



**CITY OF COLUMBIA
ENGINEERING DEPARTMENT
APPLICATION FOR ENCROACHMENT**

**PERMIT #
DATE of Application:**

Name of Applicant: Please provide an email and telephone number as well as a point of contact:

Project Reference:

The undersigned applicant hereby applies to the City of Columbia for permit for encroachment on Street Right-of-way as shown by sketch plan below. (Include description of work and method of execution proposed; attach additional sheets if necessary.)

DESCRIPTION OF WORK

SKETCH PLAN

**Attach a sketch plan or full set of drawings showing the description of work
See attached SPECS and Requirements from the City of Columbia**

Telephone number of Applicant

Email address of Applicant

Printed Name of Applicant

Signature of Applicant

ENCROACHMENT PERMIT

In compliance with your request and subject to all the provisions, terms, conditions and restrictions written herein, including Ordinance of City Council defining the Privileges of Use of Streets, and Ordinance Relating to Installation of Utility Lines in City Streets, and in accordance with regulations and specifications of the City of Columbia, you are Hereby Authorized and Permitted to:

APPROVED BY

DATE

This permit shall not become operative until a written acceptance of same by permittee shall have been received by the City of Columbia and further shall become null and void unless the work contemplated herein shall have been completed prior to: _____

The undersigned permittee accepts the permit herein granted and agrees to comply with all the provisions, terms, conditions and restrictions set out herein. The undersigned permittee does hereby further agree to assume, hold harmless and fully indemnify the City of Columbia from and against any claims, demands, actions, liens, judgments or any other liability of any nature whatsoever arising from, as a result of or caused by the installation, construction, maintenance, use, moving or removing the encroachment permitted herein or by reason of the past, present or future existence of the said encroachment by any person or entity, including but not limited to any act or failure to act or carelessness or negligence by the City of Columbia or its employees. These obligations are binding upon the undersigned permittee and the permittee's heirs, successors and assigns as the case may be and shall survive the expiration of the encroachment permit, if any.

SPECIAL PROVISIONS

(In case of conflict between Special Provisions and General Specifications, Special Provisions shall govern.)

There shall be no excavation of soil nearer than two feet of any public utility line or appurtenant facility except with the consent of the owner thereof, or except upon special permission of this Department. A bond in the amount of \$ 0.00 shall be posted with the City Treasurer prior to commencement of work authorized herein.

GENERAL SPECIFICATIONS

1. NOTICE PRIOR TO STARTING WORK: Before starting the work contemplated herein within the limits of the street right-of-way, City Engineer shall be notified sufficiently in advance so that he or his representative may be present while work is under way.

2. PERMIT SUBJECT TO INSPECTION: This permit shall be kept at the site of the work at all times while said work is under way and must be shown to any representative of the City of Columbia.

3. PROTECTION OF STREET TRAFFIC: Adequate provisions shall be made for the protection of the traffic at all times. Necessary detours, barricades, warning signs and watchmen shall be provided by and at the expense of the permittee. The work shall be planned and carried out so that there will be the least possible inconvenience to the traffic. The permittee agrees to observe all rules and regulations of the State, County, and City while carrying on the work contemplated herein and take all other precautions that circumstances warrant.

4. STANDARDS OF CONSTRUCTION: All work shall conform to recognized standards of construction and shall be performed in a workmanlike manner. Adequate provisions shall be made for maintaining the proper drainage of the street. All work shall be subject to the supervision and satisfaction of the Engineering Department.

5. FUTURE MOVING OF ENCROACHMENT: If, in the opinion of the City, it should ever become necessary to move or remove the encroachment, or any part thereof, contemplated herein, on account of change in location of the street, widening of the street, or for any other sufficient reason, such moving or removing shall be done on demand of the City of Columbia at the expense of the permittee.

6. RESTORATION OF STREET FACILITIES UPON MOVING OR REMOVING OF ENCROACHMENT: If, and when, the encroachment contemplated herein shall be moved or removed, either on the demand of the City or at the option of the permittee, the street and facilities shall immediately be restored to their original condition at the expense of the permittee.

7. COSTS: All work in connection with the construction, maintenance, moving or removing of the encroachment contemplated herein shall be done by and at the expense of the permittee.

8. PERMITTEE: The word "Permittee" used herein shall mean the name of the person, firm, or corporation to whom this permit is addressed, his, her, its, heirs, successors and assigns.

9. PERMISSION OF ABUTTING PROPERTY OWNERS: It is distinctly understood that this permit does not in any wise grant or release any rights lawfully possessed by the abutting property owners. Any such right necessary shall be secured from said abutting property owners by the permittee.

10. PIPES, CONDUITS, ETC.: All piping placed within the paved area, both parallel and/or perpendicular to paving, shall be installed in accordance with Ordinance of City Council Relating to Installation of Utility Lines in City Streets.

a. Service and other small diameter pipes shall be jacked, driven, or otherwise forced underneath the pavements on any surfaced road without disturbing said pavement. No pavement shall be cut unless specifically authorized herein.

b. Tunnelling shall not be permitted except on major work and as may be specifically authorized herein.

