PROPOSAL AND CONTRACT DOCUMENTS

FOR THE CONSTRUCTION OF

(EXEMPT)

14
Construction Ncessary to Improve the Parking Lot & Drive for the Stadium & Lab Complex, known as State Project No. BWO-9001-25(009) / 501464, in the County of Hinds, State of Mississippi.
Project Completion: January 15, 2005

NOTICE

BIDDERS MUST PURCHASE A BOUND PROPOSAL
FROM MDOT CONTRACT ADMINISTRATION DIVISION
TO BID ON THIS PROJECT.

Electronic addendum updates will be posted on www.goMDOT.com

SECTION 900

OF THE CURRENT
(1990) STANDARD SPECIFICATIONS
FOR ROAD AND BRIDGE CONSTRUCTION
MISSISSIPPI DEPARTMENT OF TRANSPORTATION

JACKSON, MISSISSIPPI

BIDDER CHECK LIST
(FOR INFORMATION ONLY)

_____ All unit prices and item totals have been entered in accordance with Subsection 102.06 of the Mississippi Standard Specifications for Road and Bridge Construction.

_____ If the bid sheets were prepared using MDOT's Electronic Bid System, proposal sheets have been stapled and inserted into the proposal package.

_____ First sheet of SECTION 905--PROPOSAL has been completed.

_____ Second sheet of SECTION 905--PROPOSAL has been completed and signed.

_____ Addenda, if any, have been acknowledged. Second sheet of Section 905 listing the addendum number has been substituted for the original second sheet of Section 905. Substituted second sheet of Section 905 has been properly completed, signed, and added to the proposal.

_____ DBE/WBE percentage, when required by contract, has been entered on last sheet of the bid sheets of SECTION 905 - PROPOSAL.

_____ Form OCR-485, when required by contract, has been completed and signed.

_____ The last sheet of the bid sheets of SECTION 905--PROPOSAL has been signed.

_____ Combination Bid Proposal of SECTION 905--PROPOSAL has been completed for each project which is to be considered in combination (See Special Provision No. 907-102-1).

_____ Equal Opportunity Clause Certification, when included in contract, has been completed and signed.

_____ Subcontract Certificate, when included in contract, has been completed and signed.

_____ The Certification regarding Non-Collusion, Debarment and Suspension, etc. has been executed in duplicate.

_____ A Certified check, cashier's check or bid bond payable to the State of Mississippi in the principal amount of 5% of the bid has been included. Bid bond has been signed by the bidder and has also been signed or countersigned by a Mississippi Resident Agent for the Surety with Power of Attorney attached or on file with the Department's Contract Administration Engineer.

_____ Non-resident Bidders: ON STATE FUNDED PROJECTS ONLY, a copy of the current laws regarding any preference for local Contractors from State wherein domiciled has been included. See Subsection 103.01, Mississippi Standard Specifications for Road and Bridge Construction, and Section 31-7-47, MCA, 1972 regarding this matter.

Return the proposal and contract documents in its entirety in a sealed envelope. DO NOT remove any part of the contract documents; exception - an addendum requires substitution of second sheet of Section 905. A stripped proposal is considered as an irregular bid and will be rejected.

Failure to complete any or all of the applicable requirements will be cause for the proposal to be considered irregular.

(10/2003)

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

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(REVISIONS TO THE ABOVE WILL BE INDICATED ON THE SECOND SHEET OF SECTION 905 AS ADDENDA)

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 901 - ADVERTISEMENT

Sealed bids will be received by the Mississippi Transportation Commission in the Office of the Contract Administration Engineer, Room 1013, Mississippi Department of Transportation Administration Building, 401 North West Street, Jackson, Mississippi, until 9:30 o'clock A.M., Tuesday, March 23, 2004; thereafter bids will be received in the First Floor Auditorium of the Mississippi Department of Transportation Administration Building, Jackson, Mississippi, until 10:00 o'clock A.M., Tuesday, March 23, 2004, and shortly thereafter publicly opened for

Construction Necessary to Improve the Parking Lot and Drive for the Stadium and Lab Complex, known as State Project No. BWO-9001-25(009) / 501464, in the County of Hinds, State of Mississippi.

The attention of bidders is directed to the predetermined minimum wage rate set by the U. S. Department of Labor under the Fair Labor Standards Act.

The Mississippi Department of Transportation hereby notifies all bidders that it will affirmatively insure that in any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, sex, religion or national origin in consideration for an award.

Plans and specifications are on file in the offices of the Mississippi Department of Transportation.

Bid proposals must be acquired from the MDOT Contract Administration Division, Room 1013, MDOT Administration Building, 401 North West Street, Jackson, Mississippi, 39201, Telephone (601) 359-7744 or FAX (601) 359-7940. These proposals are available at a cost of Ten Dollars ($10.00) per proposal. Specimen proposals are also available at the MDOT Contract Administration Division at a cost of Ten Dollars ($10.00) per proposal, or can be viewed or downloaded at no cost at www.gomdot.com.

Plans may be acquired on a cost per sheet basis from MDOT Plans Print Shop, Room 1100, MDOT Administration Building, 401 North West Street, Jackson, Mississippi, 39201, Telephone (601) 359-7460 or e-mail at plans@mdot.state.ms.us or FAX (601) 359-7461.

Bid bond, signed or countersigned by a Mississippi Resident Agent, with Power of Attorney attached or on file with the Contract Administration Engineer of the Department, a Cashier's check or Certified Check for five (5%) percent of bid, payable to STATE OF MISSISSIPPI, must accompany each proposal.

The attention of bidders is directed to the provisions of Subsection 102.07 pertaining to irregular proposals and rejection of bids.

LARRY L. “BUTCH” BROWN
EXECUTIVE DIRECTOR

(SPWP)

MISSISSIPPI STATE HIGHWAY DEPARTMENT

SECTION 904 - NOTICE TO BIDDERS NO. 1 **CODE: (IS)**

DATE: 7/26/90

SUBJECT: Governing Specifications

The current (l990) Edition of the Standard Specifications for Road and Bridge Construction adopted by the Mississippi State Highway Commission is made a part hereof fully and completely as if it were attached hereto, except where superseded by special provisions, or amended by revisions of the Specifications contained herein. Copies of the specification book may be purchased from the Construction Division.

A reference in any contract document to controlling requirements in another portion of the contract documents shall be understood to apply equally to any revision or amendment thereof included in the contract.

In the event the plans or proposal contain references to the 1976 Edition of the Standard Specifications for Road and Bridge Construction, it is to be understood that such references shall mean the comparable provisions of the 1990 Edition of the Standard Specifications.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 882 **CODE: (IS)**

DATE: 7/1/92

SUBJECT: AGENCY, COMMISSION AND OFFICER NAME CHANGES

Whenever the term "Mississippi State Highway Department", the word "Department", or variations thereof meaning the Mississippi State Highway Department appears in the plans, proposal, contract documents, and specifications for highway construction projects, in accordance with the laws of the State of Mississippi, it shall mean the "Mississippi Department of Transportation."

Whenever the term "Mississippi State Highway Commission", the word "Commission", or variations thereof meaning the Mississippi State Highway Commission appears in the plans, proposal, contract documents, and specifications for highway construction projects, in accordance with the laws of the State of Mississippi, it shall mean the "Mississippi Transportation Commission."

Whenever the term "Director", or variations thereof meaning the Chief Administrative Officer of the State Highway Department appears in the plans, proposal, contract documents, and specifications for highway construction projects, in accordance with the laws of the State of Mississippi, it shall mean the "Executive Director of the Mississippi Department of Transportation."

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 1072 **CODE: (SP)**

DATE: 10/21/92

SUBJECT: FINAL CLEAN-UP

Immediately prior to final inspection for release of maintenance, the Contractor shall pick up, load, transport and properly dispose of all litter from the entire highway right-of-way that is within the termini of the project.

Litter shall include, but not be limited to, solid wastes such a glass, paper products, tires, wood products, metal, synthetic materials and other miscellaneous debris.

Litter removal is considered incidental to other items of work and will not be measured for separate payment.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 1428 **CODE: (IS)**

DATE: 6/18/93

SUBJECT: ERRATA AND MODIFICATIONS TO 1990 STANDARD SPECIFICATIONS BOOK

Page	Subsection	Change
101-2	101.01	Change the abbreviation for Military Specifications from “MS” to "MIL".
101-2	101.01	After OD (Outside Diameter) add "OSHA" as the abbreviation for "Occupational Safety and Health Administration".
101-4	101.02	After the word "specifications," in the second line of the second paragraph under the definition for **Contract** add "supplemental specifications, ".
101-5	101.02	In the definition for **County** delete the word "specified".
105-2	105.03	In the fourth line of the last paragraph change “releave" to "relieve".
105-10	105.16	In the second line of this page change "grass" to "plant establishment".
107-21	107.25	In the third line of the fourth paragraph change "until" to "unit".
108-9	108.06.2	In the last two lines of the sixth full paragraph delete "or when the number is greater than 1.0, the assessment is assigned as 1.0".
218-1	218.03.2	In the second line of third paragraph change "unformly" to "uniformly".
405-8	405.03.3.2.2	In the first line change "crack" to "cracks".
405-8	405.03.3.2.2	In the first line change "then" to "than".
405-9	405.03.3.3.1	In the last line of the second paragraph add "shall" after the word "aggregate".
405-9	405.03.3.3.1	In the third line of the third paragraph change "Contract" to "Contractor".
405-10	405.03.4	In the last line of the first paragraph change “enterlayer" to "innerlayer".

Page	Subsection	Change
405-10	405.04	In the second line of the first paragraph change "ploymer" to "polymer".
405-10	405.04	In the last line of the third paragraph change reference "109.08" to "907-109.08".
408-1	408.04	In the first line change "Measurment" to "Measurement".
603-9	603.03.9.3	In the third line of the last paragraph of this subsection change "directd" to "directed".
603-10	603.05	In the description for pay item 603-C-F change "Sections" to "Section".
603-12	603.05	In the description for pay item 603-P-A delete the second "Box Culvert".
604-1	604.02	Change subsection reference for gray iron castings from "716.03" to "716.04".
615-1	615.03.2	In the eighth line change "placement" to "replacing,".
618-2	618.03.1	In the sixth line of the fourth paragraph change "walkaways" to "walkways".
618-2	618.03.1	In the seventh line of the fourth paragraph change the second "a" to "at".
626-3	626.05	Remove 4" from in front of Thermoplastic in description of pay item 626-G.
628-2	628.05	Add "linear foot" as a unit of measurement for payment under pay item 628-E.
630-6	630.03.8.1	In the last line of the first paragraph change the references from "810.03.6 and 810.03.7" to "810.03.5 and 810.03.6", respectively.
630-6	630.03.8.1	In the last line of the second paragraph change "shown" to "specified".
630-7	630.03.8.2	In the second line of the first paragraph change reference "810.03.2" to "810.02.2".
699-2	699.04	In the fourth line of the first paragraph change "included" to "include".
702-7	702.12	In the title for TABLE III change "EA-I" to "EA-1".
711-1	711.02.1	In the table for areas and weights of Standard Reinforcing Bars change the weight-lbs. per foot of number 5 bar from "1.048" to "1.043".

Page	Subsection	Change
712-1	712.04	In the third line of the second paragraph change "Class B" to "Class D".
712-1	712.04	In the fifth line of the second paragraph change "Class A" to "Class C".
712-8	712.12.5	In the third line change the ASTM designation from "A 120" to "F 1083".
714-13	714.11.7	Change the Subsection No. "714-11.7.1" to "714.11.7.1".
715-7	715.09.3	In the fifth line from the bottom of the page change the lbs./sq.yd. minimum dry wt. requirement for straw from "0.70" to "0.5".
716-2	716.11	In the second line change the ASTM designation from "A 120" to "A 53".
717-8	--	Change the Section No. shown in the upper left corner of the page from "7171" to "717".
721-3	721.03.3	In lines 5 and 7 of this subsection add "B 221, B 241, or" in front of B 429.
803-10	803.03.9.6	Revise the definition of the letter "S" in the pile formulas to read: "S = the average penetration in inches per blow for the last 5 to 10 blows for gravity hammers and the last 10 to 20 blows for steam/air hammers."
804-37	804.03.19.6.3	In the fourth line of the first paragraph change "otherewise" to "otherwise".
820-2	820.03.4.1	In the second line of this subsection change "with out" to "without".
820-2	820.03.4.3	In the second line of this subsection change "abraisions" to "abrasions".
1	Index	Change reference subsection for Advance on Materials from "109.02" to "109.06.2".
5	Index	Change reference subsection for Cofferdams and Cribs from "810.03.4" to "801.03.4".
28	Index	Delete the listing "Working Day, Definition of . . . . . 101.02" contained in the third line from the bottom of the page.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 1991 **CODE: (IS)**

DATE: 5/11/94

SUBJECT: Clarification of Significant Change Specifications

Before any consideration will be given for an adjustment to the contract as noted in the first paragraph of Subsection 907-104.02.1, it must be determined that a significant change in the character of the work has occurred. A Significant change in quantity of a major item [plus or minus twenty-five percent (25%) variation from original quantity], in and of itself, does not constitute a significant change in the character of work. The character of the work, as altered, has to differ materially in kind or nature from that involved or included in the original proposed construction.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 2905 **CODE: (IS)**

DATE: 10/4/95

SUBJECT: RESTRICTION ON TRICALCIUM ALUMINATE CONTENT AND SOURCE OF FLY ASH

All references to the term "Portland Cement Concrete" in the Mississippi Standard Specifications for Road and Bridge Construction, contract plans and documents, and the Department's Standard Operating Procedures shall be deemed to mean a concrete mixture composed of cementitious materials, water, fine and coarse aggregates, and admixtures when specified or permitted.

The Department has substantiated that for technical reasons concrete mixtures used in certain classes of application must have restrictions on the tricalcium aluminate content and source of fly ash used for replacement of portland cement. The need for the restrictions set forth herein have been documented.

In the event of a written request by interested persons, the documentation will be made available for review at the Department's Central Testing Laboratory located at 412 East Woodrow Wilson Avenue, Jackson.

Except for those classes of application which are excluded herein, the tricalcium aluminate content of the portland cement portion of cementitious materials used in stabilization and concrete mixtures shall not exceed eight percent (based on aluminum or aluminum oxide content). At the Contractor's option, the cementitious material may be portland cement (Type I or II), portland cement (Type III when permitted), blended hydraulic cement (Type IP), portland cement combined with ground granulated blast furnace slag or portland cement combined with fly ash.

The addition of fly ash as a replacement for cement will not be permitted in blended hydraulic cement (Type IP), portland cement combined with ground granulated blast furnace slag or portland cement (Type III) when specified in the contract.

The restrictions on tricalcium aluminate content and source of fly ash are not applicable for the following classes of application:

(a) manufacture of prestressed structure members, concrete pipe, post and right-of-way markers and

(b) construction of bridge decks, curbs, rails and intermediate caps.

The replacement of portland cement with fly ash shall not exceed 20 percent and the replacement rate (by weight) shall be one part fly ash for one part cement. The scales for weighing fly ash shall meet the requirements of cement scales as set forth in Subsection 501.03.2.3.

When blended hydraulic cement (Type IP) is incorporated in the work or when portland cement is replaced with ground granulated blast furnace slag or fly ash, cylinder tests shall be used as a guide for the removal of falsework and forms as set forth in Column B of Subsections

601.03.6.3 and 804.03.15; and concrete pavement shall not be opened to traffic until cylinder tests have attained a compressive strength of 3500 psi or may be opened after a curing period of 28 days.

In addition to meeting the requirements set forth in Subsection 714.05, the source of fly ash must have been approved for listing in the Department's "List of Approved Sources of Fly Ash for Concrete Mixtures in Sulfate Areas" prior to its use.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 2906 **CODE: (IS)**

DATE: 10/4/95

SUBJECT: Use of Ground Granulated Blast Furnace Slag (GGBFS)

Subject to the conditions set forth herein and at the Contractor's option, GGBFS may be used as a replacement for portland cement as the cementitious material in concrete mixtures and in cement-soil or cement-soil-aggregate mixtures. The replacement of portland cement with GGBFS shall not exceed 50 percent by weight of the total cementitious material and the replacement rate (by weight) shall be one part GGBFS for one part portland cement. Only one mineral admixture will be allowed for portland cement replacement in any mixture.

The addition of GGBFS as a replacement for portland cement will not be permitted in blended hydraulic cement, portland cement combined with fly ash or portland cement (Type III), when specified in the contract.

In addition to meeting the requirements set forth in Subsection 907-714.06, the source of GGBFS must have been approved for listing in the Department's "List of Approved Suppliers of Grade 120 - Ground Granulated Blast-Furnace Slag".

Concrete mixtures containing portland cement combined with GGBFS shall not be mixed or used alternately with concrete mixtures containing other cementitious materials in any structure or part thereof that, in its permanent position, will be visible above the ground.

When GGBFS is proposed to be used in concrete mixtures, the Contractor shall furnish the concrete mixture design with documentation of performance characteristics (based on trial batching or plant produced mixtures) to the Engineer for review prior to use. The approval of the mixture design will be based on verification of performance at the beginning of production.

When GGBFS is used for replacement of portland cement in concrete mixtures, cylinder tests shall be used as a guide for the removal of falsework and forms as set forth in Column B of Subsections 601.03.6.3 and 804.03.15 and concrete pavement shall not be opened to traffic until cylinder tests have attained a compressive strength of 3500 psi or may be opened after a curing period of 28 days.

Scales for weighing GGBFS shall meet the requirements of cement scales as set forth in Subsection 501.03.2.3.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 3191 **CODE: (IS)**

DATE: 4/08/96

SUBJECT: Selection of Optional Items

Bidders are hereby advised that, because of a change by the Department in classifying "Optional" items, the bid schedule for this project lists as "Optional" items that formally have been listed as "Alternate".

The summary of quantities sheet(s) in construction plans printed prior to the effective date of this change may list as "Alternate" items that are listed as "Optional" in the bid proposal.

When this contradiction occurs, the listing in the bid schedule is correct and bidders are to disregard the contradicting listing on the summary of quantities sheet(s) in the construction plans.

Bidders should pay close attention to the items classified in the bid schedule as "Optional" items.

With the change by the Department in classifying optional items, a change will be required of the Contractor in the selection of optional items. (Refer to 907-101-2, 907-102-4 and Section 905)

WHEN THE BID SCHEDULE LISTS OPTIONAL ITEMS, THE CONTRACTOR'S SELECTION MAY, BUT IS NOT REQUIRED TO, BE MADE AT THE TIME OF BIDDING. FOR OPTIONAL ITEMS NOT PRE-SELECTED, THE CONTRACTOR'S SELECTION SHALL BE MADE PRIOR TO OR AT THE TIME OF EXECUTION OF THE CONTRACT.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 3745 **CODE: (IS)**

DATE: **3/31/97**

SUBJECT: **Plant Pest Quarantines Information**

AT THE REQUEST OF THE U. S. DEPARTMENT OF AGRICULTURE, PLANT PEST CONTROL INFORMATION CONCERNING DOMESTIC QUARANTINES IS CITED AS FOLLOWS:

The entire state of Mississippi has been quarantined for the Imported Fire Ants. Soil and soil-moving equipment operating in the state will be subject to plant quarantine regulations. In general, these regulations provide for cleaning soil from equipment before it is moved from the state. Complete information may be secured from the State of Mississippi Department of Agriculture and Commerce, Bureau of Plant Industry, P. O. Box 5207, Mississippi State, Mississippi 39762-5207 -- Telephone 325-3390.

IMPORTED FIRE ANT QUARANTINES

THE FOLLOWING REGULATED ARTICLES REQUIRE A CERTIFICATE OR PERMIT FOR MOVEMENT:

1. Soil, separately or with other things, except soil samples shipped to approved laboratories*. Potting soil is exempt, if commercially prepared, packaged and shipped in original containers.

2. Plants with roots with soil attached, except houseplants maintained indoors and not for sale.

3. Grass sod.

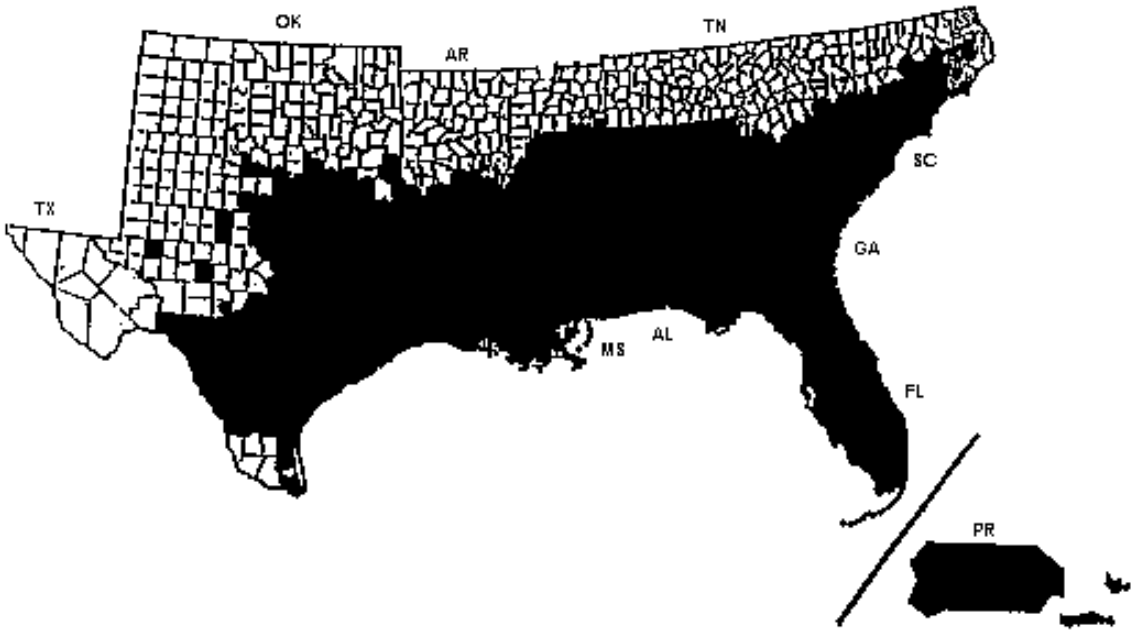
4. Baled hay and straw that have been stored in contact with the soil.

5. Used soil-moving equipment.

6. Any other products, articles, or means of conveyance of any character whatsoever not covered by the above, when it is determined by an inspector that they present a hazard of spread of the imported fire ant and the person in possession thereof has been so notified.

* Information as to designated laboratories, facilities, gins, oil mills, and processing plants may be obtained from an inspector.

Imported Fire Ant Quarantines



Conditions of Movement.

Counties entirely colored are completely regulated; Counties partially colored are partially regulated.

■ Regulated Area.

Restrictions are imposed on the movement of regulated articles as follows:
From colored areas into or through white areas.

Consult your State or Federal plant protection inspector or your County Agent for assistance regarding exact areas under regulation and requirements for moving regulated articles. For detailed information, see 7 CFR 301.81 for quarantine and regulations.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 4670 **CODE: (IS)**

DATE: 9/30/99

SUBJECT: Prompt Payment

Bidders are hereby advised that the Prime Contractor must pay their subcontractor(s) for satisfactory performance of their contracts no later than a specific number of days from receipt of payment from the Department.

Therefore, Prime Contractors are hereby advised of the following:

(a) Within 15 calendar days after receiving payment from the Department for work satisfactorily performed, the Prime Contractor shall make prompt payment to all sub-contractors or material suppliers for all monies due.

(b) Within 15 calendar days after receiving payment from the Department for work satisfactorily completed, the Prime Contractor shall promptly return all retainage monies due to all sub-contractors or material suppliers.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 4758 **CODE: (IS)**

DATE: 6/11/99

SUBJECT: Alterations In Bidding Process

Bidders are hereby advised that they may either use the traditional method of entering their bid information by hand on Section 905--Proposal, or may insert printed information obtained from the available Electronic Bid System (EBS).

It is the responsibility of every bidder to check for any addendum or modification to the contract document(s) for which they intend to submit a response. It shall be the bidder's responsibility to be sure they are in receipt of all addenda, pre-bid conference information, and/or questions and answers provided at, or subsequent to, the pre-bid conference, if any are issued.

The Mississippi Transportation Commission assumes no responsibility for defects, irregularities or other problems caused by the use of electronic media. Operation of this electronic media is done at the sole risk of the user.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 4792 **CODE: (IS)**

DATE: 5/02/2001

SUBJECT: Substitution of Cold Plastic Traffic Markings

Bidders are hereby advised that, at their option, cold plastic traffic markings may be used in lieu of hot applied thermoplastic markings. Substitution will only be allowed for pay items 907-626-AA through HH. Substituted cold plastic markings shall be of the same color and width as that required for the hot applied stripe. Unless otherwise specified, the markings, whether hot applied or cold plastic, shall be of the same type material for the entire project. Material and construction requirements for substituted cold plastic traffic markings shall meet the requirements of Section 628 of the Standard Specifications or as amended by special provision. The layout and spacing for substituted cold plastic traffic markings will remain as shown in the plans, or in the contract documents, for hot applied thermoplastic markings. Measurement of substituted cold plastic traffic markings shall be made in accordance with Section 628 of the Standard Specifications or as amended by special provision. Payment for substituted cold plastic traffic markings shall be made at the unit price bid for the appropriate hot applied thermoplastic marking.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 4954 **CODE: (IS)**

DATE: 4/4/2000

SUBJECT: ON-THE-JOB TRAINING PROGRAM

Bidders are hereby advised that the Department's policy for administering On-The-Job Training has been changed. Affective in the March 2000 letting, payment for training hours will be handled as outlined in Special Provision 906-4. A pay item for trainees will no longer be included in individual construction projects. Payment for training individuals will be processed in accordance with the conditions in MDOT's ON-THE-JOB TRAINING PROGRAM (Special Provision 906-4).

On Federal-Aid projects, failure on the part of the Contractor to carryout the terms of the Alternate Training Special Provision (Special Provision 906-4) will be considered grounds to preclude the Contractor from participating in the Alternate On-The-Job Training Program. In the event the Department is required to preclude the Contractor from participating in the program, the Contractor will be required to adhere to the requirements of the Training Special Provision (Special Provision 906-3), for which purpose the special provision is also made a part of this proposal.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 5185 **CODE: (IS)**

DATE: **9/29/2000**

SUBJECT: **Change Order / Quantity Adjustment Name Change**

Whenever the term "Change Order" appears in the plans, proposal, contract documents, and specifications for highway construction projects, it shall mean "Quantity Adjustment."

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 6027 **CODE: (IS)**

DATE: 02/27/2002

SUBJECT: Work In Proximity Of High Voltage Power Lines

Bidders are hereby advised of Section 45-15-1, et seq., Mississippi Code of 1972, regarding the performance of work in the proximity of high voltage overhead power lines. It is the Contractor's responsibility to comply with those statutory requirements.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 6143 **CODE: (IS)**

DATE: 05/22/2002

SUBJECT: Payments to Subcontractors

Bidders are hereby advised that each month, the Contractor will submit to the Project Engineer form OCR-484 certifying payments to all subcontractors. Form OCR-484 can be obtained from the Office of Civil Rights Division, MDOT Administration Building, 401 North West Street, Jackson, MS, or at the MDOT website under the *Business Section, Construction Contracts and Bidding, Disadvantaged Business Enterprise (DBE), Applications and Forms for the DBE Program*.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 6159 **CODE: (IS)**

DATE: 06/07/2002

SUBJECT: Contract Overpayment(s)

Bidders are hereby advised that by the execution of the contract for this project, the Contractor agrees that it has the duty to and will immediately reimburse the Mississippi Transportation Commission, without any demand therefore, for any overpayment(s) of which it has knowledge, or through due diligence, should have knowledge.

By the execution of the contract for this project, the Contractor also agrees that if the Mississippi Transportation Commission has made any overpayment(s) to the Contractor on any previously executed contract(s), the Mississippi Transportation Commission may notify the Contractor in writing of the nature and the amount of the overpayment(s). If the Contractor fails to remit the overpayment(s) to the Mississippi Transportation Commission within sixty (60) calendar days from the date of such notice, interest shall accrue from the date of such notification until payment is made in full at the rate of one percent (1%) per month until fully paid.

By the execution of the contract for this project, the Contractor also agrees that the Mississippi Transportation Commission may offset and withhold a sum equal to any overpayment(s) on any previously executed contract(s), plus interest, where applicable, against any sums due the Contractor under the terms of this contract or any other active contract(s).

By the execution of the contract for this project, the Contractor also agrees that if any overpayment(s) are made by the Mississippi Transportation Commission to the Contractor under the terms of this contract the Mississippi Transportation Commission shall have the right to offset and withhold that amount, plus interest, where applicable, from any sums which the Mississippi Transportation Commission might owe the Contractor on any other active contract(s) or any contract(s) executed subsequent to the execution of this contract.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 6275 **CODE: (IS)**

DATE: **09/17/2002**

SUBJECT: **Federal Bridge Formula**

Bidders are hereby advised that Federal Highway Administration Publication No. FHWA-MC-94-007, **BRIDGE FORMULA WEIGHTS**, dated January 1994, is made a part of this contract when applicable.

Prior to the preconstruction conference, the Contractor shall advise the Engineer, in writing, what materials, if any, will be delivered to the jobsite via Interstate route(s).

Copies of the **BRIDGE FORMULA WEIGHTS** publication may be obtained by contacting:

Federal Highway Administration
400 7th Street, SW
Washington, DC 20590
(202) 366-2212

or

http://ops.fhwa.dot.gov/freight/regulate/sw/

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 6289 **CODE: (IS)**

DATE: 09/26/2002

SUBJECT: Certification of Traffic Control Devices

Category 1 Traffic Control Devices

Category 1 traffic control devices are defined as low-mass, single-piece traffic cones, tubular markers, single-piece drums, and delineators.

The Contractor shall certify to the Project Engineer by a letter ONLY stating that the Category 1 traffic control devices, furnished and used, either meet the requirements of NCHRP Report 350 or were purchased prior to October 1, 1998.

All documentation supporting the certification is to be kept on file by the Contractor subject to review by the Department at any time. Support documentation shall be kept on file for two years after the completion of the project.

The Contractor may self-certify Category 1 Traffic Control Devices. In order to make the self-certification, the Contractor shall have as a minimum the following support documentation regarding the certification.

1. A title, e.g., "Certification of Crashworthiness";
2. Name and address of vendor making the certification;
3. Unique identification of the certificate (such as serial number) with numbered pages and the total number of pages;
4. Description and unambiguous identification of the item tested;
5. Identification of the basis for self-certification process used and to what test level of NCHRP Report 350. This basis as crash test experience with similar devices or years of demonstrably safe operational performance;
6. A signature and title, or an equivalent identification of the person(s) accepting responsibility for the content of the certification, however produced, and the date of issue;
7. A statement that the certification shall not be reproduced except in full.

All documentation supporting the self-certification is to be kept on file by the Contractor subject to review by the Department at any time. Support documentation shall be kept on file for two years after the completion of the project.

The Contractor's letter to the Project Engineer shall state that all Category 1 traffic control devices, furnished and used, were purchased after October 1, 1998 and met the requirements of NCHRP Report 350, or that the Category 1 traffic control devices, furnished and used, were purchased prior to October 1, 1998.

Category 2 Traffic Control Devices

Category 2 traffic control devices are defined as barricades, intrusion detectors, vertical panel assemblies, portable sign supports, drums with warning lights, and cones with warning lights.

The Contractor shall certify to the Project Engineer by a letter ONLY stating that the Category 2 traffic control devices, furnished and used, either meet the requirements of NCHRP Report 350 or were purchased prior to October 1, 2000. The Contractor's letter shall state that all Category 2 traffic control devices, furnished and used, were purchased after October 1, 2000 and met the requirements of NCHRP Report 350, or that the Category 2 traffic control devices, furnished and used, were purchased prior to October 1, 2000.

Category 3 Traffic Control Devices

Category 3 Traffic Control Devices are items similar to Category 2 but weigh more than 100 pounds. Category 3 Traffic Control Devices include concrete barrier, truck mounted attenuators (TMAs), workzone crash cushions, and fixed sign supports.

Concrete barrier and fixed sign supports, furnished and used, and purchased after October 1, 2002 must meet the requirements of Report 350.

The Contractor shall furnish a letter ONLY certifying that all concrete barrier and fixed sign supports purchased after October 1, 2002 meets the requirements of NCHRP Report 350. Concrete barrier and fixed sign supports purchased prior to October 1, 2002 may be used without written certification until they complete their normal service life.

Work zone crash cushions and truck mounted attenuators (TMAs), furnished and used, and purchased after October 1, 1998 must meet the requirements of Report 350.

The Contractor shall furnish a letter certifying that all work zone crash cushions and TMAs purchased after October 1, 1998 meets the requirements of NCHRP Report 350. Work zone crash cushions and TMAs purchased prior to October 1, 1998 may be used without written certification until they complete their normal service life.

Contractor's Letter to the Project Engineer

The following is an example of a letter to the Project Engineer.

"I, *(Contractor's name)*, certify that the Category 1 traffic control devices used on this project and purchased after October 1, 1998 meet the requirements of NCHRP Report 350 and all Category 1 traffic control devices used on this project not meeting NCHRP Report 350 were purchased prior to October 1, 1998.

I also certify that the Category 2 traffic control devices used on this project and purchased after October 1, 2000 meet the requirements on NCHRP Report 350 and all Category 2 traffic control devices used on this project not meeting NCHRP Report 350 were purchased prior to October 1, 2000.

I also certify that except for concrete median barrier, all of the Category 3 traffic control devices crash cushions and truck mounted attenuators used on this project and purchased after October 1, 1998 meet the requirements on NCHRP Report 350 and all Category 3 crash cushions and truck mounted attenuators used on this project not meeting NCHRP Report 350 were purchased prior to October 1, 1998."

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 6483 **CODE: (SP)**

DATE: **03/19/2003**

SUBJECT: **Storm Water Discharge Associated with Construction Activity (≥ 1 and < 5 Acres)**

PROJECT: **BWO-9001-25(009) / 501464 - Hinds County**

Construction Storm Water General NPDES Permit MSR 15 to discharge storm water associated with construction activity is required. This project is granted permission to discharge treated storm water into State waters. Copies of said permit and Storm Water Pollution Prevention Plan (SWPPP) are on file with the Department.

Prior to the execution of the contract, the successful bidder shall execute and deliver to the Executive Director an original signed copy of the completed Prime Contractor Certification (Form No. 1).

Failure of the bidder to execute and file the completed Prime Contractor Certification (Form No. 1) shall be just cause for the cancellation of the award.

The executed Prime Contractor Certification (Form No. 1).shall be prima facie evidence that the bidder has examined the permit, is satisfied as to the terms and conditions contained therein, and that the bidder assumes the responsibility for meeting all permit terms and conditions and for performing permit requirements including, but not limited to, the inspection and reporting requirements of Part IV. For this project, the Contractor shall furnish, set up and read, as needed, an on-site rain gauge.

