

Town of Blacksburg SC Land Development Manual - Specifications & Special Provisions Notes

The following specs. & special provisions are intended to be used in conjunction w/ Blacksburg Land Development Standard (Std.) Drawings (Dwgs.), SCDOT Roadway Std. Dwg., & SCDOT Std. Specs. for Roads & Structures for all developments w/in the Town of Blacksburg & ETJ unless otherwise directed by the Town Engineer.

I. STREETS

A. GENERAL NOTES:

01. All work & materials shall conform to the latest edition of SCDOT Std. Specs. for Roads & Structures unless otherwise specified in this manual.
02. All asphalt cuts shall be made w/ a saw when preparing street surfaces for patching or widening strips.
03. Paper joints shall be used to seal the ends of an asphalt pour so that future extensions can be made w/o causing rough joints.
04. When placing asphalt against exist. surfaces, a straight edge shall be used to prevent "humping" at that location.
05. Stone shall be primed if paving is not complete w/in 7 days following stone base approval.
06. Surfaces shall be tacked when asphalt is being placed over exist. asphalt streets or adjoining conc., storm drain, & sanitary sewer structures.
07. In rolling & hilly terrains, sweeping of the stone base and/or application of a tack coat may be required near intersections. These requirements will be established by the Town Inspector based on field conditions.
08. ALL conc. used for streets, C&G, sidewalks & drainage structures, etc. shall have a min. compressive strength of 3600 PSI at 28 days. This requirement shall be provided regardless of any lesser compressive strength specified in the SCDOT Std. Specs. for Roads & Structures. The contractor shall prepare conc. test cylinders in accordance w/ related sections of the SCDOT Stds. Spec. for Roads & Structures at the direction of the project inspector. All equip. & cylinder molds shall be furnished by the contractor. It shall be the responsibility of the contractor to protect the cylinders until such time as they are transported for testing. Testing for projects shall be performed by an independent testing lab, at no cost to the Town. The contractor shall provide equip. and perform tests on conc. for a max. slump & air content as defined in other Sections of the SCDOT Std. Specs. for Roads & Structures. These tests shall be performed at a frequency established by the inspector. Materials failing to meet specs shall be removed by the rejected, removed and replaced. by the contractor.
09. All conc. shall be cured w/ 100% Resin Base, white pigmented curing compound which meets ASTM Specifications C309, Type I, applied at a uniform rate at 1 gal. to 400 sq. ft. w/in 24 hrs. of placement of the conc.
10. All C&G shall be backfilled w/ soil approved by the Inspector w/in 48 hrs. after construction to prevent erosion.
11. All backfill shall be non-plastic in nature, free from roots, vegetative matter, waste, construction material or other objectionable material. Said material shall be capable of being compacted by mechanical means and the material shall have no tendency to flow or behave in a plastic manner under the tamping blows or proof rolling.
12. Materials deemed by the Inspector as unsuitable for backfill purposes shall be removed and replaced w/ select backfill material.
13. All trenches in the street right-of-way shall be backfilled w/ suitable material immediately after the pipe is laid. The fill around all pipe shall be placed in layers not to exceed 6" and each layer shall be compacted thoroughly. For Storm Drainage see Backfill under Storm Drainage section.
14. Under no circumstances shall water be permitted to rise in un-backfilled trenches after the pipe has been placed.
15. Compaction requirements shall be attained by the use of mechanical compaction methods. Each 6" layer of backfill shall be placed loose and thoroughly compacted into place.
16. Straight forms shall not be used for forming C&G in curves.

