



SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

CONSTRUCTION MANUAL



SOUTH CAROLINA
DEPARTMENT
OF TRANSPORTATION

May 2004

NOTICE

Registration Form and Notice of Needed Revisions

Complete and return this registration form to receive revisions to this *Manual*. SCDOT employees are not required to submit this form because updates will be routed via internal mail or the Department Intranet. Mail or fax this form to:

Director of Construction
South Carolina Department of Transportation
P.O. Box 191
955 Park Street
Columbia, South Carolina 29202

Company/Organization Name: _____
Contact Person: _____
Street Address: _____
City: _____
State: _____ Zip Code: _____
Telephone Number: (_____) _____
Email Address: _____

Select desired Method of Notification for updates to this *Manual*:

- Electronic
- Hard Copy

NOTES: _____

FOREWORD

The *SCDOT Construction Manual* is an operational manual of the South Carolina Department of Transportation (SCDOT). It defines the criteria and procedures to be used by engineering personnel in the administration of construction contracts.

The *Manual* was prepared and is maintained by the Office of the Director of Construction under the authority of, and at the direction of, the State Highway Engineer.

Although the *Manual* follows the general outline of the *Standard Specifications*, it is not a specification and should not be interpreted as such. Any section references are specific to this *Manual* unless otherwise noted.

Suggestions and/or comments for improvement, clarification, correction, and/or inclusion of material in the *Manual* are welcome. Please forward your comments to the Director of Construction using the Registration Form and Notice of Needed Revisions in the front of this *Manual*.

The instructions and procedures in this *Manual* are written and intended for use by Construction Engineers, Technicians and Inspectors. The *Manual* is available via the Internet or may be purchased from SCDOT.

The *Manual* will be revised as methods, materials, policies, procedures, specifications and the industry change. SCDOT will make revisions to the *Manual* available to SCDOT employees through intra-Department mail and the Intranet. The general public will be notified via the SCDOT Internet Web Site.

It is the *Manual* holder's responsibility to keep the *Manual* up to date.

ACKNOWLEDGEMENTS

I would like to extend my personal gratitude to the following Team Members who spent many hours beyond their normal day-to-day duties in developing a much-needed update to the *SCDOT Construction Manual*:

- Lindy Hallman – Road Construction Engineer – SCDOT
- Charles Eleazer – Assistant Construction Engineer – SCDOT
- Tim Lindberg – Assistant Construction Engineer – SCDOT
- Robert Dickinson – Assistant District Construction Engineer – SCDOT
- P. E. “Eddie” Felker – Resident Construction Engineer – SCDOT
- Chad Hawkins – Asphalt Materials Engineer – SCDOT
- Jay Hawkins – Quality Management Engineer – SCDOT
- Andy Johnson – State Pavement Design Engineer – SCDOT
- Mike Lockman – Geotechnical Materials Engineer – SCDOT
- Charles Matthews – Bridge Construction Engineer – SCDOT
- John McCarter – District Construction Engineer – SCDOT
- Bill Smyer – Quality Manager – SCDOT
- Todd Steagall – Quality Program Manager – SCDOT
- Joe Sease – Work Zone Traffic Control Engineer – SCDOT
- Jerry Todd – Quality Assurance Manager – SCDOT
- Merritt Vann – Quality Management Engineer – SCDOT
- Merrill Zwanka – State Materials Engineer – SCDOT
- David Law – Pavement and Materials Engineer – Federal Highway Administration
- Randall Burks – Project Manager – Roy Jorgensen Associates
- Ken Shearin – Manuals Group Manager – Roy Jorgensen Associates
- Susan Ruinen – Project Coordinator – The LPA Group, Incorporated
- Richard Lindler – Project Specialist – The LPA Group, Incorporated
- Larry Martin – Project Specialist – The LPA Group, Incorporated
- Richard Stewart – Project Specialist – CECS, Inc.

