

Appendix A





Appendix B

# ENCROACHMENT PERMIT

## TEN WATER POINT LOCATIONS FOR CONSOLIDATED FIRE DISTRICT

### Project Summary

Newberry County is installing 40,000 gallon underground water storage tanks at ten (10) sites throughout the County to improve fire service in rural areas. The tanks will provide water for fire protection and reduce emergency service response times. The majority of sites are located on Newberry County or Consolidated Fire District property with 4 sites located on private land and 1 site located on a church property.

One of the project sites will require the reconstruction or addition of a driveway from an SCDOT owned roadway to provide access for emergency vehicles to the water tanks. The remaining sites will utilize existing driveways for access to the water tanks.

Site #10 is located at 15804 US Hwy 176, TMS #442-1. The site currently has two access points to US Hwy 176, one serving as a residential driveway and the other as access to an undeveloped portion of the property. The proposed water tank location will utilize the second driveway in the undeveloped portion of the property. The existing alignment of the driveway requires modification to accommodate emergency vehicles. The driveway will be realigned to provide access perpendicular to the existing roadway. Asphalt paving is proposed within SCDOT Right-of-Way.

Paving and restriping of the affected areas will be included in the project in accordance with SCDOT Standards Specifications for Highway Construction, latest edition. Any affected drainage structures will be replaced with similar size materials. Sediment and erosion control measures are specified in the plans to control stormwater runoff from each site.

The purpose of this encroachment permit is to obtain SCDOT permission to perform the driveway improvements along Road S-667 and US Hwy 176 within the SCDOT Right-of-Way. It is anticipated that the construction of the driveways can be performed under flagging operation. Permission is also requested for the necessary temporary traffic control signs for construction of the driveway.

Based on the limited amount of land disturbance, a small project notification will be submitted to the SCDHEC EQC Office.

A Project location map for Site 10 is attached showing the location of the project. The following information is provided with this submittal:

**Construction Plans** – The construction plans, prepared by HDR, include the plan layout. A complete copy of the project specifications can be provided upon request.

**Traffic Control** – Construction of the project shall be conducted in accordance with Section 600 of the SCDOT Standard Drawings for any temporary lane closures required. All traffic control activities shall be performed in accordance with SCDOT specifications.

**Erosion Control** – A Small Project Notification will be submitted to SCDHEC prior to beginning the project.

## **Schedule**

Newberry County will proceed with the construction of the project upon receipt of the encroachment permit and the completion of the construction bidding process. The construction schedule will be determined by the selected Contractor, however, Newberry County will provide a minimum 24 hour notice to the SCDOT prior to initiating construction within the SCDOT right-of-way.

## **Contact Information**

The encroachment permit has been applied for on behalf of Newberry County. The contact information for the County is provided on the encroachment permit application. Please copy HDR on all correspondence on this permit. The contact information for HDR is provided below:

HDR  
Attn: Tom Miller  
1122 Lady Street Suite 1100  
Columbia, SC 29201  
Phone: 803-509-6617  
Fax: 803-929-0334  
e-mail: [thomas.miller@hdrinc.com](mailto:thomas.miller@hdrinc.com)

The contractor will be required to provide emergency contact information for the project to the SCDOT prior to initiating construction within SCDOT right-of-way.

# Application for Encroachment Permit

S.C. Department of Transportation  
Form 637 (Rev 09/2015)

## Contact Information

**Applicant:** NewberryCounty  
**Street:** 540 Wilson Road  
  
**City:** Newberry  
**State:** SC                      ✓ **Zip Code:** 29108  
**Phone:** (803)456-7766        **Fax:**  
**Email:** tlong@newberrycounty.net  
**Contact:** Tommy Long, Emergency Services Coordinator

## Project Location

**Primary County:** Newberry                      ✓

County	Road Name
Newberry	15804 U.S. HWY 176

**1. Type of Encroachment:** DRIVEWAY - COMMERCIAL

Newberry County is installing underground water storage tanks for fire protection in rural areas on several properties around the County and is requesting this permit to reconstruct an existing driveway with SCDOT Right of Way for access to the tank. It is anticipated that the new driveway will be used 1-2 times per month for emergencies and routine maintenance. Regular residential or commercial use of the driveway is not expected.(CONTINUED ON ADDENDUM)

### **2. Description of Location:**

Newberry County proposes to reconstruct an existing driveway at 15804 U.S. Hwy 176. A project location map is attached.

(Attach sketch indicating roadway features such as: pavement width, shoulder width, sidewalk and curb and gutter location, significant drainage structure, north arrow, right of way width, and location of the proposed encroachment with respect to the roadway centerline and the nearest intersecting road on the State system.)

3. The undersigned applicant hereby requests the SCDOT to permit encroachment on the SCDOT right of way as described herein. It is expressly understood that the encroachment, if and when constructed, shall be installed in accordance with the sketch attached hereto and made a part hereof. The applicant agrees to comply with and be bound by the SCDOT's "A Policy for Accommodating Utilities on Highways Rights of way", "Standard Specifications for Highway Construction", the "General Provisions" and "Special Provisions", attached hereto or made a part hereof by reference, during the installation, operation and maintenance of said encroachment within the SCDOT's Right of Way. DISCHARGES OF STORM WATER AND NON-STORM WATER: Work within State Highway right-of-way shall be conducted in compliance with all applicable requirements of the National Pollutant Discharge Elimination System (NPDES) permit(s) issued to the Department of Transportation (Department), to govern the discharge of storm water and non-storm water from its properties. Work shall also be in compliance with all other applicable Federal, State and Local laws and regulations, and with the Department's Encroachment Permits Manual and encroachment permit. The encroachment permit will not be issued until the applicant has received an NPDES construction permit from SC Department of Health and Environmental Control.

The applicant agrees to comply with all current SCDOT Standards Specifications for Highway Construction including all Supplemental Technical Specifications. The applicant hereby further agrees, and binds his/her/its heirs, personal representatives, successors, assigns, to assume any and all liability for accidents or injuries to persons, or damage to property, including the highway, that may be caused by the construction, maintenance, use, moving or removing of the physical appurtenances contemplated herein.

Applicant's Name: Tommy Long Date:

(Please print or type)

Applicant's Sig: *Tommy Long*  Title:

For Office Use Only

**For Office Use Only**

In accordance with your request and subject to all the provisions, terms, conditions, and restrictions stated in the application and the general and special provisions attached hereto, the SCDOT hereby approves your application for an encroachment permit. This permit shall become null and void unless the work contemplated herein shall have been completed prior to:

See Attached Special Provision and/or Permit Requirements

NPDES Permit  
Nbr:

N/A

(Date received by res. Maint. Engr.)