17. All excess conc. on the front edge (lip) of gutter shall be removed when C&G gutter is poured w/ a machine.
18. All subgrade shall be compacted to 100% of the max. density obtainable w/ the Std. Proctor Test to a depth of 8", and a density of 95% Std. Proctor for depths > 8". All tests shall be performed by developer at no cost to the Town.
19. A canvas cover or other suitable cover shall be required for transporting plant mix asphalt during cool weather when the following conditions are present:
 - a) Air temperature is below 60 degrees F.
 - a) Length of haul from plant to job is > 5 miles.
 - b) Other occasions at the Inspector's discretion when a combination of factors indicates that material should be covered in order to assure proper placement temperature.
20. Conc or asphalt shall not be placed until the air temperature (temp) measured at the location of the paving operation is at 35 deg. F & rising by 10:00 a.m. conc or paving operations should be suspended when the air temp is 40 deg F & descending. The contractor shall protect freshly placed conc or asphalt in accordance w/ sections (Conc Structures), (Asphalt Bases & Pavements), & (Conc Pavements & Shoulders) of the SCDOT Std. Specs when the air temp is at or below 35 deg F and the conc has not obtained an age of 72 hrs.
21. The contractor shall maintain 2-way traffic at all times when working w/ exist. streets. The contractor shall place and maintain signs, danger lights, & barricades & furnish watchmen/flagmen to direct traffic in accordance w/ the latest edition of "Work Area Traffic Control Handbook" (WATCH), Work in the R/W of State System Streets may require additional traffic control provisions.
22. The contractor shall do which is necessary to control erosion and to prevent sedimentation damage to all adjacent properties & streams in accordance w/ the appropriate Town of Blacksburg Erosion & Sedimentation Control Ordinance.

B. STANDARDS OF STREET DESIGN - Notes: Use of Hilly Terrain criteria is NOT permitted w/o prior approval of the Town Engineer.

Notes: Use of Hilly Terrain criteria is NOT permitted w/o PRIOR approval of the Town Engineer.

	Local Industrial & Collector Only		Local Industrial & Collector Only	
	Level / Rolling	Hilly	Level / Rolling	Hilly
Terrain Classification	0% - 15%	15%+	0% - 15%	15%+
Max. Grade	10%	12%+	8%	10%+
Design Speed (mph)	25	20	30	25
Min. Radius (ft.)	Public Street		Public Street	
	150	90	250	175
	Private street		Private street	
	50	50	150	150
Min. Tangent between Horiz. Reverse Curve (ft)	50	50	100	100
K Value (Crest/Sag)	20 / 20	15 / 20	28 / 35	20/20
K Value (Stop Condition)	9	5	14	9

Note: K=Rate of Vertical Curvature for Min.Sight Distance. Provisions of adequate stopping sight distance may require use of larger K values than the min. listed above. The Town Code, reserves the right to prescribe more stringent sight distance stds. and/or means to achieve adequate sight distance than these listed above.

INTERSECTIONS:

a- Max. Street Grade at Intersections a,b

STOP or YIELD Condition: Vert. alignment is 2% max. through the crosswalk areas (marked or unmarked). Outside of the crosswalk areas the vert. alignment is 5% max. w/in 100' of an intersection c

THROUGH MOVEMENT Condition: Vert. alignment is 5% max. through the crosswalk areas. Where feasible, it is recommended that the vert. alignment for a through movement street also be set at 2% max. through the crosswalk areas (marked or unmarked). Outside of the crosswalk areas, see B.1.b for maximum grade.

b- Midblock Pedestrian Street Crossings: At midblock crossings, the cross slope of the pedestrian street crossing is allowed to equal the street grade

c- Min. Angle of Intersection is 75 deg.

d- Min. Curb & R/W Radius = Taken from Appendix C (Curb Return Radii Guidelines) of USDG

From \ To	R/Narrow	R/Medium	R/Wide	C/Narrow	C/Wide	Industrial
R/Narrow	35					
R/Medium	20	15				
R/Wide	15	15	35			
C/Narrow	20	15	35	35		
C/Wide	15	15	15	30	10	
Industrial	30	35	15	40	25	50

e- Min. Intersection Separation.

Along local streets 125'

Along collector streets 200'

Along thoroughfares To be determined by SCDOT

Intersection offsets/separation from a thoroughfare, at signalized intersections, or at intersections that may become signalized in the future may need to be > these minimums and will be determined SCDOT on a case by case basis.

