs. Limestone
- 1 Bale per 400 Sq. Ft. Mulch
- 2 Gallons Emulsified Asphalt Tack to Anchor 400 Sq. Ft Mulch

May 1 to September 1

- 1 Lbs. Fescue
- 1¹/₂ Lbs. Korean or Kobe Lespedeza
- ¹/₂ Lb. Sudan Grass
- 25 Lbs. Type 10-20-20 or 8-24-24 Fertilizer
(or 50 Lbs. Type 5-10-10 Fertilizer)
- 80 Lbs. Limestone
- 1 Bale per 400 Sq. Ft. Mulch
- 2 Gallons Emulsified Asphalt Tack to Anchor 400 Sq. Ft Mulch