- c. No excavation shall be made nearer than three feet to the edge of the pavement on any hard surfaced road unless specifically authorized herein and all trenches or tunnels within the limits of the street right-of-way shall be backfilled, and thoroughly tamped in layers not greater than six inches in thickness.
- d. The section of pipe, of service and other small pipes, under the street pavement and within a distance of two feet on either side shall be continuous and without joints.
- e. Unless specifically authorized herein all pipes and conduits under the street shall be placed at approximately right angles to the center line of the street and at least two feet below the surface of the street.
- f. Pipes and utilities paralleling the street shall be located at a distance beyond the edge of the street surfacing and at a depth as specifically stipulated herein.

****Please remember to take pre and post construction pictures of the site and submit the Encroachment Work Completion Inspection Report within 30 days of the project completion****

****Contact Michelle Brazell at 803-545-3246 or via E-Mail at Michelle.Brazell@ColumbiaSC.gov prior to starting work****

Engineering Department
1136 Washington Street | Columbia, SC 29201 | (803) 545-3400

ENCROACHMENT WORK COMPLETION INSPECTION REPORT

UTILITY COMPANY: _____

(Utility Company who Requested Encroachment Permit)

PERMIT #: _____

PERMIT ADDRESS: _____

WORK COMPLETION DATE: _____

INSPECTION DATE: _____

I have examined and completed an inspection of the work finished at the above project location and certify that the conditions listed on the approved encroachment permit have been met in compliance with the American Disabilities Act (ADA), workmanship is satisfactory and completed to code and that all repairs match existing finishes. This report is being completed by a representative trained in applicable construction codes and both preconstruction and post construction pictures will accompany this report. Submission of this report within 30 days of the project completion will allow the release of the \$5,000 bond if indeed all departments affected by work agree that all conditions have been met. The submission of this report is mandatory as specified in Engineering Regulations, PART 11: SPECIFICATION FOR APPLICATION FOR CITY ENCROACHMENT PERMIT.

(Representative Signature)

(Date)

ORDINANCE NO: 2006-012

Sec. 11-71. Permit, indemnification and insurance requirements for work affecting streets or other public property.

(a) Permit required; indemnification of city. Any person who proposes to perform any activity which requires excavation, encroachment, the possibility of encroachment, or temporary use or disruption of any street, easement, public right-of-way or other property owned by or under the control of the city shall be required to obtain a permit before conducting such activity. As a condition for the issuance of such permit, the permittee shall be required to indemnify the city and its agents and employees from and against all claims, damages, losses and expenses, including attorneys' fees, arising out of or resulting from the permitted activity, whether such activity is conducted by the permittee or its agents, employees, contractors or subcontractors, and to comply with the requirements of subsection (b) of this section.

(b) Liability insurance.

(1) To ensure the indemnification required by subsection (a) of this section, each permittee, except utility companies regulated by the state public service commission, shall provide the city, prior to the issuance of any permit, proof of liability insurance as follows:

a. An owner's and contractor's protective liability policy issued in the name of the owner for whom the activity is to be performed, with the city named as an additional insured, in an amount not less than \$300,000.00 per occurrence limit for bodily injury, personal injury and property damage, with an aggregate liability not less than \$600,000.00 (Coverage shall be at least as broad as provided for in the most current version of the Insurance Services Office Form) applicable to such policy;) and

b. A separate general liability policy naming the contractor or other person who will be performing the activity as insured and also naming the city as an additional insured in an amount not less than \$300,000.00 per occurrence and \$600,000.00 aggregate limit for bodily injury, personal injury and property damage. (Coverage shall be at least as broad as provided for in the most current version of the Insurance Services Office Form applicable to such policy.)

(2) An applicant for a permit may elect not to provide an owner's and contractor's protective liability policy as required by subsection (b)(1)a of this section, but if such election is made the limits of liability required on the general liability policy required by subsection (b)(1)b of this section shall be no less than \$1,000,000.00 per occurrence and \$2,000,000.00 aggregate limit for bodily injury, personal injury and property damage.

(3) An applicant for a permit may further elect not to provide any proof of liability insurance to the city as required by subsection (b)(1) or (2) of this section, but if such election is made an indemnity surety bond in an amount not less than \$4,000,000.00 and approved as to surety and form by the city attorney shall be filed in lieu of the required insurance.

(4) Any insurance policy provided to the city in satisfaction of the requirements of this subsection (b) shall specifically provide that the insurer provide written notice to the city at least 30 days prior to cancellation, termination or modification of the coverage provided to the city.

(5) If it appears that the proposed activity poses unusual hazard or danger to the public, the city manager may require such additional amounts of insurance coverage as he shall deem appropriate.

(6) The insurance requirements of this section shall supersede all other such provisions in this Code.

(c) Contractors working for city.