3. Design criteria for arterial streets shall be established jointly by the Town Engineer and the Director of the SCDOT on a case by case basis using the latest edition of the American Association of State Highway and Transportation Officials (AASHTO) A Policy on Geometric Design of Highway and Streets and/or SCDOT Roadway Design Manual.
4. Intersection corner – A min. 35' x 35' sight triangle (measured along R/W lines) shall be provided at each intersection corner. An additional 10' x 70' sight triangle shall be provided at intersections connecting to SCDOT maintained roadways. Other sight distance requirements may be required by the SCDOT or the Town. Refer to the SCDOT Subdivision Roads Min. Construction Manual for development criteria for sites located w/in the Town Extraterritorial Jurisdiction (ETJ) w/in these areas governed by Blacksburg Land Development Standards Manual (LDSM) and the SCDOT Subdivision Roads Min. Construction Standards Manual. The more restrictive standard shall apply.

C. GRADING

1. Proposed street R/W shall be graded to their full width for ditch type streets and a min. of 8' feet behind the curb for C&G sections.
2. Fill embankments shall be formed of suitable material placed in successive layers not to exceed more than 6" in depth for the full width of the cross-section, including the width of the slope area. No stumps, trees, brush, rubbish or other unsuitable materials or substances shall be placed in the embankment.

Blank box for stamp or note.

Mailing Address: P.O. BOX 487
Blacksburg, SC 29702
Town Hall: (864) 839-2332 | Cell: (866) 967-6948
Email: dot@townofblacksburg.com
Website: www.townofblacksburg.com

Project Name:
Town of Blacksburg South Carolina
105 S. Shelby St. Blacksburg, SC 29702
105 S. Shelby St. Blacksburg, SC

Sheet Title:
Specifications & Special Provisions 1

Drawn By: Samantha Lee
Designed By: Patrick N. Sodak
Date: 12-01-2021 | Scale: N.T.S.
Job No.: CP/17-120114

Sheet No.:
CP



C. GRADING (Continued)

Each successive 6" layer shall be thoroughly compacted by the sheepfoot tamping roller, 10-ton power roller, pneumatic-tired roller, or other methods approved by the Town Engineer. Embankments over and around all pipe culverts shall be of select material, placed and thoroughly tamped and compacted as directed by the Town Engineer or his representative.

D. ROADWAY BASE

- All roadways shall be constructed with a base course as described on the appropriate Blacksburg Land Development Std. Detail Dwg.
- The material for stone base course shall conform to the requirements of Section "Aggregate for Non-Asphalt Flexible Type Base", and "Aggregate Base Course" of the SCDOT Standard Specs. for Roads & Structures.
- The stone base shall be compacted to 100% of the max. density obtainable w/ the Modified Proctor Test (AASHTO-T180) by rolling w/ ring or tamping roller or w/ a pneumatic tired roller w/ a min. weight of ten tons. When completed, the base course shall be smooth, hard, dense, unyielding & well bonded.
- A bituminous conc. base course, as specified on the Std. Detail Dwg. may be substituted in lieu of a stone base course.
- Asphalt base course will only be allowed w/in widening strips < 5' in width.

E. ROADWAY INTERMEDIATE & SURFACE COURSE

- All public roadways shall be constructed w/ an intermediate & surface course as described on the appropriate Town of Blacksburg LDS Detail Dwg.
- Plant mixed asphalt shall conform in all respects to The SCDOT Std. Specs for "Roads & Structures."
- The final 1" lift of asphalt surface course for Residential Subdivision Streets shall be withheld until a min. of 75% of the Development is occupied (a certificate of occupancy has been issued) or at least 1 year has lapsed from the application of the intermediate course layer (All documentation to be provided by the developer and approved by the Town Inspector). All known base failures shall be repaired prior to application of the final 1" lift of asphalt surface course.
- The City inspector shall be given a 24 hr. notification to inspect the intermediate course deficiencies. All deficiency repairs are to be monitored by a City Inspector and accepted prior to application of final layer.
- City inspectors shall be notified prior to using recycled plant mixes.
- Failure to meet the above requirements may result in the delay or prevention of street acceptance by the Town of or SCDOT.