*J. M. [Signature]*  
(SCDOT Approval)

07/30/2019

(Date)

**Application for Encroachment Permit**  
**General Provisions**

1. **DEFINITIONS:** 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, personal representatives, successors and assigns. The word "DEPARTMENT" shall mean the South Carolina Department of Transportation.
2. **NOTICE PRIOR TO STARTING WORK:** Before starting the work contemplated herein within the limits of the highway right of way, the Department's Resident Maintenance Engineer in the county in which the proposed work is located shall be notified 24 hours in advance so that he may be present while the work is under way.
3. **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 Department or law enforcement officer on demand.
4. **PROTECTION OF HIGHWAY TRAFFIC:** The applicant shall be responsible for the protection of the highway traffic at all times during the construction, maintenance, removing or moving of the encroachment permitted herein. Detours, barricades, warning signs and flagmen, as necessary, shall be provided by and at the expense of the Permittee and shall be in accordance with the "Manual on Uniform Traffic Control Devices" (MUTCD). The work shall be planned and carried out so that there will be the least possible inconvenience to the motoring public. The Permittee agrees to observe all rules and regulations of the Department while carrying on the work contemplated herein and take all other precautions that circumstances warrant.
5. **STANDARDS OF CONSTRUCTION:** All work shall conform to the Department's standards of construction and shall be performed in a workman-like manner. The applicant shall make adequate provisions for maintaining the proper drainage of the highway as it may be affected by the encroachment permitted herein. All work shall be subject to the supervision and satisfaction of the Department.
6. **FUTURE MOVING OF PHYSICAL APPURTENANCES:** If, in the opinion of the State Highway Engineer, it should ever become necessary to move or remove the physical appurtenances, or any part thereof contemplated herein, on account of change in location of the highway, widening of the highway, or for any other sufficient reason, such moving shall be done on demand of the Department at the expense of the Permittee.
7. **RESTORATION OF HIGHWAY FACILITIES UPON MOVING OR REMOVING OF PHYSICAL APPURTENANCES:** If, and when, the physical appurtenances contemplated herein shall be moved or removed, either on the demand of the Department or at the option of the Permittee, the highway and facilities shall immediately be restored to their original condition at the expense of the Permittee.
8. **COSTS:** All work in connection with the construction, maintenance, moving or removing of the physical appurtenances contemplated herein shall be done by and at the expense of the Permittee.
9. **ADDITIONAL PERMISSIONS:**
  - (a) It is distinctly understood that this permit does not in any way grant or release any rights lawfully possessed by the abutting property owners. The Permittee shall secure any such rights, as necessary, from said abutting property owners.
  - (b) The Permittee shall be responsible for obtaining all other approvals or permits necessary for installation of the encroachment from other government entities.

(c) There shall be no excavation of soil nearer than two feet to any public utility line or appurtenant facility except with the consent of the owner thereof, or except upon special permission of this Department after an opportunity to be heard is given the owner of such line or appurtenant facility.

10. **ADDITIONAL WORK PERFORMANCE:**

(a) All crossings over the highway shall be constructed in accordance with "Specifications for Overhead Crossings of Light and Power Transmission Lines and Telegraph Lines over each other and over Highway Rights of Way in South Carolina," as approved by the Public Service Commission of South Carolina and effective as of date of this permit.

(b) All tunneling, boring, or jacking shall be done in such a way as not to disturb the highway surfacing.

(c) No pavement shall be cut unless specifically authorized herein.

(d) No excavation shall be nearer than three feet to the edge of pavement unless specifically authorized herein.

(e) Underground facilities will be located at minimum depths as defined in the "Utility Accommodations Manual" for the transmittant, generally as follows: 4 feet minimum for hazardous or dangerous transmittant, 3 feet minimum for other lines. The Department may approve shallower depths if adequate protection is provided. Such approval must be obtained in writing.

(f) Service and other small diameter pipes shall be jacked, driven, or otherwise forced underneath the pavements on any surfaced road without disturbing the pavement. The section under the highway pavement and within a distance of three (3) feet on either side shall be continuous without joints.

11. **ACCESS:**

(a) Permittee is responsible for maintaining reasonable access to private driveways during construction.

(b) It is expressly provided that, with respect to any limited access highway, the Permittee shall not have or gain access from the main traveled way of the highway, or the on or off ramps to such facility, except upon approval by the Department.

12. **DRIVEWAYS:**

(a) The existing crown of the highway shall be continued to the outside shoulder line of the highway.

(b) If the driveway or approach is concrete pavement, the pavement shall be constructed at least 6 inches thick and with a minimum of class 2500 concrete. There shall be a bituminous expansion joint, not less than 3/4 inches in thickness, placed between the highway paving and the paving of the approach for the full width of the approach.

13. **BEAUTIFICATION:**

(a) All trees, plants, flowers, etc. shall be placed in accordance with the provisions specifically stipulated herein.

(b) All trees, plants, flowers, etc. shall be maintained by, and at the expense of, the Permittee and the provisions of this permit shall become null and void, if and when said Permittee ceases to maintain aid trees, plants, flowers, etc.

14. **AS-BUILT PLANS:**

(a) The applicant shall provide the Department with survey-quality as-built plans in accordance with the requirements set forth in the Department's "A Policy for Accommodating Utilities on Highway Rights of Way".



**SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION  
Encroachment Permit**

Permit No : 226033

Permit Decision Date :  
7/30/2019

Expiration Date : 7/30/2020

Type

Permit : DRIVEWAY -  
COMMERCIAL

Location:

<u>District</u>	<u>Work County</u>	<u>Type</u>	<u>Route</u>	<u>Aux</u>	<u>Begin MP</u>	<u>End MP</u>
2	Newberry, SC	US	176	None	11.841	11.915

Contact

Information

Applicant: NewberryCounty

Phone:

Contact: Tommy Long, Emergency  
Services Coordinator

Address: 540 Wilson Road,

City: Newberry

State: SC

Zip: 29108

Comments

Newberry County proposes to reconstruct an existing driveway at 15804 U.S. Hwy 176. A project location map is attached.

Special Provisions:

0004 - SCDOT SHALL BE NOTIFIED WHEN WORK DEFINED IN THE PERMIT STARTS AS WELL AS WHEN THE WORK IS COMPLETED. REFERENCE SHALL BE MADE BY PERMIT NUMBER.