Prior to the commencement of construction activities, the Contractor must furnish the Project Engineer a completed copy of the Small Construction Notice of Intent (SCNOI) for the Project Engineer's records.

The Contractor shall make inspections in accordance with Part IV.C and shall furnish the Project Engineer with the results of each weekly inspection as soon as possible following the date of inspection. A copy of the form provided in Part IX with the inspection portion completed shall be sufficient. The weekly inspections must be documented monthly on the Inspection and Certification Form for Small Construction Erosion and Sediment Controls (Part IX) . The Contractor's representative and the Project Engineer shall jointly review and discuss the results of the inspections so that corrective action can be taken. The Project Engineer shall retain copies of the inspection reports.

An amount equal to 25 percent (25%) of the total estimated value of the work performed during each period in which the Contractor fails to submit the completed monthly Inspection and Certification Form for Small Construction Erosion and Sediment Controls (Part IX) to the Project Engineer will be withheld from the Contractor's earned work. Thereafter, on subsequent successive estimate periods, the percentage withheld will be increased at the rate

of 25 percent per estimate period in which the non-conformance with this specification continues. Monies withheld for this non-conformance will be released for payment on the next monthly estimate for partial payment following the date the submittal of the completed monthly Inspection and Certification Form for Small Construction Erosion and Sediment Controls (Part IX) is brought back into compliance with this specification.

In summary, prior to the execution of the contract, the successful bidder shall execute and deliver to the Executive Director an original signed copy of the completed Prime Contractor Certification (Form No. 1). Also, prior to the commencement of construction on the project, the Contractor shall furnish the Project Engineer a completed copy of the Small Construction Notice of Intent (SCNOI) for the Project Engineer's records.

Securing a permit (s) for storm water discharge associated with the Contractor's activity on any other regulated area the Contractor occupies, shall be the responsibility of the Contractor.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904- NOTICE TO BIDDERS NO. 6522 **CODE: (SP)**

DATE: 05/12/2003

SUBJECT: Removal of Construction Signs

Bidders are hereby advised that upon receipt of the Final or Partial Maintenance Release, as documented in writing by the State Construction Engineer, the Contractor shall have fifteen (15) calendar days in which to remove all construction signs on the project. It is agreed that if the signs are not removed within the fifteen (15) calendar days the signs shall be considered abandoned and shall become the property of the Mississippi Transportation Commission which may remove, use, and/or dispose of such signs as it sees fit.

The Contractor shall place and maintain appropriate construction signs for any additional work on the project after the Maintenance Release has been issued. These construction signs will not be measured for separate payment. Payment for these signs shall be included in Pay Item No. 618-A, Maintenance of Traffic.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 6618 **CODE: (SP)**

DATE: 6/19/2003

SUBJECT: Submittal of Hydrated Lime Shipping Tickets

In accordance with Subsection 907-401.02.3.1 of the specifications, the Contractor shall provide the District Materials Engineer with a copy of each shipping ticket from the supplier including the project number, date, time and weight of hydrated lime shipped and used in Hot Mix Asphalt (HMA) production.

The Contractor is advised that an amount equal to twenty-five percent (25%) of the total value of HMA items performed during the initial estimate period in which the Contractor fails to submit the hydrated lime shipping tickets to the District Materials Engineer will be withheld from the Contractor's earned work. Non-conformance with this specification for successive estimate period(s) will result in the total value (100%) of HMA items performed during this period(s) being withheld from the Contractor's earned work. Monies withheld for this non-conformance will be released for payment on the next monthly estimate following the date the submittal of hydrated lime shipping tickets to the District Materials Engineer is brought back into compliance with this specification.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 6783 **CODE: (IS)**

DATE: 10/28/2003

SUBJECT: Fuel Tax Applicability to Bidders and Contractors

Bidders are hereby advised that the "Mississippi Special Fuel Tax Law", Section 27-55-501, et seq. and it's requirements and penalties apply to any contract for construction, reconstruction, maintenance or repairs, for contracts entered into with the State of Mississippi, any political subdivision of the State of Mississippi, or any Department, Agency, Institute of the State of Mississippi or any political subdivision thereof.

The Mississippi State Tax Commission will be notified of the name and address of the Contractor that is awarded this contract. The Contractor will be subject to an audit during the life of this contract to make certain that all applicable fuel taxes are being paid promply as outlined in Section 27-55-501, et seq.

In addition to any audits performed by the Mississippi State Tax Commission, the Department also reserves the right to audit the Contractor's records during the life of this contract to make certain that all applicable fuel taxes are being paid promply as outlined in Section 27-55-501, et seq.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 6794 **CODE: (SP)**

DATE: 11/12/2003

SUBJECT: Estimated Monthly Quantities

Bidders are hereby advised that each month the Contractor works, the Engineer furnishes the Contractor with a monthly progress estimate showing the total estimated quantities for each pay item in the contract. The Contractor should review the Engineer's progress estimate as to the accuracy of the quantities. Should the Engineer's estimated quantity for any pay item be greater than a tolerance of plus or minus ten percent (±10%) of the Contractor's estimated quantity, the Contractor should confer with the Resident or Project Engineer to rectify any differences. Each should make a record of the differences, if any, and conclusions reached. In the event mutual agreement cannot be reached, the Contractor will be allowed a maximum of 15 calendar days following the ending date of the monthly estimate in question to file in writing, a protest Notice of Claim in accordance with the provisions Subsection 105.17. Otherwise, the Engineer's estimated quantities shall be considered acceptable pending any changes made during the checking of final quantities.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 6840 **CODE: (SP)**

DATE: **02/09/2004**

SUBJECT: **Petroleum Products Base Prices For Contracts Let In March, 2004**

REFERENCE: **Subsection 907-109.07**

The following base prices are to be used for adjustment in compensation due to changes in costs of petroleum products:

FUELS

	Per Gallon	Per Liter
Gasoline	$1.4328	$0.3785
Diesel	$1.3138	$0.3471

MATERIAL OF CONSTRUCTION

Asphalt Cements**	Per Gallon	Per Ton	Per Liter	Per Metric Ton
Viscosity Grade AC-5	$0.8079	$191.67	$0.2134	$211.28
Viscosity Grade AC-10	$0.7882	$187.00	$0.2082	$206.13
Viscosity Grade AC-20	$0.7762	$184.14	$0.2051	$202.98
Viscosity Grade AC-30	$0.7762	$184.14	$0.2051	$202.98
Grade PG-58-28	$0.8043	$190.83	$0.2125	$210.35
Grade PG 64-22	$0.7828	$185.71	$0.2068	$204.71
Grade PG 67-22	$0.7882	$187.00	$0.2082	$206.13
Grade PG 76-22	$1.1486	$272.50	$0.3034	$300.37
Grade PG 82-22	$1.3016	$308.80	$0.3438	$340.39

Emulsified Asphalts			
Grade EA-4 (SS-1)	$0.7267		$0.1920
Grade RS-2C (CRS-2)	$0.7433		$0.1964
Grade CRS-2P	$0.8590		$0.2269

Primes			
Grades EA-1 and MC-70	$0.9550		$0.2523

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 – NOTICE TO BIDDERS 6885

DATE: 01/09/2004

SUBJECT: PROJECT SCHEDULE AND PRIORITIES

PROJECT: BWO-9001-25(009) / 501464 – HINDS COUNTY

The following construction sequencing/ objectives and calendar dates for the completion of the various elements of this project are as follows:

Construction Sequencing	Calendar Date
Anticipated Start of Construction	May 13, 2004
Phase I – Construction of New Road • Demolish existing road and drives maintaining vehicular access from the north existing parking lot to North West Street and from the east existing parking lot to Stadium Drive. • Provide paved access from existing north parking lot to new road when traffic is eliminated off of existing road. • Open new road to local traffic	90 days ending July 15, 2004
Phase II – Construction of New Parking Lot • Continue demolition of areas as noted on the drawings while providing vehicular access between the existing parking lots and streets as noted in Phase I.	90 days ending November 15, 2004
Phase III – Completion of lighting, fencing, irrigation, and landscaping • Irrigation system shall be operable prior to installation of plant material in a given area.	60 days ending January 15, 2005
Completion of Construction – All Items • Begin Plant Material Establishment	January 15, 2005
Establish Bermuda Grass • Overseed Bermuda Grass on established ryegrass seeded areas • Repair eroded (seeded) areas and prepare non-established seeded areas for seeding. • Provide landscape mowing as necessary once grass is established	April 15, 2005

Plant Material Replacement • Following first establishment inspection • Final replacement at end of Establishment	By July 15, 2005 (or 6 months after planting is complete and approved by the Engineer) By August 1, 2005 (or 15 days after first establishment inspection when all plants have been replaced)

Work in Phases II and III may be performed simultaneously with that of Phase I, however, completion dates of specific elements will not be extended for such circumstances.

Drums and barricading of areas to prevent vehicular and pedestrian access into construction areas shall be coordinated with the Engineer. Payment for erection and removal of drums and barricades shall be an absorbed item within the paving elements of the project.

Site access and lay down areas required must be coordinated with the Engineer.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 6889 **CODE: (SP)**

DATE: **2/10/2004**

SUBJECT: **Contract Time**

PROJECT: **BWO-9001-25(009) / 501464 - Hinds County**

The calendar date for completion of work to be performed by the Contractor for this project shall be January 15, 2005, which date or extended date as provided in Subsection 907-108.06 shall be the end of contract time. It is anticipated that the Notice to Proceed will be issued by not later than May 3, 2004 and the date for Beginning of Contract Time will be May 13, 2004.

A progress schedule as referenced to in Subsection 108.03 will not be required for this contract.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 6891 **CODE: (SP)**

DATE: 02/10/2004

SUBJECT: Specialty Items

PROJECT: BWO-9001-25(009) / 501464--HINDS COUNTY(IES)

Pursuant to the provisions of Section 108, the following work items are hereby designated as "Specialty Items" for this contract. Bidders are reminded that these items must be subcontracted in order to be considered as specialty items.

CATEGORY: EROSION CONTROL

Ref No	Pay Item	Description
150	212-B	Standard Ground Preparation
160	907-213-A	Agricultural Limestone
170	213-B	Combination Fertilizer (13-13-13)
210	214-A	Seeding (Bermudagrass)
220	214-A	Seeding (Annual Ryegrass)

CATEGORY: TRAFFIC CONTROL

Ref No	Pay Item	Description
950	619-G4	Barricades (Type III) (Double Faced)

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-101-5 **CODE: (IS)**

DATE: 01/03/2002

SUBJECT: **Definitions**

Section 101, Definitions and Terms, of the 1990 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

907-101.02--Definitions. Delete the definition of "Change Order" on page 101-4.

Delete the definition of “Extra Work Order” on page 101-6.

Delete the definition of "Optional Items" on page 101-8 and substitute:

Optional Items - Items listed in the bid schedule of the proposal which are considered to be comparable for the purpose intended, and the Contractor is required to make a selection prior to or at the time of execution of the contract.

After the eighth definition on page 101-9, add the following:

Quantity Adjustment - A modification of contract quantities covering increases or decreases resulting from plan errors, omissions or changes made necessary in order to carry out the intent of the plans.

Delete Figure 1 at the end of Section 101 on page 101-13, and substitute the following:

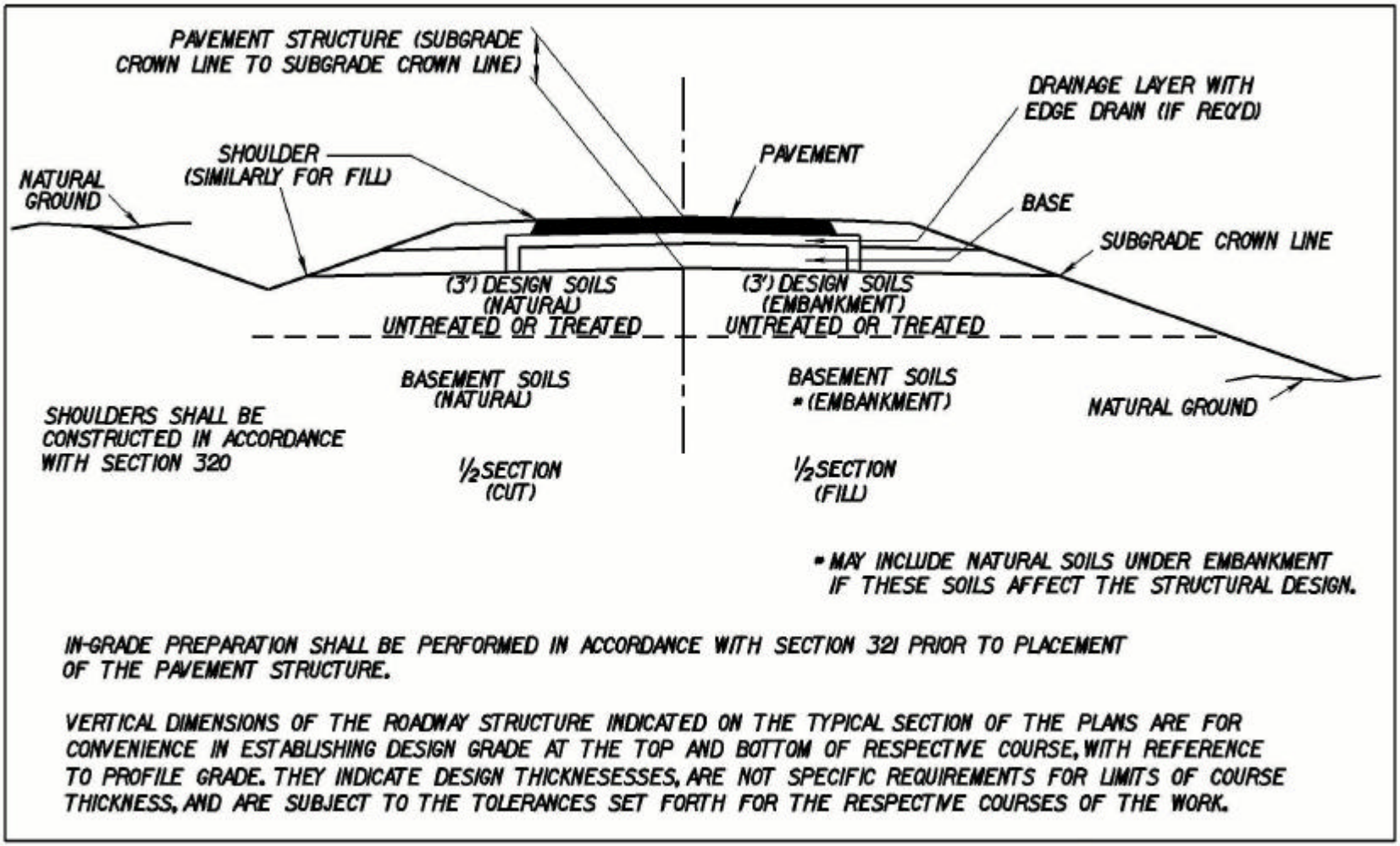


FIGURE 1 - REFERENCE DIVISION 100 - PAGE 101-1

MISSISSIPPI STATE HIGHWAY DEPARTMENT

SPECIAL PROVISION NO. 907-102-1 **CODE: (IS)**

DATE: 9/5/90

SUBJECT: **Combination Bids**

Section 102, Bidding Requirements and Conditions, of the 1990 Edition of the Standard Specifications for Road and Bridge Construction, is hereby amended as follows:

Delete Subsection 102.11 in toto and substitute the following:

907-102.11--Combination Bids. Combination bids which combine two or more individual projects may be submitted by stating in writing on each project proposal to be considered in the combination, one of the following:

(a) That the bidder is bidding on "All or None" of the work for designated proposals. The Department will evaluate all bids on these proposals and make awards based on the bids most advantageous to the State.

(b) The reduction the bidder will make in the unit price of one or more of the items in any or all of the proposals if awarded the combination; however, the bidder will not be permitted to make a reduction in any unit price that may be fixed by the Department in the proposal. The Department will select from the proposals submitted the individual or combination bids most advantageous to the State.

(c) That he is bidding on a number of projects but desires to be awarded work not to exceed a specified total amount or a specified number of contracts. The Department will select from his proposal those which are most advantageous to the State within its specified amount or total number of contracts.

Combination bids which state that a lump sum shall be deducted from the final estimate or retained percentage, or that a reduction in prices shall be made on a percentage basis, or that states that award of a job is contingent upon being awarded another job will not be accepted and the bids with which such a letter is submitted will be considered irregular and rejected.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-102-8 **CODE: (IS)**

DATE: 03/01/2002

SUBJECT: **Preparation of Proposal**

Section 102, Bidding Requirements and Conditions, of the 1990 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

907-102.06--Preparation of Proposal. Delete in toto the second full paragraph on page 102-4 and substitute:

Bid sheets generated by the Department's Electronic Bid System (EBS) along with a completed proposal package will constitute the official bid and shall be signed on the last sheet of the EBS generated bid sheets and delivered to the Department in accordance with the provisions of Subsection 102.09.

Bidders are cautioned that using older versions of the EBS will result in improperly printed bid sheets. The latest version of the EBS can be obtained at no cost from the MDOT Contract Administration Division or at the MDOT website, www.mdot.state.ms.us.

If bidders submit EBS generated bid sheets, then the bid sheets included in the proposal should not be completed. The EBS generated bid sheets should be stapled together and included in the bid proposal package in the sealed envelope. If both the forms in the proposal and the EBS generated bid sheets are completed and submitted, only the EBS generated sheets will be recognized and used for the official bid. The diskette containing the information printed on the EBS generated bid sheets should be placed in the pouch located on the inside of the front cover of the bid proposal package. Bid sheets printed from the EBS should be a representation of the data returned on the diskettes. To have a true representation of the bid sheets, the Bidder must copy the inputted unit prices back to the diskette by using the option titled "Copy Project File To Floppy Disk" from the drop-down menu under "Projects". Otherwise, the unit prices bid will not be recorded to the diskette. Bidders are cautioned that failure to follow proper diskette-handling procedures could result in the Department being unable to process the diskette. **Any modification or manipulation of the data contained on the diskette, other than entering unit bid prices, will not be allowed and will cause the Contractor's bid to be considered irregular.**

When the bid schedule lists optional items, the Contractor's selection may, but is not required to, be made at the time of bidding. For optional items not pre-selected, the Contractor's selection shall be made prior to or at the time of execution of the contract.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-103-5 **CODE: (IS)**

DATE: 12/2/99

SUBJECT: **Execution and Approval of Contract**

Section 103, Award and Execution of the Contract, of the 1990 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

907-103.01-Consideration of Proposals. Delete the third paragraph of Subsection 103.01 on page 103-1, and substitute the following:

In consideration of contract proposals which are equal to or in excess of $50,000 and financed 100% with State funds, a nonresident bidder domiciled in a state having laws granting preference to local Contractors will be considered for such contracts on the same basis as the nonresident bidder's state awards contracts to Mississippi Contractors bidding under similar circumstances. When a nonresident Contractor submits a bid equal to or in excess of $50,000 on a contract financed 100% with State funds, a copy of the current laws from the state of domicile and an explanation thereof pertaining to treatment of nonresident Contractors shall be attached. If no preferential treatment is provided for Contractors in the state of domicile and contracts are awarded to the lowest responsible bidder, a statement to this effect shall be attached. Should the attachment not accompany the bid when submitted, the Contractor shall have 10 days following the opening of the bids to furnish the required information to the Contract Administration Engineer for attachment to the bid. As used herein, the term "resident Contractors" includes a nonresident person, firm or corporation that has been qualified to do business in this State and has maintained a permanent full-time office in the State of Mississippi for two years prior to January 1, 1986, and the subsidiaries and affiliates of such a person, firm or corporation.

907-103.04--Return of Proposal Guaranty. Delete the third paragraph of Subsection 103.04 on page 103-2 and substitute the following:

In the event no award is made within **30 days** after the opening of bids, the Executive Director may permit the successful bidder to replace the certified check or cashier's check with a satisfactory bidder's bond.

Delete in toto Subsection 103.07 on page 103-2, and substitute the following:

907-103.07--Execution and Approval of Contract. The successful bidder to whom the contract has been awarded shall sign and file with the Director the contract and all documents required by the contract within **10 days** after the contract has been mailed to the bidder. The contract may require certain documents be submitted at an earlier date, in which case, those documents shall be submitted within the time frame specified. If the contract is not executed by the Department within 15 days following receipt of the signed contract and all necessary documents, the bidder shall have the right to withdraw his bid without penalty. No contract is in effect until it is executed by all parties.

907-103.08--Failure to Execute Contract. Delete in toto Subsection 103.08 on page 103-2, and substitute the following:

Failure of the bidder to execute the contract and file acceptable bond within **10 days** shall be just cause for the cancellation of the award and forfeiture of the proposal guaranty which shall become the property of the Department, not as a penalty but in liquidation of damages sustained. Award may then be made to the next lowest responsible bidder, or the work may be readvertised at the discretion of the Department.

MISSISSIPPI STATE HIGHWAY DEPARTMENT

SPECIAL PROVISION NO. 907-104-3 **CODE: (IS)**

DATE: 11/27/91

SUBJECT: Significant Changes in the Character of Work and Differing Site Conditions

Section 104, Scope of Work, of the 1990 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

907-104.02.1--Significant Changes in the Character of Work.

Delete the first sentence of the first paragraph of Subsection 104.02.1 on page 104-1 and substitute:

If the alterations or changes in quantities significantly change the character of the work under the contract, whether such alterations or changes are in themselves significant changes to the character of the work or by affecting other work cause such other work to become significantly different in character, an adjustment, excluding anticipated profit, will be made to the contract.

Delete the last paragraph of page 104-2 and the first paragraph of page 104-3 and substitute:

907-104.02.2--Differing Site Conditions. During the progress of the work, if subsurface or latent physical conditions are encountered at the site differing materially from those indicated in the contract or if unknown physical conditions of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in the work provided for in the contract, are encountered at the site, the party discovering such conditions shall promptly notify the other party in writing of the specific differing conditions before the site is disturbed and before the affected work is performed.

Upon written notification by the Contractor, the Engineer will investigate the conditions, and if it is determined that the conditions materially differ and cause an increase or decrease in the cost or time required for the performance of any work under the contract, an adjustment, excluding anticipated profits, will be made and the contract modified in writing accordingly. The Engineer will notify the Contractor of the determination whether or not an adjustment of the contract is warranted.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-104-12 **CODE: (IS)**

DATE: 04/11/2003

SUBJECT: **Minor Alterations to the Contract**

Section 104, Scope of Work, of the 1990 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

After the end of Subsection 104.02.2 on page 104.3, add the following:

907-104.02.3--Minor Alterations to the Contract. When the Department makes alterations in the details of construction or specifications that are minor in nature, the Resident or Project Engineer may elect to make an equitable adjustment to the contract under the provisions of this subsection. Minor alterations shall be defined as those alterations to the contract that are not addressed in the Standard Specifications, or supplements thereto, and are valued at less than $5,000.00. The District Engineer shall designate, in writing, the Resident or Project Engineer authorized to execute the Class I Supplemental Agreement. The Resident or Project Engineer and Contractor shall agree upon the scope of work and a lump sum amount, within the above stated limit, for the work to be performed. The agreement shall be reflected in a Class I Supplemental Agreement signed by the Resident or Project Engineer and the Contractor's authorized representative, which, when it bears both the signature of the Resident or Project Engineer and Contractor, shall constitute the scope of work and basis of payment under the item "Minor Alterations to the Contract." Work shall not proceed until both parties sign the agreement.

Any adjustment of contract time due to Minor Alterations will be in accordance with Subsection 108.06 of the Standard Specifications.

Payment will be made under:

907-104-A S/A: Minor Alterations to the Contract - lump sum

(This pay item is not to be included on the plans or in the contract proposal)

MISSISSIPPI STATE HIGHWAY DEPARTMENT

SPECIAL PROVISION NO. 907-105-4 **CODE: (SP)**

DATE: 5/23/91

SUBJECT: Construction Plans

Section 105, Control of Work, of the 1990 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

Delete the first paragraph of Subsection 105.02 in toto and insert:

907-105.02--Plans and Working Drawings. After the contract is executed by the Director, the Contractor will receive free of charge two bound copies of the proposal and contract documents (one executed and one blank), and five full scale copies of the plans and two half-scale copies. The Contractor shall have available on the work at all times one copy each of the plans, specifications and proposal assemblies.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-105-9 **CODE: (IS)**

DATE: 9/8/95

SUBJECT: Claims

Section 105, Control of Work, of the 1990 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

907-105.17--Claims for Adjustments and Disputes. Delete in toto Subsection 105.17 on pages 105-10 and 105-11 and substitute the following:

It is in the public interest that the Department have early or prior knowledge of an existing or impending claim of any nature by the Contractor so that the Department may appropriately consider modifying the details of the work or other actions of the Department which might result in mitigation or elimination of the effect of the act or conditions objected to by the Contractor and so that the Department may institute appropriate procedures, as required, to keep strict account of actual costs and to verify, at the time, facts upon which a claim for contract time adjustment is made. Therefore, if in any case the Contractor deems that additional compensation is due for work or materials not clearly covered in the contract or not ordered by the Engineer as Extra Work, or if the Contractor deems that adjustment in the contract time should be made because of any of the reasons provided for in the contract as a basis for an extension of time, the Contractor shall notify the Engineer in writing of an intention to make such claim for additional compensation before beginning the work on which the Contractor bases the claim or for such extension of time as soon as the facts first become known on which the Contractor bases the claim for adjustment. If such written notification is not given by the Contractor in accordance with these specifications and the Engineer and the Department's Audit Division are not afforded proper facilities by the Contractor for keeping strict account of actual costs or verification at the time of facts upon which a claim for contract adjustment is made, the Contractor hereby agrees that failure to provide written notice has denied the Department the prerogative of verifying additional time, materials, equipment, labor and making adjustments in the work which might remove or alleviate the conditions for which a claim might be made, and the Contractor further agrees that such failure on the Contractor's part shall be a conclusive waiver of any claim, or part thereof.

Mere oral notice or statement will not be sufficient, nor will an unnecessarily delayed notice or statement after the event.

Any such notice shall be in writing and shall describe any act of omission or commission by the Department or its agents that allegedly caused or contributed to the condition for which a claim may be made and the nature of the claimed damage. The Contractor shall deliver or mail the notice to the Project Engineer.

Upon receipt of the notice, the Project Engineer will acknowledge receipt in writing to the Contractor with a copy of the notice and acknowledgment to the District Engineer, State Construction Engineer and the Department's Audit Director.

The Project Engineer will evaluate the Contractor's claim and forward his/her recommendations to the District Engineer with a copy to the State Construction Engineer and the Department's Audit Director.

The State Construction Engineer, after consultation with the District Engineer and Project Engineer, will notify the Audit Division of the Contractor's claim and request that the Audit Director take the necessary steps to review the legitimacy of the Contractor's documentation of the claim.

Even when the Audit Division determines that the Contractor's documentation relative to the time, materials, equipment and labor are legitimate, that division will continue to monitor the Contractor's charges until the Contractor's services are complete.

Such notice by the Contractor and the fact that the Engineer has kept account of the costs and the Audit Division has verified the legitimacy of the Contractor's documentation and other facts as aforesaid shall not in any way be construed as substantiating the validity of a claim.

In presenting a claim, the Contractor shall clearly and specifically state:

(a) The contract subsection number(s) under which each part of the claim is made.

(b) The event(s) or conditions covered in each such subsections and made the basis for each part of the claim.

(c) A claim for additional compensation shall include supporting auditable cost figures from entries made in the original records entered at the time of the work. The Contractor will be required to provide all records that the Department's Audit Director deems necessary for the performance of an audit in accordance with the United States General Accounting Office's Governmental Auditing Standards, the Institute of Internal Auditor's Professional Practice Standards, and the American Institute of Certified Public Accountant's Auditing Standards.

All claims made shall be sent to the Resident or Project Engineer for review and processing.

If a claim is so vague that the Engineer cannot reasonably and expeditiously determine the specific contractual provisions relied on by the Contractor as the basis of each part of the claim, or if the Audit Director cannot reasonably and expeditiously determine that the costs related to the claim are related specifically to the reference project and are not related to any other project(s) that the Contractor is constructing or has constructed, it will be denied by the Engineer or returned without action.

Any part of a claim based on after-the-fact general statements of costs such as "Normal cost of such work", "computed as a percentage of..... etc." or other such indefinite statements will be denied or returned to the Contractor without action.

The Resident or Project Engineer may request supplemental data in writing, or return the claim to the Contractor for resubmission in accordance with these specifications.

A claim, as approved by the Department, will be paid in accordance with the provisions of 104.02 and 104.03 and adjustments in contract time will be made in accordance with the provision of 108.06. When a claim is denied or returned without action, the notice will state the reasons thereof.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-106-1 **CODE: (IS)**

DATE: 9/22/93

SUBJECT: **Convict Produced Materials**

Section 106, Control of Materials, of the 1990 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

After the end of Subsection 106.12 on page no. 106-5, add the following:

907-106.13--Convict Produced Materials.

Materials produced after July 1, 1991, by convict labor may only be incorporated in a Federal-Aid highway construction project if such materials have been:

(1) Produced by convicts who are on parole, supervised release, or probation from a prison or

(2) Produced in a qualified prison facility and the cumulative annual production amount of such materials for use in Federal-aid highway construction does not exceed the amount of such materials produced in such facility for use in Federal-aid highway construction during the 12-month period ending July 1, 1987.

Qualified prison facility means any prison facility in which convicts, during the 12-month period ending July 1, 1987, produced materials for use in Federal-Aid highway construction projects.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-107-10 **CODE: (IS)**

DATE: 3/1/99

SUBJECT: Contractor's Responsibility For Work

Section 107, Legal Relations and Responsibility to Public, of the 1990 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

After the second full paragraph of Subsection107.17 on page 107-15, add the following:

Damage to items of construction, caused by the traveling public on a project or section(s) of a project open to traffic, shall be repaired by the Contractor. The Contractor will be paid for repairing such damage to certain acceptably installed items of construction at the contract unit price(s) for the applicable item(s) used in the repair. An acceptably installed item shall be complete-in-place meeting the requirements of the specifications. The acceptably installed items of construction eligible to receive payment for repair of damage caused by the traveling public shall be items used for signing, safety and traffic control. The eligible items shall be limited to traffic signal systems, signs and sign supports, lighting items, guard rail items, delineators, impact attenuators, median barriers, bridge railing or permanent pavement markings. If damage to the above items necessitate only minor repairs, in lieu of total replacement, the work shall be performed in accordance with Subsection 109.04, or as directed by the Engineer. Damage not meeting the requirements to qualify for repair payment shall be repaired at no additional cost to the State.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-107-12 **CODE: (IS)**

DATE: 10/21/2003

SUBJECT: **Liability Insurance**

Section 107, Legal Relations and Responsibility to Public, of the 1990 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

907-107.14.2--Liability Insurance.

Delete Subsection 107.14.2.1 on page 107-12 in toto and substitute:

907-107.14.2.1--General. The Contractor shall carry contractor's liability (including subcontractors and contractual) with limits not less than: $300,000 each occurrence; $1,000,000 aggregate; automobile liability - $500,000 combined single limit - each accident; Workers' Compensation and Employers' Liability - Statutory & $100,000 each accident; $100,000 each employee; $500,000 policy limit. Each policy shall be signed or countersigned by a Mississippi Resident Agent of the insurance company.

The Contractor shall have certificates furnished to the Department from the insurance companies providing the required coverage. The certificates shall be on the form furnished by the Department and will show the types and limits of coverage.

907-107.14.2.2--Railroad Protective.

Delete the last paragraph on page 107-12 and substitute:

> Prior to starting any work on railroad property, the Contractor shall furnish satisfactory evidence to the Department that insurance of the forms and amounts set out herein in paragraphs (a) and (b) has been obtained.

Delete the last sentence of the first paragraph on page 107-13 and substitute:

> Evidence to the Railroad Company shall be in the form of a Certificate of Insurance for coverages required in paragraph (b), and the original policy of the Railroad Protective Liability Insurance for coverage required in paragraph (a).

Delete the first sentence of the fourth paragraph on page 107-13 and substitute:

> For work within the limits set out in 107.18 and this subsection, the Contractor shall provide insurance for bodily injury liability, property damage liability and physical damage to property with coverages and limits no less than shown in paragraphs (a) and (b).

Delete subparagraphs (a), (b) and (c) on pages 107-13 and 107-14 and substitute:

(a) **Railroad Protective Liability Insurance** shall be purchased on behalf of the Railroad Company with limits of $2,000,000 each occurrence; $6,000,000 aggregate applying separately to each annual period for lines without passenger trains. If the line carries passenger train(s), railroad protective liability insurance shall be purchased on behalf of the Railroad Company with limits of $5,000,000 each occurrence; $10,000,000 aggregate applying separately to each annual period.

Coverage shall be limited to damage suffered by the railroad on account of occurrences arising out of the work of the Contractor on or about the railroad right-of-way, independent of the railroad's general supervision or control, except as noted in paragraph 4 below.

Coverage shall include:

(1) death of or bodily injury to passengers of the railroad and employees of the railroad not covered by State workmen's compensation laws,

(2) personal property owned by or in the care, custody or control of the railroads,

(3) the Contractor, or any of his agents or employees who suffer bodily injury or death as a result of acts of the railroad or its agents, regardless of the negligence of the railroads, and

(4) negligence of only the following classes of railroad employees:

(i) any supervisory employee of the railroad at the job site

(ii) any employee of the railroad while operating, attached to, or engaged on, work trains or other railroad equipment at the job site which are assigned exclusively to the Contractor, or

(iii) any employee of the railroad not within (i) or (ii) above who is specifically loaned or assigned to the work of the Contractor for prevention of accidents or protection or property, the cost of whose services is borne specifically by the Contractor or Governmental authority.

(b) **Regular Contractor's Liability**, including subcontractors, XCU and railroad contractual with limits of $1,000,000 each occurrence; $2,000,000 aggregate. **Automobile** with limits of $1,000,000 combined single limit any one accident; **Workers' Compensation and Employer's Liability** - statutory and $100,000 each accident; $100,000 each employee; $500,000 policy limit. **Excess/Umbrella**

Liability $5,000,000 each occurrence; $5,000,000 aggregate. All coverage to be issued in the name of the Contractor shall be so written as to furnish protection to the Contractor respecting his operations in performing work covered by the contract. Coverage shall include protection from damages arising out of bodily injury or death and damage or destruction of property which may be suffered by persons other than the Contractor's own employees.

In addition, the Contractor shall provide for and on behalf of each subcontractor by means of a separate and individual liability and property damage policy to cover like liability imposed upon the subcontractor as a result of the subcontractor's operations in the same amounts as contained above; or, in the alternative each subcontractor shall provide same.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-107-13 **CODE: (SP)**

DATE: 11/13/2003

SUBJECT: **Contractor's Protection Plan**

Section 107, Legal Relations and Responsibility to Public, of the 1990 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

Delete in toto Subsection 107.22.1 on page 107-17 and substitute:

907-107.22.1--Contractor's Protection Plan. At the preconstruction conference or prior to starting any work on the project, the Contractor shall submit to the Engineer for approval, an erosion control plan to supplement permanent erosion control work required under the contract. As a minimum, the plan shall include the following:

1. Plan profile sheets (11" x 17" or larger) of the entire project showing the locations of erosion control devices (pay items) such as silt fence, hay bales, silt basins, slope drains, etc. Also, showing the locations of other measures (absorbed items) such as brush barriers, diversion berms, etc. that the Contractor may elect to use to prevent siltation.