(1) Contractors performing construction, maintenance or repair work for the city are required to provide proof of liability insurance as follows:

a. An owner's and contractor's protective liability policy issued in the name of the city, in an amount not less than \$2,000,000.00 per occurrence limit for bodily injury, personal injury and property damage, with an aggregate liability not less than \$2,000,000.00. (Coverage shall be at least as broad as provided for in the most current version of the insurance services office form applicable to such policy);

b. A separate general liability policy naming the contractor or other person who will be performing the activity as insured and also naming the city as an additional insured in an amount not less than \$1,000,000.00 per occurrence and \$2,000,000.00 aggregate limit for bodily injury, personal injury, property damage and products completed operations. (Coverage shall be at least as broad as provided for in the most current version of the Insurance Services Office Form applicable to such policy); and

TABLE OF CONTENTS COMMUNICATION UTILITY INSTALLATION REQUIREMENTS(IN CITY LIMITS)

ITEM NUMBER	PAGE	DESCRIPTION	COMMENTS
1	1	Tree Protection And Maintenance	
2	1	Demolition Near Trees	
3	2	Root Conflicts	
4	2	Test Trench Near Tree Roots	
5	2	Landscaping Protection	
6	3	Soil Disturbance	
7	3	Irrigation Systems	
8	3	Concrete Sidewalks	
9	4	Placing Concrete	
10	4	Weather Conditions	
11	5	Sidewalk, Curb & Gutter, Joints	
12	5	Joint Materials	
13	5	Concrete Curb & Gutter	
14	6	Temporary Repairs & Patches	
15	6	Resurfacing/Repairing Existing Roadways	
16	6	Removing & Replacing Concrete Driveways	
	6 thru 8	Details	
17	9	Pre-Construction Meeting	
18	9	Safety Regulations	
19	9	Protective Work	

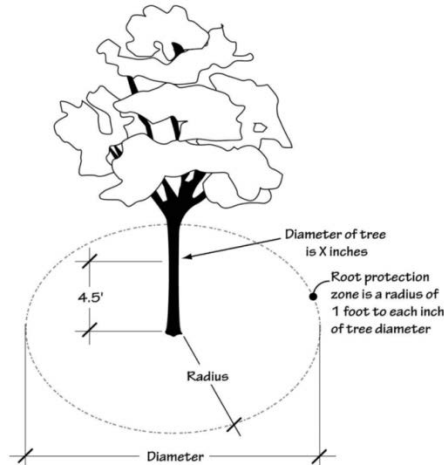
TABLE OF CONTENTS FOR UTILITY CONSTRUCTION IN RIGHT-OF-WAYS

ITEM NUMBER	PAGE NUMBER	DESCRIPTION	COMMENTS
20	10	Injuries To Persons And Property	
21	10	Emergency Work	
22	10	Maintenance Of Traffic	
23	11	Easements	
24	11	Submittals & Shop Drawings	
25	11	Construction Flagging	
26	11	Re-Establishment Of Property Lines	
27	11	Notifying Property Owners	
28	11	Site Restoration And Cleanup	
29	12	Close-out Procedures	

COMMUNICATION UTILITY INSTALLATION REQUIREMENTS WITHIN CITY LIMITS

1.0 TREE PROTECTION AND MAINTENANCE

1.1 All trees within and near Construction Area shall not be disturbed, and Contractor shall take all measures necessary to protect trees and tree root zones during construction. Contractor is required to notify the Construction Coordinator and Forestry of any damage to trees during construction for a decision on the extent of repair and/or if replacement is necessary. The established protected perimeter around the tree shall be based on one foot in radius per one inch of tree diameter as measured 4.5 feet above grade (e.g. A seven inch diameter tree will have a protected area with a 7 foot radius and 14 foot diameter around the tree). Contractor shall conduct all construction within the established protected perimeter of one foot in radius per one inch of tree diameter as measured 4.5 feet above grade as if it were protected. Tree branches shall be temporarily tied back, where



appropriate, to minimize damage.

2.0 DEMOLITION NEAR TREES

2.1 Concrete and other pavements within a ten-foot radius of tree trunks shall be broken up with a jackhammer and removed to prevent root and root crown injuries. Attempts to lift large sections of concrete near the tree would likely result in lifting of roots and abrasion injuries and shall be avoided.

2.2 Pavements outside the ten-foot radius can be lifted in large sections provided they are not dragged or pushed into the tree trunk or major roots. Care must be taken to prevent demolition equipment such as loaders from striking the tree canopy or trunk.

2.3 When removing/loading demolition debris, loaders shall not scoop materials from below the existing grade, thereby avoiding inadvertent digging and damage in the root area.

2.4 Once pavements have been demolished and removed, no equipment shall be permitted to park or idle under the canopy of the trees, thereby avoiding soil compaction, mechanical damage to surface roots and heat injury from exhaust to tree canopies.

2.5 Extreme care shall be taken to assure there is no negative impact to any growth within the construction area. Any damage to trees or plants must be reported to the City within 24 hours. Contractor will abide by F&B's decision on the extent of proper repair or replacement at NO additional COST to the City.

2.6 Requests for pruning to resolve conflicts with improvements and/or construction equipment shall be made in writing to City of Columbia Forestry & Beautification Department. Only City Arborists shall complete needed pruning.

2.7 Any overhead poles or other infrastructure removed near trees shall not be pushed or allowed to fall into the tree canopies or landscaped areas. Equipment used to remove these items shall not operate from under a tree canopy.

2.8 No fertilizer should be applied to trees in the project area prior to construction.

3.0 ROOT CONFLICTS

3.1 At least One(1) Test Trench, within construction area, shall be made for each tree. When roots are encountered in test trenches, they shall not be cut if they are larger than 2 inches in diameter or are closer than the established protected perimeter area around the tree. Test trenches shall be 12 inches deep and 12 inches wide.