0202 - PAVEMENT DESIGN SHALL BE AS SHOWN ON ATTACHED DOCUMENTATION

0207 - PIPE USED IN THIS INSTALLATION SHALL BE IN ACCORDANCE WITH SCDOT SPECIFICATION SC-M-714 AND COMPLY WITH CURRENT SCDOT POLICY.

0209 - DISTURBED VEGETATION SHALL BE RESEEDDED ACCORDING TO THE SPECIFICAION FOR HIGHWAY CONSTRUCTION.

0301 - THE DITCHES AND/OR SHOULDERS DISTURBED DURING THE INSTALLATION SHALL BE RE-ESTABLISHED TO PROPER GRADE, ORIGINAL CROSS SECTION, STABILIZED, AND ALL DRAIN PIPES CLEARED.

0302 - NO EXCAVATION SHALL BE LEFT OPEN ALONG HIGHWAY.

0303 - THE ENTIRE DISTURBED AREA SHALL BE TOP-SOILED USING 3" OF SELECTED MATERIAL AND RE-GRASSED TO SCDOT SPECIFICATIONS.

0304 - PAVEMENT MARKINGS ALTERED DURING THIS INSTALLATION SHALL BE RESTORED BY THE APPLICANT.

0308 - ALL SIGNS, STRUCTURES, EROSION CONTROL DEVICES SHALL BE FURNISHED BY APPLICANT AND WILL CONFORM TO PART VI OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

0310 - FIELD CHANGES, IF NECESSARY, MUST BE APPROVED IN WRITING BEFORE ACTUAL CONSTRUCTION OF PROPOSED CHANGES.

0311 - SEDIMENT AND EROSION CONTROL DEVICES SHALL BE USED TO MINIMIZE THE MOVEMENT OF SEDIMENT.

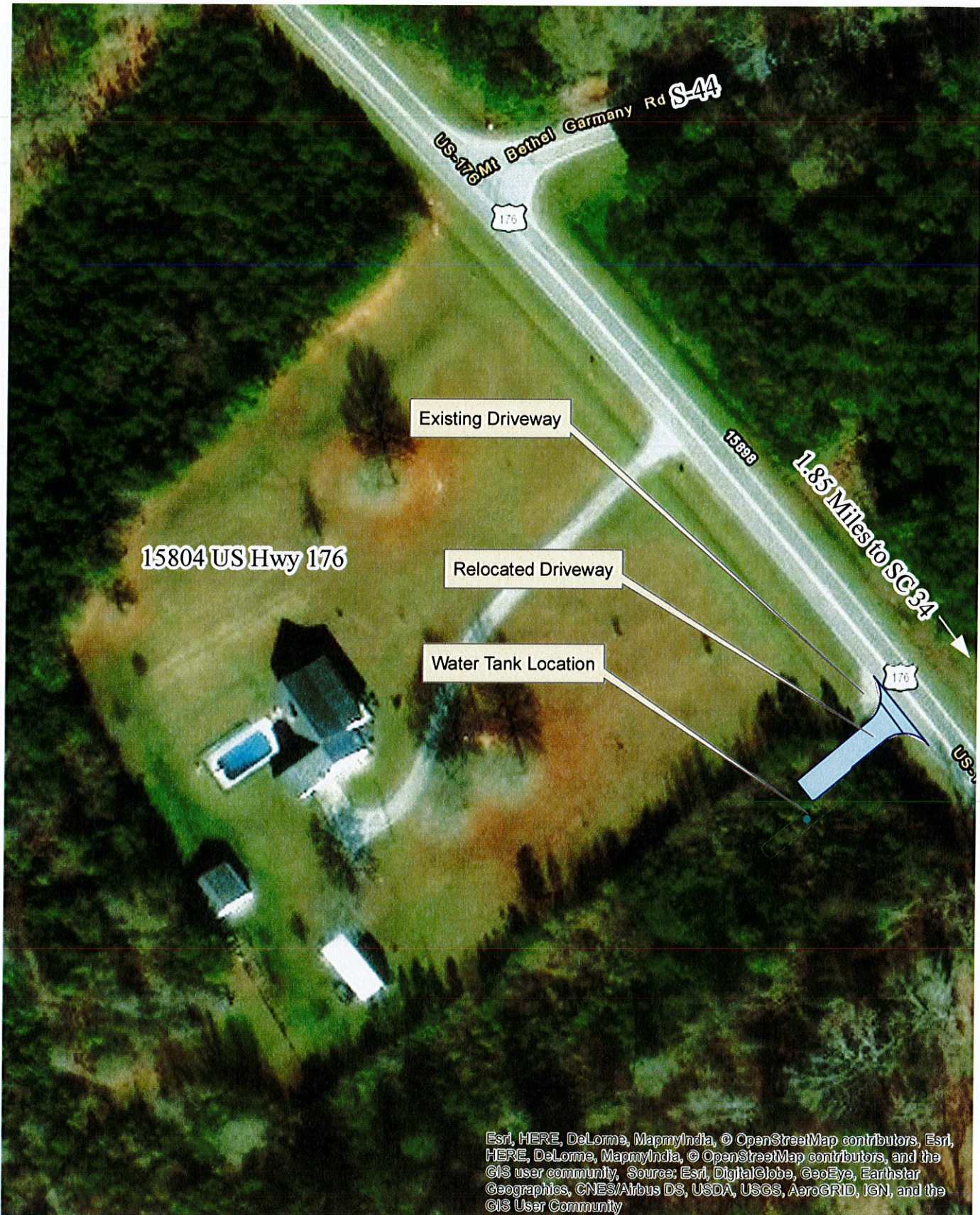
0312 - THE PERMITTEE SHALL HOLD THE DEPARTMENT HARMLESS FOR DAMAGES TO BOTH UPSTREAM AND DOWNSTREAM PROPERTIES.

0313 - TIMER TO BE SET FROM MIDNIGHT TO 5:00 A.M. ONLY. WINTER USE OF SPRINKLERS SHALL BE LIMITED TO TIMES WHEN THE TEMPERATURE IS FORTY (40) DEGREES AND RISING TO PREVENT THE POSSIBILITY OF ICE FORMING ON THE PAVEMENT.

0318 - THE APPLICANT SHALL BE RESPONSIBLE FOR 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 PROPOSED WORK.

0320 - ALL DEBRIS TO BE CLEARED FROM THE RIGHTS-OF-WAY WITHIN TEN (10) DAYS.

0323 - SCDOT WILL NOT BE RESPONSIBLE FOR THE REPLACING OF THE SOD IF WE HAVE TO DO ANY WORK IN THE DITCH.