2. A plan for disposal of waste materials, if applicable.

3. A detailed schedule of operations at locations of high siltation potential to clearly indicate how siltation of streams, lakes and reservoirs and the interruption of normal stream flows will be held to a practical and feasible minimum.

The plan shall be updated as needed during the progress of the project. Work shall not be started until an erosion control plan is approved by the Engineer.

The Engineer will have the authority to suspend all work and/or withhold payments for failure of the Contractor to carry out provisions of the erosion control plan and/or proper maintenance thereof.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-108-11 **CODE: (SP)**

DATE: 4/30/98

SUBJECT: Determination and Extension of Contract Time

Section 108, Prosecution and Progress, of the 1990 Standard Specifications for Road and Bridge Construction is modified as follows:

Delete Subsection 108.06 in toto, and insert:

907-108.06 - Determination and Extension of Contract Time. Contract Time will be established on the basis of a Completion Date, as indicated in the contract. The span of time allowed for the completion of the physical features of work included in the contract will be indicated in the contract documents and will be known as "Contract Time."

For contracts in which a Completion Date is specified, the span of Contract Time shall be determined by the number of Calendar Days allowed in the contract between the date for the beginning of Contract Time and the Specified Completion Date or revised date for beginning of Contract Time and the revised Specified Completion Date in accordance with the provisions of the contract.

The span of time allowed in the contract as awarded is based on the quantities used for comparison of bids. If satisfactory fulfillment of the contract requires performance of work in greater quantities than those set forth in the proposal, the time allowed for completion shall be increased in Calendar Days in the same ratio that the cost of such added work, exclusive of the cost of work altered by Supplemental Agreement for which a time adjustment is made for such altered work in the Supplemental Agreement, bears to the total value of the original contract unless it can be established that the extra work was of such character that it required more time than is indicated by the money value.

The Contractor shall provide sufficient materials, equipment and labor to guarantee the completion of the project in accordance with the plans and specifications within the Contract Time.

At any given date, the ratio of the accumulated monetary value of that part of the work actually accomplished to the total contract bid amount adjusted to reflect approved increases or decreases shall determine the "percent complete" of the work.

The percentage elapsed time shall be calculated as a direct ratio of the expired Calendar Days to the total Calendar Days provided for in the contract.

No extension of the Specified Completion Date will be granted except as provided herein, and, except for abnormal delays caused solely by the State or other governmental authorities, or unforeseeable disastrous phenomena of nature of the magnitude of earthquakes, hurricanes, tornadoes, or flooded essential work areas which are deemed to unavoidably prevent prosecuting the work.

Any revision of the Specified Completion Date provided for in the contract will be made automatically on the Specified Completion Date as established in the contract, and at a later date if additional conditions so warrant.

In the event the Engineer determines that the completion date when extended as provided in the contract would cause certain items of work or portions thereof, properly prosecuted in the normal sequence and manner, to fall within a period of seasonal or temperature limitations, he will make a determination as to the scope of unavoidable delays, if any, contemplated because of such seasonal or temperature limitations for periods in excess of those contemplated in the original contract. The Director may thereupon establish a revised contract completion date by notifying the Contractor and his Surety in writing of such established completion date as warranted by the engineering determination.

Liquidated Damages as set forth under the heading "Per Calendar Day" in the "Schedule of Deductions for Each Day of Overrun in Contract Time," Subsection 108.07, shall be applicable to each Calendar Day after the Specified Completion Date, or authorized extension thereof, and until all work under the contract is completed.

Progress Schedule referred to in Subsection 108.03 will not be required.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-108-20 **CODE: (IS)**

DATE: 1/02/2003

SUBJECT: Liquidated Damages Table

Section 108, Prosecution and Progress, of the 1990 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby modified as follows:

Delete the table in Subsection 108.07 on page 108-12, and substitute the following:

Schedule of Deductions for Each Day of Overrun in Contract Time

Original Contract Amount		Daily Charge
From More Than	To and Including	Per Calendar Day
$ 0	$ 100,000	$ 140
100,000	500,000	200
500,000	1,000,000	300
1,000,000	2,000,000	400
2,000,000	5,000,000	650
5,000,000	10,000,000	750
10,000,000	-----	1,400

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-109-8 **CODE: (IS)**

DATE: 9/8/95

SUBJECT: Claims

Section 109, Measurement and Payment, of the 1990 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

At the end of Section 109 on page 109-9, add the following:

907-109.12--Right to Audit. The Department reserves the right to audit the Contractor's records at any time during the contract period and up to three years after the final contract payment or up to three years after any litigation is filed with court, whichever is later. If the Department commences an audit, the Contractor will be required to provide sufficient original documents and records to satisfy the Department's Audit Division that the costs included in the Contractor's claim were incurred solely in performance of the referenced project and project phase and were not incurred on any other project or phase of the referenced project that the Contractor is constructing or has constructed. Department's audit will be conducted in accordance with United States General Accounting Office's Governmental Auditing Standards, the Institute of Internal Auditor's Professional Practice Standards, and the American Institute of Certified Public Accountant's Auditing Standards.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-109-14 **CODE: (IS)**

DATE: 12/12/2002

SUBJECT: **Measurement and Payment for Changes in Costs of Construction Materials (Fuels and Asphalt)**

Section 109, Measurement and Payment, of the 1990 Edition of the Standard Specifications for Road and Bridge Construction, is hereby amended as follows:

Delete line 9, page 109-8 and add the following subsection:

907-109.07 - Changes in Material Costs. Because of the uncertainty in estimating the costs of petroleum products that will be required during the life of a contract, adjustment in compensation for certain materials is provided as follows:

Bituminous Products--Each month the Department will acquire unit prices from producers or suppliers who supply the State highway construction industry with bituminous products. The average of all quotes for each product will serve as the base price for contracts let in the subsequent month.

Fuels--Selected cash price quotations for bulk gasoline and diesel fuel will be taken from Platt's Oilgram PAD 2 and PAD 3. The appropriate adjustment per gallon for gasoline and diesel fuel will be added to the quotations to allow for taxes and markups. The prices thus determined will serve as the base prices for contracts let in the subsequent month.

The established base prices for bituminous products and fuels will be included in the contract documents under a Notice to Bidders entitled "Petroleum Products Base Prices For Contracts Let In (Month and Year)."

Each month thereafter the Engineer will be furnished with the current monthly prices. Adjustments for change in cost will be determined from the difference in the contract base prices and the prices for the period that the work is performed and for the quantities completed provided the price change in a product is more than five percent. Adjustments may increase or decrease compensation depending on the difference between the base prices and prices for the estimate period.

The adjustments will be determined for the quantities of bituminous products and the average fuel requirements for processing a unit of work as set forth herein.

COST ADJUSTMENT FACTORS FOR FUEL USAGE

Item of Work	Units	Code	Diesel	Gasoline
Excavation & Embankment (Except Structure and Foundation)	gallons/cubic yard	(E)	0.29	0.15
Granular Materials, Stabilizer Aggregates or Coarse & Seal Aggregates	gallons/cubic yard or gallons/ton	(GY) (GT)	0.88 0.62	0.57 0.40
Subgrade & Base Mixing Items	gallons/square yard	(M)	0.044	0.028
Hot Mix Asphalt (HMA)	gallons/ton	(B)	2.57	0.78
Asphalt Drainage Course	gallons/square yard	(D)	0.49	0.15
Portland Cement Concrete Base & Pavement	gallons/square yard	(C)	0.11	0.15
Bridge Items, Structural Concrete, Pipe Culverts, (Including Foundation & Structural Excavation and all other Concrete related items)	gallons/$1000	(S)	11.0	13.0

CONSTRUCTION MATERIALS

The items and quantities subject to compensation adjustment:

ADJUSTMENT CODE

(A1) Asphalt for HMA mixture -- theoretical gallons based on job mix formula and unit weight of 8.43 pounds per gallon (new asphalt only for recycled HMA mixture).

(A2) Asphalt for Surface Treatment -- pay quantity in gallons.

(A3) Asphalt for Prime -- pay quantity in gallons.

(A4) Asphalt for Curing Seal -- 0.25 gallons per square yard.

(A5) Asphalt for Bituminous Treated Roving -- 0.50 gallons per square yard.

(A6) Asphalt for Asphalt Drainage Course -- theoretical gallons per square yard based on job mix formula and unit weight of 8.43 pounds per gallon.

Any difference between checked final quantity and the sum of quantities shown on the monthly estimates for any item will be adjusted by the following formula:

FA = (FCQ - PRQ) x EA

Where FA = Final Adjustment
FCQ = Final Checked Quantity
PRQ = Total Quantity Previously Reported on Monthly Estimate
EA = Total Adjustment Shown on Monthly Estimate

The final adjustment is to consider any error(s) that may have been made in the computations of monthly adjustments.

After the expiration of contract time, including all authorized extensions, adjustments will be computed using fuel and material prices that are in effect at the expiration of contract time.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SUPPLEMENT TO SPECIAL PROVISION NO. 907-109-15

DATE: 02/13/2004

SUBJECT: **Retainage**

Delete Subsection 907-109.06.3 on page 2 and substitute the following.

907-109.06.3--Retainage. Regardless of the value of the earned work based on the value of work scheduled for completion by the approved progress schedule, no deduction for retainage will be made from payments and advancement of materials due to the Contractor. Likewise, the Contractor shall not withhold any retainage from any payments due to a Subcontractor or Supplier.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-109-15 **CODE: (IS)**

DATE: **01/05/2004**

SUBJECT: **Measurement and Payment**

Section 109, Measurement and Payment, of the 1990 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

907-109.06.2--Advancement on Materials. After the first sentence of the first paragraph of Subsection 109.06.2 on page 109-6, add the following:

Advance payment may be requested for structural steel members provided fabrication has been completed and the members have been declared satisfactory for storage by a Department representative.

Remove the period at the end of the third sentence of the first paragraph of Subsection 109.06.2 on page 109-6 and add the following:

; or in the case of prestressed concrete members that may require being produced at an out-of-state location, the prestress members shall be produced and may be stored at the commercial manufacturer's yard provided it is a PCI certified plant on the Department's List of Approved Prestress & Precast Plants and it is located within the continental United States; or in the case of structural steel members that may require fabrication at an out-of-state location, the fabricated members may be stored at the location of the commercial fabricator's yard provided it is located within the continental United States.

Delete the second paragraph of Subsection 109.06.2 on page 109-6 and substitute the following:

Advancements will not be allowed until the Project Engineer has received triplicate copies of material invoices and certified test reports or acceptable certificates of conformance, and in the case of materials stored at the commercial producer's/fabricator's yard, the material shall be positively identified for the specific project and a Certificate of Storage issued by the State Materials Engineer, another designated Department employee or a designated representative of the Department. Requests for advancements on fabricated structural steel members and prestress concrete members stored out-of-state will be denied when the Department does not have available a designated representative to issue a Certificate of Storage.

Delete the first sentence of the third paragraph of Subsection 109.06.2 on page nos. 109-6 and 109-7 and substitute the following:

The Contractor shall make suitable arrangements to the satisfaction of the Engineer for storage and protection at approved sites or, in the case of materials stored at the commercial producer's yard located in Mississippi or, in the case of fabricated structural steel members stored at the

commercial fabricator's yard or prestress concrete members stored at a commercial manufacturer's yard located within the continental United States, the Contractor shall make arrangements with the producer/fabricator for suitable storage and protection.

Delete the second full paragraph on page 109-7, and substitute:

Unless specifically provided for in the contract, advance payment will not be made on materials, except for fabricated structural steel members or prestress concrete members, stored or stockpiled outside of the State of Mississippi.

Delete in toto Subsection 109.06.3 on pages 109-7 and 109-8, and substitute the following:

907-109.06.3--Retainage. Regardless of the value of the earned work based on the value of work scheduled for completion by the approved progress schedule, no deduction for retainage will be made from payments due to the Contractor. Likewise, no retainage will be made on any advancement of materials to the Contractor.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-203-15 **CODE: (IS)**

DATE: 11/26/2002

SUBJECT: Excavation and Embankment

Section 203, Excavation and Embankment, of the 1990 Edition of Mississippi Standard Specifications for Road and Bridge Construction, is hereby amended as follows:

907-203.03--Construction Requirements.

907-203.03.8.7--Compaction of Embankments. Delete the fifth paragraph of Subsection 203.03.8.7 on page 203-11 and substitute the following:

For basement and design soils, the required density shall be 95.0 percent and 98.0 percent, respectively. If a density test fails within minus two percent (-2.0%), 93.0 to 95.0% or 96.0 to 98.0%, of the required density, a verification test will be performed and the average of the two tests will be the test value for the lot. If this test value does not meet the required density (95.0 or 98.0%), the lot shall be rejected. If the original test value exceeds minus two percent (-2%) of the required density, no verification test will be performed and the lot shall be rejected.

907-203.05--Basis of Payment. Delete the first, fifth, and ninth pay item, description and unit of measure shown on page 203-13, and substitute the following:

907-203-A: Unclassified Excavation (_____) - per cubic yard
FM or LVM

907-203-E: Borrow Excavation (_____)(Class____) - per cubic yard
FM, FME or LVM

907-203-EX: Borrow Excavation (AH)(_____)(Class _____) - per cubic yard
FME or LVM

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-213-1 **CODE: (IS)**

DATE: 9/29/2000

SUBJECT: Agricultural Limestone

Section 213, Fertilizing, of the 1990 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

907-213.04--Method of Measurement. After the last paragraph of Subsection 213.04 on page 213-2, add the following:

The measured quantity of fertilizer failing to meet the guaranteed analysis, as set out in Subsection 715.02, will be adjusted in proportion to the guaranteed analysis and the actual analysis.

907-213.05--Basis of Payment. Add the "907" prefix to pay item number 213-A in Subsection 213.05 on page 213-2.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-230-9 **CODE: (SP)**

DATE: 12/12/2003

SUBJECT: Tree and Shrub Planting

PROJECT: BWO-9001-25(009) / 501464 -- Hinds County

Section 230, Tree and Shrub Planting, of the 1990 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows.

Delete Subsection 230.02.14 on page 230-2 and substitute the following:

907-230.02.14--Mulch. Type I mulch used for bed preparation shall meet the requirements of Subsection 715.07. Type V mulch used for the surface mulching plant beds and pits shall be shredded cedar, cypress, pine, or hardwood bark strip (pole peelings), commercial type, with no pieces larger than 1½ inches across the surface.

907-230.02.15--Bed Edging. Bed edging shall be steel edging, 3/16-inch by 4-inch in size, green in color with steel stakes, manufactured by Ryerson, an Inland Steel Company, St. Louis, Mo., or an approved equal.

907-230.03.7--Planting, Backfilling, and Watering. After the first paragraph of Subsection 230.03.7 on page 230-4, add the following:

Where plant areas are bound all around by bed edging and/or paving all around, bed preparation shall be required. Bed preparation shall consist of stripping the proposed bed area of existing grass or plant material (unless designated to remain), removal and disposal of existing soil in order that finished grade of bed (not including surface mulch) is no higher than surrounding grades/pavement edges, spreading a 3-inch layer of Type I mulch throughout the area, tilling in the Type I mulch to a depth of six inches uniformly throughout the area and excavating planting pits in accordance with this special provision. The entire bed area shall receive Type V mulch as a surface mulch.

Backfill for tree, shrub, and groundcover planting pits shall be a 50/50 mix of existing soil and topsoil.

907-230.03.14.1--General. At the end of Subsection 230-03.14.2, add the following:

GUARANTEE SCHEDULE FOR PLANT MATERIAL

Date of Acceptance of Planting Operations		Guarantee Period to Final Inspection
From and including	To and including	
August 2nd	November 1st	240 calendar days
November 2nd	January 1st (following year)	180 calendar days
January 2nd	May 1st	120 calendar days
May 2nd	August 1st	90 calendar days

907-230.04--Method of Measurement: After the sixth paragraph of Subsection 230.04 on page 230-7, add the following:

Bed edging, complete in place and accepted, will be measured per linear foot. Excavation, backfilling, and miscellaneous fittings will not be measured for separate payment.

Bed preparation, complete in place and accepted, will be measured per square foot. Excavation of existing soil, providing and incorporating Type I mulch, surface Type V mulch, and weeding will not be measured for separate payment.

Type V mulch, complete in place and accepted, will be measured per cubic yard for individual tree and shrub pits outside of bed areas requiring bed preparation.

Delete the last five paragraphs of Subsection 230.04 one page 230-7 and substitute the following:

When plants have been planted in accordance with the Contract, 80 percent of the unit price will be allowed.

At the end of the growing season and ordered replacement plants have been properly planted, 95 percent of the unit price will be allowed.

Upon release of maintenance, 100 percent of the unit price will be allowed for trees, shrubs, and groundcover meeting the requirements of the Contract.

907-230.05--Basis of Payment. After the first paragraph of Subsection 230.05 on page 230-7, add the following:

Accepted quantities for bed edging and bed preparation will be paid for at the contract unit price per linear foot and square foot, respectively. Prices paid shall be full compensation for completing the work.

Accepted quantities for Type V mulch used at tree and shrub planting pits (not within areas of bed preparation) will be paid for at the contract unit price per cubic meter. Prices paid shall be full compensation for completing the work.

Add the following pay items to the list ending on page 230.8.

907-230-C: Bed Edging - per linear foot

907-230-D: Bed Preparation - per square foot

907-230-E: Type V Mulch - per cubic yard

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-234-1 **CODE: (IS)**

DATE: 12/10/2001

SUBJECT: Silt Fence

Section 907-234, Silt Fence, of the 1990 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby modified as follows:

907-234.05--Basis of Payment. Add the "907" prefix to the pay items listed on page 234-2.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-242-135 **CODE: (SP)**

DATE: 02/06/2004

SUBJECT: Electrical Work

PROJECT: BWO-9001-25-009(001) / 501464 -- Hinds County

Section 907-242, Electrical Work, is added to and made a part of the 1990 Edition of Standard Specifications for Road and Bridge Construction.

SECTION 907-242 -- ELECTRICAL WORK

907-242.01-Description. This Work shall consist of all site work and all construction work necessary in constructing the Parking for Materials Laboratory Complex at Jackson, Hinds County, Mississippi, in accordance with these Specifications and conforming to the Drawings.

It is the intention of these Specifications to provide the necessary items and instruction for a complete building including all code compliance. Omission of items or instruction necessary or considered standard good practice for the proper installation and construction of the building shall not relieve the Contractor of furnishing and installing such items and conforming to the building codes having jurisdiction.

907-242.02--Materials. See applicable Subsections of 907-242.03.

907-242.03--Construction Requirements.

GENERAL INDEX

*** END OF GENERAL INDEX ***

DOCUMENT 00900 SPECIAL CONDITIONS

PART 1 GENERAL

1.01 VERIFICATION OF DIMENSIONS: Before ordering any materials or doing any work, the Contractor shall verify the dimensions and shall be responsible for the accuracy of such dimensions as they affect the Work. No extra compensation will be allowed on account of differences between the dimensions shown on the Drawings and actual dimensions.

1.02 PLANS AND SPECIFICATIONS: The Specifications and the Drawings are intended to be in agreement with each other, and to be mutually explanatory. They are also intended to be complementary and any Work or material called for by either shall be provided as if called for by both.

1.03 EXECUTION OF THE WORK: Sections of Division 1 General Requirements govern the execution of the Work of all Sections 2-16 of the Specifications.

1.04 WORKMANSHIP: All Work as described or required shall be executed in a neat, skillful manner, in accordance with the best recognized trade practice. Only competent workmen (including the superintendent), who work and perform their duties satisfactorily shall be employed on the Project. When requested by the Project Engineer/Architect, the Contractor shall discharge and shall not re-employ on the Project, any person who commits trespass or who is, in the opinion of the Project Engineer/Architect, dangerous, disorderly, insubordinate, incompetent, or otherwise objectionable.

1.05 USE OF SITE AND FACILITIES: Contractor shall not allow tradesman, technicians and laborers to enter other portions of the existing facilities except as predetermined and approved by the Project Engineer. Existing utilities shall not be interrupted unless pre-approved by the Project Engineer. Parking for construction vehicles shall be in areas designated by the Owner at the Pre-construction Conference.

1.06 UTILITIES: The Owner will furnish utilities for construction (electricity and water). Contractor must use "as- is" or pay for any necessary modifications.

1.07 CHANGES IN THE WORK (Change Order and Supplemental Agreement): Contractor's price for changes in the Work shall not exceed the following allowance for overhead and profit, included in the total cost to the Owner. (Provide invoice on all material).

A. The Contractor will not be allowed more than twenty-five percent (25%) combined overhead and profit of the cost of labor, bond, materials, and equipment on any approved extra work.

B. Cost to which overhead and profit is to be applied shall be determined in accordance with Section 109.04 of the Mississippi Standard Specifications for Road and Bridge Construction, Mississippi State Highway Department, 1990 Edition.

C. In order to facilitate checking of quotations for extras or credits, all Proposals, except those so minor that their propriety can be seen by inspection, shall be accompanied by a complete itemization of costs including labor, bond, materials and equipment.

END OF SECTION

SECTION 01330 SUBMITTAL PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

A. Scope: Submit to the Project Engineer, who shall forward to the MDOT Architect, Shop Drawings, product data, and samples required by Specification Sections. Refer to Section 01630 – Product Options and Substitution Procedures, for requirements concerning products that will be acceptable on this Project.

B. Shop Drawings: Original (legible) drawings prepared by Contractor, Subcontractor, Supplier or Distributor which illustrate actual portions of the Work; showing fabrication, layout, setting or erection details. Reproductions of the Contract Drawings will not be Acceptable. Minimum requirements for Shop Drawings shall include the following:

1. Prepared by a qualified detailer.
2. Identify details by reference to sheet and detail numbers shown on Contract Drawings.
3. Minimum sheet size: 8-1/2 inches by 11 inches.
4. Reproductions for submittals: 7 Prints. Submit 8 prints if they are Plumbing, Mechanical or Electrical Submittals.
5. Shop Drawings shall be stamped and signed by the Contractor certifying accuracy, completeness and compliance with Contract requirements prior to submitting to the Project Engineer.

C. Product Data: Provide 7 copies each. Provide 8 copies if they are Plumbing, Mechanical or Electrical Submittals. Minimum information submitted shall include the following:

1. Manufacturer's standard schematic drawings: Modify drawings to delete information that is not applicable to the Project. Supplement standard information to provide additional information applicable to Project.
2. Manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations and other standard descriptive data: Clearly mark each copy to identify pertinent materials, products or models. Show dimensions and clearances required. Show performance characteristics and capacities, wiring diagrams and controls.
3. Product Data shall be stamped and signed by the Contractor certifying accuracy, completeness and compliance with contract requirements prior to submitting to the Project Engineer.

D. Samples: Provide physical examples to illustrate materials, equipment or workmanship and to establish standards by which completed Work is judged.

1. Provide 2 copies each of sufficient size and quantity to clearly illustrate functional characteristics of products or material with integrally related parts and attachment devices and full range of color samples.
2. Samples remain the property of the Project Engineer / MDOT Architect until completion of construction of the Project.
3. Samples will not be required when specified product is submitted.
4. If a specified product color is discontinued, Contractor shall notify Project Engineer / Architect promptly to determine if it affects other color selections.

E. Field Samples and Mock-Ups: Erect on Project Site at location acceptable to Project Engineer / MDOT Architect.

1. Construct each sample or mock-up complete, including Work of all trades required in the finished Work. Field Samples are used to determine standards in materials, color, texture, workmanship, and overall appearance.
2. Work shall not be allowed using these materials until the mock-up is approved.
3. The mock-up shall not be destroyed, until after the Work it represents is finished, without permission of the Project Engineer/Architect. This mock-up shall be used as a standard to compare to the Work it represents for color, craftsmanship, overall appearance, and how the different materials make up the whole system.

F. Contractor Responsibilities:

1. Review Shop Drawings, product data, and samples prior to submission.
2. Verify field measurements, construction criteria, catalog numbers and other data.
3. Coordinate each submittal with requirements of Work and Contract Documents.
4. Contractor's responsibility for errors and omissions in submittals is not relieved by MDOT Architect's review of submittals.
5. Contractor's responsibility for deviations in submittals from requirements of Contract Documents is not relieved by MDOT Architect's review of submittals unless Project Engineer gives written acceptance of specific deviations.
6. Notify Project Engineer/ MDOT Architect in writing at the time of submission, of deviations in submittals from requirements of Contract Documents.
7. Order no materials or begin no Work requiring submittals until the return of submittals bearing MDOT Architect's stamp and initials indicating review.
8. After Project Engineer's and MDOT Architect's review, distribute copies.

G. Submission Requirements:

1. Schedule submission with ample time given to review submittals prior to being needed.
2. Submit 7, 8 if Plumbing, Mechanical or Electrical, copies of Shop Drawings and number of copies of product data which Contractor requires for distribution.
3. Submit number of samples specified in each Specification Section.
4. Accompany submittals with transmittal letter, in duplicate, containing data, project title and number; Contractor's name and address; the number of each Shop Drawings, product data and samples submitted; notification of deviations from Contract Documents; and other pertinent data.
5. Submittals shall include the following:
    a. Date and revision dates.
    b. Project title and number.
    c. The names of Project Engineer, Architect/Engineer, Contractor, Supplier, Manufacturer, and separate detailer, when pertinent.
    d. Identification of product or material.
    e. Relation to adjacent structure or materials.
    f. Field dimensions, clearly identified as such.
    g. Specification Section Number.
    h. Applicable standards such as ASTM Number or Federal Specification.
    i. A blank space, 2 inches by 3 inches for the Architect/Engineer stamp.
    j. Identification to deviations from Contract Documents.
    k. Contractor's stamp, initialed or signed, certifying the review of submittal, verification of field measurements, and compliance with Contract Documents.

H. Resubmission Requirements:

1. Shop Drawings: Revise initial Drawings as required and resubmit as specified for initial submittal. Indicate on Drawings, any changes that have been made other than those required by Architect / Engineer.

2. Product Data and Samples: Submit new data and samples as required for initial submittal.

I. Distribution of Submittals After Review:

1. Distribute copies of Shop Drawings and product data which carry MDOT Architect's stamp to: Project Engineer's File, MDOT Architect's File, Architect's File (as required), Electrical / Mechanical Engineer's File (as required), Materials' File, Contractor's File, Job Site File, and Subcontractor, Supplier and/or Fabricator as necessary.
2. Distribute samples as directed. One of each submittal shall be retained by the Project Engineer and by the MDOT Architect.

J. Architect / Engineer's Duties:

1. Review submittals with reasonable promptness.
2. Review for design concept of Project and information given in Contract Documents.
3. Review of separate item does not constitute review of an assembly in which item functions.
4. Affix stamp and initial, or signature, certifying the review of submittal.
5. Return submittals to the MDOT Architect, who will forward to the Project Engineer for distribution.
6. Retain one copy of accepted submittals.

K. Delays attributable to untimely submittals, submittals not approved, or time taken to resubmit will not serve as a basis for a Contract Time extension.

L. Acceptance of submittal items will not preclude rejection of these items upon discovery of defects in them prior to final acceptance of completed Work.

M. After an item has been accepted, no change in brand, make, manufacturer's catalog number, or characteristics will be considered unless:

1. Satisfactory written evidence is presented to and approved by the Project Engineer, that manufacturer cannot make scheduled delivery of accepted item, or;
2. Item delivered has been rejected and substitution of a suitable item is an urgent necessity, or;
3. Other conditions became apparent which indicates acceptance of such substitute item to be in the best interest of the Owner.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01500 TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 GENERAL: Establish and initiate use of each temporary facility at time first reasonably required for proper performance of the Work. Terminate use and remove facilities at earliest reasonable time, when no longer needed or when permanent facilities have, with authorized use, replaced the need.

1.02 FIELD OFFICE AND STORAGE FACILITIES: The Contractor shall be responsible for construction of the field office. The Contractor shall provide, maintain, and remove when directed, suitable substantial and watertight temporary field office and storage shed(s), in locations on the site as directed by the Project Engineer, or his authorized representative and best suited for their respective uses, as follows:

A. Field Office (one required): For the use of the Contractor, MDOT Architect's representative(s), and Project Engineer and his representatives. Provide in office suitable furniture for plan layout, progress meetings and storage. Storage files and racks will maintain duplicates of all correspondence, shop drawings, plans, specifications, samples, etc. required to administer the project. These duplicates will be permanently kept as reference and shall not be used in the field. Also, provide lights, heat, air-conditioning, fax machine and telephone. Maintain each office in a sanitary and usable condition. Contractor shall provide the MDOT Architect and Project Engineer with job site and emergency telephone numbers.

B. Storage Facilities: It shall be the Contractor's option to provide watertight storage facilities for storage of cement, lime, and / or other materials subject to water damage. If storage facilities are used, it shall be of sufficient size to hold all materials required for logically grouped activities on the site at one time, and shall have floors raised at least 6 inches above the ground on heavy joists or sleepers. Fully enclosed trailer is allowed, but location must be coordinated with Project Engineer.

1.03 FURNISHING AND MAINTENANCE OF EQUIPMENT: Furnish and maintain all equipment such as temporary stairs, ladders, ramps, scaffolds, hoists, runways, derricks, chutes, elevators, etc. as required for proper execution of the Work of all trades. All such apparatus, equipment and construction shall meet all the requirements of the Labor Law and other applicable State or local laws

1.04 ELECTRIC LIGHTS AND POWER: Supply lights and power when necessary for the progress of the Work. The operating costs shall be borne by the Owner. Temporary wiring, where required, shall be run in conduits.

1.05 WATER: Supply water service. The operating costs shall be borne by the Owner.

1.06 ROADS AND ACCESS: The drive is to remain open at all times. A flagman will be required to control traffic when construction vehicles are present.

1.07 TOILETS FOR WORKMEN: Provide and maintain all necessary toilets for workmen. Toilets are to be maintained in strict accordance with the regulations of the State Board of Health. The toilets are to be located on the site as directed by the Project Engineer or his authorized representative.

1.08 SECURITY / PROTECTION PROVISIONS

A. The types of temporary security and protection provisions required include, but are not limited to, fire protection, barricades, warning signs / lights, personnel security program (theft prevention), environmental protection, and similar provisions intended to minimize property losses, personal injuries and claims for damages at Project Sites.

B. Barricades and Construction Fence: Provide and erect all necessary barricades and any other protection required. Provide all necessary warning and danger lights from twilight to sunrise.

C. Fire Extinguishers: Provide types, sizes, numbers and locations as would be reasonably effective in extinguishing fires during early stages, by personnel at project site. Provide Type A extinguishers at locations of low potential for either electrical or grease/oil flammable liquids fires: provide Type ABC dry chemical extinguishers at other locations; comply with recommendations of NFPA No. 10. Post warning and quick-instructions at each extinguisher location, and instruct personnel at Project Site, at time of their first arrival, on proper use of extinguishers and other available facilities at Project Site. Post local fire department call number on each telephone instrument at Project Site.

D. Environmental Protection Procedures: Designate one person, the Construction Superintendent or other, to enforce strict discipline on activities related to generation of wastes, pollution of air/water/soil, generation of noise, and similar harmful or deleterious effects which might violate regulations or reasonably irritate persons at or in vicinity of Project Site.

E. Water Control: Provide pumps as required to keep the excavation free from standing water and shall slope the excavation to prevent water from running toward existing buildings at all times.

1.09 BURNING OF TRASH: No burning of trash or debris shall be done on Owner's property. All such materials shall be removed from the site and disposed of in accordance with local laws and ordinances.

1.10 POWDER ACTUATED TOOLS: The use of powder actuated tools shall be prohibited from use during all phases of the construction, unless explicitly approved in writing, prior to construction, by the Project Engineer.

1.11 FIRE HAZARDS: Special precautions shall be taken to reduce fire hazards where electrical or gas welding or cutting Work is done and suitable fire extinguishing equipment shall be maintained near such operations.

1.12 CONDUCT OF WORKERS: Workmen who, because of improper conduct or persistent violation of Owner's requirements, become objectionable, shall be removed at the Owner's request. Inform all workmen of Owner's requirements.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01610 BASIC PRODUCT REQUIREMENT

PART 1 GENERAL

1.01 SECTION INCLUDES: The products of The Work and the requirements for their quality, delivery, handling, storage, protection and installation.

1.02 DEFINITIONS

A. "Products". Defined as: The materials, machinery, equipment, components, and systems, in whole or in part, incorporated into The Work. "Products" does not include materials, tools, devices, machinery, equipment and systems used for the preparation, manufacture, fabrication, conveying and installation of The Work.

B. "Level of Excellence". Defined as: The degree of quality for the Products and Workmanship of this Project. The required "degree of quality" shall be established on the basis of one or more of the following criteria which shall become the minimum acceptable "level of excellence" for the work of this Project:

1. Products selected by Architect.
2. Architect's Specifications.
3. Reference Standards.
4. Manufacturer's Instructions.
5. Industry Standards.

In the absence of all the criteria from the Specifications Section, the normal local Industry Standard shall prevail. The Party or Parties responsible for the required work shall be experienced in the work to be provided; shall have knowledge as to what, in the local area, constitutes "good and acceptable practice" in producing the completed work of this Section, and will be expected to provide nothing less.

Example: Masonry and Drywall Contractors are expected to know that Industry Standards, "good practice", and "common sense" dictate, to prevent cracks in the completed work, control joints must be installed at minimum distances or should be placed in certain locations where movement or other stress conditions are likely to occur. When such items are not specified or shown on the Drawings, the Contractor will be expected to request the Project Engineer / MDOT Architect's clarification for location (primarily for esthetic considerations) and then provide not less than the minimum Industry Standard, at no additional cost to the Owner.

C. "Standard of Quality". Defined as: A specific and particular manufacturer whose product(s) has / have been selected by the Architect as amply suitable to meet the Project requirements in one or more of the following criterions: appearance, physical attributes, performance characteristics, appropriateness for intended use, and cost.

The work of the individual Specification Section will be based on product(s) of the "Standard of Quality Manufacturer" and the product(s) of that manufacturer, designated within the Specifications Section by catalog number(s) (or other identification), shall become "Standard of Quality Product(s) and the basis by which the product(s) of "Other Acceptable Manufacturers", and any substitutions, are judged.

In the absence of the designation "Standard of Quality", such as for generic product, material or system, then the specified item (product, material or system) shall be the reference standard and shall become the "Standard of Quality".

D. "Equivalent Products". Defined as: Products having a level of excellence which, in the Project Engineer / Architect's judgment, is equal to the level of excellence established by the product(s) selected as Architect's "Standard of Quality".