3.2 Roots smaller than 2 inches in diameter, that must be severed, shall be cut with a hand pruning saw.

4.0 METHOD OF EXCAVATION/BORING WHEN LARGE ROOTS ARE DISCOVERED IN TEST TRENCHES OR WHERE CONSTRUCTION MUST TAKE PLACE NEAR TREES

4.1 There may be a few instances where the only construction option is to work within the **protected zone**. Before any installation of utility lines, the contractor shall consult with the City of Columbia Forestry and Beautification Department prior to trenching/boring to establish an acceptable method for excavation. The Forestry and Beautification Department shall approve the method of excavation and it shall be one of the methods described in this section. Tree branches shall be temporarily tied back, where appropriate, to minimize damage.

4.2 **Air Spade** – Shall be used for Interval Exploratory/Test Trenches and soil excavation near tree roots. Work shall be conducted with an Air Spade equipped with a 225 scfm (6.2m³/min.) nozzle or approved equal.

4.3 **Compressor** – The Air Spade and nozzle combination listed above requires a 250scfm or greater air compressor. Air compressors with less pressure will overheat during use and cause poor tool performance.

4.4 **Sewer Vacuum** – A sewer vacuum can be used to remove the soil dislodged by the Air Spade if it cannot be easily blown clear of the hole or trench.

4.5 **Boring** under tree roots shall be an acceptable method for excavation for the installation of utilities in order to avoid cutting roots. Bores shall be at a minimum depth of 30”.

5.0 LANDSCAPING PROTECTION

5.1 Shrubbery, Flowers, Grass, and mulch in developed areas and along the proposed construction line shall not be disturbed unless absolutely necessary, and subject to preapproval by City. The Contractor shall take all measures necessary to preserve and replant all ornamental shrubbery that required removal for the purpose of constructing the proposed utility. Any ornamental shrubbery damaged by the Contractor will be replaced and replanted with the same variety and same size at the Contractor's expense. Nursery Stock is not sufficient. Ornamental shrubbery shall be temporarily tied back, where appropriate, to minimize damage. Any removed shrubbery shall be replanted within 12 hours in exact location. If mulch is removed, Contractor shall replace it with exact same type within 12 hours. If exact mulch is not available, Contractor shall replace the mulch in the entire bed in order to create uniformity(pre-approved by Forestry & Beautification).

5.2 Most areas have existing Sprinkler Systems that operate on multiple time frames. This creates a potential wash out of disturbed material(soil, mulch, etc...) throughout the day. Contractor is solely responsible for insuring no soil or material erodes.

5.3 When Grassed areas are disturbed, Contractor shall make every attempt to remove sod, protect it from drying out, and replace it ASAP. If Contractor can't salvage the sod, or weather is unfavorable, seeding will be viewed as **temporary**. As soon as sod is available, Contractor will return and properly prepare the soil bed(as directed by F&B) before placing sod.

5.4 If decorative brick is removed or indirectly impacted by construction, the subgrade must be of exact bedding(or better) before brick is replaced. Brick must be placed flush with existing surroundings so there is no potential for a tripping hazard. If the brick is damaged and can't be reused, Contractor shall replace with identical brick. If exact type isn't available, Contractor to submit a comparable brick for approval. In such cases, the **Governing Authority Representative GAR** will determine how much of the new brick shall be replaced in order to create a congruous repair at no additional cost to the Governing Authority.

6.0 SOIL DISTURBANCE

6.1 There are multiple types of soils within the City and the Contractor shall be fully prepared to handle each. Clay, in particular, poses the worst threat for staining walls, sidewalks, bricks pavers, fences, and roadways. Contractor must take whatever steps are necessary to prevent any staining. If staining occurs, Contractor is to immediately notify City and have a written response as to how surfaces will be fully cleaned. If stain cannot be removed by pressure washing or other measures, Contractor shall be solely responsible for repainting walls, replacing concrete, replacing bricks, etc... at no cost to the City.

6.2 Any soil removed must be placed on a protective barrier(thick plastic, plywood, etc) that will keep soil from making contact with concrete, brick, asphalt, etc... Excavated soil cannot be placed on grass—there can be no damage to undisturbed grass nor leaving soil to wash onto other surfaces during a rain event.

6.3 All replaced soils shall be fully compacted to prevent any type of erosion or settlement.

7.0 IRRIGATION SYSTEMS

7.1 The Contractor will be solely responsible for locating and protecting private underground irrigation systems along the route. It is suggested that Contractor verify such systems are in current working order or not. This may require Contractor meeting with Owners and having them turn system(s) on for verification of operation and proper function. If Contractor does not, and Owner claims system was damaged by Contractor after construction, Contractor will be responsible for all costs and repairs.

8.0 CONCRETE SIDEWALKS

8.1 Sidewalk sections that are to be R&R due to utility installation, shall be cut & replaced from **joint to joint** with 3000 psi concrete(minimum) to the depth of the existing sidewalk, but not less than 4 inches. Concrete shall be cut on a straight and true line, along expansion joints, to full depth of concrete, using a powered concrete saw. If an adjoining concrete section is damaged **in any way due to construction**, that entire section, from **joint to joint**, must be removed and replaced, also. If reinforcing steel/wire was pre-existing, then the replaced concrete shall be properly reinforced. Subgrade must first be of appropriate material and compacted to SCDOT Standards.

8.2 All sidewalks shall be ADA compliant and shall be in accordance with SCDOT specifications. Requirements herein, shall take precedence.

