83-01

MDOT

Mississippi Department of Transportation / P.O. Box 1850 / Jackson, MS 39215-1850 / FAX (601) 359-1233

March 9, 1995

ROADWAY DESIGN DIVISION	ACTION	INFO
DIV ENG.		
ASST DIV ENG.	✓	✓
DESIGN ENG.	✓	✓
SPEC ENG.		
CADD ENG.		
PHOTO ENG.		
AREA 1 ENG.	✓	
AREA 2 ENG.		
AREA 3 ENG.	✓	✓
AREA 5 ENG.	✓	
AREA 6 ENG.	✓	
AREA 7 ENG.		
OFFICE MANAGER		
STEVE R	✓	
KP	✓	

Ms. Phyllis E. Young
Division Administrator
Federal Highway Administration
666 North Street, Suite 105
Jackson, Mississippi 39202-3199

Dear Ms. Young:

Attached for FHWA Division and Region review are eight (8) copies of Special Provision No. 907-605-7; Subject: Edge Drains, which is to replace Special Provision No. 907-605-2 of the same subject.

Special Provision No. 907-605-7 revises previously approved Special Provision No. 907-605-2 to allow the use of corrugated polyethylene drainage tubing in edge drain construction. This revision was recommended by the Department's Pipe Culvert Subcommittee and approved by MDOT Executive Director Robert L. Robinson.

Also included are editorial corrections and revisions to provide for complete-in-place measurement and payment per linear foot for edge drains and edge drain outlets/vents. Separate measurement and payment will continue for the concrete used to construct aprons.

For your convenience in reviewing, changes have been marked with a vertical line in the left margin.

Approval of this Special Provision for general use on an interim basis is requested.

Yours very truly,

JAMES D. QUIN
CHIEF ENGINEER

Attachments

JDQ/TCR:tw

pc: Materials Division
Contract Administration Division
Roadway Design Division ✓
State Aid Division
Construction Division
Central File (Via Asst.Chief Engineer-Operations)
Specifications File

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-605-7 CODE: (IS)

DATE: 3/1/95

SUBJECT: Edge Drains

Section 605, Underdrains, of the 1990 Edition of the Mississippi Standard Specifications for Road and Bridge Construction as amended by this special provision is applicable for edge drains only:

907-605.01--Description. This work consists of furnishing and installing plastic pipe edge drains and edge drain outlets, vents and miscellaneous appurtenances as shown on the plans and as specified in the specifications and this special provision.

907-605.02--Materials. The materials for edge drains shall conform to the following:

907-605.02.1--Pipe and Pipe Fittings. Pipe for edge drains and edge drain outlets, vents, and cleanouts shall be three-inch nominal size, and shall, at the Contractor's option, be either Schedule 40 or Schedule 80 polyvinyl chloride (PVC) plastic pipe conforming to the requirements of ASTM Designation: D 1785.

In addition, pipe designated as slotted on the plans shall have three rows of slots in the pipe. The rows shall be in the longitudinal direction of the pipe and the slots shall be cut in the circumferential direction of the pipe. The three rows shall be spaced equally around the circumference of the pipe. Each row shall have 22 ($\pm$1) uniformly spaced slots per linear foot of pipe. The slots shall be 0.050-inch wide and of such length as to provide a minimum 2.00 square inches of slot opening per linear foot of pipe. Other suitable configurations of slots which provide drainage equal to or better than the above slot requirements may be used if approved in writing by the Engineer.

Fittings, except for "Y" fittings, shall be socket-type fittings conforming to the requirements of ASTM Designation: D 2467 for Schedule 80 pipe and ASTM Designation: D 2466 for Schedule 40 pipe. "Y" fittings shall be shop fabricated from pipe conforming to the requirements for edge drain outlet pipe. The fitting shall provide an unobstructed passageway through both legs of the "Y".

Edge drain outlet and vent covers shall consist of commercial quality 3 X 3 galvanized hardware cloth 0.063" wire or equal. The outlet and vent covers shall be installed at the end of each outlet pipe and vent pipe.

The Contractor may elect to furnish four-inch perforated pipe for the Type 1 edge drain and four-inch non-perforated pipe for the edge drain outlets and vents in lieu of the pipe listed above and on the plans. The use of four-inch perforated and non-perforated pipe must be approved by the Engineer.

The four-inch pipe, when furnished, shall conform to Subsection 708.18 with SDR number ranging from 23.5 to 35 and shall have a minimum pipe stiffness value of 50 psi or shall be corrugated polyethylene drainage tubing meeting the following requirements.

Corrugated polyethylene drainage tubing shall conform to the requirements of AASHTO Designation: M 252, Type S and/or Type SP, as applicable, with the stipulation that the minimum pipe stiffness value shall be 50 psi. The pipe and fittings shall be made of virgin polyethylene compounds which conform with the requirements of cell class 324420C as defined and described in ASTM D 3350, except that the carbon black content shall not exceed 5%. Compounds that have higher cell classifications in one or more properties are acceptable provided product requirements are met.