E. "Manufacturer". Defined as: An entity whose principal business is the manufacturing, fabricating, assembling, and / or supplying of products / systems from off site for incorporation (in whole, or in part, such as components of a system) into the construction at the Project Site.

1. The Architect's selection of a particular manufacturer usually is on the basis of the manufacturer's reputation within the Construction Industry, and / or "track record" with the Architect, for producing quality products on time, and providing responsive follow-up and reliable warranties.

2. The terms "Fabricator" and "Supplier" used in these Specifications shall be synonymous with "manufacturer".

F. "Other Acceptable Manufacturers". Defined as: Manufacturers who have qualifications and products similar to those of the "Standard of Quality" Manufacturer (see above) selected by Architect and are therefore "acceptable" to offer any of their products considered to be "equivalent" to the specified product(s).

1. To the best of the Architect's knowledge, information and belief, the manufacturers, listed as "Other Acceptable Manufacturers", now have products available that are considered to be "equivalent" to the specified product (or selection) of the "Standard of Quality" Manufacturer. Where no "Standard of Quality" is indicated then any of the "Acceptable Manufacturers" listed may offer products complying with the specified requirements.

2. The inclusion of particular manufacturers as "Other Acceptable Manufacturers" does not signify that other (that is, unlisted) manufacturers are not acceptable or that they do not have equivalent products nor does the omission of any manufacturer's name indicate unacceptability for any reason.

3. Manufacturers, who are not listed in the Contract Documents, and who desire consideration, must submit their product under provisions of Section 01630-Product Options and Substitutions Procedures.

1.03 QUALITY ASSURANCE – GENERAL

A. The quality of all products and workmanship shall be in accordance with the provisions of this Section and the requirements of the individual Specifications Section.

B. Whenever a "level of excellence" higher than the minimum industry standard is expected for products and workmanship, the more rigid standards and precise requirements will be indicated within individual Specifications Sections.

Example: For whatever reason, the Architect may specify a "dry film thickness (DFT)" for a coating that is more than the manufacturer's recommendation or than normally available in a three coat system. It shall be the Contractor's responsibility to achieve the required DFT with one or more additional coats, none of which shall be more than the manufacturer's recommendation for wet film thickness, for a single coat, when applied.

C. Establishing and maintaining Project Quality Control shall be the responsibility of the Contractor.

1.04 QUALITY ASSURANCE – PRODUCTS

A. All products incorporated into The Work shall be new except where otherwise provided by the Contract Documents and shall comply with the requirements of the individual Specifications Sections and as supplemented herein. All products incorporated into the Work shall be asbestos free. Products containing asbestos are not acceptable and will be considered as defective material. Whenever these products containing asbestos are discovered, they shall be removed from the Work at no cost to the Owner. Contractor shall certify that all materials incorporated into the Work are asbestos free, refer to Section 01770 - Closeout Procedures.

B. Matching / Mating of Products:

1. Products required in quantity within a Specifications Section shall be the same, and shall be interchangeable.

2. All manufactured products exposed to view, especially those considered as "Finishes" (including, but not limited to, items as floor material, wall coverings, glass, paint ceiling tile, that are installed or applied directly from manufacturer's containers), shall be of the same factory "run".

3. The Contractor is expected to secure a sufficient quantity with initial purchase to avoid running short. Materials within an area that do not match, as a result of such failure, will be cause to reject all materials and will not be grounds for additional compensation.

C. Extra Materials: When required by individual Specifications Sections, provide products, spare parts and maintenance material in condition and quantities required. All "extra materials" shall be of the same factory "run" as installed materials. Deliver to Project Site, properly store in appropriate locations, and obtain receipt from authorized person prior to Final Payment.

1.05 QUALITY ASSURANCE – WORKMANSHIP

A. Comply with the "level of excellence" required by individual Specifications Sections. In the absence of specific requirements, comply with product(s) manufacturer's instructions and Industry Standards.

B. Use only suitably qualified craftsmen to produce work of the specified quality.

1. Craftsmen shall be of excellent ability, thoroughly trained and experienced in types of work required, completely familiar with the quality standards, procedures and materials required.

2. In the acceptance or rejection of manufactured and / or installed work, the Architect will make no allowance for the lack of skill on the part of workmen.

C. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, and racking.

D. Provide finishes to match approved samples.

E. Adjusting of Operating Products: As follows:

1. Adjust moving parts of product / equipment (including, but not limited to, doors, drawers, hardware, appliances, mechanical and electrical equipment) to ensure smooth and unhindered operation and movement at time when Owner assumes control of item's use.

2. All items shall be properly set, calibrated, balanced, lubricated, charged, and otherwise prepared and ready for intended use.

3. Starting of Systems: When specified in individual Sections, require manufacturer's representative to be present at the Site to inspect, check, and approve equipment installation prior to start-up; to supervise placing equipment in operation; and to certify by written report that equipment has been properly installed, adjusted, lubricated, and satisfactorily operated under full load conditions.

4. Equipment/systems Demonstrations and Personnel Instruction: When specified in individual Sections, require manufacturer to provide authorized representative to demonstrate operation of equipment and systems and to instruct Owner's personnel on proper operation and maintenance manuals as basis of instruction and demonstration. Include start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at schedule times, at equipment location.

1.06 TRANSPORTATION AND HANDLING

A. Transport products by means and methods to avoid product damage; deliver in undamaged condition in manufacturers' unopened containers or packaging, keep dry.

B. Provide equipment and personnel to handle products by means to prevent soiling or damage.

C. Promptly inspect shipments for compliance with requirements, quantities, and damage.

1.07 STORAGE AND PROTECTION

A. Store products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weathertight enclosures; maintain within temperature and humidity ranges required by manufacturer's instructions. Protect prefinished surfaces from damage or deterioration by acceptable means; do not use adhesive papers, sprayed or strippable coatings that bond when exposed to sunlight or weather.

B. For exterior storage of fabricated products, place on sloped supports above ground. Cover products subject to deterioration with impervious sheet covering (do not use "Visqueen" or other polyethylene sheeting when subject to direct sunlight); provide ventilation to avoid condensation.

C. Store loose granular materials on solid surface in a well-drained area; prevent mixing with foreign matter.

D. Arrange storage to provide access for inspection. Periodically inspect to assure products are undamaged, and are maintained under specified conditions and are fit for use.

PART 2 PRODUCTS
Not Used

PART 3 EXECUTION
Not Used

END OF SECTION

SECTION 01630 PRODUCT OPTIONS AND SUBSTITUTION PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

A. Scope: To give the product options available to the Contractor and to set forth the procedure and conditions for substitutions.

1.02 CONTRACTOR'S OPTIONS

A. For products specified only by reference standards, select any product meeting standards by any manufacturer.

B. For products specified by naming several (minimum of three) products or manufacturers, select any product and manufacturer named. Contractor must submit request, as required for substitution, for any product not specifically named and give reasons for not using product specified. Substitution will not be granted unless reasons are considered justified.

C. For product specified by naming one or more products, but indicating the option of selecting equivalent products by stating "or approved equal" after specified product, Contractor must submit request, as required for substitution, for any product not specifically named.

D. For products specified by naming only one product and manufacturer, an equivalent product will always be accepted if it is equal in all respects (size, shape, texture, color, etc.). The Contractor must submit a request for substitution as set forth in this section.

E. For products specified by naming only one product and manufacturer and stating no substitutions will be accepted, there is no option and no substitutions will be allowed.

1.03 PRODUCT SUBSTITUTION LIST

A. Within 45 days after Notice to Proceed, submit to the Project Engineer four copies of complete list of all proposed product substitutions.

B. Tabulate list by each Specification Section.

C. For named products specified with reference standards, include with listing of each product:

1. Name and address of manufacturer.
2. Trade name.
3. Model or catalog designation.
4. Manufacturer's data.
5. Performance and test data.
6. Reference standards.

D. Proposed product will be reviewed for incorporation into the Project. Contractor will be notified for substitution rejection if not allowed, or will be instructed to submit in standard substitution submittal process for approval.

1.04 SUBSTITUTIONS

A. Project Engineer / MDOT Architect will consider formal written requests from Contractor for substitution of products in place of those specified. Only one request per product will be allowed. Refer to Section 01330 - Submittal Procedures. Include in request:

1. Complete data substantiating compliance of proposed substitutions with Contract Documents.
2. For products:
   a. Product identification including manufacturer's name and address.
   b. Manufacturer's literature: Submit literature of actual product specified and literature of proposed substitution with all comparable features or components highlighted. Highlighted information is to include, but shall not be limited to, product description, performance, test data and reference standards.
   c. Samples of the proposed substitution.
   d. Name and address of similar projects on which product was used and date of installation.
3. For construction methods:
   a. Detailed description of proposed method.
   b. Drawings illustrating methods.
4. Itemized comparison of proposed substitution with product or method specified.
5. Data relating to changes in construction schedule.
6. Accurate cost data on proposed substitution in comparison with product or method specified.

B. In making request for substitution, Contractor represents:

1. He has personally investigated proposed product or method, compared the product specified with the proposed substitution, and determined that it is equal or superior in all respects to that specified.
2. He will provide the same guarantee for substitution as for product or method specified.
3. He will coordinate installation of accepted substitution into Work, making such changes required of Work to be complete in all respects.
4. He waives all claims for additional costs related to substitution that consequently becomes apparent.
5. Cost data is complete and includes all related costs under his Contract.

C. Substitutions will not be considered if:

1. They are indicated or implied on Shop Drawings or product data submittals without formal request submitted in accordance with this Section.
2. Acceptance will require substantial revision of Contract Documents.
3. In the Project Engineer / MDOT Architect's judgment, the product or material is not equal.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 16010 ELECTRICAL GENERAL REQUIREMENTS

PART 1 GENERAL

1.01 SCOPE

A. This Division and the accompanying electrical drawings cover furnishing all labor, equipment and materials and performing all operations in connection with the installation of complete electrical systems as documented.

B. There are many interfaces between the work involved with this Division and the work in other Divisions, particularly with Division 15. Be aware of the responsibilities at the interfaces.

C. The plans and specifications are considered cooperative and complimentary.

1.02 DEFINITIONS

A. Provide: furnish, install, connect, test, demonstrate and leave operational.

B. Wiring: wire or cable installed in raceway with all required boxes, fittings, connectors, etc.

C. Work: materials completely installed, including the labor involved.

D. Raceway: Galvanized rigid steel conduit (GRC), electrical metallic tubing (EMT), Intermediate metal conduit (IMC), schedule 40 Polyvinyl Chloride (PVC), flexible steel (FLX), sheathed flexible steel (SLT).

1.03 CODES AND REGULATIONS

A. All work shall comply with all local laws, ordinances and regulations applicable to the electrical installation, applicable building codes and with the requirements of the National Electrical Code (NEC), Vol. 70 of the N.F.P.A.

B. Where different sections of any of the aforementioned codes and regulations, the Specifications and/or the Drawings require different materials, methods of construction, or other requirements, the most restrictive shall govern. In any conflict between a general provision and a special provision, the special provision shall govern.

C. Obtain all permits and licenses, and pay all fees as required for execution of the Contract. Arrange for necessary inspections required by the city, county, state and other authorities having jurisdiction and present certificates of approval to the Owner or his designated representative.

D. Under no circumstances will asbestos, or asbestos related materials, be allowed on this project. Should any be found on the project they will be reported in writing.

E. Communicate with all required utility offices to meet utility schedules and regulations. Acquire services to avoid project delays.

1.04 SITE VISIT

A. All interested parties shall visit the site and thoroughly familiarize themselves with the local conditions in advance of any project activity.

B. No allowances will be made for lack of knowledge of job conditions.

1.05 DRAWINGS AND SPECIFICATIONS

A. The Electrical Drawings are diagrammatic, and are not intended to show the exact location of raceways, outlets, boxes, bends, sleeves, couplings or other such elements.

B. The Drawings and Specifications shall both be considered as part of the Contract. Any work or material shown in one and omitted in the other, or which may fairly be implied by both or either, shall be provided in order to give a complete job.

C. Should conflicts exist between the Drawings and Specifications, the Specifications shall govern.

D. Refer to the Architectural, Structural and Mechanical plans and details for dimensions, and fit the work to conform to the details of building construction. The right is reserved to shift any switch, receptacle, ceiling outlet or any other outlet a maximum of 10'-0" from its location as shown before it is permanently installed, without incurring additions to the Contract in time or cost.

E. All conduit and wiring shown on the Electrical Drawings shall be provided under this Division regardless of its function.

1.06 DEVIATIONS

A. No deviations from the drawings and specifications shall be made without the full knowledge and consent of the Owner and/or Engineer.

B. If it is found that existing conditions make desirable a modification in requirements covering any particular item, report such item to the Owner and/or Engineer for his decision and instructions.

1.07 MECHANICAL EQUIPMENT LOADS

A. The horsepower, wattage (or amperes) of mechanical equipment indicated is the estimated requirement of equipment furnished under another Division. All wiring, protective devices and disconnect switches shall be of the voltage, size and ampacity for the actual equipment installed. In no case shall these items be of smaller capacity than those indicated.

B. Coordinate with other trades and provide suitable equipment so that the above requirements shall be met without incurring additions to the Contract in time or cost.

C. The Contractor shall provide suitable disconnecting means in conformance with the requirements of the NEC, for all items or equipment utilized on the project no matter how, or by whom, furnished. However, duplication, or redundancy, is not required.

PART 2 PRODUCTS

2.01 STANDARDS FOR MATERIALS AND WORKMANSHIP

A. All material shall be new and shall bear the inspection label of Underwriter's Laboratories, Inc. (UL).

B. The published standards and requirements of the National Electrical Manufacturer's Association (NEMA), the American National Standards Institute (ANSI), the Institute of Electrical and Electronic Engineers (IEEE) and the American Society of Testing Materials (ASTM) shall govern and apply where applicable.

C. Specified catalog numbers and trade or manufacturers names are intended to describe the material, devices, or apparatus desired for type, style and quality. Similar materials of other manufacturers, if of equal quality, capacity or character may be substituted in conformity with the provisions of the General and Supplementary Conditions. Substitutions require "prior approval."

D. Where 3 or more manufacturers are named, one of the named manufacturers shall be used.

E. Where, in the opinion of the designer, no equal exists then "no equal" will be stated.

2.02 SHOP DRAWINGS

A. Shop drawings shall be submitted for the following equipment and items suitably bound, and marked, and with contents of no less than one specification section, as indicated below, per individual submission. Submittals not called for herein and/or submittals pertaining to the actual construction process will not be reviewed.

I. SECTION 16100

1. Conduit and fittings
2. Wire and cable
3. Junction boxes
4. Pull boxes
5. Supporting devices
6. Wire connection

II. SECTION 16200

1. Circuit breakers
2. Panelboards
3. Disconnect switches
4. Fuses
5. Distribution Panel Breaker

III. SECTION 16300

1. Lighting Fixtures
2. Lamps
3. Ballast
4. Lamps and Diffusers

B. Shop drawings and/or catalog data submittals on all items of equipment and materials shall be submitted in conformity with requirements of the General and Supplementary Conditions. Do not submit more than the required number of sets.

C. A submittal including a list of the manufacturers of the principal items of material: wire, conduit, connectors, panelboards, switchboards, motor control centers, generators, etc., shall be submitted prior to the first shop drawing submission and within 30 days of contract award.

D. All material lists and shop drawing submittals shall include a stamped indication signifying that the submittals have been previously reviewed for compliance with the Contract Documents, that all coordination required prior to field installation has occurred and that the material being submitted is approved for installation. The stamped indication shall include the name of the contracting firm, the date of the review and the signature of the contractor. The Engineer will not review the shop drawing submittals without the contractor's stamped approval already on the shop drawings. The

responsibility of complying with the Contract Documents will not be relieved by the Engineer's review.

E. All pricing is to be based upon the products, manufacturers, and processes described in the Contract Documents. Requests for approval of substitutions shall be written and delivered to the Owner and/or Engineer's office no later than 10 days before bid date.

F. Samples of all materials proposed for use shall be presented to the Owner and/or Engineer for his approval when requested.

2.03 AS-BUILT (RECORD) DRAWINGS

A. Maintain on the job site at all times during construction a set of "As-Built" mylar sepias with all changes during construction marked thereon. Include any sketches or "marked-up" drawing prints as may be generated on the job site to assist in recording the changes.

B. The "As-Built" sepias shall show all changes and deviations from the Contract Drawings including relocation of outlets, conduit and equipment. Record final dimensioned locations of switchboards, panelboards, transformers, disconnect switches, etc. Make sufficient measurements to locate all underground conduit.

C. At the completion of construction, the sepia drawings, sketches and mark-up prints shall be presented to the Owner and/or Engineer.

2.04 MAINTENANCE AND INSTRUCTION MANUALS: Submit to the Owner and/or Engineer, upon completion of the work, three (3) copies of maintenance and instruction manuals for equipment provided.

2.05 SUBMISSION OF DRAWINGS: Submission of Engineers drawings for shop drawings and unaltered Engineer's drawings for "As-Built" will not be acceptable.

PART 3 EXECUTION

3.01 COORDINATION

A. Conduit, outlets, equipment or lighting fixtures are located in any area, coordinate the space requirements with all trades. Such shall be arranged so that space conditions will allow all trades to install their work, and will also permit access for future maintenance and repair.

B. Conduit and equipment installed at variance with the above requirements shall be relocated and/or revised to conform with the above requirements without incurring additions to the Contract.

C. Coordination of space requirements with all trades shall be performed so that:

1. No piping or ductwork, other than electrical, shall be run within 42" of panelboards, switchboards or transformers.

2. No pipes or ducts that operate at a temperature in excess of 120 degrees F. shall be installed nearer than 3" to any electrical conductor.

3.02 PROTECTION OF MATERIALS

A. All conduit and other openings shall be kept protected to prevent entry of foreign matter. Fixtures, equipment, and apparatus shall be kept covered for protection against dirt, water, chemical or mechanical damage before and during construction.

B. The original finish, including shop coat of paint of fixtures, apparatus or equipment that has been damaged shall be restored without incurring additions to the Contract in time or price.

3.03 CUTTING AND PATCHING: The Contractor is responsible for all cutting and patching, including escutcheon plates where necessary, whether or not such cutting and patching is shown or indicated.

3.04 ACCESS TO ELECTRICAL ITEMS: The contractor is responsible for maintaining access to all concealed electrical equipment, apparatus, or devices whether, or not, shown or indicated. Where access panels are required, refer to Owner or Engineer for approved means, methods and appearance.

3.05 ELECTRICAL ROOMS AND CLOSETS

A. Manufacturer's equipment shall not be larger than that dimensioned, or scaled, on plans. Conflicts shall be brought to the attention of the Owner, or Engineer for resolution prior to order.

B Clear working space shall be no less than that required by the N.E.C.

C The contractor shall submit for review, prior to construction or purchase of any equipment, scaled drawings of electrical equipment or spaces showing, in detail, his planned installation locations of the equipment he intends to purchase. These shall clearly show compliance with A, B, and C above.

3.06 TESTS

A. Upon completion of the electrical work, conduct an operating test in the presence of the Engineer or his designated representative.

B. The installation shall be demonstrated to operate in accordance with the Contract Documents. Any material or workmanship which does not meet with the approval of the Engineer shall be removed, repaired or replaced as directed without incurring additions to the Contract in time or cost.

C. Furnish all instructions, tools and personnel required for the test. Have sufficient tools and personnel available to remove panel covers, coverplates, etc., as required for proper inspection. Provide suitable test equipment.

3.07 DEMONSTRATION AND INSTRUCTIONS: Present to the Owner and/or Engineer or his designated representative a physical demonstration and oral instructions for proper operation and maintenance of electrical equipment and systems installed.

3.08 GUARANTEE

A. All systems and components shall be provided with a one-year guarantee from the time of final acceptance. The guarantee shall cover all materials and workmanship. During this guarantee period, all defects in materials and workmanship shall be corrected without incurring additions to the Contract. The correction shall include all required cutting, patching, repainting, or other work involved, including repair or restoration of any damaged sections or parts of the premises resulting from any fault included in the

guarantee.

B. In addition to this general guarantee, present to the Owner and/or Engineer any other guarantees or warranties from equipment or system manufacturers. These supplemental guarantees or warranties shall not invalidate the general guarantee.

END OF SECTION

SECTION 16100 BASIC MATERIALS AND METHODS

PART 1 GENERAL

1.01 DESCRIPTION

A. All work specified in this Section shall comply with the provisions of Section 16010.

B. This Section covers the basic electrical materials and installation methods that are applicable to Division 16.

PART 2 PRODUCTS

2.01 CONDUIT

A. Galvanized rigid steel conduit (GRC) shall be low carbon, hot-dipped galvanized and to meet UL Standards and shall have threaded joints.

B. Flexible metal conduit (FLX) shall be flexible steel conduit tubing and shall meet Underwriters Laboratories Standard for Flexible Steel Conduit.

C. Steel conduit approved manufacturers are Allied, Southwire, Triangle, Republic, Wheatland and Pittsburg.

2.02 CONDUIT FITTINGS

A. GRC conduit fittings shall be zinc-coated, ferrous metal and taper threaded type.

B. Conduit connections to switchboards, motor control centers, transformers, panels, cabinets, and pull boxes with specific grounding requirements, shall have grounding wedge lugs between the bushing and the box or locknuts designed to bite into the metal.

C. Each conduit end shall be provided with either an insulated throat connector or separate locknut and insulated bushing. Bushing shall be installed before any wire is pulled.

D. Conduit fittings approved manufacturers are Raco, Steel City, O.Z Gendy, Thomas & Betts, Efcor and Appleton.

2.03 CONDUCTORS: Conductors shall be copper of 98% conductivity, 600 volt insulation. Sizes specified are AWG gauge for No. 4/0 and smaller and circular mils (MCM) for all sizes larger than No. 4/0. Conductors No. 10 and smaller shall be solid or stranded and type "THHN" or THWN" insulation. No. 8 and larger shall be stranded and type "THHN" or "THWN" insulation.

2.04 DISCONNECT SWITCHES

A. Disconnect switches shall be "heavy-duty" type enclosed switches of quick-make, quick-break construction. Switches shall be horsepower rated for 600 volts AC as required. Lugs shall be UL listed for copper and aluminum cable.

B. Padlocking provisions shall be provided for padlocking in the "Off" position.

C. Switches shall be furnished in NEMA I General Purpose enclosure unless noted otherwise. Switches located on the exterior of the building or in "wet" locations shall have NEMA 3R enclosures.

D. Fused disconnect switches shall have rejection type fuse clips with dual element, current limiting fuses of rating shown.

2.05 FUSES

A. Provide all fuses. All fuses shall be of the same manufacturer. All fuses shall be of the high interrupting rating (200,000 Amps), current limiting type. Fuses shall be provided for each fuse cutout and the specified quantity of fuses shall be furnished for spares.

B. Circuits 0 to 600 ampere shall be protected by rejection type, current limiting type. All dual-element fuses shall have separate overload and short-circuit elements. Fuse shall incorporate element having a 284 degree F. melting point alloy and shall be independent of the short-circuit clearing chamber. The fuse must hold 500% of rated current for a minimum of 10 seconds and be listed by Underwriter's Laboratories, Inc., with an interrupting rating of 200,000 amperes RMS symmetrical. The fuses shall be UL Class RK-1.

C. Furnish and turn over to the Owner a minimum of one (1) set of spare fuses (set consisting of three fuses) for each type and rating of fuse used. When the number of fuse sets of the same type and rating actually installed exceeds five (5) sets, furnish an additional spare set of fuses for each five (5) or fraction thereof.

D. Provide a cabinet in which to store all spare fuses.

PART 3 EXECUTION

3.01 CONDUIT

A. Rigid steel shall be used for service entrance and all feeders and branch circuits where exposed to damage.

B. GRC shall be used for all underground feeders, unless otherwise indicated on plans.

C. Conduit shall be continuous from outlet to outlet, from outlet to cabinet, junction box and pull box. Conduit shall enter and be secured to all boxes, etc., in such a manner that each system will be electrically continuous from service to all outlets. All conduit from cabinets and junction boxes shall terminate in approved outlet boxes or conduit fittings. Conduit connections to any box which has no threaded hub shall be double locknutted.

D. Provide junction boxes or pull boxes where shown and where necessary to avoid excessive runs or too many bends between outlets. The conduit sizes shown may be increased if desired to facilitate the pulling of cables.

E Minimum size conduit for branch circuits shall not be smaller than 1/2". Home runs shall extend from outlets shown to panel designated. Home runs shown shall not be combined. Home run conduit shall not be smaller than 3/4".

F. At couplings, conduit ends shall be threaded so that they meet in the coupling. Right and left hand couplings shall not be used.

G. Provide watertight conduit hubs on conduit terminating in a box or cabinet exposed to the weather.

3.02 FLEXIBLE CONDUIT:

A. PVC extruded cover flexible conduit shall be used in making short flexible connections to rotating or vibrating machinery or equipment. The flexible conduit at these locations shall be as short as possible, but shall have a minimum length of 12".

B. A green stranded bonding jumper shall be installed outside of all flexible conduit that extends directly from a non-flex conduit to a rotating or vibrating machine. Where a junction box is used, the green stranded bonding jumper shall be installed inside the flexible conduit and attached to the junction box and to the machine. When the bonding jumper is installed outside of the flexible conduit, plastic wire straps shall be used 6" o.c. to secure the jumper to the flexible conduit.

3.03 WIRING

A. All conductors shall be installed in conduit. No conductors shall be pulled into the conduit until the conduit system is complete.

B. Conductors shall be continuous from outlet to outlet and from outlet to junction box or pull box. All splices and joints shall be carefully and securely made to be mechanically and electrically solid with pressure type connectors. Where connection is made to any terminals of more than 30 amperes capacity and where conductors larger than No. 10 AWG are connected to any terminal, copper terminal lugs shall be bolted to the conductors. Where multiple connections are made to the same terminal, individual lugs for each conductor shall be used.

C. Each conduit shall have a minimum of two (2) conductors pulled in unless that particular conduit is noted as being for systems other than electrical circuitry and/or future use or unless noted otherwise.

D. Conductors for lighting and receptacle circuits shall have color coded jackets. The wiring shall be color coded with the same color used with its respective phase throughout the entire job as follows:

E. The feeder and service entrance conductors shall be color coded by the use of colored plastic tape applied within 6" of each conductor end.

F. Branch circuit conductors shall not be smaller than No. 12 AWG and where the home run from center of load exceeds 100'-0", the conductors from home run outlet to panel shall be No. 10 AWG minimum.

G. Branch circuit wiring which supplies more than one fixture through wireway of other fixtures shall be rated for use at 105 degrees C.

H. For branch circuits terminating in outlet without device, leave minimum of 12" of slack wire coiled for connection of equipment.

I. All conductors shall be identified with proper circuit numbers at terminals, junction boxes and at panelboards within 6" of conductor ends.

J. Stranded conductors, #10 and smaller, shall be terminated at screw type terminals with fork type insulated wire terminals applied with manufacturer's tool.

K. Conductor sizes are generally indicated in schedules and riser diagrams, otherwise follow rules of N.E.C.

3.04 GROUNDING

A. Ground connections shall be in accordance with the 2002 National Electrical Code.

B. Provide an insulated green bonding jumper from the grounding lug of all receptacles to a clip or a sheet metal screw in the outlet box. The ground wire installed behind the device mounting screws will not be acceptable.

3.05 CONNECTION TO EQUIPMENT: Equipment furnished by the Owner or under other Sections, such as mechanical, signs, kitchen equipment, etc., will be installed by others. Provide electrical service and make the electrical circuit connection to this equipment.

3.06 EQUIPMENT ANCHORING: All items of electrical equipment, such as switchboards, panelboards, etc., shall be securely anchored. The anchoring shall be accomplished by utilizing a minimum size of 3/8" steel anchor bolts in the structure and to the item of equipment. A minimum of two (2) anchor bolts shall be provided on each side of each item of equipment with the following exceptions:

Exception No. 1: If the equipment manufacturer includes more than two (2) anchor holes per side in the base or base frame of the equipment item, then there shall be one anchor for each anchor hole.

Exception No. 2: If the equipment manufacturer recommends a particular quantity greater than two (2) per side, then that quantity of anchors shall be provided.

END OF SECTION

SECTION 16200 SERVICE AND DISTRIBUTION

PART 1 GENERAL

1.01 DESCRIPTION

A. All work specified in this Section shall comply with the provisions of Section 16010.

B. Provide a complete electrical distribution system to 5 feet outside of the building per the drawings. The system shall include conduit stub-outs for the secondary service entrance, feeders, panelboards, etc., to provide a complete system.

C. All distribution switchgear (branch circuit panelboards, etc.) shall be the unit responsibility of one manufacturer. All component parts of the above listed items shall be of the same manufacturer except where a written request for a deviation from this requirement has been approved prior to bid date.

D. Shop drawings for equipment specified in this Section shall show that all specified requirements have been incorporated.

E. All floor mounted distribution equipment shall be mounted on a 4" high concrete pad.

1.02 SECONDARY ELECTRICAL SERVICE

A. The secondary service to the parking lot shall be 120/240 volts, 1 phase, 3 wire, 60 Hertz AC. Provide all conduit stub-out(s) and pull string(s) to a point 3 feet out from the building from indicated panelboard(s).

B. The contractor shall provide ground rods, ground cables, and ground wires, so as to provide a complete grounding system as per NEC 250.

PART 2 PRODUCTS

2.01 BRANCH CIRCUIT PANELBOARDS

A. Panelboards (panels) shall be general purpose enclosures and shall be surface or flush mounted as indicated. Panels shall be of the automatic circuit breaker type, factory assembled by the manufacturer of the circuit breakers. Panels shall be for the voltage indicated with the quantity of poles and ampacity of circuit breakers shown.

B. Boxes and trim shall be made from code gauge steel. Boxes shall be of sufficient size to provide a minimum gutter space of 4" on all sides. Boxes shall be minimum 20" width and 5-3/4" depth.

C. Hinged door covering all device handles shall be included in all panel trim. Doors shall have flush-type cylinder lock and catch, except that doors over 48" in height shall have auxiliary fasteners at top and bottom of door in addition to flush-type cylinder lock and catch. Door hinges shall be concealed. All locks shall be keyed alike. Directory frame and card having a transparent cover shall be furnished with each panel door.

D. Trims for flush panels shall overlap the box by at least 3/4" all around. Surface trims shall have the same width and height as the box. Trims shall be mountable by a screwdriver without the need for special tools. After installation, trim mounting mechanism or hardware shall not be accessible when panel door is closed and locked.

E. All exterior and interior steel surfaces of the trim shall be cleaned and finished with gray paint over a rust-inhibiting phosphatized coating.

F. All interiors shall be completely factory assembled with protective devices, wire connectors, and shall be so designed that devices may be changed without machining, drilling or tapping.

G. Interiors shall be so designed that devices can be replaced without disturbing adjacent units and without removing the main bus connectors.

H. Bus bars for the mains shall be of tin plated aluminum sized in accordance with U.L. Standards. Full size bars shall be included. Bus bar taps for panels with single pole branches shall be arranged for sequence phasing of the branch circuit devices.

I. Phase bussing shall be full height without reduction. Cross and center connectors shall be of the same material as the bus.

J. The neutral bus shall utilize set-screws to bond the neutral wire to the neutral bus through holes drilled in the neutral bar. A sheet copper neutral bus utilizing flathead screws to hold the neutral wires will not be acceptable.

K. Spaces for future devices shall be included as indicated and shall be bussed for the maximum rated device that can be fitted into them.

L. All circuit breakers shall be manually operated, thermal-magnetic, automatic, of the ampacity and poles as indicated. They shall be quick-make, quick-break, both on manual and automatic operation. Breakers shall be over-the-center toggle operating type, with the handle going to a position between ON and OFF to indicate automatic tripping. All multi-pole breakers shall have internal common trip. Breakers shall have a minimum of 22,000 RMS symmetrical amperes interrupting capacity unless designated otherwise. The breakers furnished shall be determined by the specifications and by the minimum U.L. labeled RMS symmetrical amperes interrupting capacity at circuit voltage. All circuit breakers shall be bolted on and rigidly braced.

M. Panels, if any, having sub-feed lugs for feeding through shall have 8" minimum extra gutter space at the lug end and on one side.

N. Each panel as a complete unit shall have a short-circuit current rating equal to or greater than the equipment rating indicated.

O. Panels shall be as manufactured by Square D, Westinghouse, ITE/Siemens, or General Electric.

PART 3 EXECUTION

3.01 INSTALLATION

A. Provide a typewritten directory under plastic for all panelboards with spares marked in pencil.

B. Provide all necessary hardware to level and secure the switchgear as required by the manufacturer's instructions. Make all electrical connections for supply and load circuits and leave in operating condition.

C. Clean enclosure of all switchgear of all foreign matter, including dust.

END OF SECTION

SECTION 16300 LIGHTING

PART 1 GENERAL

1.01 DESCRIPTION:

A. All work in this Section shall comply with the provisions of Section 16011.

B. Provide all lighting fixtures and lamps as specified herein and as shown.

C. All lamps shall be operating at the time of the final inspection.

D. Confirm exact locations of all lighting fixtures by coordination with the Architectural and electrical plans.

E. Confirm ceiling type at pavilions before ordering lighting fixtures.

F. Each lighting fixture shall have been tested and certified for proper operation by the fixture manufacture for the type mounting called for.

G. Lamps and ballasts shall be compatible.

PART 2 PRODUCTS

2.01 LAMPS:

A. The type lamps shall be as specified with each lighting fixture and shall be suitable for use in the fixture for which it is specified.

1. The lamp catalog number is given as a standard of the quality and performance required. Equal lamps by General Electric, Sylvania or Phillips/Westinghouse will be acceptable. When a lamp manufacturer's name is used along with the catalog number in the lighting fixture schedule, it is considered unequaled by any other lamp and shall not be substituted. The lamp performance with energy conserving ballasts furnished under this Section shall be certified by a nationally recognized independent testing laboratory.

B. High Intensity Discharge (HID) lamps shall be the voltage and type specified in the lighting fixture schedule.

2.02 BALLASTS:

A. Provide ballasts of the proper voltage rating to match the circuit voltage from which the units are supplied.

B. Ballasts for High Intensity Discharge (HID) lamps shall be Constant Wattage Autotransformer (CWA) type or equal type with 90% minimum power factor.

C. Ballast for Octron or other T-8 lamps shall be electronic ballast as manufactured by Howard Industries, Advance or equal.

2.03 LIGHT FIXTURE TYPES:

A. Most lighting outlets are lettered or groups of outlets are indicated by a letter.

B. Each lighting fixture shall have a manufacturer's label affixed and shall comply with the requirements of all authorities having jurisdiction.

C. The lighting fixtures that are indicated by the letters shall be as indicated on the Lighting Fixture Schedule.

2.04 LIGHTING CONTROL: Provide a Photo/Control system for exterior lighting. Photocontrol built into fixtures shall operate to energize the circuits whenever natural lighting falls below 25 footcandles.