A. Class A Concrete for sidewalk, curb, curb and gutter, and other incidental site concrete: Air entrained, vibrated conforming to the following criteria:

- Compressive Strength: 3,000 psi at 28 days.
- Maximum Slump Vibrated: 3.5 inches.
- Minimum Cement Content: 564 pounds/cubic yard.
- Maximum Water/Cement Ratio for Angular Aggregate: 0.532.
- Maximum Water/Cement Ratio for Rounded Aggregate: 0.488.
- Air Entrainment: 6.0 percent plus or minus 1.5 percent.

B. Use accelerating admixtures are generally not accepted. However, in very cold or very hot weather, and in certain situations, the Contractor may request(in writing) a variance and submit it to the **Governing Authority Representative(GAR)** for review. Use of admixtures will not relax cold weather placement requirements. Use calcium chloride only when approved by the GAR in writing.

Mix and deliver concrete in accordance with Section 501 of SCDOT Standard Specifications.

- C. All completed concrete surfaces shall be immediately covered with wet burlap or other approved material and kept continuously damp(if needed), and shall be protected from damage during the curing process and thereafter until final acceptance. Any section damaged during construction or before final acceptance shall be replaced in a satisfactory manner by the Contractor at his own expense. No pedestrian or vehicular traffic shall be allowed until materials are fully set.
- D. Subgrade shall be suitable material and achieve 95% compaction. Any boxes(less than 36") in sidewalk shall have 4"X8"X16" blocks under corners. Boxes over 36" must also have blocks under each side of box.

9.0 PLACING CONCRETE

9.1 Place concrete in accordance with Section 501 of SCDOT Standard Specifications and ADA Requirements. Place concrete using the slip form technique wherever possible. Contractor shall screed, bull float or mag float, trowel and broom all replaced concrete. Failure to perform all of the mentioned operations in order, or finished concrete which displays a "rippled" surface which indicates insufficient finish shall be cause for R&R at Contractor's expense.

9.2 Curing compound is not required. If agreed upon, curing compound shall be sprayed on in an even continuous coat. A speckled surface is not acceptable. The Contractor shall provide an identification label from each barrel or container to GAR. Unless approval by GAR, no asphaltic concrete pavement may be placed adjacent to new concrete until either seventy-two (72) hours of curing time has occurred if the new concrete is high early strength concrete or until the new concrete has reached a compressive strength of 3,000psi.

9.3 If concrete sidewalk abuts a curb(*that isn't a roadway curb*), all can be constructed in one monolithic pour.

9.4 Before any section of sidewalk is cut, Contractor is fully responsible for setting up pedestrian detours and safety notices along the sidewalk. This shall include placing barricades at each corner of the block with signs showing sidewalk is closed and detour route. Contractor to assure affected areas have handicap accessibility at all times.

9.5 Decorative brick, curbing, walls, etc... adjacent to work, shall be properly covered to prevent concrete splatter issues.

10.0 WEATHER CONDITIONS

10.1 In the event of temporary suspension of work or during inclement weather, or whenever the GAR shall direct, the Contractor will, and will cause his subcontractors to protect carefully his and their work and materials against damage or injury from the weather. All disturbed areas shall be fully protected to prevent all soil and landscaping from erosion at Contractor's expense. At Pre-Con, Contractor shall submit a **Weather Protection Plan** highlighting proposed plans and erosion control materials to be used. If, in the opinion of a **GAR** or Property Owner, any work or materials are damaged or injured by reason of failure of the Contractor or his subcontractors to protect their work, such materials shall be removed and replaced at the expense of the Contractor.

10.2 All weather data used to determine Adverse Weather for the project site during the course of work shall be data from the NOAA station at the Columbia Metropolitan Airport. Contractor shall review weather data available from the **National Oceanic and Atmospheric Administration (NOAA)** station at the Columbia Metropolitan Airport and determine a Standard Baseline of average climatic range for the project site.

10.3 Adverse Weather is defined as the occurrence of one or more of the following conditions which prevents exterior construction activity or access to the site within twenty-four (24) hours:

- Precipitation (rain, snow, or ice) in excess of one-tenth inch (0.10") liquid measure.
- Temperatures which do not rise above 32 degrees f by 10:00 AM.
- Temperatures which do not rise above that specified for the day's construction activity by 10:00 AM, if any is specified.
- Sustained wind in excess of twenty-five (25) MPH.
- Adverse Weather may include "dry-out" or "mud" days, as determined by the **GAR**.

10.4 Cold Weather and Concreting:

The Contractor shall take all precautions necessary to prevent freezing of the concrete and to produce quality concrete.

Do not place concrete when the air temperature measured at the location of the concreting operation is below **35o F** unless authorized by the **GAR**. When concreting in cold weather above **35o F**, make available and implement measures utilizing suitable equipment and materials as necessary to protect the uncured concrete when air temperatures are anticipated to drop below **50o F** at any time within 96 hours following concrete placement. Prior to placing concrete in cold weather, have a contingency plan and provisions in place to quickly and adequately address sudden temperature changes below those forecasted during the curing period. Check concrete temperatures before leaving for the day to determine if additional protection measures are needed when overnight temperatures are forecasted to drop below **35o F**.