F. SIDEWALKS, RAMPS, AND DRIVEWAYS

- Where sidewalks & pedestrian (ped) routes w/in street crossings (including marked & unmarked crosswalks) are provided, they must be constructed so they are accessible to all potential users, including those w/ disabilities. The July 26, 2011 "Proposed Accessibility Guidelines for Pedestrian Facilities in the Public R/W" was written by the US Access Board and is also known as the Public R/W Accessibility Guidelines or PROWAG. It provides more specific info. than the exist. Americans w/ disabilities Act Accessibilities Guidelines (ADAAG) for transportation facilities w/in the R/W including ped access routes, signals, & parking facilities. The PROWAG requirements are currently in the development & adoption process and have not been officially adopted by the DOJ; however, the FHA has issued guidance that the draft version of the PROWAG "are currently recommended best practices, and can be considered the state of the practice that could be followed for areas not fully addressed" in the exist. ADAAG requirements. Due to the widespread acceptance of the PROWAG, and their pending adoption in the future, the stds. in this manual are based upon the PROWAG requirements. The designer is encouraged to reference the complete PROWAG document for additional information (www.accessboard.gov). Bldg. & other structures not covered by PROWAG must comply with the applicable requirements of the ADAAG.

- Sidewalks shall be constructed of not < 3600 P.S.I. conc. and shall be four 4" thick, constructed on an adequately graded base, except where a sidewalk crosses a driveway it shall be six (6) inches thick. Subgrade shall be compacted to 95% of the max. density obtainable w/ the Std. Proctor Test. The surface of the sidewalk shall be steel trowel & light broom finished and cured w/ an acceptable curing compound. Tooled joints shall be provided at intervals of not < 5' and expansion joints (EJ) at intervals of > 45'. The sidewalk shall have a desired lateral slope of 1.5% (2% max.)

Example Sidewalk Construction Dimension

Width	Rise	Cross Slope
4'	3/4"	1.56%
5'	1"	1.67%
6'	1 1/8"	1.56%
8'	1 1/2"	1.56%

- Planting strip adjacent to sidewalk shall be graded to 1/4" per foot (min.) up to 1 1/2" per foot (max.), except where excessive natural grades make this requirement impractical. In such cases, the Town Engineer may authorize a suitable grade.
- Sidewalk widths shall be a min. of 5' unless otherwise specified. Where necessary, a 5' x 5' sidewalk is required at least every 200' as required by PROWAG for a passing zone unless otherwise provided by residential driveways, intersecting sidewalk, etc.
- Approval of sidewalk construction plans must be obtained as part of the plan review process. Except in unusual circumstances, sidewalk must be located a min. of 8' from the back of the curb or at the back of the R/W. A recorded public sidewalk easement is required for all sidewalk located outside public R/W; the width shall be equal to the distance from the R/W line to the back of the sidewalk plus 2' or to the face of bldg., whichever is less. The sidewalk easement must be recorded with the Cherokee Co. Register of Deeds prior to issuance of a certificate of occupancy (COO) for the corresponding building(s).

II. STORM DRAINAGE

A. GENERAL NOTES

- All work & materials shall conform to the latest edition of the SCDOT Std. Specs. unless otherwise specified in this manual. ALL conc. used for drainage structures shall have a min. compressive strength of 3600 PSI at 28 days. This requirement shall be provided regardless of any lesser compressive strength specified in the SCDOT Std. Specs. for Roads & Structures.
- Prior approval shall be obtained to use pre-cast storm drainage structures in any street R/W by Town Engineer.
- Construct non-SCDOT Roadway Std. Dwg. endwalls of reinf. conc. or as approved by the Town.
- Pipe shall have a min. diam. of 15" (18" min. cross drain culverts).
- Reinf. conc. pipe may be used in all storm drain applications. High Density Polyethylene Pipe (HDPE) may be substituted for pipe diam. of 48" or less. Culverts 60" in diam. or greater may be Corrugated Aluminized Metal Pipe (CAMP) or Corrugated Aluminum Alloy Pipe (CAAP) w/ a min. 14 gage metal.
- All pipe shall be laid w/ the bell or groove upgrade & the joint entirely interlocking.
- For all pipes, wrap geotextile per SCDOT around all pipe joints. Extend geotextile at least 12" beyond each side of the joint or band. Secure geotextile against the outside of the pipe by methods approved by the engineer.
- Meet min. & max. cover requirements of SCDOT Std. Dwg. Special applications for < 2' of cover will be reviewed & approved by the Town Engineer individually. Storm pipe design that exceeds these criteria may be approved at the discretion of the Town Engineer.
- All pipes in storm drain structures shall be flush w/ the inside wall.
- All storm drain structures over 3' & 6" in height must have steps in accordance w/ std. details set forth in this manual.