15804 US Hwy 176

Existing Driveway

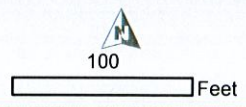
Relocated Driveway

Water Tank Location

15804

1.85 Miles to SC 34

Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, and the GIS user community, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



PROJECT LOCATION MAP - SITE 10 TMS#442-1  
NEWBERRY COUNTY TEN WATER POINT TANKS  
FOR THE CONSOLIDATED FIRE DISTRICT

REFERENCES

FLAGGING OPERATIONS  
GENERAL NOTES

( ALL NOTES, SPECIFICATIONS AND REQUIREMENTS ON THIS STANDARD DRAWING APPLY TO ALL SUBSEQUENT STANDARD DRAWINGS REGARDING FLAGGING OPERATIONS UNLESS OTHERWISE NOTED )

FLAGGING OPERATIONS -

1. KEY FEATURES RELEVANT TO FLAGGING OPERATIONS:

- APPROACH TAPER** - THIS IS A ONE-LANE TWO-WAY TAPER PLACED IN THE TRAVEL LANE WHERE THE WORK ACTIVITY TAKES PLACE. THIS TAPER PRECEDES THE BUFFER SPACE AND THE WORK ACTIVITY AREA. THE LENGTH OF THIS TAPER MAY VARY FROM 50 FEET TO 100 FEET. INSTALL AND MAINTAIN NO LESS THAN FIVE (5) TRAFFIC CONTROL DEVICES EQUALLY SPACED AT 10' TO 25' INTERVALS AS NECESSARY TO CORRESPOND WITH THE LENGTH OF THE TAPER.
- DOWNSTREAM TAPER** - THIS TAPER, PLACED IN THE TRAVEL LANE WHERE THE WORK ACTIVITY TAKES PLACE, FOLLOWS THE WORK ACTIVITY AREA AND SERVES AS THE TERMINATION AREA FOR THE CLOSURE OF THE TRAVEL LANE. THE LENGTH OF THIS TAPER MAY VARY FROM 50 FEET TO 100 FEET. INSTALL AND MAINTAIN NO LESS THAN FIVE (5) TRAFFIC CONTROL DEVICES IN THIS TAPER.
- FLAGGER STATION** - THIS IS THE SPECIFIC LOCATION OF THE FLAGGER.
- CLOSED LANE FLAGGER** - THIS FLAGGER IS STATIONED ADJACENT TO THE FIRST TRAFFIC CONTROL DEVICE IN THE APPROACH TAPER WHO CONTROLS THE TRAFFIC THAT REQUIRES RELOCATION FROM THE TRAVEL LANE BEING CLOSED TO TRAFFIC.
- OPEN LANE FLAGGER** - THIS FLAGGER IS STATIONED 100 FEET BEYOND THE LAST TRAFFIC CONTROL DEVICE IN THE DOWNSTREAM TAPER WHO CONTROLS THE TRAFFIC OPERATING IN THE TRAVEL LANE REMAINING OPEN TO TRAFFIC.
- BUFFER SPACE** - THIS AREA IS LOCATED BETWEEN THE DOWNSTREAM END OF THE APPROACH TAPER AND THE NEAREST LIMITS OF THE WORK ACTIVITY AREA AND MAY PROVIDE SOME RECOVERY SPACE FOR AN ERRANT VEHICLE. THE PRESENCE OF PERSONNEL, TOOLS, MATERIALS, EQUIPMENT, WORK VEHICLES, ETC. WITHIN THE LIMITS OF THE BUFFER SPACE IS PROHIBITED. HOWEVER, WHEN THE MINIMUM DISTANCE REQUIREMENTS FOR THE BUFFER SPACE ARE UNAVAILABLE, A TRUCK MOUNTED ATTENUATOR MAY TEMPORARILY ENCR OACH UPON THE BUFFER SPACE IN ACCORDANCE WITH THE REQUIREMENTS SPECIFIED IN THE SECTION BELOW ENTITLED, "BUFFER SPACE", WHEN APPROVED BY THE ENGINEER.
- WORK ACTIVITY AREA** - PERSONNEL, MATERIALS, EQUIPMENT, WORK VEHICLES, ETC. ARE PRESENT WITHIN THIS AREA TO CONDUCT THE WORK.
- LIMITS of the WORK ACTIVITY AREA** - THIS IS THE BOUNDARY OF THE WORK ACTIVITY AREA FIRST ENCOUNTERED, FROM EITHER DIRECTION, BY MOTORISTS PASSING BY THE WORK ACTIVITY AREA IN THE ADJACENT TRAVEL LANE OPEN TO TRAFFIC AND CONTROLLED BY THE FLAGGERS.
- APPROACH LANE** - TRAFFIC APPROACHES AN INTERSECTION OR A SPECIFIC LOCATION IN THIS TRAVEL LANE.
- DEPARTURE LANE** - TRAFFIC DEPARTS FROM AN INTERSECTION OR A SPECIFIC LOCATION IN THIS TRAVEL LANE.
- MAINLINE APPROACH** - THIS IS AN APPROACH TO THE WORK ACTIVITY AREA ON THE ROADWAY WHERE THE WORK ACTIVITY AREA IS LOCATED.
- SIDE ROADS** - THESE ROADS INTERSECT THE ROADWAY ON WHICH THE WORK ACTIVITY AREA IS LOCATED.
- LIMITS of the INTERSECTION** - THE LIMITS OF OR THE PHYSICAL AREA WITHIN AN INTERSECTION IS DEFINED BY THE LOCATION OF STOP BARS WHEN PRESENT. WHEN STOP BARS ARE ABSENT, THE LIMITS OF OR THE PHYSICAL AREA WITHIN AN INTERSECTION IS DEFINED BY THE LOCATION POINTS WHERE THE CORNER RADII BETWEEN ADJACENT ROADWAY APPROACHES TIE TO THE EDGE OF PAVEMENT OR THE EDGE OF TRAVEL LANE ADJACENT TO THE EDGE OF PAVEMENT OF EACH ROADWAY.