10.5 Concrete shall not be placed on a frozen subgrade.

10.6 Beginning not later than October 1 or prior to May 1, as the case may be, the Contractor shall provide, along the work, a sufficient supply of curing paper to protect all concrete pavement placed within the preceding 72 hours. In lieu of the curing paper clear, black or white polyethylene sheeting; clear, black or white polyethylene coated burlap; or other curing paper which as determined by the City/County/Agency has water resistance strength and insulating properties suitable for the purpose, may be used. When the **NOAA station at the Columbia Metropolitan Airport** forecast, for the construction area, is predicting freezing temperatures or below within the next 24 hours, all of the concrete pavement placed within the preceding 72 hours shall be covered with the curing paper or approved equal. The paper shall remain in place until at least 3 days, but not more than 14 days shall have expired for the date of placement of the concrete.

11.0 SIDEWALK, CURB, AND CURB & GUTTER JOINTS

11.1 Provide joints at same intervals as surrounding concrete. Contractor shall take all actions necessary to match existing patterns in surrounding concrete. Provide 1/2" expansion joint material(**at full depth and 1/4" below surface**) between sidewalks, curbs, and structures(within or adjacent to pour). Anywhere new concrete will abut existing concrete, there shall be expansion material on 2 of the 4 sides of new concrete. Expansion Material will be at 90 degrees(side to side). Anywhere new concrete abuts existing curb, or new curb, expansion material is required. A sealer shall not be applied above expansion joints except in cases where new concrete abuts buildings. A sealer is required at buildings.

11.2 Failure to evenly space the joints, or placement of joints which are not straight or perpendicular to the sidewalk edges, shall be cause for the contractor to remove and replace the walk at his expense.

11.3 Saw cutting transverse joints in freshly placed concrete sidewalk is prohibited. Transverse scoring lines(tooled joint) shall be made before concrete sets up. Tooled radius shall be 1/4"max and a depth of 3/8".

11.4 Where new concrete will abut asphalt, NO expansion material shall be used.

11.5 Concrete joints in curb can be saw cut and shall match existing curb, or every 10'. Saw to proper depth, as soon as possible, after the concrete sets sufficiently to prevent raveling during sawing, and before shrinkage cracking takes place. If this method results in random cracking, then form an induced plane of weakness.

12.0 JOINT MATERIALS

12.1 General: Conform to Section 501 of SCDOT Standard Specifications.

12.2. Joint Filler: Sponge rubber or cork type conforming to ASTM D1751 (AASHTO M213) or bituminous, non-extruding, resilient type conforming to ASTM D1752 (AASHTO M153), Type 1; 1/2" thickness

12.3. Silicone Sealant: Low modulus, cold applied, single component, chemically curing silicone material.

- Type NS: Non-sag silicone, toolable.
- Type SL: Self-leveling silicone, tooling not required.

13.0 CONCRETE CURB & GUTTER

13.1 Concrete strength shall be a minimum 3,500psi.

14.0 TEMPORARY REPAIRS & PATCHES

14.1 Patches are considered temporary and the time allowed is dependent on material used. Below are maximum time limit for temporary repairs:

- **SIDWALKS:** Cold Patch Asphalt allowed to remain **48 hours**.
 - Low strength concrete allowed to remain **7 days**.
- **ROADWAYS:** Cold Patch Asphalt allowed to remain **48 hours**.

14.2 Weather will dictate asphalt & concrete availability, especially in winter months. At **ALL** times, Contractor shall monitor temporary patches and do whatever necessary to keep material flush(*with surrounding material*), level, & safe. Contractor shall **check daily** for asphalt/concrete availability. If a Plant producing either material, is found further away than local Plants, Contractor shall pay the difference to get that material so disturbed areas can be permanently repaired ASAP. If Contractor is notified of settlement, he shall immediately repair it. If not, Regulatory Agency may repair and bill Contractor for time & material. No further work on project will be allowed until bill is paid in full.

15.0 RESURFACING/ REPAIRING EXISTING ROADWAYS

15.1 Construction methods and materials used in the repair and repaving of existing roadways, and appurtenant roadway work will be in accordance with the South Carolina Department of Transportation's standard specifications, latest edition.

15.2 Asphalt in repair must be the exact type and make-up as roadway and must be exact thickness of roadway. If flowable fill is used as a base, it must stop at the bottom of existing asphalt—it cannot be brought up to within 3 inches and then have 3" of asphalt.

15.3 If pavement markings are removed or damaged, they shall be fully replaced with the exact paint material.

16.0 REMOVING & REPLACING CONCRETE DRIVEWAYS

16.1 Concrete Entrance Ways & Driveways have a wide range of materials from wire, rebar, high strength concrete, additional thickness, etc... It is Contractor's sole responsibility to research and determine exact makeup of existing concrete so the same materials can be replaced. Contractor must submit a list 5 days before repair to GAR.

16.2 Entrances and driveways may be for restaurants and/or other businesses that cannot have their driveway blocked for an extended time. Therefore, Contractor may have to add specific mixtures in order to obtain quicker set-up at full cost to the Contractor.