II STORM DRAINAGE (Continued)

- The interior surfaces of all storm drainage structures shall be pointed up & smoothed to an acceptable Std. using mortar mixed to manufacturer's specifications.
- Storm drainage piping shall be placed in a straight alignment at uniform grade. No changes in alignment shall be allowed except at catch basins, manholes, or other junctions that provide appropriate clean out access. The max. length between access points is 300 linear feet.
 - A pipe collar meeting SCDOT stds. or standard junction structure is required where pipes from 2 manufacturers or materials are tied together. Pipes should be on the same grade & alignment and have the same internal diam. where a pipe collar is specified.
- All frames, grates, rings, covers, etc., must conform to the std. set forth in this manual. Supply covers w/ a min. of 2 and a max. of six 1" diam. vent holes.
- All graded creek banks & slopes shall be at a max. of 2:1 and not to exceed 10' w/o terracing or the slopes shall be designed by a Prof. Geotechnical Engineer and approved by the City Town Engineer on a case by case basis.
- PIPE VIDEO STANDARDS: Installation of pipes/culverts consisting of the following approved materials (concrete, HDPE, & CAAP) used for the purpose of conveying stormwater runoff in and out of public R/W, that are eligible for maintenance by the Town, is subject to the following:
 - All storm drainage system installation requires a Closed Circuit Television (CCTV) video as part of the inspection process after installation and prior to the approval process. Pipe larger than 48" may require manual entry & inspection (confined space regulations may be applicable). No acceptance of a street(s) or associated map phase(s) will be considered by the town until a CCTV video of the associated storm drainage system is provided to the applicable review agency and the agency has provided a written response noting acceptance. All CCTV video will be performed by a current Nat. Assoc. of Sewer Service Co.-Pipeline assessment & Certification Program (NASSCO-PACP) certified contractor and in compliance with NASSCO-PACP stds. All videos, reports, and repair methods will meet the most recent published version of Town Std. The Town expects storm drainage systems to be clean, have good alignment, tight joints, no broken or cracked pipes, and built per the approved plans prior to submittal of CCTV video documentation. Any systems that do not meet the above may be rejected at the discretion of the Town Engineer.

All storm drainage system installation requires a Closed Circuit Television (CCTV) video as part of the inspection process after installation and prior to the approval process. Pipe larger than 48" may require manual entry & inspection (confined space regulations may be applicable). No acceptance of a street(s) or associated map phase(s) will be considered by the town until a CCTV video of the associated storm drainage system is provided to the applicable review agency and the agency has provided a written response noting acceptance. All CCTV video will be performed by a current Nat. Assoc. of Sewer Service Co.-Pipeline assessment & Certification Program (NASSCO-PACP) certified contractor and in compliance with NASSCO-PACP stds. All videos, reports, and repair methods will meet the most recent published version of Town Std. The Town expects storm drainage systems to be clean, have good alignment, tight joints, no broken or cracked pipes, and built per the approved plans prior to submittal of CCTV video documentation. Any systems that do not meet the above may be rejected at the discretion of the Town Engineer.