- 2. INSTALL, CONDUCT AND MAINTAIN FLAGGING OPERATIONS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, THE STANDARD DRAWINGS, THE MUTCD AND THE "SOUTH CAROLINA FLAGGER'S HANDBOOK" UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT. INSTALL ALL SIGNS RELATIVE TO A FLAGGING OPERATION PRIOR TO INITIATION OF THE OPERATION AND REMOVE OR COVER ALL SIGNS IMMEDIATELY UPON TERMINATION OF THE OPERATION. EQUIP EACH FLAGGER WITH A 24" x 24" STOP/SLOW PADDOLE MOUNTED ON A RIGID HANDLE WITH A MINIMUM LENGTH OF 7 FEET. THE DEPARTMENT PROHIBITS THE USE OF FLAGS EXCEPT DURING EMERGENCY SITUATIONS.
- 3. LANE CLOSURES FOR FLAGGING OPERATIONS ARE RESTRICTED TO A MAXIMUM DISTANCE OF 2 MILES UNLESS OTHERWISE APPROVED BY THE ENGINEER. THE WORK LIMITS WILL COMPLY WITH THE CONTRACT AND SHALL REQUIRE THE ENGINEER'S APPROVAL PRIOR TO BEGINNING THE WORK.
- 4. INSTALL AND MAINTAIN THE PROPER ARRAY OF ADVANCE WARNING SIGNS FOR EACH "MAINLINE APPROACH" WHEN A FLAGGING OPERATION IS IN PLACE AND ACTIVE. WHEN NECESSARY TO RELOCATE THE "FLAGGER STATION" WHILE ACTIVELY MAINTAINING THE FLAGGING OPERATION, INSTALL AN ADDITIONAL ARRAY OF ADVANCE WARNING SIGNS AT THE LOCATION RELATIVE TO THE NEW "FLAGGER STATION" AND REMOVE THE ORIGINAL ARRAY OF ADVANCE WARNING SIGNS IMMEDIATELY UPON COMPLETION OF THE RELOCATION OF THE FLAGGER TO THE NEW "FLAGGER STATION".
- 5. INSTALL ALL ADVANCE WARNING SIGNS IMMEDIATELY PRIOR TO INITIATING A FLAGGING OPERATION AND REMOVE OR COVER ALL SIGNS IMMEDIATELY UPON TERMINATION OF THE OPERATION.
- 6. MAINTAIN TWO-WAY RADIO COMMUNICATIONS BETWEEN ALL FLAGGERS.

NIGHTTIME FLAGGING OPERATIONS -

- 1. EACH FLAGGER SHALL WEAR SAFETY APPAREL IN COMPLIANCE WITH THE REQUIREMENTS OF ANSI/ISEA 107 STANDARD PERFORMANCE FOR CLASS 3 RISK EXPOSURE, LATEST REVISION, WHEN CONDUCTING NIGHTTIME FLAGGING OPERATIONS.
- 2. ILLUMINATE EACH "FLAGGER STATION" WITH ANY COMBINATION OF PORTABLE LIGHTS, STANDARD ELECTRIC LIGHTS, EXISTING STREET LIGHTS, ETC. THAT WILL PROVIDE A MINIMUM ILLUMINATION LEVEL OF 108 Lx OR 10 fc WHEN CONDUCTING NIGHTTIME FLAGGING OPERATIONS.
- 3. SUPPLEMENT EACH ARRAY OF ADVANCE WARNING SIGNS ON EACH "MAINLINE APPROACH" WITH A TRAILER MOUNTED CHANGEABLE MESSAGE SIGN. THESE CHANGEABLE MESSAGE SIGNS ARE NOT REQUIRED ON THE "SIDE ROADS" INTERSECTING THE ROADWAY WHERE THE "WORK ACTIVITY AREA" IS LOCATED. ALSO, THESE CHANGEABLE MESSAGE SIGNS ARE NOT REQUIRED DURING DAYTIME FLAGGING OPERATIONS UNLESS OTHERWISE DIRECTED BY THE STANDARD DRAWINGS. INSTALL THE CHANGEABLE MESSAGE SIGNS IN ADVANCE OF THE ADVANCE WARNING SIGN ARRAYS. THE MESSAGES SHOULD BE "PREPARE TO STOP", "FLAGGER AHEAD". A TRUCK MOUNTED CHANGEABLE MESSAGE SIGN IS NOT AN ACCEPTABLE ALTERNATIVE TO A TRAILER MOUNTED CHANGEABLE MESSAGE SIGN DURING NIGHTTIME FLAGGING OPERATIONS.
- 4. UTILIZE PORTABLE PLASTIC DRUMS OR 42" OVERSIZED TRAFFIC CONES IN PLACE OF 36" STANDARD TRAFFIC CONES DURING NIGHTTIME FLAGGING OPERATIONS.

BUFFER SPACE -

- 1. THE MINIMUM DISTANCE REQUIREMENTS FOR THE "BUFFER SPACE" ARE BASED UPON THE LEGAL POSTED REGULATORY SPEED LIMIT OF THE ROADWAY PRIOR TO BEGINNING THE WORK.

SPEED LIMIT	DISTANCES
LOW SPEED ≤ 35 MPH	200 FEET
INTERMEDIATE SPEED 40 - 50 MPH	300 FEET
HIGH SPEED 55 MPH	400 FEET

- 2. THE PRESENCE OF PERSONNEL, TOOLS, MATERIALS, EQUIPMENT, WORK VEHICLES, ETC. WITHIN THE LIMITS OF THE "BUFFER SPACE" IS PROHIBITED. A TRUCK MOUNTED ATTENUATOR IS THE ONLY WORK VEHICLE THAT MAY TEMPORARILY ENCR OACH UPON THE "BUFFER SPACE" IN ACCORDANCE WITH THE CONDITIONS SPECIFIED IN THE FOLLOWING NOTE WHEN APPROVED BY THE ENGINEER. SEE NOTE NO. 3.
- 3. WHEN THE MINIMUM DISTANCE REQUIREMENTS FOR THE "BUFFER SPACE" ARE UNAVAILABLE DUE TO FIELD CONDITIONS, IT MAY BE NECESSARY FOR A TRUCK MOUNTED ATTENUATOR TO TEMPORARILY ENCR OACH UPON THE "BUFFER SPACE" WHEN APPROVED BY THE ENGINEER. A TRUCK MOUNTED ATTENUATOR IS THE ONLY VEHICLE PERMITTED TO TEMPORARILY ENCR OACH UPON THE "BUFFER SPACE" AND THIS ENCR OACHMENT IS ONLY PERMITTED WHEN ALL REASONABLE OPTIONS TO AVOID DOING SO HAVE BEEN EXHAUSTED. WHEN ENCR OACHMENT UPON THE "BUFFER SPACE" IS APPROVED BY THE ENGINEER, MINIMIZE THE TIME DURATION OF THE ENCR OACHMENT BY REMOVAL OF THE TRUCK MOUNTED ATTENUATOR FROM THE "BUFFER SPACE" AT THE FIRST OPPORTUNITY THE MINIMUM DISTANCE REQUIREMENTS FOR THE "BUFFER SPACE" BECOME AVAILABLE.