PART 3 EXECUTION

3.01 AIMING OF ADJUSTABLE LIGHT FIXTURES: All fixtures with lamp position, tilt, shutters, rotation, or other types of adjustment shall be rough adjusted at the time of installation. The Engineer or his representative will determine the final inspection. Fixtures serving areas where daylighting is predominant will be adjusted after sunset.

END OF SECTION

907-242.04--Method of Measurement. Electrical Work will be measured as a lump sum unit price.

907-242.05--Basis of Payment. Electrical Work will be paid for at the lump sum unit price which price shall be full compensation for all equipment, tools, labor and incidentals necessary to complete the work.

Payment will be made under:

501464: Electrical Work - lump sum

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-243-2 **CODE: (SP)**

DATE: 2/12/2001

SUBJECT: Landscape Mowing

Section 907-243, Landscape Mowing, is added to the 1990 Edition of the Mississippi Standard Specifications for Road and Bridge Construction as follows:

SECTION 907-243 - LANDSCAPE MOWING

907-243.0l--Description. Landscape mowing shall consist of mowing areas indicated on the plans or established by the Engineer during the life of the contract. Mowing shall be accomplished in the manner, at the times and for the purpose set forth in the contract all as ordered by the Engineer.

907-243.02--Blank.

907-243. 03--Construction Requirements.

907-243.03.l--Equipment. Equipment used shall be approved mowers suitable to perform the work, and shall be subject to the requirements of Subsection 108.05. Lawn type mowers shall be used around structures and areas adjacent thereto. Field type mowers may be used on other areas.

907-243.03.2--Mowing. The Contractor shall perform the work on areas designated on the plans or established by the Engineer. The Contractor shall take full advantage of weather and soil conditions, and no attempt shall be made to mow while the areas are deemed to be wet enough to cause damage to the soi1 or vegetation. Care shall be taken to use methods and mowers that will provide even, uniform mowed areas, and not damage adjacent vegetation and structures.

Areas shall be mowed to the height shown on the plans or established by the Engineer.

If deemed necessary, the Contractor shall immediately remove, by raking, excess grass clippings from the mowed areas and trim vegetation adjacent to structures.

If any time during the mowing operation the Engineer determines that the equipment or operators of the equipment are not performing satisfactorily, the Project Engineer may require change or adjustment of the equipment or operator.

907-243.04--Method of Measurement. Acceptable mowed areas specified, or ordered, will be measured by each mowing.

907-243.05--Basis of Payment. Landscape mowing, measured as prescribed in Subsection 907-243.04, will be paid for at the contract unit price per each, which price shall be full compensation for all equipment, tools, labor and incidentals necessary to complete the work.

Payment will be made under:

907-243-A: Landscape Mowing - per each

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-282-10 **CODE: (SP)**

DATE: 1/9/2004

SUBJECT: Irrigation System

PROJECT: BWO-9001-25(009) / 501464 -- Hinds County

Section 907-282, Irrigation System, is added to and made a part of the 1990 Edition of the Standard Specification for Road and Bridge Construction as follows.

SECTION 907-282 -- IRRIGATION SYSTEM

907-282.01--Description. Lawn and shrub bed irrigation systems, complete, constructed to the grades and conforming to the areas and locations shown on the drawings.

Irrigation lines shown on the drawings are essentially diagrammatic. Specific locations of equipment shall be established by the Contractor at the time of construction. Exceed spacing of heads as shown on the drawings only with the permission of the Engineer.

907-282.01.1--Irrigation Operations. Performed by a firm having a minimum of two consecutive years experience in this area of work and having installed other jobs of similar size and scope. Contractor to provide a minimum of 3 references and a list of similar projects with the Client's names, addresses, and telephone numbers, when requested by the Engineer.

907-282.01.2--Field Investigations: Visit the job site and become familiar with the nature and location of the work, existing conditions, and other conditions that you will be obligated to operate in the performance of the work.

907-282.01.3--Substitutions and Submittals. Substitutions shall be made only with the written approval of the Engineer. Substitutions will not be considered prior to opening of bids. Substitution of an irrigation head shall be accompanied by a Contractor prepared piping diagram noting pipe sizes, pressure loss calculations, and head locations necessary to achieve the desired watering provided by the system as designed.

Submittals: Submit 5 copies of manufacturer’s product data of materials specified herein for review and approval by the Engineer.

907-282.01.4--Department's Instruction and Maintenance Data. General: Furnish the following instructions and maintenance data. Final Acceptance will not be made until the Work has been reviewed and approved by the Engineer.

As-built drawings: 2 sets, noting exact locations of elements and changes to the drawings in red.

Operation Manual: 2 copies, bound in 1 inch diameter three ring binders, indexed and tabbed for easy reference, and labeled on spine and cover. Manual to include:

A. Approved submittals,

B. Installation instructions, including mounting details for control valves.

C. Operating Instructions, including winterization procedures, recommended operation sequence, frequency, and length of operation cycle, as per relationship to estimated absorption rate, evaporation rate and anticipated GPM.

D Maintenance Instructions: Items requiring manufacturer's product data and installation instructions. Complete warranty information, mail to manufacturer, and provide copies to the Department.

Extra Stock: Provide in addition to installed system 1 sprinkler head of each size and type, 1 valve key (per valve) for operating manual valves, 1 key per valve box, 2 wrenches for each type of head cover, and 2 wrenches for removing and installing each type of head.

907-282.02--Materials.

907-282.02.1--General: Materials shall be new and without flaws or defects, and of quality and performance as specified. Overages at completion are property of the Contractor, to be removed from the site.

Materials and equipment specified by "Proprietary Specification" as manufactured by a particular company, etc., shall be for the express purpose of establishing minimum acceptable performance requirements. Acceptable manufacturers shall include:

A. Hunter Irrigation
B. Rain Bird Sales, Inc. - Turf Division
C. L. R. Nelson Corporation

The provision of providing other acceptable manufacturer's as potential substitutions shall not disregard the requirements of paragraph 907–282.01.3.

907-282.02.2--Delivery and Storage. Damaged materials will not be accepted. Deliver packaged materials to the site in the original, unopened containers. Store materials delivered to site prior to actual usage in a place not to interfere with other trades or construction operations and protect from damage by weather or other elements as needed.

907-282.02.3--Pipe and Pipe Fittings.

907-282.02.3.1--Plastic Piping. Class 160 SDR 26-ASTM D2241 Polyvinyl Chloride (PVC) pipe NSF approved. Pipe up to and including 2-1/2 inches in diameter shall have bell and socket

joints. Pipe greater that 2-1/2 inches in diameter shall have snap connections with rubber gasket joints.

907-282.02.3.2—Sleeves. Minimum diameter of 1 1/2 times larger than the pipe or pipe(s) scheduled to pass through them. Class 160 PVC pipe under walks. Schedule 40 PVC pipe under roads and parking areas.

907-282.02.3.3--Plastic Fittings and Risers. Schedule 40 or Schedule 80 PVC. Risers above finished grade shall receive 2 coats of black exterior semi-gloss enamel paint.

907-282.02.3.4--PVC Solvent Cement. As per ASTM specification D 2564-67

907-282.02.3.5--Polyethylene Pipe and Fittings. Installed between supply lines and heads. Thick wall, flexible, polyethylene pipe, with fittings that have male barbs on one end and either male or female screw ends opposite (glue fittings and female barb adapters not allowed). Pipe and fittings shall be Toro Funny Pipe and Fittings as manufactured by Toro-Irrigation Division, Riverside, California, or an approved equal.

907-282.02.4--Valves.

907-282.02.4.1--Electric Control Valves. Pro 7900 and 9500 Series electric control valves as manufactured by L. R. Nelson Corp., Peoria, IL 61615, or approved equal.

Provide water-tight connectors as Scotch Lock or Rain Bird Snap Tight connectors with sealant for wiring connections at electric valves.

Valve box for electric valves shall be the 2200 Series as manufactured by Brooks, or an approved equal, lockable type, consisting of an 18 inch diameter pit (PVC), Model #640-L detectable key operated lid (PVC), and Model #20 B (brass) key.

907-282.02.4.1--Quick Coupler Valves. Quick Coupler Valves, each with Key and Hose Swivel, shall be the 44 Series Coupler and Keys with the SH Hose Swivel, as manufactured by Rain Bird Sprinkler Mfg. Corp., Glendora, California, or approved equal. Valve Box for Quick Couplers shall be the 10 inch circular box with twist lock cover as manufactured by Armor Access Boxes, Sheboygan, WI, or approved equal.

907-282.02.5--Sprinkler Heads.

907-282.02.5.1--Full or part Circle Pressure Regulating Pop-Up Fixed Spray Sprinkler. 6400 Series with anti-drain valve (ADV) and heavy duty spring as manufactured by L. R. Nelson Corp., Peoria, IL 61615, or approved equal.

907-282.02.5.2--Full or Part Circle Pop-up Gear Driven Rotor Sprinkler. 6095 Low Angle Series as manufactured by L. R. Nelson Corp., Peoria, IL 61615, or approved equal.

907-282.02.6--Control Wire. Control Wire (and common) shall be Number 14 size, (minimum) copper wire suitable for direct burial.

907-282.02.7--Low Point Drains: Automatic Valve model number 290-02 as manufactured by Toro, or an approved equal. Provide 2 at lowest points of each zone, with each atop an 8 inch by 8 inch by 8-inch area of coarse gravel.

907-282.02.8--Automatic Controller. SmartZone EZ Series, as manufactured by L. R. Nelson Corp., Peoria, IL 61615, or approved equal. With each controller, provide 1 Rain Trip Rain Sensor as manufactured by L. R. Nelson Corp., Peoria, IL 61615, or approved equal.

907-282.03--Construction Requirements.

907-282.03.1--Pressure/ Flow Test. Immediately after installation of meters, and before installing pipe, test and provide written results to the Engineer of the static pressure, dynamic pressure, and gallons per minute. Perform tests at the beginning tap or meter and note as such on the written results.

Receive approval from the Engineer to proceed with construction along with proposed revisions (if required due to test results) prior to installation.

907-282.03.2--Execution and Trenching. Excavate trench to pipe grade depth. Make width of trench at least 3 1/2 inches. Backfill and hand tamp over-excavation prior to installing piping. Excavate trenches deeper than required in soils containing rock or other hard material that might damage pipe. Backfill to pipe grade with selected fine earth or sand. Keep trenches free of obstructions and debris that would damage pipe.

More than 1 pipe may utilize the same trench, however, pipe arrangement in the trench shall remain continuous throughout the run of pipe/ trench and the amount of cover shall not be reduced to accommodate additional pipe.

907-282.03.3--Piping System.

907-282.03.3.1—Cover. Lawn and planting areas: 14 inches below finish grade. Roadways or parking areas: 24 inches below finish grade.

907-282.03.3.2—Clearances. Maintain a minimum 1-inch vertical clearance between lines crossing at an angle greater than 45 degrees.

907-282.03.4--Piping Erections.

907-282.03.4.1--Threaded Plastic Pipe. Do not use solvent cement on threaded joints. Wrap joints with teflon tape. When threaded pipe is used, material shall be Schedule 80 PVC.

907-282.03.4.2--Cemented Joints for PVC bell end pipe and PVC pipe with socket fittings. ASTM D 2855-70.

907-282.03.5--Valves. Install plumb to within 1/16 inch. Install Scotch Lock connectors to wiring in accordance with the manufacturer's written instructions. Wrap a 2-foot section beginning at the Scotch Lock connector around a minimum 1/2-inch diameter pipe to protect against electrical surges from lightning.

907-282.03.6--Sprinklers. Sprinklers: Install plumb to within 1/16 inch. Heads along walks and curbs: Set flush to within 1/8 inch. Other Heads: Set as per details and drawings.

907-282.03.7--Control Wire. Bury beside pipe in same trench and bundle and tape together at not more than 10-foot intervals.

907-282.03.8--Backfill: Do not backfill until system, or that portion thereof, has been tested and approved. Fill trench to within 3 in. of top with excavated soil and water to compact soil. Fill top 3 in. with existing topsoil in planting areas and wheel roll until compaction of backfill is same as surrounding soil.

907-282.03.9--Electrical Connections. Shall be in strict accordance with the latest edition of the National Electrical Code. Provide the electrical connection to the system as designated on the drawings and as specified herein. Splices to electrical wire between the controller to valves or power supply shall be made within watertight junction boxes.

907-282.03.10--Automatic Controller. Location and installation shall be as per drawings, and approved by Engineer PRIOR to installation.

Rain Sensor device shall be located where approved by the Engineer.

907-282.03.11--Flushing. Following installation of piping, risers and valves, but prior to installation of sprinkler heads, thoroughly flush piping system under a full head of water. Maintain flushing for 3 minutes through furthermost valve. After flushing, cap risers.

907-282.03.12--Testing. Conduct tests in presence of Engineer.

907-282.03.12.1--Pressure Test. Hydrostatically test the main piping system between meter and valves in place prior to backfilling. Maintain a minimum pressure of 50 PSI without pumping for period of one hour. Test is acceptable if no leakage or loss of pressure is evident during test period. Detect and repair leaks. Retest until test pressure can be maintained for duration of test. It is assumed that a water supply with a 50-PSI pressure is available on site, wherein no mechanical pumping equipment is required.

907-282.03.12.2--Operation Test. At conclusion of pressure test, install sprinkler heads and test entire system for operation under normal operating pressure. Adjust heads as noted on drawings.

Retest entire system. Test is acceptable if system operates in a satisfactory manner, with uniform coverage of areas to be irrigated.

907-282.03.13--Guarantee. Guarantee Work for one year from date of final acceptance against defects in material, equipment and workmanship. Repair damage to the premises resulting from leaks or other defects in material, equipment and workmanship to the satisfaction of the Department. Repairs, if required, shall be done promptly at no cost to the Department.

907-282.03.15--Final Acceptance. Contractor shall achieve final acceptance when systems are fully operational, approved by both the Engineer and Department, and As-Built Drawings and project manuals have been accepted and approved.

907-282.04--Method of Measurement.

907-282.04.1--Sprinkler Heads. Where noted on the drawings, sprinkler heads accepted in place will be measured per each for type of head (Pop – up fixed spray and Pop – up gear driven rotor) including nozzle.

Excavation, fittings to lateral pipe (including risers if necessary), adjustment of spray pattern, setting to proper grade, and backfilling, will not be measured for separate payment.

907-282.04.2--Piping. Where noted on the drawings and as adjusted by the Contractor in the field, piping accepted in place will be measured per linear foot for each size as shown on the drawings.

Miscellaneous fittings, PVC cleaner and glue, and operations necessary to fit and contour pipe to the trench will not be measured for separate payment.

907-282.04.3--Sleeves. Where noted on the drawings and as adjusted by the Contractor in the field, sleeves accepted in place will be measured per linear foot for each size as required.

Boring under existing pavement, miscellaneous fittings, PVC cleaner and glue, and operations necessary to install the sleeves will not be measured for separate payment.

907-282.04.4--Valve Control Wire. As needed for power supply and control of the electric control valves from the electric controllers, valve control wire accepted in place shall be measured per linear foot.

Miscellaneous fittings, water – tight junction boxes (if necessary), and curling of wire at valves will not be measured for separate payment.

907-282.04.5--Trench Excavation and Backfill. As needed for piping and wiring, trenching and backfill accepted in place will be measured per linear foot.

Depth or width of trench will not be considered regarding separate payment.

907-282.04.6--Electric Control Valve. Where noted on the drawings, electric control valves, complete and in place, will be measured per each.

Excavation, installation of valve box, backfilling, scotch lock protectors, and connection to valve wiring will not be measured for separate payment.

907-282.04.7—Quick Coupler Valve. Where noted on the drawings, quick coupler, complete and in place, will be measured per each.

Excavation, installation of valve box, steel support, gravel, and connection to irrigation main will not be measured for separate payment.

907-282.05--Basis of Payment.

907-282.05.1--Sprinkler Heads. Accepted quantities for each type of sprinkler head will be paid for at the contract unit price per each. Prices paid shall be full compensation for completing the work.

907-282.05.2--Piping and Sleeves. Accepted quantities for each size of piping and sleeves will be paid for at the contract unit price per linear foot. Prices paid shall be full compensation for completing the work.

907-282.05.3--Valve Control Wire and Trench Excavation and Backfill. Accepted quantities for valve control wire and trench excavation and backfill will be paid for at the contract unit price per linear foot. Prices paid shall be full compensation for completing the work.

907-282.05.4--Electric Controller, Electric Control Valve, and Quick Coupler Valve: Accepted quantities for electric controller, electric control valve, and quick coupler valve will be paid for at the contract unit price per each. Prices paid shall be full compensation for completing the work.

Payment will be made under:

907-282-A: Sprinkler Head, Type - per each

907-282-B: Piping, Size - per linear foot

907-282-C: Sleeves, Size - per linear foot

907-282-D: Valve Control Wire - per linear foot

907-282-E: Trench Excavation and Backfill - per linear foot

907-282-F: Blank

907-282-G: Electric Controller - per each

907-282-H: Electric Control Valve, Size - per each

907-282-I: Blank

907-282-J: Blank

907-282-K: Quick Coupler Valve with Key in Box - per each

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-288-3 **CODE: (SP)**

DATE: 03/28/2001

SUBJECT: Site Grading

Section 907-288, Site Grading, is added to and made a part of the 1990 Edition of the Mississippi Standard Specifications for Road and Bridge Construction as follows.

SECTION 907-288 -- SITE GRADING

907-288.01--Description. This work shall consist of grading, shaping, excavating, filling, and dressing around the completed facilities and other areas within the site as specified or as deemed necessary by the Engineer to provide a pleasing appearance and adequate drainage.

Ordinarily under this specification, site grading, no more than one foot of excavating and filling will be required.

907-288.02--Blank.

907-288. 03--Construction Requirements.

907-288.03.l--Equipment. Equipment used shall be approved tractors conforming to Subsection 108.05 and capable of performing the work in an approved manner to the satisfaction of the Engineer. The equipment shall be of the type to provide a smooth, uniform finish to the surface of the ground when finish grading is performed without leaving undesirable track or other equipment marks on the finished ground.

907-288.03.2--Construction Methods. At the earliest practical time, as determined by the Engineer, this work shall proceed, provided favorable soil moisture conditions exist for construction.

On areas specified or determined by the Engineer to receive topsoil, appropriate adjustment shall be made during the grading and dressing operation such that the finished section after placing the topsoil will conform to typical section shown on the plans or established by the Engineer. Immediately following the grading and dressing of the areas to receive topsoil, the Contractor shall spread the topsoil on all such areas as directed by the Engineer.

The site shall be graded prior to any construction beginning to provide for adequate drainage during construction and to prepare the initial grade for construction. All shall be done prior to and after the final construction as recommended by the Engineer.

The planting of the vegetation as required and in accordance with the contract shall follow

immediately on the topsoil, if specified, and site graded areas.

Desirable vegetation including trees shall not be damaged or destroyed by the Contractor's operations.

907-288.04--Method of Measurement. Acceptable areas of site grading will be measured by the square yard.

907-288.05--Basis of Payment. Site grading, measured as provided in Subsection 907-288.04, will be paid for at the contract unit price bid per square yard, which price shall be full compensation for the necessary grading, shaping, excavating, hauling of excess, and dressing all materials within the limits of the work necessary for properly grading the site, and for completing all incidentals thereto, and for all equipment, tools labor, supplies, and incidentals necessary to complete the work.

Payment will be made under:

907-288-A: Site Grading - per square yard

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-304-20 **CODE: (SP)**

DATE: 06/07/2002

SUBJECT: Crushed Stone Courses

Section 304, Granular Courses, of the 1990 Edition of Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows for crushed stone courses ONLY:

907-304.02--Materials.

907-304.02.1--General. Delete the first sentence of Subsection 304.02.1 on page 304-1 and substitute the following:

Material used for 3/4" and Down Crushed Stone shall meet the following requirements:

3/4" and Down Crushed Stone

Sieve Size	Percentage Passing
1"	100
3/8"	50 - 85
No. 4	35 - 65
No. 10	25 - 50
No. 40	15 - 30
No. 200	5 - 15

Material used for Granular Material (Crushed Stone), used for maintenance of traffic, shall be placed as directed by the Engineer and shall meet the following requirements:

Granular Material (Crushed Stone)

Sieve Size	Percentage Passing
1 1/2"	100
1"	90 - 100
1/2"	62 - 90
No. 4	30 - 65
No. 10	15 - 40
No. 200	3 - 16

907-304.03--Construction Requirements.

907-304.03.6--Shaping, Compacting and Finishing. Add the following to the last paragraph on page 304-3:

The required density for 3/4" and Down Crushed Stone courses shall be equal to or exceed 99.0 percent with no single density test below 95.0 percent.

No density will be required for Granular Material (Crushed Stone) courses used for maintenance of traffic.

907-304.05--Basis of Payment. After the last pay item listed in Subsection 304.05 on page 304-5, add the following:

907-304-D:	3/4" and Down Crushed Stone	- per ton
907-304-G:	3/4" and Down Crushed Stone (AEA)	- per cubic yard
907-304-H:	3/4" and Down Crushed Stone (LVM)	- per cubic yard
907-304-I:	Granular Material (Crushed Stone)	- per ton
907-304-J:	Granular Material (Crushed Stone)(LVM)	- per cubic yard

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SUPPLEMENT TO SPECIAL PROVISION NO. 907-401-23

DATE: 11/03/2003

SUBJECT: Hot Mix Asphalt (HMA)

Delete the second paragraph of Subsection 907-401.02.3.1 and substitute the following:

The total amount of crushed limestone aggregate for mixtures, excluding 4.75 mm mixtures, when used in the top lift, shall not exceed 50 percent of the total combined aggregate by weight.

Delete the compaction requirements in Subsection 907-401.02.3.2 and substitute the following:

Compaction Requirements:	$N_{Initial}$	N_{Design}	$N_{Maximum}$
High Type (HT) Mixtures (19 mm, 12.5 mm, 9.5 mm & 4.75 mm)	7	85	130
Medium Type (MT) Mixtures (19 mm, 12.5 mm, 9.5 mm & 4.75 mm)	7	65	100
All Standard Type (ST) Mixtures; 25 mm HT & MT Mixtures	6	50	75

Delete the first sentence of the second paragraph of Subsection 907-401.02.6.5 and substitute the following:

The smoothness of each applicable lift will be determined by using a California Profilograph to produce a profilogram (profile trace) at each designated location.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-401-23 **CODE: (SP)**

DATE: 02/21/2003

SUBJECT: Hot Mix Asphalt (HMA)

Section 401, Plant Mix Pavements-General, of the 1990 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is deleted in toto and replaced as follows:

SECTION 907-401 - HOT MIX ASPHALT (HMA) - GENERAL

907-401.01--Description. These specifications include general requirements that are applicable to all types of HMA along with the specific requirements for each particular mixture when deviations from the general requirements are necessary.

This work consists of the construction of one or more lifts of HMA in accordance with these specifications and the specific requirements for the mixture to be produced and in reasonably close conformity with the lines, grades, thicknesses and typical sections shown on the plans or established by the Engineer.

907-401.01.1--Definitions.

Maximum Sieve Size - Maximum sieve size is the smallest sieve size at which 100 percent of the aggregate passes.

Nominal Maximum Sieve Size - The nominal maximum sieve size is one sieve size larger than the first sieve to retain more than 10 percent of the aggregate.

Maximum Density Line - The maximum density line is a straight line plot on the FHWA 0.45 power gradation chart which extends from the zero origin point of the chart through the plotted point of the combined aggregate gradation curve on the nominal maximum sieve size.

Mechanically Fractured Face - An angular, rough, or broken surface of an aggregate particle created by crushing as determined by ASTM Designation: D 5821.

907-401.02--Materials.

907-401.02.1--Component Materials.

907-401.02.1.1--General. Component materials will be conditionally accepted at the plant subject to later rejection if incorporated in a mixture or in work which fails to meet contract requirements.

907-401.02.1.2--Aggregates. The source of aggregates shall meet the applicable requirements of Section 907-703.

907-401.02.1.2.1--Coarse Aggregate Blend. Mechanically fractured faces by weight of the combined mineral aggregate coarser than the No. 4 sieve:

Mixture	Percent Fractured Faces, minimum
25 mm	70 (one face)
19 mm*	80 (one face)
12.5 mm	90 (two face)
9.5 mm	90 (two face)
4.75 mm	90 (two face)

* When used on routes requiring polymer modified asphalt, the top intermediate lift (19 mm mixture), including travel lane and adjacent lane, shall have at least 90 percent two fractured faces minimum. When placed on an existing Portland Cement Concrete surface, all intermediate lifts (19 mm mixture) shall have at least 90 percent fractured two faces minimum.

The maximum percentage by weight of flat and elongated particles, for all mixes other than 4.75 mm, maximum to minimum dimension greater than 5, shall not exceed 10% for all mixtures. This shall be determined in accordance with ASTM D 4791, Section 8.4, on the combined mineral aggregate retained on the 3/8" sieve.

907-401.02.1.2.2--Fine Aggregate Blend. Of all the material passing the No. 8 sieve and retained on the No. 200 sieve, not more than 60 percent shall pass the No. 30 sieve.

Uncrushed natural sand shall pass the 3/8" sieve and may be used, excluding the content in RAP, in the percentages of the total mineral aggregate by weight set out in the following table:

Mixture	Maximum Percentage of Natural Sand by Total Weight of Mineral Aggregate		
	HT	MT	ST
25 mm	10	10	20
19 mm	10	10	20
12.5 mm	10	10	20
9.5 mm	10	10	10
4.75 mm	25	30	35

907-401.02.1.2.3--Combined Aggregate Blend.

Design Master Range

Mixture:	25 mm	19 mm	12.5 mm	9.5 mm	4.75 mm
Nominal Maximum Sieve Size:	1 inch	3/4 inch	1/2 inch	3/8 inch	1/4 inch
Sieve Size	Percent Passing				
1-1/2 inch	100				
1 inch	90-100	100			
3/4 inch	89 max.	90-100	100		
1/2 inch	-	89 max.	90-100	100	100
3/8 inch	-	-	89 max.	90-100	95-100
No. 4	-	-	-	89 max.	90-100
No. 8	16-50	18-55	20-60	22-70	-
No. 16	-	-	-	-	30-60
No. 200	4.0-9.0	4.0-9.0	4.0-9.0	4.0-9.0	6.0-12.0

For MT and HT mixtures, the combined aggregate gradation of the job mix formula, when plotted on FHWA 0.45 power chart paper, shall fall entirely below the Maximum Density Line on all sieve sizes smaller than the No. 4 sieve. However, MT and HT mixtures having a minimum fine aggregate angularity index of 44.0 (ASTM C1252, Method A) may be designed above the maximum density line.

The 9.5 mm mixtures shall have a minimum fine aggregate angularity of 44.0 for HT and MT mixtures and 40.0 for ST mixtures when tested on combined aggregate in accordance with ASTM C1252 Method A. The 4.75 mm mixtures shall have a minimum fine aggregate angularity of 45.0 for all design levels when tested on combined aggregate in accordance with ASTM C 1252, Method A.

The minus No. 40 fraction of the combined aggregate shall be non-plastic when tested according to AASHTO T 90. The clay content for the combined aggregate used in underlying layers shall not exceed 1.0 percent, and when used in top layers shall not exceed 0.5 percent by weight of the total mineral aggregate when tested according to AASHTO T 88.

907-401.02.1.3--Bituminous Materials. Bituminous materials shall meet the applicable requirements of Section 907-702 for the grade specified.

Tack coat shall be the same neat grade asphalt cement used in the mixture being placed or those materials specified for tack coat in Table 410-A on the last page of Section 410. Emulsified asphalt shall not be diluted without approval of the Engineer.

907-401.02.1.4--Blank.

907-401.02.1.5--Hydrated Lime. Hydrated lime shall meet the requirements of 714.03.2 for lime used in soil stabilization.

907-401.02.1.6--Asphalt Admixtures. Additives for liquid asphalt, when required or permitted, shall meet the requirements of Subsection 702.08.

907-401.02.1.7--Polymers. Polymers for use in polymer modified HMA pavements shall meet the requirements of Subsection 907-702.08.3.

907-401.02.2--Blank.

907-401.02.3--Composition of Mixtures.

907-401.02.3.1--General. Unless otherwise specified or permitted, the HMA shall consist of a uniform mixture of asphalt, aggregate, hydrated lime and, when required or necessary to obtain desired properties, antistripping agent and/or other materials.

The total amount of crushed limestone aggregate for HT mixtures, excluding 4.75 mm mixtures, when used in the top lift, shall not exceed 50 percent of the total combined aggregate by weight.

Hydrated lime shall be used in all HMA at the rate of one percent (1%) by weight of the total dry aggregate including aggregate in RAP, if used. The aggregate, prior to the addition of the hydrated lime, shall contain sufficient surface moisture. If necessary, the Contractor shall add moisture to the aggregate according to the procedures set out in Subsection 907-401.03.2.1.2.

The Contractor shall obtain a shipping ticket for each shipment of hydrated lime. The Contractor shall provide the District Materials Engineer with a copy of each shipping ticket from the supplier, including the date, time and weight of hydrated lime shipped.

Mixtures will require the addition of an antistripping agent when the Tensile Strength Ratio (MT-63) and/or the Boiling Water Test (MT-59) fail to meet the following criteria.

Tensile Strength Ratio (TSR - MT-63)	
Wet Strength / Dry Strength	85 percent minimum
Interior Face Coating	95 percent minimum
Boiling Water Test (MT-59)	
Particle Coating	95 percent minimum

Reclaimed asphalt pavement (RAP) materials may be used in the production of HMA in the percentages of the total mix by weight set out in the following table:

HMA Mixture	Maximum percent RAP by total weight of mix
4.75 mm	0
9.5 mm	15
12.5 mm Top Lift	15
12.5 mm Underlying Lift	30
19 mm	30
25 mm	30

During HMA production, the RAP shall pass through a maximum 2-inch square sieve located in the HMA plant after the RAP cold feed bin and prior to the RAP weighing system.

Crushed reclaimed concrete pavement may be used as an aggregate component of all HMA pavements. When crushed reclaimed concrete pavement is used as an aggregate component, controls shall be implemented to prevent segregation. Crushed reclaimed concrete pavement aggregate shall be separated into coarse and fine aggregate stockpiles using the 3/8-in or 1/2-in sieve as a break-point unless otherwise approved by the Engineer in writing.

907-401.02.3.1.1--Mixture Properties.

ALL MIXTURES	Percent of Maximum Specific Gravity (Gmm)
N_{Design}	96.0
$N_{Initial}$	Less than 90.0
$N_{Maximum}$	Less than 98.0
VMA CRITERIA	**Minimum percent**
25-mm mixture	12.0
19-mm mixture	13.0
12.5-mm mixture	14.0
9.5-mm mixture	15.0
4.75 mm mixture	16.0

Mixtures with VMA more than two percent higher than the minimum may be susceptible to flushing and rutting; therefore, unless satisfactory experience with high VMA mixtures is available, mixtures with VMA greater than two percent above the minimum should be avoided.

The specified VFA range for 4.75 mm nominal maximum size mixtures for design traffic levels >3 million ESAL's (HT Mixtures) shall be 75 to 78 percent, for design traffic levels of 1.0 to 3 million ESAL's (MT mixtures) 65 to 78 percent, and for design traffic levels of <1.0 million ESAL's (ST mixtures) 65 to 78 percent.

DUST/BINDER RATIO (4.75 mm)
(Percent Passing No.200 / Effective Binder Percent) 0.9 to 2.0

DUST/BINDER RATIO (9.5 mm, 12.5 mm, 19 mm & 25mm)
(Percent Passing No.200 / Effective Binder Percent) 0.8 to 1.6

907-401.02.3.2--Job Mix Formula. The job mix formula shall be established in accordance with Mississippi Test Method: MT-78, where N represents the number of revolutions of the gyratory compactor.

Compaction Requirements:	$N_{Initial}$	N_{Design}	$N_{Maximum}$
High Type (HT) Mixtures (19 mm, 12.5 mm, 9.5 mm & 4.75 mm)	7	85	130
Medium Type (MT) Mixtures (25 mm, 19 mm, 12.5 mm, 9.5 mm & 4.75 mm)	7	65	100
All Standard Type (ST) Mixtures; 25 mm HT Mixtures	6	50	75

At least 10 working days prior to the proposed use of each mixture, the Contractor shall submit in writing to the Engineer a proposed job-mix formula or request the transfer of a verified job-mix formula as set forth in the latest edition of MDOT's Field Manual for HMA and TMD-11-78-00-000. The job-mix formula shall be signed by a Certified Mixture Design Technician (CMDT).

The Department will perform the tests necessary for review of a proposed job-mix formula for each required mixture free of charge one time only. A charge will be made for additional job-mix formulas submitted by the Contractor for review.

Review of the proposed job-mix formula will be based on percent maximum specific gravity at $N_{Initial}$, N_{Design}, and $N_{Maximum}$, VMA @ N_{Design}, resistance to stripping, and other criteria specified for the mixture.

The mixture shall conform thereto within the range of tolerances specified for the particular mixture. No change in properties or proportion of any component of the job-mix formula shall be made without permission of the Engineer. The job-mix formula for each mixture shall be in effect until revised in writing by the Engineer.

A job-mix formula may be transferred to other contracts in accordance with conditions set forth in the Department's Field Manual for HMA.

The Contractor shall not place any HMA prior to receiving "tentative" approval and a MDOT design number from the Central Laboratory.

When a change in source of materials, unsatisfactory mixture production results (such as segregation, bleeding, shoving, rutting over ? ", raveling & cracking) or changed conditions make it necessary, a new job-mix formula will be required. The conditions set out herein for the original job-mix formula are applicable to the new job-mix formula.

907-401.02.4--Substitution of Mixture. The substitution of a one (1) size finer mixture for an underlying lift shall require written permission of the State Construction Engineer, except no substitution of a 4.75 mm mixture will be allowed. A 9.5 mm mixture may be substituted for the 12.5 mm mixture designated on the plans as the top lift or pre-leveling. The 19 mm mixture may be substituted for the 25 mm mixture in trench widening work. Any substitution of mixtures shall be of the same type. No other substitutions will be allowed. The quantity of substituted mixture shall be measured and paid for at the contract unit price for the mixture designated on the plans. The substitution of any mixture will be contingent on meeting the required total structure thickness and maintaining the minimum and/or maximum laying thickness for the particular substituted mixture as set out in the following table.

Mixture	Single Lift Laying Thickness (Inches)	
	Minimum	Maximum
25 mm	3	4
19 mm	2 ¼	3
12.5 mm	1 ½	2
9.5 mm	1	1 ½
4.75 mm	½	¾

907-401.02.5--Contractor's Quality Management Program.

907-401.02.5.1--General. The Contractor shall have full responsibility for quality management and maintain a quality control system that will furnish reasonable assurance that the mixtures and all component materials incorporated in the work conform to contract requirements. The Contractor shall have responsibility for the initial determination and all subsequent adjustments in proportioning materials used to produce the specified mixture. Adjustments to plant operation and spreading and compaction procedures shall be made immediately when results indicate that they are necessary. Mixture produced by the Contractor without the required testing or personnel on the project shall be subject to removal and replacement by the Contractor at no additional cost to the State.