- The storm drainage system owner (developer, builder, property owner, etc.) will provide at their cost the following prior to final inspection & Town acceptance:
 - Plat, map or dwg. identifying each pipe segment being presented for acceptance w/ all inlet nodes labeled and corresponding to the accompanying video such that it is clear as to the pipe/culvert being accepted. For ex: start of video is at inlet CB1 to JB2 as shown on accompany dwg (video map segments should match the approved dwg.)
 - A CCTV video performed by a NASSCO-PACP certified contractor for each pipe / culvert segment being considered for acceptance.
 - A digital copy of report for each pipe/culvert segment that certifies the condition of pipe as installed is in compliance w the most recent version of NASSCO-PACP methodology & std. All defects are to be coded & reported per NASSCO-PACP certification guidelines to the City for review, after all repairs have been made. Any repair or treatment to defects (prior to submittal of video or as observed by the Town agency) will be corrected in compliance w/ Industry Std. approved methods. Ex: by following the Am. Conc. Pipe Assoc. acceptable methods & applicable material treatments associated w/ conc. pipe deficiency (broken conc. pipe will be repaired structurally by an approved method.)

Mailing Address: P.O. BOX 487
Blacksburg, SC 29702
Town Hall: (864) 839-2332 | Cell: (866) 967-6948
Email: doltow@townofblacksburg.com
Website: www.townofblacksburgsc.com

Project Name:
Town of Blacksburg South Carolina
105 S. Shelby St. Blacksburg, SC 29702
105 S. Shelby St. Blacksburg, SC

Sheet Title:
Specifications & Special Provisions 2

Drawn By: **Samantha Lee**
Designed By: **Patrick N. Sodak**
Date: **12-01-2021** Scale: **N.T.S.**
Job No.: **CP/17-120114**

Sheet No.:
CP



- iv. Deficiencies found/observed by Town staff may require an additional CCTV video to document they have been corrected appropriately and repair or treatment followed Industry Std. approved methods. Deficiencies must exceed the ACPA std. for acceptable pipe variations.
- v. The Town reserves the right to randomly or at its discretion monitor, evaluate, and review videos and reports submitted by the owner or certified consultants as a QA/QC practice. Any discrepancies between the report and the Town review may constitute non-acceptance of the approval.
- vi. The name of the contractor who installed the drainage system, and their contact information.

B. BACKFILL

1. Provide and install backfill per SCDOT std. Layers shall not exceed 6" loose and each layer shall be compacted thoroughly.
2. All backfill shall be non-plastic in nature, free from roots, vegetative matter, waste, construction material or other objectionable material. Said material shall be capable of being compacted by mechanical means and the material shall have no tendency to flow or behave in a plastic manner under the tamping blows or proof rolling.
3. Materials deemed by the Engineer as unsuitable for backfill purposes shall be removed and replaced w/ select backfill material.
4. Backfilling of trenches shall be accomplished immediately after the pipe is laid. Do not operate heavy equipment over any pipe culvert until the pipe culvert has been properly backfilled, covered and compacted w/ at least 3' approved material.
5. Compaction requirements shall be attained using mechanical compaction methods. Each layer of backfill shall be placed loose and thoroughly compacted in place.
6. Under no circumstances shall water be permitted to rise in un-backfilled trenches after the pipe has been placed.

B. REINF. CONC. PIPE (RCP) & CULVERTS

1. Conc. pipe used w/in the street R/W shall be a min. of Class III Reinf. Conc. Pipe. Installation of Class IV or higher conc. pipe shall be identified on the As-Built Plan and the The Inspector shall be given documentation & notification of this info. prior to construction. All conc. shall be at least 3600 PSI.
2. Joints shall consist of one of the following and should be specified by the Engineer for each respective project as applicable:
 - a. Preformed joint sealant, which conforms to ASTM C 990 Section 6.2 "Butyl Rubber Sealant" & SCDOT 1032-6.F. Joints utilizing preformed joint sealant shall be used in combination w/ Type 2 filtration geotextile wrap around all RCP pipe joints.
 - b. Rubber (elastomeric) gasket seals in accordance w ASTM C 443 which are in compliance w ASTM C 1619, Class C (unless otherwise required to exceed this specs., as specified by the Engineer). Joints shall be produced w/ single offset spigot or w/ a confined O-ring groove. Rubber Gaskets may be pre-lubricated profile, profile rubber gaskets, or O-ring. Rubber gasket installation shall be per manufacturer's recommendations. Where rubber gaskets meeting this section are specified, no filtration geotextile wrap is required around the joints for RCP.
3. Fill lift holes w/ a manufactured soil tight lift hole plug or as approved by the manufacturer. Provide the manufacturers approved method for filling lift holes upon request by the Town.
4. The max. pipe slope for reinf. conc. pipe is 10%. Provide a special design by a structural Engineer for reinf. conc. pipe slopes exceeding 10%.