SIGNS AND TRAFFIC CONTROL DEVICES -

- 1. MEASURE THE ADVANCE WARNING SIGN LOCATIONS FOR EACH APPROACH FROM THE "FLAGGER STATION" LOCATED ON THAT APPROACH.
- 2. INSTALL THE ADVANCE WARNING SIGNS AS SPACING INTERVALS BASED UPON THE POSTED REGULATORY SPEED LIMIT OF THE ROADWAY PRIOR TO BEGINNING ANY WORK. THE ADVANCE WARNING SIGN SPACING INTERVALS INDICATED ARE FOR NORMAL CONDITIONS. ADJUSTMENTS TO THESE DISTANCES MAY BE NECESSARY DUE TO EXISTING SIGNS, INTERSECTING ROADWAYS, HORIZONTAL AND/OR VERTICAL ALIGNMENTS OR OTHER SIGHT DISTANCE RESTRICTIONS. SEE TABLE A.
- 3. INSTALL ADVANCE WARNING SIGNS MOUNTED ON PORTABLE SIGN SUPPORTS NO LESS THAN 4 FEET FROM THE NEAR EDGE OF THE SIGN TO THE NEAR EDGE OF AN ADJACENT TRAVEL LANE ON ROADWAYS WITH EARTH SHOULDERS AND NO LESS THAN 6 FEET FROM THE NEAR EDGE OF THE SIGN TO THE NEAR EDGE OF AN ADJACENT TRAVEL LANE ON ROADWAYS WITH PAVED SHOULDERS. WHEN CURB & GUTTER IS PRESENT, INSTALL THE SIGN NO LESS THAN 2 FEET FROM THE NEAR EDGE OF THE SIGN TO THE FACE OF THE CURB.
- 4. ALL SIGNS MOUNTED ON PORTABLE SIGN SUPPORTS SHALL HAVE A MINIMUM MOUNTING HEIGHT OF 5 FEET FROM THE GROUND TO THE BOTTOM OF THE SIGN. ALL SIGNS MOUNTED ON GROUND MOUNTED U-CHANNEL OR SQUARE STEEL TUBE POSTS SHALL HAVE A MINIMUM MOUNTING HEIGHT OF 7 FEET FROM THE GRADE ELEVATION OF THE NEAR EDGE OF THE ADJACENT TRAVEL LANE TO THE BOTTOM OF THE SIGN UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT. MOUNT ALL SIGNS STRAIGHT AND LEVEL AND WITH THE FACE OF THE SIGNS PERPENDICULAR TO THE SURFACE OF THE ROADWAY.
- 5. REFLECTORIZE ORANGE ADVANCE WARNING SIGNS AND ANY ORANGE AREAS OF A MULTI-COLORED ADVANCE WARNING SIGN WITH A FLUORESCENT ORANGE COLORED PRISMATIC RETROREFLECTIVE SHEETING. REFLECTORIZE WHITE REGULATORY SIGNS AND ANY WHITE AREAS OF A MULTI-COLORED ADVANCE WARNING SIGN WITH A WHITE COLORED PRISMATIC RETROREFLECTIVE SHEETING.
- 6. ALL TRAFFIC CONTROL DEVICES SHALL COMPLY WITH THE REQUIREMENTS OF NCHRP REPORT 350 OR THE AASHTO MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) AND SHALL REQUIRE APPROVAL BY THE DEPARTMENT. ONLY THOSE TRAFFIC CONTROL DEVICES INCLUDED ON THE "APPROVED PRODUCTS LIST FOR TRAFFIC CONTROL DEVICES IN WORK ZONES" ARE CONSIDERED ACCEPTABLE FOR USE. THIS LIST MAY BE ACCESSED ON THE DEPARTMENT'S WEB SITE AT: [www.scdot.org](http://www.scdot.org).
- 7. REFLECTORIZATION OF 36" TRAFFIC CONES USED DURING DAYLIGHT HOURS IS NOT REQUIRED. IN THE EVENT A DAYTIME FLAGGING OPERATION EXTENDS INTO THE NIGHTTIME HOURS, REPLACE ALL 36" TRAFFIC CONES WITH EITHER PORTABLE PLASTIC DRUMS OR 42" OVERSIZED TRAFFIC CONES. REFLECTORIZE ALL PORTABLE PLASTIC DRUMS AND 42" OVERSIZED TRAFFIC CONES WITH TYPE II OR GREATER FLEXIBLE MICROPRISMATIC RETROREFLECTIVE SHEETING UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT.
- 8. DELINEATE THE TANGENT AREA OF THE LANE CLOSURE WITH THE NECESSARY TRAFFIC CONTROL DEVICES TO MINIMIZE ENCR OACHMENT BY MOTORISTS INTO THE CLOSED TRAVEL LANE UNLESS OTHERWISE DIRECTED BY THE ENGINEER. ON ROADWAYS WITH POSTED REGULATORY SPEED LIMITS OF 35 MPH OR LESS, INSTALL THE TRAFFIC CONTROL DEVICES AT SPACING INTERVALS OF 25 FEET. ON ROADWAYS WITH POSTED REGULATORY SPEED LIMITS OF 40 MPH OR GREATER, INSTALL THE TRAFFIC CONTROL DEVICES AT SPACING INTERVALS OF 50 FEET. SEE TABLE B.

ADVANCE WARNING ARROW PANEL -

- 1. DURING FLAGGING OPERATIONS, AN ADVANCE WARNING ARROW PANEL SHALL OPERATE IN THE "FOUR CORNERS" CAUTION MODE WHEN LOCATED WITHIN OR IN BETWEEN THE LIMITS OF THE ADVANCE WARNING SIGN ARRAYS SPECIFIC TO A FLAGGING OPERATION. OPERATION OF AN ADVANCE WARNING ARROW PANEL IN AN ARROW, CHEVRON OR ANY OTHER TYPE OF CAUTION MODE OTHER THAN THE "FOUR CORNERS" CAUTION MODE WHEN LOCATED WITHIN OR IN BETWEEN THE LIMITS OF THE ADVANCE WARNING SIGN ARRAYS AS SPECIFIED HEREIN IS PROHIBITED.
- 2. ALL ADVANCE WARNING ARROW PANELS SHALL COMPLY WITH THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, LATEST EDITION. THE SPECIFIC LOCATION OF AN ADVANCE WARNING ARROW PANEL MAY REQUIRE ADJUSTMENTS DUE TO HORIZONTAL AND/OR VERTICAL ALIGNMENT OR OTHER SIGHT DISTANCE RESTRICTIONS.