I would like to especially thank Lindy Hallman for the many hours he spent providing excellent project oversight and coordinating meetings to produce a top-quality *Manual*. Also, with special thanks to Randall Burks of Roy Jorgensen Associates for his expertise in guiding the Department’s decision-making process through the Information Engineering Phase and in managing the preparation of the *Manual* during the Development Phase of the project. For all SCDOT and FHWA staff who contributed their expertise to update the *SCDOT Construction Manual*, I extend my personal thanks.

Danny R. Shealy
Director of Construction
South Carolina Department of Transportation

Table of Contents

<u>Section</u>	<u>Page</u>
DIVISION 100 – GENERAL PROVISIONS	
101 GENERAL GUIDELINES	101-1
102 BIDDING REQUIREMENTS AND CONDITIONS	102-1
103 AWARD AND EXECUTION OF CONTRACT	103-1
104 SCOPE OF WORK	104-1
105 CONTROL OF WORK	105-1
106 CONTROL OF MATERIAL	106-1
107 LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC	107-1
108 PROSECUTION AND PROGRESS	108-1
109 MEASUREMENT AND PAYMENT	109-1
110 PROJECT CLOSURE	110-1
DIVISION 200 – EARTHWORK	
200 GENERAL GUIDELINES	200-1
201 CLEARING AND GRUBBING	201-1
202 REMOVAL OF STRUCTURES AND OBSTRUCTIONS	202-1
203 ROADWAY AND DRAINAGE EXCAVATION	203-1
204 STRUCTURE EXCAVATION	204-1
205 EMBANKMENT CONSTRUCTION	205-1
206 EMBANKMENT IN-PLACE	206-1
207 OVERHAUL	207-1
208 SUBGRADE	208-1
209 SHOULDERS AND SLOPES	209-1
210 FLOWABLE FILL	210-1
DIVISION 300 – BASES AND SUBBASES	
300 GENERAL GUIDELINES	300-1
301 CEMENT MODIFIED SUBBASE	301-1
302 SOIL-AGGREGATE SUBBASE	302-1
303 SAND-CLAY BASE COURSE	303-1
304 COQUINA SHELL BASE COURSE	304-1
305 GRADED AGGREGATE BASE COURSE	305-1
306 RESERVED	306-1
307 CEMENT STABILIZED EARTH BASE COURSE	307-1
308 CEMENT STABILIZED AGGREGATE BASE COURSE	308-1
309 HOT-MIX SAND ASPHALT BASE COURSE	309-1
310 HOT-MIX ASPHALT AGGREGATE BASE COURSE	310-1
311 PERMEABLE ASPHALT BASE COURSE	311-1
DIVISION 400 – ASPHALT PAVEMENTS	
401 HOT-MIX ASPHALT PAVEMENT	401-1
402 HOT-MIX ASPHALT INTERMEDIATE COURSE	402-1
403 HOT-MIX ASPHALT SURFACE COURSE	403-1
404 COLD-MIX ASPHALT INTERMEDIATE COURSE	404-1
405 COLD-MIX ASPHALT SURFACE COURSE	405-1
406 ASPHALT SURFACE TREATMENT – SINGLE TREATMENT	406-1

Table of Contents (continued)