17.0 PRE-CONSTRUCTION MEETING

17.1 Prior to **Pre-Con**(7 days before), Contactor shall submit a proposed agenda listing each document to be submitted and discussed. Contractor to provide a **Work Plan** which includes such items as construction schedule, construction meetings schedule(every 2 weeks), maintenance of traffic permit/plan, proposed work area protections(especially sidewalks), proposed pedestrian safety & reroutes, shop drawings, product data, and samples(if requested), and shall be prepared to obtain any additional information requested by **City/County/Controlling Agency**. Contractor shall submit drafts of proposed notification letter(s) to be distributed to business owners and public who will be impacted directly or indirectly by construction. Work plan should be comprehensive, realistic and based on actual working conditions for this particular project. Plan should document the thoughtful planning required to successfully complete the project with minimal impact to public. Plan shall reflect how the Contractor will make contact with all businesses & property owners, along construction route, and explain how only minimal disruption will affect those businesses and citizens. Construction Schedule shall clearly identify proposed work for each day and parallel a Construction Map properly sequenced. Schedule shall be updated at least every two weeks. Contractor shall submit a **Weather Protection Plan** highlighting proposed plans and erosion control materials to be used. Working near any restaurant during lunch or dinner hours is **expressly prohibited**. Company shall send a Representative to Pre-Con who is very knowledgeable in all aspects of proposed work and supervision, who can speak with authority for the Company.

17.2 The Contractor shall provide copies of photographs and videotapes taken over the entire project area documenting all pre-existing conditions. Photographs shall include a description of the view including, but not limited to, the location, direction, etc. If a customer or business submits a claim to the City or other Governing Authority, it is the Contractor's responsibility to provide pre-construction photos/videos of the damage/claim in question. If pre-existing evidence does not exist, Contractor will be fully responsible for settling claim.

17.3 It is suggested the Contractor also take photos/videos of any pre-existing drainage problems or potential flooding issues.

17.4 A responsible representative, who is thoroughly familiar with the equipment and type of work to be performed, must be in direct charge and control of the operation at all times. This Representative shall submit a 24/7 Contact Number and Email address and be prepared to address any/all emergencies.

17.5 Submit copies of certifications and licenses, names and contact information for responsible persons and Subcontractors.

17.6 Washing concrete tools, machines, and digging equipment within Street ROW is strictly prohibited. Under NO circumstances will soil or concrete residue be allowed to enter City/County/SCDOT Storm Drains. Contractor shall be prepared to address this issue and offer solutions at Pre-Con.

18.0 SAFETY REGULATIONS

18.1 All methods of construction shall be done in accordance with OSHA regulations. It is Contractor's sole responsibility to have a Competent Person on site at all times. Contractor shall adhere to all applicable state, federal and local safety regulations and all operations shall be conducted in a safe manner.

19.0 PROTECTIVE WORK

19.1 The contractor shall furnish and install all necessary temporary works for protection of the work. This shall include, but not be limited to, barricades, warning signs, traffic control devices, and lights for protection of work at night. All protective work shall conform to SCDOT and City of Columbia Standards, whichever is most stringent. Contractor shall have a sufficient number of barricades on the job to direct traffic(either pedestrian or driven) around the newly poured concrete or placed asphalt. Caution tape is not considered a barricade and is not acceptable as barricade substitutes. As may be necessary, the Contractor shall provide continuous on-site inspection/watchmen of the newly poured concrete until it is set to a point beyond potential damage by vandals, animals or vehicles at Contractor's expense. The Contractor shall have sufficient materials available to protect the unhardened concrete against damage by rain or hail. When rain is imminent, the unhardened concrete shall be immediately covered with paper, plastic sheeting, or other suitable material, and planks or forms shall be placed along the edge of the work to hold the protective materials in place.

19.2 As schedule shifts from street to street, Contractor shall include in his schedule how he plans to protect new cuts in sidewalk, ROW, and/or streets. Sidewalks and detours must always allow for safe handicap routes. If steel plates are used, all edges must have sloped, asphalt edges that provide a gentle transition from sidewalk to plate.

19.3 The following may exist in the construction areas: water works, storm drainage, sewer mains, gas mains, telephone, fiber optics, power lines, power poles, sprinkler systems, and other utilities. The Contractor is responsible for exact location of all utilities within and adjacent to the project areas. The Contractor shall be solely responsible and liable for any damage (i.e. such as cutting or disturbing, etc.) to any utilities resulting from or incident to the Contractor's performance of these projects. The Contractor shall be responsible for notifying appropriate companies to protect or move the affected facilities, if any of the specified work is in the area of these affected facilities.

19.4 Storage of material and equipment shall not be permitted within 15' of a travel lane unless in an area protected by guardrail or temporary concrete barrier.

19.5 The sidewalk shall remain properly secured and barricaded while work progresses, and up to final repair.

19.6 Contractor shall ensure all current OSHA Requirements are followed for shoring, trenching, & boring activities and protecting working area from the traveling public and pedestrians.

19.7 See section 7.0 Irrigations systems.

20.0 INJURIES TO PERSONS AND PROPERTY

20.1 The Contractor shall be held responsible for all injuries to persons and for all damages to the property of the owner or others caused by or resulting from the negligence of himself, his employees or his agents, during the progress of or in connection with the prosecution of the work. Whether work is within the limits of the permit or as extra work.

20.2 Contractor is responsible for locating all existing utilities prior to beginning work and verifying their location & depth by pot holing or other safe exploratory means.