D. CORRUGATED ALUMINIZED METAL PIPE (CAMP) AND CORRUGATED ALUMINUM ALLOY PIPE (CAAP)

1. Testing requirements: lues are appropriate for the selected CAMP or CAAP.

D. CORRUGATED ALUMINIZED METAL PIPE (CAMP) AND CORRUGATED ALUMINUM ALLOY PIPE (CAAP) - Continued

1. Testing requirements:
 - a. Perform physical pH & resistivity tests on the soil and water at 2 or more locations along the proposed culvert alignment. Perform additional tests at the request of the pipe manufacturer. Perform pH and resistivity tests on backfill material prior to installation.
 - b. Submit manufacturer specs showing that the physically collected soil- and stream-side pH & resistivity values are appropriate for the selected CAMP or CAAP.
 - i. At a min., for CAMP & CAAP to be considered, soil & water samples should have a pH within the range of 5.0 < pH < 9.0 and resistivity of r > 1500 ohm-cm.
2. Hydraulic considerations:
 - a. CAMP & CAAP can be used where velocities are < 5' per second in the 2-year storm events.
 - b. Where velocities are > than 5' per second in the 2-yr event, field pave a 4" thick reinforced conc. invert 2/5 of the height of the culvert or to 0.5' above the flow height of the 2-yr storm event, whichever is more restrictive. This requirement applies to both buried & non-buried culvert inverts. Field paving should not be completed until the pipe is backfilled.
 - i. Where bottomless CAMP & CAAP culverts are proposed, the walls of the culvert should be protected from abrasion by reinf. conc. up to either 2/5 the height of the culvert or to 0.5' above the flow height of the 2-yr storm event, whichever is more restrictive.
3. Metal end sections, pipe tees, elbows & reducers are not allowed.

E. HIGH DENSITY POLYETHYLENE PIPE (HDPE)

1. The Product used shall be corrugated exterior/smooth interior pipe (Type S), conforming to the requirements of AASHTO Spec M294 (latest edition) for Corrugated Polyethylene Pipe.
2. Bell & spigot joints shall be required on all pipes inside the R/W. Bells shall cover at least 2 full corrugations on each section of pipe. The bell & spigot joint shall have an O-ring gasket meeting ASTM F477 w/ the gasket factory installed, placed on the spigot end of the pipe. Pipe joints shall meet all requirements of AASHTO M294.
3. All HDPE pipe installed must be inspected & approved by the Town Inspector prior to any backfill being placed. The Town inspector must be present during the backfilling operation as well.
4. All backfill material shall be approved by the Town Inspector prior to placement of the material w/in the street R/W.
5. The min. length of HDPE pipe permitted for use shall be 4' HDPE flared end sections are not allowed.

F. STANDARDS FOR DESIGN

1. All storm drainage design shall conform to the std. & specs as provided in the Town Storm Water Design Storm Water Design Manual, SCDOT Std. Specs. for Roads & Structures, Blacksburg Land Development Std. Manual, or the more restrictive of any std, that conflict.
2. Adequate storm drainage shall be provided throughout the development by means of storm drainage pipes or properly graded channels. All pipes shall be of adequate size & capacity, as approved by the Town Engineer, to carry all storm water in its drainage area.
3. In accordance w/ the town of the City Zoning Ordinance, the Town Engineer shall review the drainage plan for compliance w/ the std, contained in the current edition of Blacksburg Land Development Standards Manual and all other relevant and appropriate stds. established by the Town Eng. Dept.
4. Sub-surface drainage shall be provided where the ground water level is likely to be near the surface. In capillary soils, the water level should be 4 to 6' below the surface to prevent the rise of moisture into the subgrade. Subdrains shall be used to lower ground water in low areas in the street.
5. The SCDOT Std. Dwg. have been accepted as approved stds. to be specified for land development projects in the Town & Town ETJ. See stds. of this manual for a table listing the std. accepted. These std. dwgs. shall be referenced by SCDOT # or shown on all plans submitted to the Town for approval.