TRUCK MOUNTED ATTENUATOR -

- 1. A TRUCK MOUNTED ATTENUATOR IS OPTIONAL. UTILIZATION OF A TRUCK MOUNTED ATTENUATOR SHOULD BE CONSIDERED WHEN THE MINIMUM DISTANCE REQUIREMENTS FOR THE "BUFFER SPACE" ARE UNAVAILABLE DUE TO FIELD CONDITIONS. HOWEVER, A TRAILER MOUNTED ADVANCE WARNING ARROW PANEL MAY BE UTILIZED IN PLACE OF A TRUCK MOUNTED ATTENUATOR DURING TRAFFIC CONTROL SETUPS FOR WORK ACTIVITIES SUCH AS ASPHALT CONCRETE PLACEMENT OPERATIONS WHEN APPROVED BY THE ENGINEER.
- 2. WHEN UTILIZING A TRUCK MOUNTED ATTENUATOR, ENSURE THE TRUCK HAS THE CORRECT GROSS VEHICULAR WEIGHT (GVW) REQUIRED FOR THE TYPE OF TRUCK MOUNTED ATTENUATOR BEING UTILIZED. A DIRECT TRUCK MOUNTED TRUCK MOUNTED ATTENUATOR, A UNIT MOUNTED AND ATTACHED TO BRACKETS OR SIMILAR DEVICES CONNECTED TO THE FRAME OF THE TRUCK, REQUIRES A TRUCK WITH A MINIMUM GVW OF 15,000 POUNDS (ACTUAL WEIGHT) UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT. A TRAILER TOWED TRUCK MOUNTED ATTENUATOR, A TRAILER TYPE UNIT TOWED FROM BEHIND AND ATTACHED TO THE FRAME OF THE TRUCK VIA A PINTLE HOOK / HITCH, REQUIRES A TRUCK WITH A MINIMUM GVW OF 10,000 POUNDS (ACTUAL WEIGHT) UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT. IF THE ADDITION OF SUPPLEMENTAL WEIGHT TO THE VEHICLE AS BALLAST IS NECESSARY, CONTAIN THE MATERIAL WITHIN A STRUCTURE CONSTRUCTED OF STEEL. CONSTRUCT THIS STEEL STRUCTURE TO HAVE A MINIMUM OF FOUR (4) SIDES AND A BOTTOM. A TOP IS OPTIONAL. BOLT THIS STRUCTURE TO THE FRAME OF THE TRUCK. UTILIZE A SUFFICIENT NUMBER OF FASTENERS FOR ATTACHMENT OF THE STEEL STRUCTURE TO THE FRAME OF THE TRUCK TO ENSURE THE STRUCTURE WILL NOT SEPARATE FROM THE FRAME OF THE TRUCK DURING AN IMPACT UPON THE TRUCK MOUNTED ATTENUATOR. UTILIZE EITHER DRY LOOSE SAND OR STEEL REINFORCED CONCRETE FOR BALLAST MATERIAL WITHIN THE STEEL STRUCTURE TO ACHIEVE THE NECESSARY WEIGHT. THE BALLAST MATERIAL SHALL REMAIN CONTAINED WITHIN THE CONFINES OF THE STEEL STRUCTURE IN ITS ENTIRETY AND SHALL NOT PROTRUDE FROM THE STEEL STRUCTURE IN ANY MANNER.
- 3. LOCATE THE TRUCK MOUNTED ATTENUATOR APPROXIMATELY 100 FEET IN ADVANCE OF THE "WORK ACTIVITY AREA" UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- 4. PROVIDE, INSTALL AND MAINTAIN THE TRUCK MOUNTED ATTENUATOR AS SPECIFIED BY THE STANDARD SPECIFICATIONS AND AS DIRECTED BY THE ENGINEER.

GENERAL -

- 1. CONDUCT THE WORK IN SUCH A MANNER SO AS NOT TO ENCR OACH ONTO THE ADJACENT TRAVEL LANE OPEN TO TRAFFIC. INSTALL, MAINTAIN AND ADJUST THE TRAFFIC CONTROL DEVICES AS NECESSARY TO ENSURE PROPER DELINEATION OF THE WORK AREA.
- 2. IF WORK IS BEING CONDUCTED AT TWO DIFFERENT LOCATIONS AT THE SAME TIME, SEPARATE THE TWO LOCATIONS BY NO LESS THAN 2 MILES FROM THE LAST TRAFFIC CONTROL DEVICE IN THE "DOWNSTREAM TAPER" OF THE FIRST LANE CLOSURE TO THE FIRST TRAFFIC CONTROL DEVICE IN THE "APPROACH TAPER" OF THE SECOND LANE CLOSURE ENCOUNTERED BY A MOTORIST UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- 3. THE DEPARTMENT RESERVES THE RIGHT TO RESTRICT WORK OPERATIONS AND/OR WITHHOLD THE MONTHLY ESTIMATE IF THE TRAFFIC CONTROL IS NOT PROPERLY INSTALLED AND MAINTAINED AS DIRECTED BY THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, THE STANDARD DRAWINGS, THE PLANS AND/OR THE ENGINEER.

TABLE A

SIGN PLACEMENT INTERVALS	
SPEED LIMIT	*
≤ 35 MPH # LOW SPEED	200
40 - 50 MPH # INTERMEDIATE SPEED	350
55 MPH # HIGH SPEED	500

\* REGULATORY POSTED SPEED LIMIT PRIOR TO BEGINNING WORK

TABLE B

TRAFFIC CONTROL DEVICE SPACING INTERVALS WORK ACTIVITY / BUFFER SPACE AREAS	
SPEED LIMIT	SPACING INTERVALS
≤ 35 MPH	25 FEET
40 - 55 MPH	50 FEET

WORK ZONE TRAFFIC  
CONTROL ENGINEER



*W F McConnell*  
SIGNATURE

7/27/15  
DATE

6			
5			
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1			
0	1-14-15	JCS	NEW DRAWING
#	DATE	CHK	DESCRIPTION



SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION  
DESIGN STANDARDS OFFICE  
955 PARK STREET  
ROOM 405  
COLUMBIA, SC 29201