20.3 The Contractor shall take all reasonable and proper precautions to protect persons, animals, and vehicles of the public from injury and wherever necessary shall erect and maintain a fence or railing around any excavation and place a sufficient number of lights about the work and keep them burning from twilight to sunrise. The Contractor must, as far as practical and consistent with good construction, permit access to private and public property and leave fire hydrants, catch basins, streets, etc., free from encumbrances. Any damage that causes a complaint to be registered against the Contractor shall require a written release from the complainant prior to end of work. Copy of release must be given to GAR.

20.4 In case of failure on the part of the Contractor to restore such property or make good such damage, the City, County, or SCDOT may upon forty-eight (48) hours notice proceed to repair, rebuild, or otherwise restore such property as may be deemed necessary, and the cost thereof will be deducted from any money due or which may become due under this contract.

21.0 EMERGENCY WORK

21.1 The Contractor shall at all time (nights, weekends or holidays) have a responsible person available to act in case of emergency repairs. Upon notification of any emergency work necessary, the contractor's representative shall immediately take steps to make such repairs as may be required.

22.0 MAINTENANCE OF TRAFFIC

22.1 The Contractor is solely responsible for obtaining any SCDOT/City/County Permits needed for construction. Contractor shall implement the traffic control plans(if required) in accordance with the SCDOT encroachment permit, and in accordance with current SCDOT standards. All proposed changes shall first be approved by the City of Columbia and SCDOT before implementation.

22.2 The Contractor shall be required to provide individuals who are properly trained in traffic control practices. The job duties of these individuals shall be restricted to providing quality assurance of the traffic control installation. The Contractor shall be required to have a person in charge of the traffic control on the job site at all times when construction activities are in progress.

22.3 The Contractor shall provide flaggers near all intersections or any areas of this project where construction and/or equipment create a “blind spot” for oncoming or turning traffic.

22.4 The Contractor shall be responsible for the immediate removal of such traffic hazards as mud, debris, loose stone, and trash as may be washed or spilled on the traveled roadway as a result of the construction work.

23.0 EASEMENTS

23.1 The Contractor is fully responsible for verification of any and all easements within the construction area. Contractor is solely responsible for any encroachment into easements or private property and fully responsible for corrections necessary.

24.0 SUBMITTALS & SHOP DRAWINGS

24.1 The Contractor shall submit a list of all materials to be used & shop drawings for any material that will be owned and maintained by City or County. Proposed drilling fluids shall be included in submittals.

24.2 The City and Other Entities(impacted) will review the submitted schedules and information and will determine if it is acceptable; however, acceptance will not impose responsibilities on the City/Other Entities or interfere with or relieve the Contractor from the Contractor’s full responsibilities.

24.3 At the City’s discretion, Contractor may be instructed to have materials submitted to a qualified testing lab for analysis. All costs of such testing shall be borne by the Contractor.

25.0 CONSTRUCTION FLAGGING

25.1 The Contractor shall be responsible for placing flags at proposed entrance and exit bore holes. These shall be placed 2 weeks prior to digging/boring at those points. This gives City/SCDOT/Controlling Agency an opportunity to prepare for any potential conflicts.

26.0 RE-ESTABLISHMENT OF PROPERTY IRONS

26.1 Any property iron disturbed during construction shall be re-established by a registered land surveyor. There shall be no additional payment to the Contractor for these services.

27.0 NOTIFYING PROPERTY OWNERS

27.1 It is the Contractor’s responsibility to notify property owners, in writing, at least seven (10) business days in advance of any inconvenience, which will be caused to each owner due to construction. The Contractor shall not cut off access to driveways or delivery areas(during business hours) unless absolutely necessary at any given time.

28.0 SITE RESTORATION AND CLEAN UP

28.1 All areas disturbed by, during or as a result of construction activities shall be restored to their pre-existing or better condition. Areas shall be restored as soon as possible. As the work progresses, disturbed areas shall be completely restored at a rate/distance established by GAR or Governing Agency on a street by street basis. This distance shall not be exceeded without prior approval of the Controlling Agency. Contractor is responsible for taking photos of each repair.

28.2 The Contractor shall be responsible for cleaning equipment and disposing of unused material in a workmanlike manner and shall inform the Engineer of his plans at Pre-Construction. Under NO circumstances shall equipment be washed or cleaned on private property within construction area, road Right-Of-Ways, nor Storm Drainage Catch Basins. Disposal of fluids is the responsibility of the Contractor. Disposal of fluids shall be done in a manner that is in compliance with all permits and applicable federal, state, or local environmental regulations.

28.3 Any ditches and/or shoulders disturbed under this permit shall be restored to the original grade and cross section to ensure positive drainage. Some type of erosion control fabric may be necessary. If so, all costs are the Contractor’s responsibility.

28.4 Contractor shall be responsible for maintenance of curb and gutter, sidewalks, landscaping, plants and any other appurtenant items disturbed in any manner during construction. Contractor shall also R&R any faulty materials or poor workmanship, for a period of one-year following complete installation and restoration.

29.0 CLOSEOUT PROCEDURES

29.1 When the Contractor considers the work to be substantially complete, he shall notify the GAR of such in writing and shall include a comprehensive list of items that are uncompleted/or deficient, and the reason why the work is incomplete and/or deficient. Failure to include all items on the comprehensive list of incomplete/deficient work does not relieve the Contractor of his responsibility to complete the work in accordance to governing standards or expectations of GAR.

29.2 The 1 year Warranty for ALL work, will not begin until all portions have been inspected & accepted by the City of Columbia or Governing Agency.