II. PLAN REQUIREMENTS

A. GENERAL NOTES

1. All erosion control measures shall conform to the stds. set forth in Blacksburg Land Development Stds. Manual, SC Erosion & Sediment Control Planning & Design Manual, or the more restrictive of any stds.
2. All storm drainage design shall conform to the stds. & specs. as provided in Blacksburg Storm Water Design Manual, SCDOT Storm Drainage Manual, or the more restrictive of any std. that conflict.
3. In areas where the Floodway Regs. are applicable, the Future Conditions Flood Fringe Line, FEMA Flood Fringe Line, Community Encroachment Line, & FEMA Encroachment Line shall be shown on the prelim. plan & the final application for a Floodlands Development Permit shall be submitted to The Town Eng. in accordance w the requirements set forth in the Town/County Floodway Regulations.
4. Cite all appropriate std. detail #s for any structures or specifics used w/in the plans in reference to the most current copy of Blacksburg Land Development Std. Manual.

B. SUBDIVISIONS -PRELIM. PLAN

1. The prelim. plan must include, at a min., the info. described in Blacksburg's Subdivision Ordinance.
2. Storm Drainage Easements shall be provided for all storm drainage pipe and shown on site plans, construction plans & plats w/ widths specified below. The following note shall be placed on all grading plans & plats; "The purpose of the storm drainage easement (SDE) is to provide storm water conveyance. Bldgs. are not permitted in the easement area. Any other objects which impede storm water flow or system maintenance are also prohibited."

Pipes	
Diam.	Width
15" - 24"	15'
30" - 36"	20'
42" - 48"	25'
54" +	30'

Channels	
Drainage Area (ac)	Easement Width (ft)
01 - 45	15'
45 - 120	20'
120 - 500	25'
500 +	See Details

3. Overlapping of storm drainage easements shall be approved by the Town Engineer.

C. BOND POLICY – SUBDIVISION IMPROVEMENTS

1. Release of the final subdivision plat will not occur until the improvements required for the area of the final plat are constructed & a final inspection has been performed & found to be in conformance w/ the plans approved by Blacksburg Planning Commission., or a security has been posted w/ the Land Development Bond Coordinator of the applicable dept. & all required documents are received in their entirety.
2. The security shall be posted and remain in force until the construction is complete and found to be in conformance w/ the plans approved by Blacksburg's Planning Commission. The security will be reevaluated after 1 year from the date of posting.
3. The Applicant shall notify the Town Engineer or his assigns that construction is complete according to the appropriate subdivision ordinance and Blacksburg Land Development Std. Manual before any security will be released. A final inspection will be made to check completeness of the project upon notification.
4. One type of security may be replaced by another type of security in certain situations. The amount of the replacement security will be based on the Town's Engineer Estimate of the work remaining. If the estimate of work results in a lower amount, the replacement security will be treated as a reduction. Certain situations will require an increase in a security and in such cases the replacement security shall be required to equal the higher



Mailing Address: P.O. BOX 487
Blacksburg, SC 29702
Town Hall: (864) 839-2332 | **Call:** (866) 967-6948
Email: dottow@townofblacksburg.com
Website: www.townofblacksburgsc.com

Project Name:
Town of Blacksburg South Carolina
105 S. Shelby St. Blacksburg, SC 29702
105 S. Shelby St. Blacksburg, SC

Sheet Title:
Specifications & Special Provisions 3

Drawn By: Samantha Lee
Designed By: Patrick N. Sodak
Date: 12-01-2021 | **Scale:** N.T.S.
Job No.: CP/17-120114

Sheet No.:
CP