STANDARD DRAWING

FLAGGING  
OPERATIONS  
TWO-LANE TWO-WAY  
PRIMARY &  
SECONDARY ROUTES

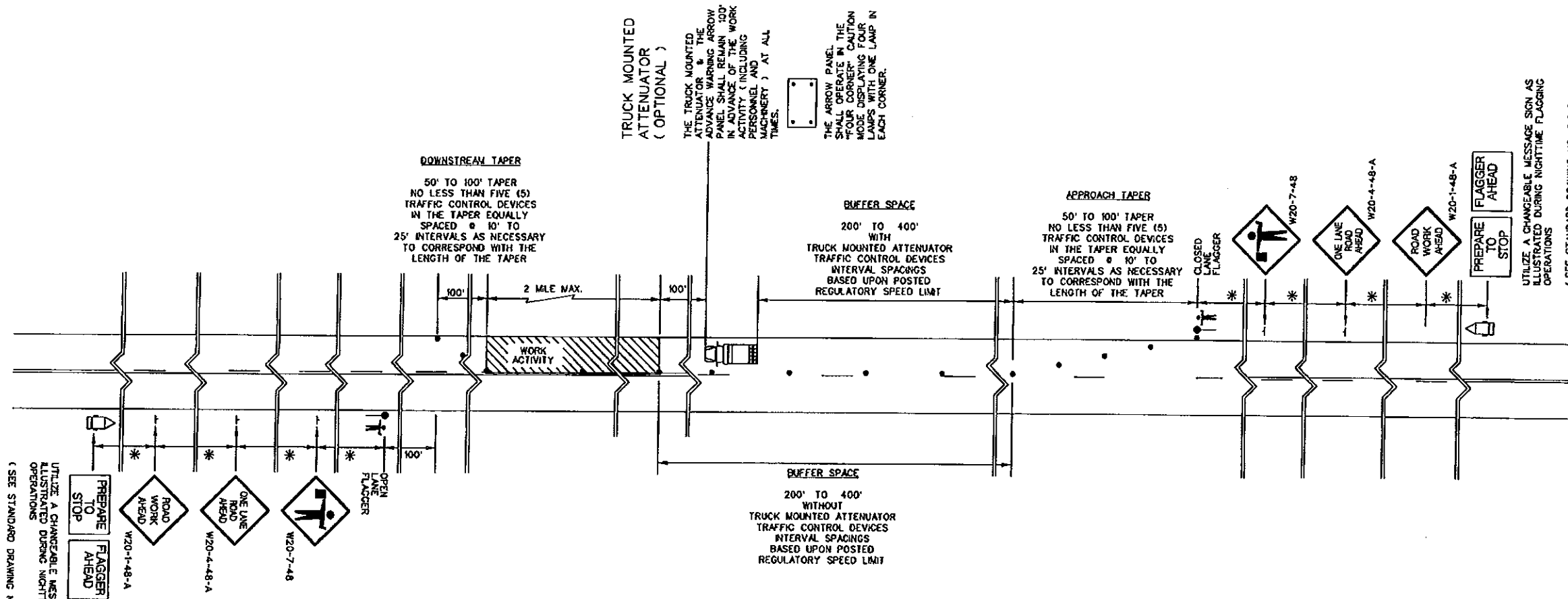
610-005-00

EFFECTIVE LETTING DATE | JAN 2016

THIS DRAWING IS NOT TO SCALE

DRAWING 610-005-10 NOTES

1. SEE STANDARD DRAWING NO. 610-005-00 FOR ALL GENERAL NOTES AND REQUIREMENTS.



DOWNSTREAM TAPER

50' TO 100' TAPER  
NO LESS THAN FIVE (5)  
TRAFFIC CONTROL DEVICES  
IN THE TAPER EQUALLY  
SPACED @ 10' TO  
25' INTERVALS AS NECESSARY  
TO CORRESPOND WITH THE  
LENGTH OF THE TAPER

TRUCK MOUNTED  
ATTENUATOR  
( OPTIONAL )

THE TRUCK MOUNTED  
ATTENUATOR & THE  
ADVANCE WARNING ARROW  
PANEL SHALL REMAIN 100'  
IN ADVANCE OF THE WORK  
ACTIVITY ( INCLUDING  
PERSONNEL AND  
MACHINERY ) AT ALL  
TIMES.

BUFFER SPACE

200' TO 400'  
WITH  
TRUCK MOUNTED ATTENUATOR  
TRAFFIC CONTROL DEVICES  
INTERVAL SPACINGS  
BASED UPON POSTED  
REGULATORY SPEED LIMIT

APPROACH TAPER

50' TO 100' TAPER  
NO LESS THAN FIVE (5)  
TRAFFIC CONTROL DEVICES  
IN THE TAPER EQUALLY  
SPACED @ 10' TO  
25' INTERVALS AS NECESSARY  
TO CORRESPOND WITH THE  
LENGTH OF THE TAPER

BUFFER SPACE

200' TO 400'  
WITHOUT  
TRUCK MOUNTED ATTENUATOR  
TRAFFIC CONTROL DEVICES  
INTERVAL SPACINGS  
BASED UPON POSTED  
REGULATORY SPEED LIMIT

UTILIZE A CHANGEABLE MESSAGE SIGN AS  
ILLUSTRATED DURING NIGHTTIME FLAGGING  
OPERATIONS  
( SEE STANDARD DRAWING NO. 610-005-00 )

TABLE A

SIGN PLACEMENT INTERVALS	
SPEED LIMIT	*
≤ 35 MPH # LOW SPEED	200
40 - 50 MPH # INTERMEDIATE SPEED	350
55 MPH # HIGH SPEED	500

\* REGULATORY POSTED SPEED LIMIT PRIOR TO  
BEGINNING WORK

TABLE B

TRAFFIC CONTROL DEVICE SPACING INTERVALS WORK ACTIVITY / BUFFER SPACE AREAS	
SPEED LIMIT	SPACING INTERVALS
≤ 35 MPH	25 FEET
40 - 55 MPH	50 FEET

REFERENCES

WORK ZONE TRAFFIC  
CONTROL ENGINEER



*Willie E. McConnell*  
SIGNATURE  
7/27/15  
DATE

6			
5			
4			
3			
2			
1			
0	1-15-15	JCS	NEW DRAWING
#	DATE	CHK	DESCRIPTION

**SCDOT**  
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION  
DESIGN STANDARDS OFFICE  
955 PARK STREET  
ROOM 405  
COLUMBIA, SC 29201

STANDARD DRAWING

FLAGGING  
OPERATIONS  
TWO-LANE TWO-WAY  
ROADWAYS  
WITHOUT  
INTERSECTIONS

610-005-10  
EFFECTIVE LETTING DATE | JAN 2016