907-401.02.5.2--Personnel Requirements. The Contractor shall provide at least one Certified Asphalt Technician-I (CAT-I) full-time during HMA production at each plant site used to furnish material to the project. Sampling shall be conducted by a certified technician or by plant personnel under the direct observation of a certified technician. All testing, data analysis and data posting will be performed by the CAT-I or by an assistant under the direct supervision of the CAT-I. The Contractor shall have a Certified Asphalt Technician-II (CAT-II) available to make any necessary process adjustments. Technician certification shall be in accordance with MDOT SOP TMD-22-10-00-000, MDOT HMA Technician Certification Program. An organizational chart, including names, telephone numbers and current certification, of all those

responsible for the quality control program shall be posted in the contractor's laboratory while the asphaltic paving work is in progress.

907-401.02.5.3--Testing Requirements. As a minimum, the Contractor's quality management program shall include the following:

(a) Bituminous Material. Provide Engineer with samples in a sealed one quart metal container at the frequency given in MDOT SOP TMD-20-04-00-000.

(b) Mechanically Fractured Face. Determine mechanically fractured face content of aggregates retained on the No. 4 sieve, at a minimum of one test per day of production.

(c) Mixture Gradation. Conduct extraction tests for gradation determination on the mixture. Sample according to the frequency in paragraph (i) and test according to Mississippi Test Method MT-31.

(d) Total Voids and VMA. Determine total voids and voids in mineral aggregate (VMA), at N_{Design}, from the results of bulk specific gravity tests on laboratory compacted specimens. Sample according to the sampling frequency in paragraph (i) and test according to the latest edition of MDOT's Field Manual for HMA.

(e) Asphalt Content. Sample according to the sampling frequency in paragraph (i). Determine the asphalt content using one of the following procedures.

(1) Nuclear gauge. (Mississippi Test Method MT-6)
(2) Incinerator oven. (AASHTO T 308, Method A)

(f) Stripping Tests. Conduct a minimum of one stripping test at the beginning of each job-mix production and thereafter, at least once per each two weeks of production according to Mississippi Test Method: MT-63 and one stripping test per day of production according to Mississippi Test Method: MT-59. Should either the TSR (MT-63) or the boiling water (MT-59) stripping tests fail, a new antistrip additive or rate shall be established or other changes made immediately that will result in a mixture which conforms to the specifications; otherwise, production shall be suspended until corrections are made.

(g) Density Tests. For 25 mm, 19.5 mm, 12.5 mm & 9.5 mm mixtures, conduct density tests as necessary to control and maintain required compaction according to Mississippi Test Method: MT-16, Method C (nuclear gauge), or AASHTO T 166. (Note - The nuclear gauge may be correlated, at the Contractor's option, with the average of a minimum of five pavement sample densities.) For 4.75 mm mixtures, conduct density tests as necessary to control and maintain required compaction according to AASHTO Designation: T 166.

(h) Quality Control Charts. Plot the individual test data, the average of the last four tests and the control limits for the following items as a minimum:

Mixture Gradation (Percent Passing) Sieves:
1/2-in, 3/8-in, No. 8, No. 16, No. 30 and No. 200.
Asphalt Content, Percent
Maximum Specific Gravity, G_{mm}
Total Voids @ N_{Design}, Percent
VMA @ N_{Design}, Percent

NOTE: For 4.75 mm mixtures, Quality Control Charts for mixture gradation are not required on the No. 8 and No. 30 sieves. For 4.75 mm mixtures, as a minimum, Quality Control Charts for mixture gradation shall be kept on the 3/8-in, No. 16 and No. 200 sieves. For all mixtures other than 4.75 mm, Quality Control Charts for mixture gradation are not required on the No. 16 sieve.

Keep charts up-to-date and posted in a readily observable location. Charts may be kept on a computer, however, the charts shall be printed out a minimum of once each production day and displayed in the laboratory. Note any process changes or adjustments on the Air Voids chart.

(i) Sampling Frequency. Conduct those tests as required above at the following frequency for each mixture produced based on the estimated plant tonnage at the beginning of the day.

Total Estimated Production, tons	Number of Tests
50-800	1
801-1700	2
1701-2700	3
2701+	4

NOTE: Material placed in a storage silo from a previous day's production shall be randomly sampled and tested when removed for placement on the roadway. Such sample(s) shall be independent of the day's production sampling frequency and shall be used in calculating the four (4) sample running average.

(j) Sample Requirements. Obtain the asphalt mixture samples from trucks at the plant. Obtain aggregate samples from cold feed bins or aggregate stockpile. Save a split portion of all mixture samples at the laboratory site in a dry and protected location for 14 calendar days. At the completion of the project, the remaining samples may be disposed of with the approval of the Engineer.

The above testing frequencies are for the estimated plant production for the day. If production is discontinued or interrupted, the tests will be conducted at the previously established sample tonnage points for the materials that are actually produced. If the production exceeds the estimated tonnage, sampling and testing will continue at the testing increments previously established for the day. A testing increment is defined as the estimated daily tonnage divided by the required number of tests from the table in 907-401.02.5.3 paragraph (i).

In addition to the above program, the following tests shall be conducted on the first day of production and once for every eight production samples thereafter, with a minimum of one test per production week.

Aggregate Stockpile Gradations (AASHTO T-11 and T-27)

Reclaimed Asphalt Pavement (RAP) Gradation (Mississippi Test Method MT-31)

Fine Aggregate Angularity for all 4.75 mm and 9.5 mm mixtures and all MT and HT mixtures designed above the maximum density line. (ASTM C 1252, Method A)

Testing of the aggregate and RAP stockpiles during production will be waived provided the Contractor provides the Engineer with gradation test results for the materials in the stockpile

determined during the building of the stockpiles. The test results provided shall represent a minimum frequency of one per one thousand tons of material in the stockpile. If the Contractor continues to add materials to the stockpile during HMA production, the requirements for gradation testing during production are not waived.

907-401.02.5.4--Documentation. The Contractor shall document all observations, records of inspection, adjustments to the mixture, and test results on a daily basis. All tests conducted by the Contractor in accordance with 907-401.02.5.3(h) shall be included in the running average calculations. If single tests are performed as a check on individual HMA properties, between regular samples, without performing all tests required in 907-401.02.5.3(h), the results of those individual tests shall not be included in the running average calculations for that particular property. The Contractor shall record the results of observations and records of inspection as they occur in a permanent field record. The Contractor shall record all process adjustments and job mix formula (JMF) changes on the air void charts. The Contractor shall provide copies of all test data sheets and the daily summary reports on the appropriate Mississippi DOT forms to the Engineer on a daily basis. The Contractor shall provide a written description of any process change (including blend proportions) to the Engineer as they occur. Information provided to the Engineer must be received in the Engineer's office by no later than 9:00 AM the day after the HMA is produced. Fourteen days after the completion of the placement of the HMA, the Contractor shall provide the Engineer with the original testing records and control charts in a neat and orderly manner.

907-401.02.5.5--Control Limits. The following control limits for the job mix formula (JMF) and warning limits are based on a running average of the last four data points.

Item	JMF Limits	Warning Limits
Sieve - % Passing		
1/2-in	± 5.5	± 4.0
3/8-in	± 5.5	± 4.0
No. 8	± 5.0	± 4.0
No. 16 (For 4.75 mm mixtures ONLY)	± 4.0	± 3.0
No. 30	± 4.0	± 3.0
No. 200	± 1.5	± 1.0
Asphalt Content, %	-0.3 to +0.5	-0.2 to + 0.4
Total Voids @ N_{Design}, %	± 1.3	± 1.0
VMA @ N_{Design}, %	– 1.5	– 1.0

907-401.02.5.6--Warning Bands. Warning bands are defined as the area between the JMF limits and the warning limits.

907-401.02.5.7--Job Mix Formula Adjustments. A request for a JMF adjustment signed by a CAT-II may be made to the Engineer by the Contractor. Submit sufficient testing data with the request to justify the change. The requested change will be reviewed by the State Materials Engineer for the Department. If current production values meet the mixture design requirements, a revised JMF will be issued. Adjustments to the JMF shall conform to the latest edition of MDOT's Field Manual for HMA. Adjustments to the JMF to conform to actual production shall not exceed the tolerances specified for the JMF limits. Regardless of such tolerances, any adjusted JMF gradation shall be within the design master range for the mixture specified. **The JMF asphalt content may only be reduced if the production VMA meets or exceeds the minimum design VMA requirements for the mixture being produced.**

907-401.02.5.8--Actions and Adjustments. Based on the process control test results for any property in question, the following actions shall be taken or adjustments made when appropriate:

(a) When the running average trends toward the warning limits, the Contractor shall consider taking corrective action. The corrective action, if any, shall be documented. All tests shall be part of the contract files and shall be included in the running average calculations.
(b) The Contractor shall notify the Engineer whenever the running average exceeds the warning limits.
(c) If two consecutive running averages exceed the warning limit, the Contractor shall stop production and make adjustments. Production shall only be restarted after notifying the Engineer of the adjustments made.
(d) If the adjustment made under (c) improves the process such that the running average after four additional tests is within the warning limits, the Contractor may continue production with no reduction in payment.
(e) If the adjustment made under (c) does not improve the process and the running average after four additional tests stays in the warning band, the mixture will be considered unsatisfactory. Reduced payment for unsatisfactory mixtures will be applied starting from the stop point to the point when the running average is back within the warning limits in accordance with Subsection 907-401.02.6.3.
(f) Failure to stop production and make adjustments when required shall subject all mixture produced from the stop point to the point when the running average is back within the warning limits to be considered unsatisfactory. Reduced payment for unsatisfactory mixtures will be applied in accordance with Subsection 907-401.02.6.3.
(g) If the running average exceeds the JMF limits, the Contractor shall stop production and make adjustments. Production shall only be restarted after notifying the Engineer of the adjustments made.
(h) All materials for which the running average exceeds the JMF limits will be considered unacceptable and shall be removed and replaced by the Contractor at no additional cost to the State. The Engineer will determine the quantity of material to be replaced based on a review of the individual testing data which make up the running average in question and an inspection of the completed pavement. If the Engineer decides to leave the mixture in place because of special circumstances, the quantity of mixture, as defined above, will be paid for in accordance with Subsection 907-401.02.6.3.
(i) Single test results shall be compared to 1.7 times the warning and JMF limits. If the test results verified by QA testing (within allowable differences in Subsection 907-401.02.6.2) exceed these limits, the pay factor provided in Subsection 907-401.02.6.3 will apply for the quantity of material represented by the test(s). Single test limits will be used for the acceptance of projects when insufficient tonnage is produced to require four (4) Contractor's tests.
(j) The above corrective action will also apply for a mixture when the Contractor's testing data has been proven incorrect. The Contractor's data will be considered incorrect when; 1) the Contractor's tests and the Engineer's tests do not agree within the allowable differences given in Subsection 907-401.02.6.2 and the difference can not be resolved, or 2) the Engineer's tests indicates that production is outside the JMF limits and the results have been verified by the Materials Division. The Engineer's data will be used in place of the Contractor's data to determine the appropriate pay factor.

907-401.02.6--Standards of Acceptance.

907-401.02.6.1--General. Acceptance for mixture quality (VMA and total voids @ N_{Design}, gradation, and asphalt content) will be based on random samples tested in accordance with the

latest edition of MDOT's Field Manual for HMA. Pavement densities and smoothness will be accepted by lots as set out in 907-401.02.6.4 and 907-401.02.6.5.

907-401.02.6.2--Assurance Program for Mixture Quality. The rounding of test results will be in accordance with Subsection 700.04.

The Engineer will conduct assurance tests on split samples taken by the Contractor. These samples may be the regular quality management samples or a sample chosen by the Engineer anytime during production. The frequency will be equal to or greater than ten percent of the tests required for the Contractor quality control and the data will be provided to the Contractor within two asphalt mixture production days after the sample has been obtained by the Engineer. At least one sample shall be tested from the first two days of production. The Engineer may select any or all of the Contractor retained samples for assurance testing. All testing and data analysis shall be performed by a Certified Asphalt Technician-I (CAT-I) or by an assistant under the direct supervision of the CAT-I. Certification shall be in accordance with MDOT SOP TMD-22-10-00-000, MDOT HMA Technician Certification Program. The Department shall post a chart giving the names and telephone numbers for the personnel responsible for the assurance program.

The Engineer shall be allowed to inspect measuring and testing devices to confirm both calibration and condition. The Contractor shall calibrate and correlate all testing equipment in accordance with the latest version of the Department's Test Methods.

Random differences between the Contractor's and Engineer's split sample test results will be considered acceptable if within the following limits:

Item	Allowable Differences
Sieve - % Passing	
3/8-in and above	6.0
No. 4	5.0
No. 8	4.0
No. 16 (For 4.75 mm mixtures ONLY)	3.5
No. 30	3.5
No. 200	2.0
AC Content	0.4
Specimen Bulk SG (Gmb) @ N_{Design}	0.030
Maximum SG (Gmm)	0.020

In the event that; 1) the comparison of the Contractor's and Engineer's test results are outside the allowable differences in the above table, or 2) if a bias exists between the results (such that one of the results is predominately higher or lower than the other) and the Engineer's results fail to meet the JMF control limits, the Engineer will investigate the reason immediately. The Engineer's investigation may include testing of the remaining split samples, review and observation of the Contractor's testing procedures and equipment, and a comparison of split sample test results by the Contractor quality control laboratory, Department quality assurance laboratory and the Materials Division. The procedures outlined in the latest edition of MDOT's Field Manual for HMA may be used as a guide for the investigation. In the event that the Contractor's results are determined to be incorrect, the Engineer's results will be used for the quality control data and the appropriate payment for the mixture will be based on the procedures specified in Subsection 907-401.02.5.8 (see Subsection 907-401.02.5.8(j)).

The Engineer will periodically witness the sampling and testing being performed by the Contractor. The Engineer, both verbally and in writing, will promptly notify the Contractor of any observed deficiencies. When differences exist between the Contractor and the Engineer which cannot be resolved, a decision will be made by the State Materials Engineer, acting as the referee, and will in writing promptly notify the Contractor. If the deficiencies are not corrected, the Engineer will stop production until corrective action is taken.

907-401.02.6.3--Acceptance Procedure for Mixture Quality. All obviously defective material or mixture will be subject to rejection by the Engineer. Such defective material or mixture shall not be incorporated into the finished work. If the defective material has already been placed in the work, the material shall be removed and replaced at no additional cost to the State.

The Engineer will base final acceptance of the asphalt mixture production on the results of the Contractor's testing for total voids and VMA @ N_{Design}, gradation, and asphalt content as verified by the Engineer in the manner hereinbefore described and the uniformity and condition of the completed pavement. Areas of pavement that exhibit nonuniformity or failures (materials or construction related) such as but not limited to segregation, bleeding, shoving, rutting over ? ", raveling, slippage, or cracking will not be accepted. Such areas will be removed and replaced at no additional cost to the State.

Bituminous mixture placed prior to correction for deficiencies in VMA and total voids @ N_{Design}, gradation, or asphalt content, as required in 907-401.02.5.8 and determined by the Engineer satisfactory to remain in place will be paid for in accordance with the following pay factors times the contract unit price per ton.

Pay Factor for Mixture Quality *

Item	Produced in Warning Bands	Produced Outside JMF Limits (Allowed to Remain in Place)
Gradation	0.90	0.75
Asphalt Content	0.85	0.75
Total Voids @ N_{Design}	0.70	0.50
VMA @ N_{Design}	0.90	0.75

* The minimum single payment will apply.

907-401.02.6.4--Acceptance Procedure for Density. Each completed lift will be accepted with respect to compaction on a lot to lot basis from density tests performed by the Department. For normal production days, divide the production into approximately equal lots as shown in the following table. When cores are being used for the compaction evaluation, randomly obtain one core from each lot. When the nuclear density gauge is being used for compaction evaluation, obtain two random readings from each lot and average the results (see Chapter 7 of the latest edition of MDOT's Field Manual for HMA). Additional tests may be required by the Engineer to determine acceptance of work appearing deficient. The Contractor shall furnish and maintain traffic control for all compaction evaluations (including coring) required in satisfying specified density requirements.

Lot Determination

Daily Production - Tons	Number of Lots
0-300	1
301-600	2
601-1000	3
1001-1500	4
1501-2100	5
2101-2800	6
2801+	7

907-401.02.6.4.1--Roadway Density. The density requirement for each completed lift on a lot to lot basis from density tests performed by the Department shall be as follows:

1. For all single lift overlays, with or without leveling and/or milling, the required lot density shall be 92.0 percent of maximum density.

2. For all multiple lift overlays (two (2) or more lifts, excluding leveling lifts), the required lot density of the bottom lift shall be 92. 0 percent of maximum density. The required lot density for all subsequent lifts shall be 93.0 percent of maximum density.

3. For all pavements on new construction, the required lot density for all lifts shall be 93.0 percent of maximum density.

When it is determined that the density for a lot is below the required density (93.0 percent or 92.0 percent) but not lower than 91.0 or 90.0 percent of maximum density, respectively, the Contractor will have the right to remove and replace the lot(s) not meeting the specified density requirements in lieu of accepting reduced payment for the lot(s).

When it is determined that the density for a lot is above 96.0 percent, the Engineer shall notify the Contractor who will make plant adjustments to resolve the problem.

When it is determined that the density for a lot is below 91.0 or 90.0 percent, respectively, the lot(s), or portions thereof shall be removed and replaced in accordance with Chapter 7 of the latest edition of MDOT's Field Manual for HMA at no additional cost to the State. A corrected lot will be retested for approval. No resampling will be performed when pavement samples are used for determining density.

At any time the average daily compaction (the total of the percent compaction for the lots produced in one day divided by the total number of lots for the day) does not meet the required percent compaction or more for two consecutive days, the Contractor shall notify the Engineer of proposed changes to the compactive effort. If the average daily compaction does not meet the required percent compaction or more for a third consecutive day, the Contractor shall stop production until compaction procedures are established to meet the specified density requirements.

Each lot of work found not to meet the density requirement of 92.0 percent of maximum density may remain in place with a reduction in payment as set out in the following tables:

PAYMENT SCHEDULE FOR COMPACTION
OF 92.0 PERCENT OF MAXIMUM DENSITY

Pay Factor	Lot Density ** % of Maximum Density
1.00	92.0 and above
0.90	91.0 - 91.9
0.70	90.0 - 90.9

** Any lot or portion thereof with a density of less than 90.0 percent of maximum density shall be removed and replaced at no additional cost to the State.

PAYMENT SCHEDULE FOR COMPACTION
OF 93.0 PERCENT OF MAXIMUM DENSITY

Pay Factor	Lot Density *** % of Maximum Density
1.00	93.0 and above
0.90	92.0 - 92.9
0.70	91.0 - 91.9

*** Any lot or portion thereof with a density of less than 91.0 percent of maximum density shall be removed and replaced at no additional cost to the State.

The compaction pay factors and mixture quality pay factor (Subsection 907-401.02.6.3) will each apply separately. However, the combined pay factor shall not be less than 0.50 for any mixture allowed to remain in place.

907-401.02.6.4.2--Trench Widening Density. The density for trench widening on a lot to lot basis shall be determined from density tests performed by the Department using pavement samples (cores).

When it is determined that the density for a trench widening lot is below 89.0 percent but not lower than 88.0 percent of maximum density, the Contractor will have the right to remove and replace the lot(s) not meeting the specified density requirements in lieu of accepting reduced payment for the lot(s).

When it is determined that the density for a trench widening lot is above 95.0 percent, the Engineer shall notify the Contractor who will make plant adjustments to resolve the problem.

When it is determined that the density for a trench widening lot is below 88.0 percent, the lot(s), or portions thereof shall be removed and replaced in accordance with Chapter 7 of the latest edition of MDOT's Field Manual for HMA at no additional cost to the State. A corrected lot will be retested for approval. No resampling will be performed when pavement samples are used for determining density.

At any time the daily compaction (the total of the percent compaction for the lots produced in one day divided by the total number of lots for the day) does not meet 89.0 percent compaction or more for two consecutive days, the Contractor shall notify the Engineer of proposed changes to the compactive effort. If the average daily compaction does not meet 89.0 percent compaction or more for a third consecutive day, the Contractor shall stop production until compaction procedures are established to meet the specified density requirement.

Each lot of trench widening work found not to meet the density requirement of 91.0 percent of maximum density may remain in place with a reduction in payment as set out in the following table:

PAYMENT SCHEDULE FOR COMPACTION
(TRENCH WIDENING WORK)

Pay Factor	Lot Density *** % of Maximum Density
1.00	89.0 and above
0.50	88.0 - 88.9

*** Any lot or portion thereof with a density of less than 88.0 percent of maximum density shall be removed and replaced at no additional cost to the State.

The compaction pay factors and mixture quality pay factor (Subsection 907-401.02.6.3) will each apply separately. However, the combined pay factor shall not be less than 0.50 for any mixture allowed to remain in place.

907-401.02.6.5--Acceptance Procedure for Pavement Smoothness. When compaction is completed, the lift shall have a uniform surface and be in reasonably close conformity with the line, grade and cross section shown on the plans.

The smoothness of each applicable lift will be determined by using a profilograph to produce a profilogram (profile trace) at each designated location. The surface shall be tested and corrected to a smoothness index as described herein with the exception of those locations or specific projects that are excluded from a smoothness test with the profilograph.

The profilograph, furnished and operated by the Contractor under supervision of the Engineer, shall consist of a frame at least 25 feet in length supported upon multiple wheels having no common axle. The wheels shall be arranged in a staggered pattern so that no two wheels will simultaneously cross the same bump. A profile is to be recorded from the vertical movement of a sensing mechanism. This profile is in reference to the mean elevation of the contact points established by the support wheels. The sensing mechanism, located at the mid-frame, may consist of a single bicycle-type wheel or a dual-wheel assembly consisting of either a bicycle-type (pneumatic tire) or solid rubber tire vertical sensing wheel and a separate bicycle-type (pneumatic tire) longitudinal sensing wheel. The wheel(s) shall be of such circumference(s) to produce a profilogram recorded on a scale of one (1) inch equal to 25 feet longitudinally and one (1) inch equal to one (1) inch (full scale) vertically. Motive power may be provided manually or by the use of a propulsion unit attached to the center assembly. In operation, the profilograph shall be moved longitudinally along the pavement at a speed no greater than 3 MPH so as to reduce bounce as much as possible. The testing equipment and procedure shall comply with the requirements of Department SOP.

The Contractor may elect to use a computerized version of the profilograph in lieu of the standard profilograph. If the computerized version of the profilograph is used, it shall meet the requirements of Subsection 907-401.02.6.6.

The smoothness of each applicable lift will be determined for traffic lanes, auxiliary lanes, climbing lane and two-way turn lanes. Areas excluded from a smoothness test with the profilograph are acceleration and deceleration lanes, tapered sections, transition sections (for width), shoulders, crossovers, ramps, side street returns, etc. The roadway pavement on bridge replacement projects having 1,000 feet or less of pavement on each side of the structure will be excluded from a test with the profilograph. Pavement on horizontal curves having a radius of less than 1,000 feet at the centerline and pavement within the superelevation

transition of such curves are excluded from a test with the profilograph. The profilogram shall terminate 15 feet from each transverse joint that separates the pavement from a bridge deck, bridge approach slab or existing pavement not constructed under the contract.

A profilogram will be made for each applicable lift. The measurements will be made in the outside wheel path of exterior lanes and either wheel path of interior lanes. The wheel path is designated as being located three feet from the edge of pavement or longitudinal joint. The testing will be limited to a single profilogram for each lift of a lane except that a new profilogram will be made on segments that have been surface corrected. When surface corrections are required and/or made, a new profilogram will be made. The new profilogram shall meet the requirements of Subsection 907-403.03.2.

Each applicable lift will be accepted on a segment to segment basis for pavement smoothness. Where the profile index requirement of the lift is 30.0 inches per mile, no segment of the lift with a profile index greater than 30.0 inches per mile shall be allowed to remain in place without correction. For the purpose of determining pavement smoothness and contract price adjustment for rideability (Subsection 907-403.03.2), each day's production will be sub-divided into sections which terminate at bridges, transverse joints or other interruptions. Each section will be sub-divided into segments of 528 feet. Where a segment less than 528 feet occurs at the end of a section, it will be combined with the preceding 528-foot segment for calculation of the profile index. The last 15 feet of a day's lift may not be obtainable until the lift is continued and for this reason may be included in the subsequent segment.

A profile index will be determined for each segment as inches per mile in excess of the "Zero" blanking band which is simply referred to as the "Profile Index". From the profilogram of each segment, the scallops above and below the "Zero" blanking band are totaled in tenths of an inch. The totaled count of tenths is converted to inches per mile to establish a smoothness profile index for that segment.

Individual bumps and/or dips that are identified on the profilogram by locating vertical deviations that exceed four tenths of an inch when measured from a chord length of 25 feet or less shall be corrected regardless of the profile index value of the segment. Surface correction by grinding shall be in accordance with Subsection 907-401.02.6.7. The Contractor shall also make other necessary surface corrections to ensure that the final profile index of the segment meets the requirements of Subsection 907-403.03.2.

Segment(s) exceeding the accepted profile index value shall be corrected as specified in Subsection 907-403.03.4. All such corrections shall be at the expense of the Contractor.

Scheduling will be the responsibility of the Contractor with approval of the Engineer, and the tests shall be conducted within 72 hours after each day's production unless authorized otherwise by the Engineer. The Contractor will be responsible for traffic control associated with this testing operation.

907-401.02.6.6--Computerized Profilograph.

907-401.02.6.6.1--General The computerized profilograph, furnished and operated by the Contractor under the supervision of the Engineer, shall be equipped with an on-board computer capable of meeting the following conditions.

Vertical displacement shall be sampled every three (3) inches or less along the roadway. The profile data shall be bandpass filtered in the computer to remove all spatial wavelengths shorter than two (2) feet. This shall be accomplished by a third order, low pass Butterworth filter. The resulting band limited profile will then be computer analyzed according to the

California Profilograph reduction process to produce the required inches per mile index. This shall be accomplished by fitting a linear regression line to each 528 feet of continuous pavement section. This corresponds to the perfect placement of the blanking band bar by a human trace reducer. Scallops above and below the blanking band are then detected and totaled according to the California protocol. Bump/Dip analysis shall take place according to the California Profilograph reduction process.

The computerized profilograph shall be capable of producing a plot of the profile and a printout which will give the following data: Stations every twenty five (25) feet, bump/dip height and bump/dip length of specification (4/10 of an inch and 25 feet respectively), the blanking band width, date of measurement, total profile index in inches per mile for the measurement, total length of the measurement, and the raw inches for each tenth mile segment.

907-401.02.6.6.2--Mechanical Requirements. The profilograph shall consists of a frame twenty five (25) feet long supported at each end by multiple wheels. The frame shall be constructed to be easily dismantled for transporting. The profilograph shall be constructed from aluminum, stainless steel and chromed parts. The end support wheels shall be arranged in a staggered pattern such that no two wheels cross a transverse joint at the same time. The relative smoothness shall be measured by the vertical movement of an eight (8) inch or larger diameter sensing wheel at the midpoint of the 25-foot frame. The horizontal distance shall be measured by a twenty (20) inch or larger diameter pneumatic wheel. This profile shall be the mean elevation referenced to the twelve points of contact with the pavement established by the support wheels. Recorded graphical trace of the profile shall be on a scale of one inch equals one inch (full scale) vertical motion of the sensing wheel and one inch equals 25 feet horizontal motion of the profilograph.

907-401.02.6.6.3--Computer Requirements. The computer shall have the ability to produce output on sight for verification. The computerized output shall indicate the profile index for each specified section of roadway. Variable low and high pass third-order Butterworth filtering options shall be available. The printout shall be capable of showing station marks automatically on the output. Blanking band positioning for each specified section of the roadway shall be placed according to the least squares fit line of the collected data. Variable bump and dip tests shall be available to show "must correct" locations on the printout. The computer must have the ability to display on screen "must correct" conditions and alert the user with an audible warning when a "must correct" location has been located. The computer must have the ability to store profile data for later reanalysis. The measurement program must be menu driven and IBM compatible. User selected options, identification, calibration factors, and time and date stamps shall be printed at the top of each printed report for verification. The control software must be upgradeable. A power source shall be included for each profilograph and be capable of supplying all power needs for a full days testing.

907-401.02.6.7--Surface Correction. Corrective work to bumps shall consist of diamond grinding in accordance with these specifications or methods approved by the Engineer. All surface areas corrected by grinding shall be sealed with a sealant approved by the Engineer.

907-401.02.6.7.1--Diamond Grinding. Grinding of asphalt surfaces shall consist of diamond grinding the existing asphalt pavement surface to remove surface distortions to achieve the specified surface smoothness requirements.

907-401.02.6.7.2--Equipment. The grinding equipment shall be a power driven, self-propelled machine that is specifically designed to smooth and texture pavement surfaces with diamond blades. The effective wheel base of the machine shall not be less than 12.0 feet. It shall have a set of pivoting tandem bogey wheels at the front of the machine and the rear

wheels shall be arranged to travel in the track of the fresh cut pavement. The center of the grinding head shall be no further than 3.0 feet forward from the center of the back wheels.

The equipment shall be of a size that will cut or plane at least 2.0 feet wide. It shall also be of a shape and dimension that does not encroach on traffic movement outside of the work area. The equipment shall be capable of grinding the surface without causing spalls at joints, or other locations.

907-401.02.6.7.3--Construction. The construction operation shall be scheduled and proceed in a manner that produces a uniform finish surface. Grinding will be accomplished in a manner to provide positive lateral drainage by maintaining a constant cross-slope between grinding extremities in each lane.

The operation shall result in pavement that conforms to the typical cross-section and the requirements specified in 907-401.02.6.7.4. It is the intent of this specification that the surface smoothness characteristics be within the limits specified.

The Contractor shall establish positive means for removal of grinding residue. Solid residue shall be removed from pavement surfaces before it is blown by traffic action or wind. Residue shall not be permitted to flow across lanes used by public traffic or into gutters or drainage facilities, but may be allowed to flow into adjacent ditches.

907-401.02.6.7.4--Finished Pavement Surface. The grinding process shall produce a pavement surface that is smooth and uniform in appearance with a longitudinal line type texture. The line type texture shall contain parallel longitudinal corrugations that present a narrow ridge corduroy type appearance. The peaks of the ridges shall not be more than 1/16 inch higher than the bottoms of the grooves.

The finished pavement surface will be measured for riding quality. The grinding shall produce a riding surface which does not exceed either the specified profile index or the specified bump and dip limit.

907-401.02.7--Nuclear Gauges.

907-401.02.7.1--Nuclear Moisture-Density Gauge. The nuclear gauge unit used to monitor density shall contain a full data processor which holds all calibration constants necessary to compute and directly display wet density, moisture, and dry density in pounds per cubic foot. The data processor shall compute and display the percent moisture and percent density based on dry weight.

907-401.02.7.2--Nuclear Asphalt Content Gauge. The Contractor shall furnish and calibrate, unless designated otherwise in the contract, a Troxler Nuclear Asphalt Content Gauge (Model 3241 or updated model) or a Campbell Nuclear Asphalt Content Gauge (Model AC-2) or an approved equal.

907-401.03--Construction Requirements. Mississippi DOT has adopted the "Hot-Mix Asphalt Paving Handbook" as the guideline for acceptable HMA construction practices.

907-401.03.1--Specific Requirements.

907-401.03.1.1--Weather Limitations. The mixture shall not be placed when weather conditions prevent the proper handling and finishing or the surface on which it is to be placed is wet or frozen. At the time of placement, the air and pavement surface temperature limitations shall be equal to or exceed that specified in the following table:

TEMPERATURE LIMITATIONS

Compacted Thickness	Temperature
Less than 1½ inches	55°F
1½ inches to 2 inches	50°F
2¼ inches to 3 inches	45°F
Greater than 3 inches	40°F

When paving operations are discontinued because of rain, the mixture in transit shall be protected until the rain ceases. The surface on which the mixture is to be placed shall be swept to remove as much moisture as possible and the mixture may then be placed subject to removal and replacement at no additional cost to the State if contract requirements are not met.

907-401.03.1.2--Tack Coat. Tack coat shall be applied to previously placed HMA and between lifts, unless otherwise directed by the Engineer. The tack coat shall be applied as a spray coating, fog coating, or "spider webbing". Construction requirements shall be in accordance with Subsection 407.03.

907-401.03.1.3--Blank.

907-401.03.1.4--Density. The lot density for all dense graded pavement lifts, except as provided below for preleveling, wedging [less than fifty percent (50%) of width greater than minimum lift thickness], ramp pads, irregular shoulder areas, median crossovers, turnouts, or other areas where the established rolling pattern cannot be performed, shall not be less than 92.0 percent of the maximum density based on AASHTO Designation: T 209 for the day's production. If a job-mix formula adjustment is made during the day which affects the maximum specific gravity, calculate a new average maximum density for the lot(s) placed after the change.

Pavement core samples obtained for determining density which have a thickness less than two times the maximum size aggregate permitted by the job-mix formula will not be used as a representative sample.

Preleveling, wedging [less than fifty percent (50%) of width greater than minimum lift thickness], ramp pads, irregular shoulder areas, median crossovers, turnouts, and other areas where an established rolling pattern cannot be obtained shall be compacted to refusal densification.

907-401.03.2--Bituminous Mixing Plants.

907-401.03.2.1--Plant Requirements.

907-401.03.2.1.1--Cold Aggregate Storage. The cold storage for hydrated lime shall be a separate bulk storage bin with a vane feeder or other approved feeder system which can readily be calibrated. The system shall provide a means for easy sampling of the hydrated lime additive and verifying the quantity of lime dispensed. The feeder system shall require a totalizer.

The hydrated lime additive equipment shall be interlocked and synchronized with the cold feed controls to operate concurrently with the cold feed operation which will automatically adjust the hydrated lime feed to variations in the cold aggregate feed. A positive signal

system shall be installed which will automatically shut the plant down when malfunctions cause an improper supply of hydrated lime or water.

The plant shall not operate unless the entire hydrated lime system is functioning properly.

907-401.03.2.1.2--Cold Aggregate Feed. The hydrated lime shall be dispensed dry or as a slurry (1 part hydrated lime to 3 parts water) directly onto the composite aggregate between the cold feed and the dryer.

When hydrated lime is introduced dry, a spray bar or other approved system capable of spraying all aggregate with water shall be installed in order to maintain all aggregate at the moisture condition set out in Subsection 907-401.02.3.1 prior to addition of the hydrated lime. An alternate system for spraying the coarse aggregate stockpiles may be allowed when approved by the Engineer. The approved equipment and methods shall consistently maintain the aggregate in a uniform, surface wet condition. The moisture content of the aggregate-hydrated lime mixture, following spraying and mixing, shall be introduced into the automatic moisture controls of the plant.

The aggregate-hydrated lime mixture shall be uniformly blended by some mechanical means such as a motorized "on the belt" mixer or pug mill located between the cold feed and the dryer. Other mixing devices may be used subject to approval by the Engineer.