<u>Section</u>	<u>Page</u>
407 ASPHALT SURFACE TREATMENT – DOUBLE TREATMENT	407-1
408 ASPHALT SURFACE TREATMENT – TRIPLE TREATMENT	408-1
409 OPEN-GRADED FRICTION COURSE	409-1
410 HOT-MIX THIN-LIFT SEAL COURSE	410-1
 DIVISION 500 – CONCRETE PAVEMENT	
501 PORTLAND CEMENT CONCRETE PAVEMENT	501-1
502 CONCRETE PAVEMENT PATCHING	502-1
503 GRINDING AND TEXTURING EXISTING CONCRETE PAVEMENT	503-1
504 CLEANING AND RESEALING OF JOINTS IN PCC PAVEMENT	504-1
505 ROUTING AND SEALING CRACKS IN PCC PAVEMENTS	505-1
 DIVISION 600 – TRAFFIC CONTROL	
601 WORK ZONE TRAFFIC CONTROL	601-1
602 TRAFFIC CONTROL DEVICES IN THE WORK ZONE	602-1
603 WORK ZONE TRAFFIC CONTROL PROCEDURES	603-1
604 PERMANENT PAVEMENT MARKINGS	604-1
605 PERMANENT RAISED PAVEMENT MARKERS	605-1
606 RESERVED	606-1
607 PERMANENT TERMINAL IMPACT ATTENUATOR	607-1
608 PERMANENT SIGNING	608-1
 DIVISION 700 – STRUCTURES	
701 PORTLAND CEMENT AND PORTLAND CEMENT CONCRETE	701-1
702 CONCRETE STRUCTURES	702-1
703 REINFORCING STEEL	703-1
704 PRESTRESSED CONCRETE	704-1
705 BRIDGE RAILING	705-1
706 WOOD PRODUCTS FOR USE IN HIGHWAY CONSTRUCTION	706-1
707 PRESERVATIVE TREATMENT OF WOOD PRODUCTS	707-1
708 HARDWARE	708-1
709 STRUCTURAL STEEL	709-1
710 PAINT FOR STRUCTURAL STEEL	710-1
711 DRIVEN PILE FOUNDATIONS	711-1
712 DRILLED SHAFTS AND DRILLED PILE FOUNDATIONS	712-1
713 MECHANICALLY STABILIZED EARTH RETAINING WALL	713-1
714 PIPE CULVERTS	714-1
715 STRUCTURAL PLATE PIPE, PIPE-ARCH AND ARCH CULVERTS	715-1
716 SEWERS	716-1
717 RE-LAID CULVERTS	717-1
718 BRICK, RUBBLE AND CONCRETE BLOCK MASONRY	718-1
719 CATCH BASINS, DROP INLETS, MANHOLES & BOXES	719-1
720 CONCRETE CURB, GUTTER, SIDEWALK, DRIVEWAY & MEDIAN	720-1

Table of Contents (continued)

<u>Section</u>	<u>Page</u>
721 ASPHALT CURB	721-1
722 PRECAST CONCRETE BOX CULVERTS	722-1
723 DECK JOINT STRIP SEAL	723-1
724 ELASTOMERIC BEARINGS.....	724-1
725 SHOP PLANS AND WORKING DRAWINGS FOR STRUCTURES	725-1
726 BRIDGE DECK REHABILITATION.....	726-1

DIVISION 800 – INCIDENTAL CONSTRUCTION

801 AGGREGATE UNDERDRAINS	801-1
802 PIPE UNDERDRAIN	802-1
803 PIPE SLOPE DRAINS	803-1
804 RIP RAP AND SLOPE PROTECTION	804-1
805 GUARDRAIL, BARRIERS AND IMPACT ATTENUATORS.....	805-1
806 FENCE.....	806-1
807 RESET FENCE	807-1
808 RELOCATION OF STRUCTURES AND OTHER ITEMS	808-1
809 RIGHT-OF-WAY MARKERS	809-1
810 SEEDING.....	810-1
811 PLANTING TREES, SHRUBS, VINES AND GROUNDCOVER	811-1
812 SPRIGGING.....	812-1
813 SODDING	813-1
814 WATERPROOFING.....	814-1
815 EROSION CONTROL.....	815-1
816 SEDIMENT CONTROL BASINS / STORM WATER DETENTION PONDS	816-1

DIVISION 900 – RESERVED**APPENDIX A – CONSTRUCTION FORMS****APPENDIX B – SAMPLE IDENTIFICATION CARDS****APPENDIX C – SAMPLING AND TESTING PROCEDURES****APPENDIX D – MISCELLANEOUS DATA****GLOSSARY****SUBJECT INDEX**