The Contractor shall furnish to the Engineer three copies of the manufacturer's certified test reports and certification covering each shipment of pipe stating the amount furnished and that the pipe, fittings, couplings, etc. comply with the requirements of the specifications.

907-605.02.2--Untreated Permeable Material. The untreated permeable material shall be Type 57 filter material and shall conform to the requirements of Subsection 703.03, Coarse Aggregate for Portland Cement Concrete, for Size 57 coarse aggregate. The type of aggregate may also be slag or granite. Mixing of different types of aggregate will not be permitted.

907-605.02.3--Filter Fabric. The geotextile fabric for use with edge drains shall meet the requirements of Subsection 714.13.

907-605.02.4--Miscellaneous. Concrete for aprons shall be Class "C" concrete meeting the requirements of Subsection 804.02.7.2.

Mortar placed where edge drain outlets and vents connect to drainage pipes and existing drainage inlets shall conform to the provisions of Subsection 714.11.5, Masonry Mortar, except that the sand and cement shall be commercial quality.

Material for backfilling trenches for outlets outside the soil cement shoulder shall be granular material as specified on the plans and meeting the requirements of Section 304 of the Standard Specifications. Material for backfilling trenches for outlets across soil cement shoulders shall be bituminous pavement mixture as specified on the plans and meeting the requirements of Section 301 or 401 as applicable.

907-605.03--Construction Requirements.

907-605.03.1--Installation. Edge drains, edge drain outlets, vents, untreated permeable material, and filter fabric shall be installed in accordance with the details shown on the plans, as specified herein and applicable Special Provisions. The vertical tolerance for the trench shall be plus or minus one-half inch. The horizontal tolerance (width) shall be plus one inch.

Surfaces to receive filter fabric, immediately prior to placing, shall be free of loose or extraneous material and sharp objects that may damage the filter fabric during installation.

The fabric shall be stretched, aligned and placed in a wrinkle-free manner.

Adjacent rolls of the fabric shall be overlapped from 12 to 18 inches. The preceding roll shall overlap the following roll in the direction the material is being spread.

Should the fabric be damaged during placing, the torn or punctured section shall be either completely replaced or shall be repaired by placing a piece of fabric that is large enough to cover the damaged area and to meet the overlap requirement.

Damage to the fabric resulting from the Contractor's vehicles, equipment or operations shall be replaced or repaired by the Contractor at no additional cost to the State.

Pipe and fittings shall be joined by solvent cementing with commercial quality solvent cement and primer specifically manufactured for use with rigid PVC plastic pipe and fittings. The solvent cement and primer used shall be made by the same manufacturer. The color of the primer shall contrast with the color of the pipe and fittings. The solvent cement and primer shall be used in accordance with the manufacturer's printed instructions.

When corrugated polyethylene drainage tubing is used, joints shall be made with split couplings, corrugated to engage the pipe corrugations, and shall engage a minimum of four corrugations, two on each side of the pipe joint.

When poly (vinyl chloride) corrugated sewer pipe is used, joints shall be made in accordance with the pipe manufacturer's recommendations and ASTM Designation: F 949.

The backfill of the trench along the pavement edge shall be of the material listed in 907-605.02.2.

The backfill of the trench across the soil cement shoulder shall be of bituminous pavement mixture as listed in 907-605.02.4.

The backfill of the trench outside the soil cement shoulder shall be of granular material as listed in 907-605.02.4.

The Contractor may dispose of the trenched materials on the slopes provided all material passes a three-inch ring and blends into the existing or reconstructed roadway slopes. Otherwise the material must be disposed of outside the right-of-way.

The edge drain and edge drain outlets and vents shall be clean at the time of installation and shall be free of obstructions after installation. The Contractor may use any method satisfactory to the Engineer to verify the pipes are free of obstructions.

907-605.04--Method of Measurement. Edge drains and edge drain outlets/vents, complete in place, will be measured by the linear foot along the line of the trench. On slopes the length to be paid for will be the slope length of the trench.

The Class "C" Concrete for concrete aprons shall be measured by the cubic yard.

Wire mesh covers, pipe and pipe fittings, couplings, untreated permeable material, geotextile fabric, granular material, bituminous pavement mixture, trenching, disposal of trenched materials and other miscellaneous appurtenances will not be measured separately for payment.

907-605.05--Basis of Payment. The contract unit prices paid for edge drain and edge drain outlets/vents shall be full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in constructing edge drains and edge drain outlets/vents complete in place, including wire mesh covers, pipe and pipe fittings, couplings, untreated permeable material, geotextile fabric, granular material, bituminous pavement mixture, trenching, disposal of trenched materials and other miscellaneous appurtenances as shown on the plans and as specified in the standard specifications and in this special provision.

Class "C" concrete for aprons as shown on the plans and as specified herein shall be paid for under Pay Item No. 907-221-A, Portland Cement Concrete Paved Ditch.

Payment will be made under:

907-605-FF: Edge Drain, Complete-in-Place - per linear foot

907-605-GG: Edge Drain Outlets/Vents, Complete-in-Place - per linear foot