A maximum of forty five (45) percent of the total aggregate blend may be fed through any single cold feed bin. If the JMF calls for more than forty five (45) percent of a specific aggregate, that aggregate must be fed through two (2) or more separate cold feed bins.

907-401.03.2.1.3--Dryer. The efficiency of drying aggregates shall be such that the moisture content of the top HMA mixture shall not exceed 0.50 percent by weight of the total mixture, and the moisture content of all the underlying mixtures shall not exceed 0.75 percent by weight of the total mixture being produced.

907-401.03.2.1.4--Blank.

907-401.03.2.1.5--Control of Bituminous Material and Antistripping Agent. Specified bituminous materials from different manufacturers or from different refineries of a single manufacturer shall not be mixed in the plant's asphalt cement supply system storage tank and used in the work without prior written approval of the Engineer. Approval is contingent upon the Engineer's receipt of three copies of the manufacturer's certified test report(s) from the Contractor showing that the bituminous material blend conforms to the specifications.

A satisfactory method of weighing or metering shall be provided to ensure the specified quantity of bituminous material. Provisions shall be provided for checking the quantity or rate of flow. Weighing or metering devices shall be accurate within plus or minus one-half percent.

The antistripping agent shall be injected into the bituminous material immediately prior to the mixing operation with an approved in-line injector system capable of being calibrated so as to ensure the prescribed dosage.

An in-line spigot for sampling of asphalt shall be located between the asphalt storage tank and the antistripping agent in-line injector.

907-401.03.2.1.6--Thermometric Equipment. An armored thermometer of adequate range and calibrated in 5°F increments shall be fixed at a suitable location in the bituminous line near the charging valve of the mixer unit.

The plant shall be equipped with an approved dial-scale, mercury-actuated thermometer, pyrometer or other approved thermometric instrument placed at the discharge chute of the dryer to measure the temperature of the material.

When the temperature control is unsatisfactory, the Engineer may require an approved temperature-recording apparatus for better regulation of the temperature.

907-401.03.2.1.7--Screens. A scalping screen shall be used.

907-401.03.2.1.8--Dust Collector. The plant shall be equipped with a dust collector constructed to waste or return collected material. When collected material is returned, it shall be returned through a controlling device which will provide a uniform flow of material into the aggregate mixture.

907-401.03.2.1.9--Safety Requirements. A platform or other suitable device shall be provided so the Engineer will have access to the truck bodies for sampling and mixture temperature data.

907-401.03.2.1.10--Blank.

907-401.03.2.1.11--Truck Scales. The specifications, tolerances and regulations for commercial weighing and measuring devices as recommended by the National Bureau of Standards [National Institute of Standards and Technology (NIST) Handbook 44] shall govern truck scales used in the State of Mississippi, except weighing devices with a capacity of ten thousand (10,000) pounds or more used to weigh road construction materials (i.e. sand, gravel, asphalt, fill dirt, topsoil and concrete) shall have a tolerance of one-half of one percent (1/2 of 1%) in lieu of the requirements of Handbook 44 and shall be regulated by the Mississippi Department of Transportation.

Scales shall be checked and certified by a scale company certified in heavy truck weights by the Mississippi Department of Agriculture and Commerce. In the case of scales used for measurement of materials on Department of Transportation projects, certification shall be performed in the presence of an authorized representative of the Department or a copy of the certification may be furnished for scales that have been checked and certified within the last six months for use on other Department of Transportation projects and are still in the position where previously tested. Scales that have not been checked and certified under NIST Handbook 44 guidelines, except for the herein modified tolerances allowed, shall be so checked and certified prior to use for measurement of materials on Department of Transportation projects. Tests shall be continued on six month intervals with the test conducted in the presence of an authorized representative of the Department.

Truck scales shall be accurate to one-half of one percent of the applied load, shall be sensitive to 20 pounds, and shall have a graduation of not more than 20 pounds.

The Contractor may use an electronic weighing system approved by the Engineer in lieu of truck scales. The system shall be equipped with an automatic print out system which will print a ticket for each load with the following information:

> MDOT, Contractor's name, project number, county, ticket number, load number, pay item number, item description of the material delivered, date, time of day, haul vehicle number, gross weight, tare weight, net weight and total daily net weight.

When approved by the Engineer and materials are measured directly from a storage bin equipped with load cells, exceptions may be made to the gross and tare weight requirements.

The ticket shall also have a place for recording the temperature of HMA mixtures, if applicable, and the signatures of MDOT's plant and roadway inspectors. The load numbers for each project shall begin with load number one (1) for the first load of the day and shall be numbered consecutively without a break until the last load of the day. The Contractor shall provide MDOT with an original and one copy of each ticket. When the ticket information provided by the Contractor proves to be unsatisfactory, MDOT will use imprinter(s) and imprinter tickets to record load information. All recorded weights shall be in pounds and shall be accurate to within one-half of one percent of the true weight, and the system shall be sensitive to 20 pounds. The Engineer will require random loads to be checked on certified platform scales at no cost to the Department.

When an electronic weighing system utilizes the plant scales of a batch plant, the system may be used only in conjunction with a fully automatic batching and control system.

907-401.03.2.2--Additional Requirements for Batching Plants.

907-401.03.2.2.1--Plant Scales. The plant batch scale weight shall not exceed the platform scale weight by more than one percent (1%).

907-401.03.2.3--Additional Requirements for Drum Mixing Plants.

907-401.03.2.3.1--Plant Controls. The plant shall be operated with all the automatic controls as designed and provided by the plant manufacturer. If the automatic controls malfunction, brief periods of manual operations to complete the day's work or to protect the work already placed may be conducted with the approval of the Engineer. During manual operation, the Contractor must continue to produce a uniform mixture meeting all contract requirements.

907-401.03.2.3.2--Aggregate Handling and Proportioning. A screening unit shall be placed between the bins and the mixer to remove oversized aggregate, roots, clayballs, etc.

907-401.03.2.4--Surge or Storage Bins. Surge and/or storage systems may be used at the option of the Contractor provided each system is approved by the Department prior to use. Surge bins shall be emptied at the end of each day's operation. Storage silos may be used to store mixtures as follows:

19-mm & 25-mm mixtures ---------- 24 hours
9.5-mm & 12.5-mm mixtures ---------- 36 hours

The storage silos must be well sealed, completely heated and very well insulated. The mixture when removed from the storage silo shall be tested to ensure that it meets all the same specifications and requirements as the mixture delivered directly to the paving site. See Subsection 907-401.02.5.3, subparagraph (i) for sampling and testing requirements.

907-401.03.3--Hauling Equipment. The inside surfaces of each vehicle bed shall be coated with a light application of water and thin oil, soap solution, lime water solution or other approved material to prevent the mixture from sticking. Diesel fuel or gasoline shall not be used to lubricate vehicle beds. Truck beds shall be raised to drain excessive lubricants before placing mixture in the bed. An excess of lubricant will not be permitted.

907-401.03.4--Bituminous Pavers. The screed or strikeoff assembly shall be capable of vibrating and heating the full width of the mixture being placed and shall lay the lift with an

automatic control device to the specified slope and grade without tearing, pulling or gouging the mixture surface.

907-401.03.5--Rollers. All rollers shall be self-propelled units capable of maintaining a smooth and uniform forward and reverse speed as required for proper compaction. They shall be equipped with adjustable scrapers, water tanks, mats and a device for wetting the wheels or tires to prevent the mixture from sticking. Adhesion of the mixture to the rollers will not be permitted. The use of diesel fuel or gasoline for cleaning roller wheels or tires or to aid in preventing the mixture from sticking to the wheels or tires is prohibited.

All rollers shall be in good mechanical condition, free from leaking fuels and lubricants, loose link motion, faulty steering mechanism, worn king bolts and bearings. They shall be operational at slow speeds to avoid displacement of the mixture and capable of reversing direction smoothly and without backlash.

907-401.03.6--Preparation of Grade. The foundation upon which HMA pavement is to be placed shall be prepared in accordance with the applicable Section of the Standard Specification.

Unless otherwise directed, tack coat shall be applied to the underlying surface on which the mixture is to be placed. Emulsions, if used, must be allowed to "break" prior to placement of the bituminous mixture.

Bituminous mixture shall not be placed against the edge of pavements, curbs, gutters, manholes and other structures until sprayed with a thin uniform tack coating. The tack coat shall be protected until the mixture has been placed.

Existing HMA pavements that require preliminary leveling or patching in advance of placing the bituminous mixture shall be sprayed with a tack coat material and then brought as nearly as practicable to uniform grade and cross section. The material shall be placed by hand or machine in one or more compacted layers approximately two (2) inches or less in compacted thickness.

907-401.03.7--Blank.

907-401.03.8--Preparation of Mixture. The temperature of the mixture, when discharged from the mixer, shall not exceed 340°F.

907-401.03.9--Material Transfer Equipment. Except for the areas mentioned below, when placing the top intermediate lift and/or the top lift of HMA pavements, the material transferred from the hauling unit shall be remixed prior to being placed in the paver hopper or insert by using an approved Materials Transfer Device. Information on approved devices can be obtained from the State Construction Engineer. Areas excluded from this requirement include: temporary work of short duration, detours, bridge replacement projects having less than 1,000 feet of pavement on each side of the structure, acceleration and deceleration lanes less than 1,000 feet in length, tapered sections, transition sections (for width), shoulders less than 10 feet in width, crossovers, ramps, side street returns and other areas designated by the Engineer.

907-401.03.10--Spreading and Finishing. Grade control for HMA pavements shall be established by stringline at least 500 feet ahead of spreading, unless placement is adjacent to curb and gutter, concrete pavement, or other allowed grade control.

The mixture shall be spread to the depth and width that will provide the specified compacted thickness, line, grade and cross section. Placing of the mixture shall be as continuous as

possible. On areas where mechanical spreading and finishing is impracticable, the mixture may be spread, raked and luted by hand tools.

Immediately after screeding and prior to compaction, the surface shall be checked by the Contractor and irregularities adjusted. When the edge is feathered as in a wedge lift, it may be sealed by rolling. Irregularities in alignment and grade along the edges shall be corrected before the edges are rolled.

Hauling, spreading and finishing equipment shall be furnished that is capable of and operated in such a manner that the rolling operation will satisfactorily correct any surface blemishes.

The longitudinal joint in the subsequent lift shall offset that in the underlying lift by approximately six (6) inches. However, the joint in the top lift shall be at the centerline or lane line.

907-401.03.11--Compaction. After the mixture has been spread and surface irregularities corrected, it shall be thoroughly and uniformly compacted to the required line, grade, cross section and density.

907-401.03.12--Joints. Joints between previously placed pavement and pavement being placed shall be so formed as to insure thorough and continuous bond.

Transverse construction joints shall be formed by cutting the previously placed mixture to expose the full depth of the lift.

The contact surface of transverse joints and longitudinal joints, except hot joints, shall be sprayed with a thin uniform tack coating before additional mixture is placed against the previously placed material.

Longitudinal joints shall be formed by overlapping the screed on the previously placed material for a width of at least one (1) inch and depositing the quantity of mixture to form a smooth, tight joint.

907-401.03.13--Pavement Samples. The Contractor shall cut samples from each lift of HMA at the time and locations designated by the Engineer. The samples shall be taken for the full depth of each lift and shall be of a size approved by the Engineer but not to exceed 120 square inches. Tools used for cutting or coring of samples shall be of the revolving blade type such as saw or core drill. Cores shall be taken using a 4.0 to 6.0-inch inside diameter coring bit. The sample hole shall be filled, compacted and finished by the Contractor to conform with the surrounding area. No additional compensation will be allowed for furnishing samples and repairing the areas with new pavement.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-403-18 **CODE: (SP)**

DATE: 02/10/2003

SUBJECT: Hot Mix Asphalt (HMA)

Section 403, Hot Bituminous Pavement, of the 1990 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is deleted in toto and replaced as follows:

SECTION 907-403 - HOT MIX ASPHALT PAVEMENT

907-403.0l--Description. This work consists of constructing one or more lifts of HMA pavement meeting the requirements of Section 907-401 on a prepared surface in accordance with the requirements of this section and in reasonably close conformity with the lines, grades, thicknesses, and typical cross sections shown on the plans or established by the Engineer. This work shall also include applicable in-grade preparation of the underlying course in accordance with Section 321.

907-403.02--Material Requirements. Materials and their use shall conform to the applicable requirements of 907-401.02.

907-403.03--Construction Requirements.

907-403.03.1--General. Construction requirements shall be as specified in 907-401.03 except as otherwise indicated in this section or applicable special provisions.

907-403.03.2--Smoothness Tolerances. Except as noted herein, the finished smoothness of each lift shall conform to the designated grade and cross section within the following tolerances from grade stakes or other grade reference points set at 25 foot intervals:

	Lower* & Leveling Lifts	Lower* Intermediate Lift	Top Intermediate Lift	Surface Lift
Max. deviation from grade and cross section at any point	1/2"	3/8"	1/4"	1/4"
Max. deviation from a 10 foot straight edge	3/8"	1/4"	1/8"	1/8"
Profile Index (PI) (inches/mile)	-	-	45.0	30.0

Note: Where more than four (4) lifts of HMA are required, all lifts, excluding the top three (3) lifts, shall meet the requirements of the lower lift.

* When tested longitudinally from a stringline located equidistant above points 50 feet apart, the distance from the stringline to the surface at any two points located 12 1/2

feet apart shall not vary one from the other more than the maximum deviation allowed above from a 10 foot straight edge.

Where only one intermediate lift is required, it shall meet the smoothness requirements for lower intermediate lifts and shall have a Profile Index of not more than 60.0 inches per mile. The surface lift shall have a Profile Index of not more than 30.0 inches per mile.

Where only a leveling lift and a surface lift are required, the surface lift shall meet the smoothness requirements for lower intermediate lifts, and shall have a Profile Index of not more than 60.0 inches per mile.

Where only a surface lift is required, the Contractor shall determine the existing surface profile index at no additional cost to the State. The finished surface lift shall have a profile index of sixty percent (60%) of the profile index of the existing surface or 60.0 inches per mile, whichever is greater.

Where milling is required to remove undesirable material and/or correction of the cross-slope and only one (1) lift is required, the lift shall have a Profile Index of not more than 45.0 inches per mile.

Where milling is required to remove undesirable material and/or correction of the cross-slope and a leveling lift and a surface lift are required, the surface lift shall have a Profile Index of not more than 45.0 inches per mile.

Where milling is required to remove undesirable material and/or correction of the cross-slope and two (2) lifts are required, the lower lift shall have a Profile Index of not more than 45.0 inches per mile and the surface lift shall have a Profile Index of not more than 30.0 inches per mile.

Grade stakes or other grade reference points set at 25-foot intervals and maximum deviation from grade and cross section will not be required provided an approved profile averaging device is furnished and properly used for the four conditions set forth herein; however, all other surface requirements are applicable.

(a) Overlays with one overall lift.

(b) Overlays with two or more overall lifts -- for each lift above the first overall lift provided each underlying overall lift is within the allowable tolerances.

(c) Surface lift of new construction provided the underlying lift is within the allowable tolerances.

(d) Full-depth asphalt construction for lifts above the lower lift provided the lower lift is within the specified tolerances for the lower intermediate lift.

Approved contacting type profile averaging devices are those devices capable of working in conjunction with a taut string or wire set to grade, or ski-type device with extreme contact points with the surface at least 30 feet apart. Approved non-contacting type profile averaging devices are laser type ski devices with at least four referencing mobile stations at a minimum length of 24 feet, or an approved equal.

When approved by the Engineer, a short ski or shoe may be substituted for a long ski on the second paving operation working in tandem.

During the finishing and compacting of pavement lifts, it shall be the responsibility of the Contractor to check the surface and joints for progress toward conformance to surface requirements set forth herein. Variations from surface requirements exceeding the allowable tolerances shall be corrected at the Contractor's expense.

When a portland cement concrete pavement is to be placed on a HMA lift, the finished top of the HMA lift shall meet the requirements of Sections 32l and 50l.

When the Profile Index for the final surface lift is less than or equal to twenty-two inches per mile (22.0 inches / mile), per segment, a unit price increase will be added. The following schedule lists the Profile Index range and the corresponding contract price adjustment:

Profile Index inches / mile / segment	Contract Price Adjustment percent of HMA unit bid price
less than 10.0	108
10.0 to 14.0	106
14.1 to 18.0	104
18.1 to 22.0	102
22.1 to 30.0	100
over 30.0	100 (with correction of PI $\leq$ 30.0)

Contract price adjustments for rideability shall only be applicable to the surface lift and furthermore to only the segment(s) or portions of the segments(s) of the surface lift that require smoothness be determined by using a profilograph and then only when the surface tolerance requirements include a profile index of 30.0 inches / mile.

Segment(s) or portions thereof representing areas excluded from a smoothness test with the profilograph shall also be excluded from consideration for a contract price adjustment for rideability.

Any contract price adjustment for rideability will be applied on a segment to segment basis to the pay tonnage, determined in accordance with Subsections 907-401.02.6.5 and 907-403.04, for the segment(s) or portions thereof for which an adjustment is warranted.

907-403.03.3--Thickness Requirements. Hot mix asphalt overlay lifts shall be constructed as nearly in accordance with the thickness shown on the plans as the underlying pavement and foundation will permit. Periodic and cumulative yield tests will be made to determine practicable conformity to the thickness of each lift. The Engineer may order modifications in placement thicknesses to prevent unwarranted variations in plan quantities.

When the paver is operating off an established grade line, no thickness determination will be required for the various lifts of pavement. It is understood that the tolerances from design grade will control the thickness requirements.

When grade stakes are eliminated by Notice to Bidders or as outlined in 907-403.03.2(d) and where resulting in the placement of two (2) or more lifts, acceptance and payment will be determined on a lot to lot basis by cores taken from the completed pavement. Lots will be coincidental with acceptance lots for the surface lift as provided in 907-401.02.6.4, except that

only lots resulting from the placement of mainline surface lift will be used for thickness assessment. One core will be obtained at random from each lot. Irregular areas will not be cored.

When the average thickness of all the cores from the lots representing a day's production (excluding any discarded by the Engineer for justifiable reason) is within 3/8 of an inch of the total pavement thickness shown on the plans, excluding lift(s) placed using an established grade line, corrective action will not be required and a price adjustment will not be made for non-conformity to specified thickness.

When the average thickness of all the cores from the lots representing a day's production is deficient in thickness by more than 3/8 of an inch of the total pavement thickness shown on the plans, excluding lift(s) placed using an established grade line, the deficiency shall be corrected by overlaying the entire length of the day's production. The thickness of the overlay shall be equal to the thickness deficiency but no less than the minimum single lift laying thickness for the specified mixture.

When the thickness of all the cores from the lots representing a day's production is more than 3/8 of an inch thicker than the total thickness shown on the plans, excluding lift(s) placed using an established grade line, a price adjustment will be made in accordance with 907-403.05.1.

The cores shall be cut and removed by the Contractor in the presence of the Engineer's representative and turned over to the Engineer's representative for further handling. The Contractor shall fill each core hole with surface lift mixture and compact to the satisfaction of the Engineer within 24 hours after coring.

907-403.03.4--Lift Corrections. Pavement exceeding the allowable surface tolerances shall be corrected at the Contractor's expense by the following methods:

Lower, Leveling and Lower Intermediate Lifts:

(a) Removal or addition of mixture by skin patching, feather edging, wedge lift construction or full depth patching where appropriate and can be completed in a satisfactory manner.

(b) Superimposing an additional layer which shall be an approved grade raise for the full roadway width and length of the area to be corrected.

Top Intermediate Lift:

(a) Removal and the addition of sufficient mixture to provide the specified thickness. Corrections by this method shall be square or rectangular in shape and shall completely cover the area to be corrected.

(b) Superimposing an additional layer (minimum lift thickness for mixture being used) which shall be an approved grade raise for full roadway width of the area to be corrected. Transverse joints shall be perpendicular to the centerline of the pavement.

Surface Lift:

(a) Removal and the addition of sufficient mixture to provide new material of at least minimum single lift laying thickness for full lane width of the area to be corrected. Transverse joints shall be perpendicular to the centerline of the lane.

(b) Superimposing an additional layer (minimum lift thickness for mixture being used) which shall be an approved grade raise for full roadway width of the area to be corrected. Transverse joints shall be perpendicular to the centerline of the pavement.

All mixtures used in the correction of unacceptable pavement shall be approved by the Engineer prior to use.

907-403.03.5--Overlays or Widening and Overlays. In addition to the requirements of 907-403.03.1 through 907-403.03.4, the following requirements will be applicable when an existing pavement is to be overlaid or widened and overlaid.

907-403.03.5.1--Blank.

907-403.03.5.2--Sequence of Operations. In order to expedite the safe movement of traffic and to protect each phase of the work as it is performed, a firm sequence of operations is essential. Unless otherwise provided in the traffic control plan and/or the contract, the following appropriate items of work shall be begun and continually prosecuted in the order listed:

(a) In sections designated by the Engineer, trim the shoulders along the pavement edges to provide drainage from the pavement.

(b) Perform prerolling to locate areas of pavement with excessive movement (Section 411).

(c) Perform selective undercutting and patching as directed (Subsection 907-403.03.5.4).

(d) Perform pressure grouting as specified (Section 412).

(e) Clean and seal joints (Section 413).

(f) Complete preparation on one side of roadway to be widened and place widening materials.

(g) Reconstruct shoulders to elevation necessary to assure traffic safety.

(h) Open the widened section to traffic.

(i) Complete above work for other side of roadway.

(j) Perform preliminary leveling as directed.

(k) Apply interlayer as specified.

(l) Place the first overall leveling lift.

(m) After the first overall leveling lift, reconstruct shoulders as necessary to eliminate vertical differentials which may be hazardous to traffic.

(n) Place first intermediate lift.

(o) Construct shoulders to the contiguous elevation of the first intermediate lift.

(p) Place remaining intermediate lift (if required).

(q) Place surface lift.

(r) Complete construction of shoulders.

(s) Apply permanent traffic marking.

(t) Final cleanup.

The above operations shall be performed in such a manner that traffic will be maintained on a paved surface at all times. Two-lane, two-way highways should not be restricted to a single lane in excess of a 3,000 foot section.

907-403.03.5.3--Widening of Pavement. The foundation for widening shall be formed by trenching or excavating to the required depth and constructing a smooth, firm and compacted foundation. It shall have sufficient density and stability to withstand the placement and compaction of subsequent lifts. Soft, yielding and other unsuitable material which the Engineer determines will not compact readily shall be removed and backfilled with granular material or hot mix asphalt as directed.

Except as provided herein, excavation for widening, undercutting or other required excavation shall be spread along the edge of the shoulders, foreslopes or other adjacent areas as directed and will be an absorbed item. When the quantity is in excess of what may be used satisfactorily on adjacent areas, the Engineer may direct that the material be loaded, hauled and spread uniformly on other designated areas. In this case, compensation for handling surplus material will be in accordance with the appropriate pay items as provided in the contract or as extra work.

If the plans require widening of the shoulders or embankment with contractor furnished material, all suitable material obtained from widening excavation may be used and will be measured and paid for as Contractor furnished materials. No measurement for payment of haul will be made.

Removal and disposal of old stakes, forms and other debris encountered in excavating shall be in accordance with Section 201 and shall be considered as incidental to and included in the unit prices bid for other items. No separate measurement will be made therefor. Pavement edges and surfaces shall be cleaned prior to final shaping and compaction of adjacent trenching or undercut areas.

Granular material for widening shall be placed on a previously prepared, smooth, firm and unyielding foundation in accordance with the typical section. Density of the granular material shall be as specified.

Hot mix asphalt for widening, including trench widening, shall meet the applicable requirements of this section and Section 401 and shall be placed in one or more layers as shown on the plans or directed. The surface of the mixture shall be finished as a continuation of the adjacent pavement slope.

Trench rollers or other compaction equipment shall be used to compact the foundation, granular material and bituminous mixtures for widening when standard width rolling equipment cannot be used.

907-403.03.5.4--Patching. Existing pavement which has failed or unsatisfactorily stabilized shall be removed as directed. Removal of pavement will be measured and paid for under the appropriate pay items as provided in the contract.

Backfill shall consist of hot mix asphalt or a combination of compacted layers of granular material and hot mix asphalt. Unless otherwise specified, the Engineer will make this determination based on depth and field conditions.

Hot mix asphalt used for backfilling will be measured and paid for at the contract unit price for the mixture designated on the plans as the lowest lift. Granular material will be measured and paid for under the appropriate pay item as provided in the contract or as extra work.

907-403.03.5.5--Preliminary Leveling. All irregularities of the existing pavement that result in a thickness greater than approximately two and one-half inches for the first overall leveling lift shall be corrected by skin patching, feather edging or a wedge lift and shall be approved by the Engineer in advance of placing the first overall lift.

907-403.03.5.6--Placement of Lifts. The leveling lift shall be placed in a layer (or layers) not exceeding approximately two and one-half inches compacted thickness.

When single lane construction is required, placement of a lift on the adjacent lane may be performed by an approved profile averaging device provided the lane previously placed is within the allowable tolerances for all surface requirements. When any of the tolerances are exceeded, the contractor shall reestablish the control stringline for laying the adjacent lane should he elect to perform this work prior to correcting the deficiencies of the lane previously placed. In no case shall a "matching shoe" be used to control the grade of an adjacent lane.

In instances where there are only minor deviations from the allowable tolerances in the first overall lift, the Engineer may permit the Contractor to place the next higher lift by graded stringline in lieu of making the corrections.

Single lane placement of leveling, intermediate and surface lifts shall be limited to the distance covered in one and one-half days in advance of that placed in the adjacent lane.

907-403.03.5.7--Protection of Pavement. The pavement shall be protected and properly maintained until it has been compacted and cooled sufficiently for use by traffic.

907-403.04--Method of Measurement. HMA pavement, complete in place and accepted, will be measured by the ton. The weight of the composite mixture shall be determined in accordance with the provisions of 907-401.03.2.1.11.

Unless shown as a separate pay item, the furnishing and application of the tack coat will not be measured for payment. When payment is provided, tack coat will be measured as set out in 407.04.

The quantity of bituminous mixture required to correct the work, when made at the expense of the Contractor, will not be measured for payment.

Any trenching required for widening will not be measured for payment; the cost thereof shall be included in other items of work.

Undercut required by the Engineer will be measured for payment under the appropriate excavation item as provided in the contract or as extra work. Pavement removal and any required trenching will not be included in the measurement for undercut.

907-403.05--Basis of Payment. Subject to the adjustments set out in 907-401.02.6.3, 907-401.02.6.4, 907-401.02.6.5 & 907-403.03.2, hot mix asphalt pavement, complete-in-place, accepted, and measured as prescribed above, will be paid for at the contract unit price per ton for each lift of pavement specified in the bid schedule and shall be full compensation for completing the work.

907-403.05.1--Price Adjustment for Thickness Requirement. When grade stakes are eliminated as provided in 907-403.03.3 and the average thickness of all cores from lots representing a day's production is more than 3/8 inch thicker than the total specified thickness of the pavement, excluding lift(s) placed using an established grade line, a lump sum reduction in payment for the surface lift of lots representing a day's production will be made as follows:

$$\text{Individual Day's L.S. Reduction} = (\text{Monetary Value of the Day's Surface Lift Production}) \times \frac{(D - 3/8)}{ST}$$

Where:

D = The day's average deviation from total pavement thickness shown on the plans, excluding lift(s) placed using an established grade line.

ST = Specified thickness for surface lift.

The total L.S. reduction for the project is the summation of the individual day's reductions in payment.

907-403.05.2--Pay Items.

Payment will be made under:

907-403-A: Hot Mix Asphalt, (1) [Type], (2) [Mixture] - per ton

907-403-B: Hot Mix Asphalt, (1) [Type], (3) [Mixture], Leveling - per ton

907-403-C: Hot Mix Asphalt, (1) [Type], (4) [Mixture], Trench Widening - per ton

907-403-D: Hot Mix Asphalt, HT, (3) [Mixture], Polymer Modified - per ton

907-403-E: Hot Mix Asphalt, HT, (3) [Mixture], Polymer Modified, Leveling - per ton

(1) ST, MT or HT
(2) 4.75 mm mixture, 9.5 mm mixture, 12.5 mm mixture, 19 mm mixture or 25 mm mixture
(3) 4.75 mm mixture, 9.5 mm mixture, 12.5 mm mixture or 19 mm mixture
(4) 19 mm mixture or 25 mm mixture

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-409-1 **CODE: (IS)**

DATE: 12/10/2001

SUBJECT: Geotextile Fabric for Underseal

Section 907-409, Geotextile Fabric Underseal, of the 1990 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby modified as follows:

907-409.05--Basis of Payment. Delete the first pay item number, description and unit in Subsection 409.05 on page 409-3 and substitute the following:

907-409-A: Geotextile Fabric (Underseal) (Type __*__) - per square yard

* When not designated, see 714.13.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-604-4 **CODE: (SP)**

DATE: 5/22/2001

SUBJECT: Precast Sectional Manholes

Section 604, Manholes, Inlets and Catch Basins of the 1990 Standard Specifications for Road and Bridge Construction is hereby amended as follows:

907-604.01--Description. After the first paragraph of Subsection 604.01 on page 604-1, add the following:

Precast (Sectional) Manholes shall consist of furnishing and assembling precast sections for manholes, together with necessary fittings, bases, and connections, all constructed in accordance with these specifications and in reasonably close conformity with the details, lines, grades and dimensions shown on the plans, or established.

907-604.02--Material Requirements. After the first sentence of the last paragraph of Subsection 604.02 on page 604-1, add the following:

Precast (sectional) manholes shall conform to the requirements of ASTM Designation: C 478.

907-604.03--Construction Details. Delete Subsection 604.03.1 on page 604-1 and substitute the following:

907-604.03.1--Precast Manholes. As trenches are opened for the pipe conduit, truly leveled bases shall be prepared at each manhole site. The bases may be cast-in-place or may consist of precast base units. In either case, the seated base shall be truly horizontal. Inverts shall be smooth and accurately shaped to a semi-circular bottom conforming to the inside of the adjacent conduit, and extend upward at least half of the diameter of the conduit, or as shown on the plans. Joints shall be sealed in accordance with Section 603.

Steps in the manhole may be of cast-iron, aluminum, wrought iron, plastic or other material approved by the Engineer. All steps shall be built into the walls of precast sections in straight alignment to form a continuous ladder with a maximum distance of 16 inches between steps.

Each precast section shall have not more than two holes for handling. The holes shall be plugged with mortar after installation.

Concrete covers may be precast, or cast at the site. The covers shall be cast accurately to the dimensions and design indicated on the plans.

907-604.04--Method of Measurement. Delete the fourth paragraph of Subsection 604.04 and substitute the following:

Precast manholes will be measured per linear foot of depth from the flowline of the manhole to the top of the cover, or as indicated on the plans.

Excavation will not be measured for separate payment. The cost of excavation shall be included in the cost of precast manholes or other items bid.

Metallic manhole covers and frames will be measured for payment under pay item 604-A, Casings, per pound.

907-604.05--Basis of Payment. After the first paragraph of Subsection 604.05, add the following:

Precast Manholes, measured as prescribed in Subsection 907-604.04, will be paid for at the contract bid price per linear foot of depth, which price shall be full compensation for all necessary excavation, sheeting, cribbing, shoring, bracing, well-pointing, furnishing and assembling all elements of the manhole (including concrete bases & covers) except metallic cover and frame, for all other items of work necessary and incident to the complete construction and for all equipment, labor, tools and incidentals necessary to complete the work.

After the last pay item listed on page 604-3, add the following:

907-604-C: Precast Manhole (___" Diameter) - per linear foot

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-607-7 **CODE: (SP)**

DATE: 2/09/2004

SUBJECT: Class I PVC Coated Fence

PROJECT: BWO-9001-25(009) / 501464 -- Hinds County

Section 607, Fences and Cattle Guards, of the 1990 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

907-607.02--Materials.

907-607.02.2--Chain Link Fence. After the first paragraph of Subsection 607.02.2 on page 607-1, add the following:

Materials for Class I PVC Coated Chain Link Fence shall meet the requirements of Subsection 712.04 with the exception that and all components associated with the chain link fence (fabric, tie wire, tension wire, barbed wire, fittings, posts, gate frames, gate hardware, etc.) shall be Class 2B (fusion applied) PVC coated to a minimum 7 mil. thickness in a dark green color to match the color of the fabric.

Provide 8 copies of manufacturer's product data to the Engineer for review of the gate operation system equipment and cantilevered gates. Additionally, provide manufacturer's certification that vinyl coating conforms to the requirements noted above. Contractor shall not order material prior to receiving approval of material from the Engineer.

907-607.02.4--Gates. After the first paragraph of Subsection 607.02.4 on page 607-1, add the following:

Cantilevered slide gates shall be the Fortress Gate as manufactured by Tymetal Corp., Greenwich, NY 12834, or approved equal. Gate height shall match that of chain link fence (including barbed wire), and shall be finished to match fence materials as noted in paragraph 907-607.02.2--Chain Link Fence, above.

907-607.02.7--Automatic Gate Operation. After Subsection 607.02.6 on page 607-1, add the following:

907-607.02.7--Automatic Gate Operation.

907-607.02.7.1--General Operation. Each vehicular entry point to the new parking lot shall be equipped with a gate operating device with detection loop(s) in the pavement to allow vehicles to leave the parking lot, prevent premature closure of the gate, and to detect when vehicles are not present to allow gate closure. Gate operating devices shall be programmable such that opening

may be limited to one half of the gate opening. One gate opening, as noted on the drawings, shall have a weatherproof card (proximity) reading device, which will accommodate MDOT employee identification cards, or other acceptable cards as determined by the Department.

Card reader and gate opening devices will not be connected to the Department's security system, therefore do not need to provide data of entry and recording numbers of exits from the parking lot. The system shall be programmable at each location to allow any or all openings to be opened for periods of time as determined by the Department, overriding on site card reading and loop devices.

907-607.02.7.2--Equipment. Major system components shall be compatible with one another and shall include the following:

Gate Operators for opening without card readers shall be a hydraulic slide gate operator, minimum 1 horsepower, capable of a minimum 1.2 feet per second travel, as the 222 SS Heavy Duty Hydraulic Slide Gate Operator as manufactured by Hy-Security Gate Operators, Seattle, WA 98103, or approved equal. Gate operator at the opening with the card reader shall be the 222 DC Heavy Duty Hydraulic Slide Gate Operator as manufactured by Hy-Security Gate Operators, Seattle, WA 98103, or approved equal Operators shall be equipped to accommodate card readers.

Card Reader shall be an exterior grade stand alone programmable proximity card reader with red and green LED and beeper feature. Card Reader shall be the 1520 Stand Alone Proximity Reader Access Control System as manufactured by DoorKing, Inc., Inglewood, CA 90310, or approved equal. The card reader shall be mounted to a Architectural Style Heavy Duty Short Gooseneck post, direct buried, model number P/N 1200-038 as manufactured by DoorKing, Inc., Inglewood, CA 90310, or approved equal. The post shall be located in a Class B concrete footing, size as recommended by manufacturer.

Bollards, located at card reader, shall be constructed as noted on the drawings.

Communication cable, wiring, conduit, and connections between gate operators and card readers/ loops shall be in accordance with the manufacturer's written instructions.

Power supply and connections shall be as noted on the drawings and as specified in the electrical special provisions and drawings.

907-607.04--Method of Measurement. Delete the sixth paragraph of Subsection 607.04 on page 607-5, add the following:

Gates will be measured by the unit, which price shall include all incidentals necessary to complete the unit, including card reader, bollards, gate operators, as necessary for each opening. Refer to electrical drawings and special provisions for basis of measurement for communication cable, conduit, power supply, etc.

907-607.05--Basis of Payment. Delete pay item numbers 607-B and 607-G on page 607-6 and add the following:

907-607-B:	72" Type I Chain Link Fence Class I) (w/ Top Arm & Barbed Wire)(Dark Green Color)	- per linear foot
907-607-G:	Gate 6'x 6' (Type I Chain Link) (w/ Barbed Wire)(Dark Green Color)	- per each
907-607-G:	Gate 6'x 24' Heavy Duty Cantilever Slide (w/ Barbed Wire)(Dark Green Color)	- per each
907-607-G:	Gate 6'x 26' Heavy Duty Cantilever Slide (w/ Barbed Wire)(Dark Green Color)	- per each
907-607-G:	Gate 6'x 34' Heavy Duty Cantilever Slide (w/ Barbed Wire)(Dark Green Color)	- per each

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-618-16 **CODE: (IS)**

DATE: 11/10/98

SUBJECT: Placement of Temporary Traffic Stripe

Section 618, Maintenance of Traffic and Traffic Control Plan, of the 1990 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

907-618.03 -- Construction Requirements.

907-618.03.3 -- Safe Movement of Traffic. Delete the third paragraph of Subsection 618.03.3 on page 618-3 and substitute the following:

A longitudinal pavement edge that traffic is expected to move across should have an elevation difference of not more than 2¼ inches. If the pavement edge is more than 1½ inches and less than or equal to 2¼ inches, uneven pavement signs will be required as shown in the plans or contract documents. If the pavement edge is less than or equal to 1½ inches, no uneven pavement signs will be required. Transverse pavement joints shall be sufficiently tapered to allow for the safe movement of traffic.

When a paving operation produces a longitudinal pavement edge that traffic is expected to move across, the adjacent lane shall be constructed to eliminate any uneven pavement edge within 48 hours, unless prohibited by weather conditions or an emergency arises.

Delete the last paragraph on page 618-3 under Subsection 618.03.3 and substitute:

All centerline, lane lines, edge lines and no-passing stripes that have been covered or removed during the day's operations shall be replaced with temporary stripe before work is discontinued for the day or as soon thereafter as weather conditions will permit, except that:

(1) Replacement of no-passing stripes may be delayed for a period not to exceed three (3) days for a two or three lane road.
(2) Temporary edge lines may be eliminated on projects requiring shoulders constructed of granular material.
(3) Temporary edge lines placed on the final pavement course of projects requiring paved shoulders without surface treatment shall be placed in the permanent stripe location, otherwise temporary edge lines on projects requiring paved shoulders may be placed on the adjacent shoulder in as near the permanent location as possible.

Temporary no-passing stripe is not considered a major item of work and such stripe which is eliminated because of placing the next course prior to expiration of the 3-day period shall not result in a monetary adjustment to the Contractor as provided in 104.02. All temporary stripe shall be placed in accordance with the plans and Subsection 907-619.03.2.

Delete the first sentence of the first paragraph on page 618-4 under Subsection 618.03.3 and substitute the following:

In addition to the temporary no-passing stripe, the Contractor shall erect standard "DO NOT PASS," "NO-PASSING ZONE," and "PASS WITH CARE" signs in accordance with plan details or as specified in the MUTCD.

Delete the last sentence of the third paragraph on page 618-4 under Subsection 618.03.3 and substitute the following:

All temporary stripe shall be maintained in good order until placement of the permanent pavement markings or placement of the next pavement course or until removed. Maintenance of temporary stripe may require more than one application over the life of the project. Payment will be made for one application only.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-619-22 **CODE: (IS)**

DATE: 06/18/2003

SUBJECT: Traffic Control for Construction Zones

Section 619, Traffic Control for Construction Zones, of the 1990 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

907-619.02.4--Construction Signs. Delete the last sentence of the second paragraph of Subsection 619.02.4 on page 619-1 and substitute:

Standards for height of construction signs shall be those shown for roadside signs in Chapter 6F of the Manual of Uniform Traffic Control Devices (MUTCD). Signs mounted on portable supports or barricades may be at lower heights but the bottom of the sign shall be no less than one foot above the traveled way.

Delete the third paragraph of Subsection 619.02.4 on page 619-1 and substitute the following:

Unless specified otherwise, fluorescent orange reflective sheeting, meeting the requirements of Subsection 721.06, shall be used on all construction signs regardless of whether used during daytime or nighttime hours.

Delete the fourth paragraph of Subsection 619.02.4 on page 619-1 and substitute the following:

Unless otherwise specified on the plans, the material on which the reflective sheeting is to be applied shall be 16 gauge (minimum) steel, 0.080" (minimum) aluminum, or 5/8" (minimum) high density overlaid plywood. Ungalvanized steel, exterior grade plywood and lumber shall have a minimum of two coats of paint on front, back, and edges. High density overlaid plywood shall have the edges painted. The material to which reflective sheeting is to be applied shall be prepared in accordance with the recommendations of the sheeting manufacturer.

Delete the third sentence of the sixth paragraph of Subsection 619.02.4 on page 619-2 and substitute the following:

If tested by the Central Laboratory, the reflective sheeting shall have at least 50 percent of the reflectivity specified for new sheeting.

907-619.02.5--Advance Warning Flashing Arrow Panels. Delete in toto Subsection 619.02.5 on page 619-2 and substitute:

907-619.02.5--Advance Warning Flashing Arrow Panels. Flashing arrow panels shall meet the requirements of Section 6F.53 of the MUTCD.

907-619.02.6--Concrete Median Barrier and Delineators. Delete in toto Subsection 619.02.6 on pages 619-2 & 619-3 and substitute:

907-619.02.6--Concrete Median Barrier and Delineators. Precast concrete median barrier shall meet the requirements of the plans, contract documents, and Section 615 except the surface may be a Class 1 ordinary surface finish unless designated otherwise. When precast concrete median barriers are no longer needed at one location, as determined by the Engineer, the barriers shall be removed and reset at other designated locations. When barriers have to be stored until needed at another location, payment for removing and resetting will not be made until they are reset at their designated location. The Contractor shall furnish the storage area.

The Engineer may allow the installation of used barriers for temporary traffic control upon an inspection and determination that the barrier units are structurally adequate for their intended purpose. Barriers with small chips or fractures not affecting their integrity may be accepted.

Precast concrete barriers used on this project which were purchased or manufactured after October 1, 2002 must meet the requirements of NCHRP Report 350. Precast median barriers purchased or manufactured prior to October 1, 2002 may be used until they complete their normal service life.

Certification of precast concrete barriers shall be as required in the Notice to Bidders titled "Certification of Traffic Control Devices".

Delineators shall be listed on the Department's "Approved Sources of Materials" and meet the requirements of the plans and Section 6F.68 of the MUTCD.

907-619.02.7--Channelization Devices, Barricades, and Warning Lights. Delete in toto Subsection 619.02.7 on page 619-3 and substitute:

907-619.02.7--Channelization Devices, Barricades, and Warning Lights. Channelization devices, vertical panels, tubular markers, cones, drums, barricades and temporary raised islands shall meet the requirements of the plans and Sections 6F.55 through 6F.64 of the MUTCD. Drums shall be constructed of lightweight, deformable material capable of retaining reflective sheeting. Reflective sheeting for drums shall be Type III meeting the requirements of 721.06. Warning lights shall meet the requirements of Section 6F.72 of the MUTCD.

907-619.02.8--Traffic Signals and Flashers. Delete in toto Subsection 619.02.8 on page 619-3 and substitute:

907-619.02.8--Traffic Signals and Flashers. Traffic signals and flashers shall meet the requirements of the plans and Sections 6F.71 & 6F.74 of the MUTCD.

907-619.02.9--Impact Attenuators. Delete in toto Subsection 619.02.9 on page 619-3 and substitute:

907-619.02.9--Impact Attenuators. Impact attenuators must be listed on the Department's "Approved Sources of Materials".

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-625-4 **CODE: (IS)**

DATE: 9/16/99

SUBJECT: Painted Traffic Markings

Section 625, Painted Traffic Markings, of the 1990 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

907-625.02--Materials. Delete in toto Subsection 625.02 on page 625-1 and substitute the following:

Paint shall be the color specified and shall meet the applicable requirements of Section 710, as amended.

Application of permanent painted traffic markings shall require Class B (High-Visibility) glass beads; otherwise, Class A (Standard) glass beads shall be required. Glass beads shall meet the requirements of Subsection 907-720.01.

907-625.03.3--Application. Delete the first paragraph of Subsection 625.03.3 on page 625-1 and substitute the following:

The paint shall be applied when the ambient temperature is no less than 50^{o}F, the pavement surface is properly prepared and the temperature of the pavement surface is no less than 50^{o}F.

For temporary traffic stripe, paint and Class A (Standard) glass beads shall be uniformly applied at the rate of not less than one gallon of paint and six pounds of beads per 264 linear feet of four-inch stripe. For permanent traffic stripe, paint and Class B (High-Visibility) glass beads shall be uniformly applied at the rate of not less than one gallon of paint and twelve pounds of beads per 176 linear feet of six-inch stripe.

907-625.03.4--Protection. Delete in last sentence of the second paragraph of Subsection 625.03.4 on page 625-2 and substitute the following:

When public traffic is being maintained, warning signs at the starting end shall be moved forward as sections of stripe dry sufficiently to prevent pick-up under traffic (reference is made to “No Tracking Time” for the particular paint in 907-710.02.2.2).

907-625.04--Method of Measurement. Delete the last sentence of the second paragraph of Subsection 625.04 on page 625-3 and substitute the following:

Stripes more than six inches in width will be converted to equivalent lengths of six-inch stripe.

907-625.05--Basis of Payment. Add the “907” prefix to all pay item numbers listed in Subsection 625.05 on page 625-3.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-626-10 **CODE: (IS)**

DATE: 9/16/99

SUBJECT: Thermoplastic Traffic Markings

Section 626, Thermoplastic Traffic Markings, of the 1990 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

907-626.03--Construction Requirements.

907-626.03.2--Construction Details. Delete the first paragraph on page 626-2 under Subsection 626.03.2 and substitute the following:

Unless otherwise directed by the Engineer, traffic stripes that are coincidental with the thermoplastic stripe shall be removed prior to placement of the thermoplastic material, except that temporary paint stripe may be left in place when satisfactorily placed in the proper location. Any temporary stripe not covered shall be removed. Payment for removal of stripe, except temporary stripe, will be made under Section 202.

907-626.04--Method of Measurement. Delete the last sentence of the second paragraph of Subsection 626.04 on page 626-3 and substitute the following:

Stripes more than six inches in width will be converted to equivalent lengths of six-inch stripe.

Delete the last sentence of Subsection 626.04 on Page 626-3 and substitute the following:

Transverse railroad bands, pedestrian crosswalks and stop lines will generally be measured by the linear foot, in which case, stripes more than six inches in width will be converted to equivalent lengths of six-inch widths.

907-626.05--Basis of Payment. After the last pay item listed on page 626-3, add the following:

907-626-AA: 6" Thermoplastic Traffic Stripe (Skip White)
(_____) - per mile
Thickness

907-626-BB: 6" Thermoplastic Traffic Stripe (Continuous White)
(_____) - per mile
Thickness

907-626-CC: 6" Thermoplastic Edge Stripe (Continuous White)
(_____) - per mile
Thickness

907-626-DD: 6" Thermoplastic Traffic Stripe (Skip Yellow)
(_____) - per mile
Thickness

907-626-EE: 6" Thermoplastic Traffic Stripe (Continuous Yellow)
(_____) - per linear foot
Thickness or mile

907-626-FF: 6" Thermoplastic Edge Stripe (Continuous Yellow)
(_____) - per mile
Thickness

907-626-GG: Thermoplastic Detail Stripe
(6" Equivalent Length) (_____) (_____) - per linear foot
Color Thickness

907-626-HH: Thermoplastic Legend (White)
(_____) - per square foot or
Thickness linear foot

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-628-11 **CODE: (IS)**

DATE: 9/16/99

SUBJECT: Cold Plastic Pavement Markings

Section 628, Cold Plastic Pavement Markings, of the 1990 Edition of the Mississippi Standard Specifications for Road and Bridge Construction, is hereby amended as follows:

Delete in toto Subsection 628.01 on page 628-1 and substitute the following:

907-628.01--Description. This work consists of furnishing materials and installing cold plastic pavement markings of the type specified in reasonably close conformity with the plans and these specifications

907-628.02--Materials. After the first sentence of Subsection 628.02 on page 628-1, add the following:

High performance cold plastic marking material shall meet the requirements of 907-720.07.

907-628.03--Construction Requirements.

907-628.03.1--Equipment. After the first sentence of Subsection 628.03.1 on page 628-1, insert the following:

When high performance profile cold plastic pavement markings are used, the manufacturer shall provide application equipment, manual or automatic as necessary for the job requirements. These applicators shall be capable of applying markings to the required alignment and dimensions shown on the plans or in the contract documents.

907-628.05--Basis of Payment. After the last pay item listed in Subsection 628.05 on page 628-2, substitute the following:

907-628-AA:	6" Cold Plastic Traffic Stripe (Skip White)	- per mile
907-628-BB:	6" Cold Plastic Traffic Stripe (Continuous White)	- per mile
907-628-CC:	6" Cold Plastic Edge Stripe (Continuous White)	- per mile
907-628-DD:	6" Cold Plastic Traffic Stripe (Skip Yellow)	- per mile
907-628-EE:	6" Cold Plastic Traffic Stripe (Continuous Yellow)	- per mile or linear foot
907-628-FF:	6" Cold Plastic Edge Stripe (Continuous Yellow)	- per mile

907-628-GG: Cold Plastic Detail Stripe (6" Equivalent Length) (Color) - per linear foot

907-628-HH: Cold Plastic Legend (White) - per square foot or linear foot

907-628-II: 6" High Performance Cold Plastic Traffic Stripe (Skip White) - per mile or linear foot

907-628-JJ: 6" High Performance Cold Plastic Traffic Stripe (Continuous White) - per mile or linear foot

907-628-KK: 6" High Performance Cold Plastic Edge Stripe (Continuous White) - per mile or linear foot

907-628-LL: 6" High Performance Cold Plastic Traffic Stripe (Skip Yellow) - per mile or linear foot

907-628-MM: 6" High Performance Cold Plastic Traffic Stripe (Continuous Yellow) - per mile or linear foot

907-628-NN: 6" High Performance Cold Plastic Edge Stripe (Continuous Yellow) - per mile or linear foot

907-628-OO: High Performance Cold Plastic Detail Stripe (6" Equivalent Length) (Color) - per linear foot

907-628-PP: High Performance Cold Plastic Legend (White) - per square foot or linear foot

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-699-3 **CODE: (IS)**

DATE: **07/03/2003**

SUBJECT: Construction Layout and Staking

Section 699, Construction Stakes, of the 1990 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

Delete in toto Section 699 on page nos. 699-1 and 699-2 and substitute the following:

SECTION 907-699--CONSTRUCTION STAKES

907-699.01--Description. This work consists of performing all calculations and other work necessary to establish and/or verify all horizontal and vertical control data; and furnishing, placing and maintaining roadway construction stakes or bridge construction stakes, or both, necessary for the proper prosecution of all features and items of the work under contract. This shall include, but not be limited to, grades and drainage structure locations, lengths, elevations and skews. When the contract includes a pay item for roadway construction stakes as provided herein, any references in other sections of the Standard Specifications to establishment of control points or construction staking "by the Department" shall be construed to mean "by the Contractor".

907-699.02--Materials. The Contractor shall furnish all personnel, materials, equipment and devices necessary for determining, establishing, setting, checking and maintaining points, lines, grades and layout of the work. All surveying equipment shall be properly adjusted and suited for performing the work required. Traffic control necessary for the proper execution of the work shall be furnished by the Contractor without separate measurement for payment. Stakes shall be of sufficient length, thickness and quality to serve the purpose for which they are being used.

907-699.03--Construction Requirements. The Department will establish, one time only, reference points and bench marks at distances not to exceed 1000 feet for roadway work. For bridge work, the Engineer's field control will consist of a stationed baseline reference point near each end of the bridge(s) and one accessible bench mark near each bridge site. For the purpose of determining responsibility for construction stakes, lines and grades, a box bridge will not be considered as a bridge. The Contractor shall verify the accuracy of the control points before proceeding with the layout for construction.

When errors are discovered and control points do not agree with the plans, the Contractor shall promptly notify the Engineer in writing, and explain the problem in detail. The Engineer will advise the Contractor within five (5) working days of any corrective actions which may be deemed necessary.

The Contractor will be responsible for verifying and modifying, as necessary to best fit existing field conditions, lengths, locations, elevations and skew angles of all drainage structures shown on the construction plans. All junction box and inlet locations and heights shall also be verified and modified as necessary to fit existing field conditions. Modifications to the plans shall not be made without the consent of the Project Engineer. The Contractor will not be responsible for determining the size of drainage structures, but should immediately report any suspected error to the Engineer. Heights of fill over drainage structures shall be checked to verify class of pipe, bedding and the appropriate standard and/or modified standard drawing(s) required in the construction with any differences from the plans being reported to the Engineer.

The Contractor shall perform work necessary to verify alignment and plan grades on all roadway intersections and tie-ins. Any discrepancies in grades, alignment, location and or dimension detected by the Contractor shall immediately be brought to the attention of the Project Engineer.

The Contractor shall employ sufficient qualified personnel experienced in highway surveying and layout to complete the work accurately. The Contractor shall also determine and provide all additional grade controls and staking operations necessary to secure a correct layout and construction of the work. All minor variations in layout and grades required to meet field conditions shall be resolved with the Engineer and shall not be considered justification for adjusting contract price or time.

Examples of minor variations in layout and grades are:

(a) Adjustment of drainage or other structure length, alignment, and flow line elevation.

(b) The adjustment of grades and alignment at roadway intersections, cross-overs, railroad crossings, interchanges, existing bridges and roadways.

(c) Adjustment of curve data.

The Contractor will be responsible for calculating and laying out all additional lines, grades, elevations and dimensions necessary to construct the work required in the plans. All grades and other layout data computed by the Contractor shall be recorded and a copy of this data shall be furnished, with sufficient time for checking, to the Engineer before field work is started. The originals of all data shall be furnished to the Engineer on or before final inspection for the Department's permanent file. The Contractor shall also furnish personnel to assist the Engineer in taking stringline or other notes to determine whether specified tolerances are met. Any inspection or checking of the Contractor's layout by the Engineer and the approval of all or any part of it will not relieve the Contractor of the responsibility to secure proper dimensions, grades, and elevations of the several parts of the work.

Prior to beginning construction on any structure which is referenced to an existing structure or topographical feature, the Contractor shall check the pertinent location and grades of the existing structures or topographical features to determine whether the location and grade shown on the plans are correct.

The Contractor shall stake centerline control at each station, BOP, EOP, PC, PT, SC, CS, TS, ST, and equations just before field cross sectioning by the Department for both original and final cross sections.

The Contractor shall furnish "as built" finish centerline elevations to the Project Engineer prior to final inspection of the project.

The Contractor shall set stakes and/or flags on the right-of-way line at each station and right-of-way break or as directed by the Engineer before clearing operations are started on any section of roadway.

On grading projects, the Contractor shall set slope stakes at each station and at the beginning and end of spirals and curves. Closer intervals will be required for sharp changes in grades or alignment, widening and certain other geometric details.

The Contractor shall set subgrade blue tops on centerline, break points and at the left and right subgrade shoulder lines at intervals of not more than 100 feet on tangents and intervals of not more than 50 feet in curves. Closer intervals will be required for sharp changes in grades or alignment, widening, or super elevation.

On paving contracts, the Contractor shall set subgrade, base and paving blue tops. The base and pavement blue tops shall be set on intervals in accordance with the appropriate applicable requirements of Sections 321, 403 and 501.

The Contractor shall exercise care in the preservation of stakes and bench marks and shall reset them when they are damaged, lost, displaced or removed. The Contractor shall use competent personnel and suitable equipment for the layout work required and shall provide that it be performed under the supervision of, or directed by, a Registered Professional Engineer or Registered Land Surveyor who is duly registered and entitled to practice as a Professional Engineer or Professional Land Surveyor in the State of Mississippi. The duties performed by said Registrant shall conform to the definitions under the "practice of engineering" and practice of "land surveying" in Mississippi Law. The Contractor shall not engage the services of any person in the employ of the Department for the performance of any of the work covered by this Section or any person who has been employed by the Department within the past six months except those who have legitimately retired from service with the Department during this period.

All cross sections, measurements, and tickets required for determining pay quantities will be the responsibility of the Department.

The Department reserves the right to check for accuracy any or all of the Contractor's layout work and shall be assisted by the Contractor's personnel in such checking. When errors or discrepancies are found, the Contractor will take measures necessary to correct, at no expense to the State, any construction that has been performed using the improper layout. Any inspection, checking and approval thereof by the Engineer of work for which the Contractor is responsible will not relieve the Contractor of responsibility to secure correct dimensions, grades, elevations, alignments and locations of the work for satisfactory completion of the project and as a condition for final acceptance by the Department.

907-699.04--Method of Measurement. Construction stakes will be measured as a lump sum quantity. When Pay Item No. 907-699-A, Roadway Construction Stakes, is provided in the contract, measurement shall include the staking of all bridges, including detour bridges, which are a part of the contract.

907-699.04.1--Roadway Construction Stakes. Measurement for payment will be in accordance with the following schedule:

(a) When one percent of the original contract amount is earned from all direct pay items, 10 percent of the amount bid for Roadway Construction Stakes will be paid.

(b) When five percent of the original contract amount is earned from all direct pay items, 25 percent of the amount bid for Roadway Construction Stakes will be paid.

(c) When 20 percent of the original contract amount is earned from all direct pay items, 50 percent of the amount bid for Roadway Construction Stakes will be paid.

(d) After the Contractor has earned 50 percent of the original value of all direct pay items, the amount paid will be based on the contract percent complete.

907-699.04.2--Bridge Construction Stakes. Measurement for payment will be in accordance with the following schedule:

(a) When one percent of the original contract value of all bridge items is earned, 10 percent of the amount bid for Bridge Construction Stakes will be paid.

(b) When five percent of the original contract value of all bridge items is earned, 25 percent of the amount bid for Bridge Construction Stakes will be paid.

(c) When 20 percent of the original contract value of all bridge items is earned, 50 percent of the amount bid for Bridge Construction Stakes will be paid.

(d) After the Contractor has earned 50 percent of original contract value of all bridge items, the amount paid will be based on the percentage of work completed on all bridge items.

907-699.05--Basis of Payment. Construction stakes, measured as prescribed in Subsection 907-699.04, will be paid for at the contract lump sum price, which shall be full compensation for completing the work.

Payment will be made under:

907-699-A: Roadway Construction Stakes	- lump sum
907-699-B: Bridge Construction Stakes	- lump sum

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-700-4 **CODE: (IS)**

DATE: 8/17/95

SUBJECT: Buy America

Division 700, Materials and Tests, of the 1990 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

907-700.01--General. Delete the fourth paragraph of Subdivision 700.01 on page no. 700-1 and substitute the following:

Domestic steel, iron and wire products including prestressing cable and strand shall be furnished for incorporation in the work. All manufacturing processes, including application of a coating, for these materials must occur domestically. However, pig iron and processed, pelletized, and reduced iron ore manufactured outside of the United States may be used in the domestic manufacturing process for steel and/or iron products. For the purpose of this specification, the activity of coating is considered a manufacturing process. The material being applied as a coating is not covered under Buy America. Coating includes all processes which protect or enhance the value of the material to which the coating is applied, such as epoxy coatings, galvanizing, painting, etc.

Add the following paragraph at the end of Subdivision 700.01 on page no. 700-1.

In the case of coatings for the above referenced domestic steel, iron and wire products, it shall be the Contractor's responsibility to forward to the State Materials Engineer a certified statement from those having applied a coating to these materials that the application of the coating occurred domestically.

907-700.05--Material Certifications and Certified Test Reports.

907-700.05.01-- Certifications. Delete paragraph (e) of Subdivision 700.05.1 on page no. 700-6 and substitute the following:

(e) Certification for all iron, steel and steel wire products must also include a certified statement by the manufacturer that all of the manufacturing processes, excluding those for pig iron and processed, pelletized, and reduced iron ore used in the manufacture of said steel and/or iron products, have occurred domestically.

907-700.05.2--Certified Test Reports. Delete paragraph (d) of Subdivision 700.05.2 on page no. 700-6 and substitute the following:

(d) Test reports for all iron, steel and steel wire products must also include a certified statement by the manufacturer that all of the manufacturing processes, excluding those for pig iron and processed, pelletized, and reduced iron ore used in the manufacture of said steel and/or iron products, have occurred domestically.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-700-5 **CODE: (IS)**

DATE: 4/1/99

SUBJECT: Use of Crushed Reclaimed Concrete Pavement as an Aggregate Component of All Hot Mix Asphalt Pavements

Division 700, Materials and Tests, of the 1990 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

907-700.01--General.

Remove the period at the end of the second paragraph of Subsection 700.01 on page 700-1 and add the following:

> , except that crushed reclaimed concrete pavement meeting the requirements of Section 703, as amended, may be used to produce aggregate for all hot mix asphalt pavements.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-702-10 **CODE: (IS)**

DATE: 2/17/98

SUBJECT: Petroleum Asphalt Cement and Polymer Modified Petroleum Asphalt Cement

Section 702, Bituminous Materials, of the 1990 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

Delete in toto Subsection 702.05, Petroleum Asphalt Cement, on page 702-2 and substitute the following:

907-702.05--Petroleum Asphalt Cement. Asphalt cement shall be homogeneous, free of water and shall not foam when heated to a temperature of 175°C.

Except for use in hot mix asphalt, asphalt cement of the grade specified shall conform to the requirements of 702.12, Table I or II.

Bituminous material conforming to AASHTO Designation MP 1, Grade PG 58-28 may be used in lieu of petroleum asphalt cement, Grade AC-10.

The bituminous material used in all types of hot mix asphalt shall conform to AASHTO Designation: MP 1, Performance Grade PG 67-22, as modified in the table below, except when otherwise specified or when polymer modified hot mix asphalt is specified.

SPECIFICATIONS FOR PERFORMANCE GRADED ASPHALT BINDERS NOT ADDRESSED BY AASHTO MP 1		
	Grade	
Property	PG 67-22	
	Specifications	Test Method
Original Binder		
Flash Point Temperature	minimum 230°C	AASHTO T 48
Rotational Viscosity	maximum 3 Pa•s @ 135°C	AASHTO TP 48
Dynamic Shear, G*/ sin δ	minimum 1.00 kPa @ 67°C	AASHTO TP 5
Rolling Thin Film Oven Residue (AASHTO T 240)		
Mass Loss (RTFO)	maximum 1.00 %	AASHTO T 240
Dynamic Shear, G*/ sin δ	minimum 2.20 kPa @ 67°C	AASHTO TP 5
Pressure Aging Vessel Residue (AASHTO PP1)		
Dynamic Shear, G*/ sin δ	maximum 5000 kPa @ 25°C	AASHTO TP 5
Creep Stiffness, S	maximum 300 MPa @ -12°C	AASHTO TP 1
m-value	minimum 0.300 @ -12°C	AASHTO TP 1

The bituminous material used in polymer modified hot mix asphalt shall conform to AASHTO Designation: MP 1, Grade PG 76-22.

Asphalt cement Grade PG 76-22 shall be the product resulting from the addition of a polymer modifier to a PG 67-22 or lower grade asphalt cement and not by some other refining technique. The polymer shall meet the requirements of Subsection 907-702.08.3.

907-702.08--Asphalt Additives.

At the end of Subsection 702.08.2 on page 702-4, add the following:

907-702.08.3--Polymers. The polymer shall be a Styrene Butadiene Styrene (SBS), a Styrene Butadiene Rubber (SBR) or an equal approved by the Engineer. The polymer shall be thoroughly blended with the asphalt cement at the refinery or terminal prior to shipment to the hot-mix plant. Producers of polymer modified asphalt cement must be listed on MDOT's Approved List of Suppliers of Polymer Modified Asphalt Cement. The producer of the polymer modified asphalt cement shall perform or have performed by an approved laboratory all tests contained in AASHTO Designation: MP 1 on a lot basis. A lot shall consist of one (1) refinery or terminal storage tank not to exceed 225,000 gallons. The Producer shall furnish two copies of a certified test report (one copy for the Contractor and one copy for the Department Representative) with each shipment. A third copy of the certified test report shall be mailed to the State Materials Engineer. The certified test report shall contain the following:

(1) Test results showing complete conformance to AASHTO Designation: MP 1
(2) Type and percentage of polymer added
(3) A statement certifying that the transport vehicle was inspected prior to loading and was found to be empty
(4) A statement certifying that the shipment conforms to Mississippi Department of Transportation specifications for the grade of polymer modified asphalt cement specified
(5) A copy of the temperature-viscosity curve attached to the certified test report.

Crumb rubber used as a polymer modifier shall meet the following additional requirements:

Crumb rubber shall be produced by ambient grinding methods. The rubber shall be sufficiently dry so as to be free flowing and to prevent foaming when mixed with asphalt cement. The rubber shall be free of contaminants including fabric, metal, minerals and other non-rubber substances. Up to four percent (by weight of rubber) of talc (such as magnesium silicate or calcium carbonate) may be added to prevent sticking and caking of the particles.

The crumb rubber shall be tested in accordance with AASHTO Designation: T 27 with the following exceptions: a 100-gram sample size and up to 25% dusting agent (talc). Rubber balls may also be used to aid in the sieving of finely ground rubber. The resulting rubber gradation shall meet the gradation limits shown herein.

Gradations of Crumb Rubber

Type A

Sieve Size	% Passing
10	--
20	--
30	--
40	100
60	98-100
80	90-100
100	70-90
200	35-60

The specific gravity of the rubber shall be 1.15 ±0.05 when tested in accordance with ASTM Designation: D 297, pycnometer method.

The moisture content shall be determined in accordance with AASHTO Designation: T 255, with the exception that the oven temperature shall be 140 ±5°F and the weight of the sample shall be 50 grams. The moisture content shall not exceed 0.75% by weight.

No more than 0.01% metal particles shall be detected when thoroughly passing a magnet through a 50-gram sample.

The chemical composition of the crumb rubber shall be determined in accordance with ASTM Designation: D 297 and shall meet the following requirements:

Acetone Extract	- Maximum 25 percent
Rubber Hydrocarbon Content	- 40 to 55 percent
Ash Content	- Maximum 10 percent
Carbon Black Content	- 20 to 40 percent
Natural Rubber	- 16 to 34 percent

Crumb rubber meeting these specifications shall be supplied in moisture resistant packaging such as either disposal bags or other appropriate bulk containers. Each container or bag of crumb rubber shall be labeled with the manufacturer's designation for the rubber and the specific type, maximum nominal size, weight and manufacturer's batch or lot designation.

The producer of the polymer modified asphalt cement shall furnish the State Materials Engineer one copy of the manufacturer's certified test results covering each shipment of crumb rubber. These reports shall indicate the results of tests required by this specification. The reports shall also include a certification that the material conforms with the specifications, and shall be identified by manufacturer's batch or lot number.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-703-18 **CODE: (IS)**

DATE: 04/15/97

SUBJECT: Aggregates for Hot Mix Asphalt (HMA)

Section 703, Aggregates, of the 1990 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

Delete Subsections 703.04, 703.05,703.09, 703.10, 703.11, and 703.12 in toto, and substitute:

907-703.06--Aggregates for Hot Mix Asphalt.

907-703.06.1--General.

907-703.06.1.1--Coarse Aggregates.

Coarse aggregate, material retained on the No. 8 sieve, shall be either crushed stone, slag, or granite; shell; expanded clay; expanded shale; crushed gravel or combination thereof. Crushed reclaimed concrete pavement shall also be allowed as a coarse aggregate provided it meets the quality requirements below and the final product produced therefrom meets all other specification requirements.

The percentage of wear shall not exceed 45 when tested in accordance with AASHTO Designation: T 96.

When tested in accordance with AASHTO Designation: T 19, the dry rodded unit weight of all aggregates except expanded clay and shale shall not be less than 70 pounds per cubic foot, and crushed slag used in the surface course shall have a dry rodded unit weight of not more than 90 pounds per cubic foot except the maximum unit weight is waived for chromium slag.

The coarse aggregate shall be free of any injurious coating which will prohibit the adherence of asphalt to the aggregate particles.

The percentage of loss shall not exceed 20 when tested for soundness using magnesium sulfate in accordance with AASHTO T 104.

Shell shall consist of durable, washed particles of dead clam or dead reef oyster shell, or combination thereof. The shell shall be free of objectionable matter such as sticks, mud, clay lumps, cannery or live shell, or other deleterious matter. Not more than five percent by weight of the dredged material shall pass the No. 200 sieve; any such material shall be dispersed throughout the mass.

907-703.06.1.2--Fine Aggregates.

Fine aggregate, material passing the No. 8 sieve, shall consist of hard, durable particles of naturally disintegrated rock, or material obtained by crushing stone, slag, gravel, reclaimed concrete pavement, or combinations thereof. Fine aggregate produce from crushing reclaimed

concrete pavement shall be manufactured from material meeting the quality requirements for coarse aggregate.

Fine aggregate shall be free of lumps of clay and friable particles, loam, organic or foreign matter.

Fine aggregate produced by crushing stone, slag or gravel shall be manufactured from aggregate meeting the quality requirements of coarse aggregate.

Individual sources of fine aggregate shall be non-plastic when tested in accordance with AASHTO Designation: T 90.

Natural deposits of fine aggregate shall contain no more than 10 percent by weight passing the No. 200 sieve when tested in accordance with AASHTO Designation: T 11.

Individual fine aggregate components shall be of such consistency and dryness that a uniform and even flow from the cold feed will be provided.

Fly ash shall not be used in hot mix asphalt pavements.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-710-5 **CODE: (IS)**

DATE: 5/7/96

SUBJECT: Fast Drying Acrylic Waterborne Traffic Paint

Section 710, Paint, of the 1990 Edition of the Mississippi Standard Specifications for Road and Construction is hereby amended as follows:

Delete in toto Subsections 710.02.2 and 710.02.3 on pages 710-2 thru 710-8 and substitute the following:

907-710.02.2--Fast Drying Acrylic Waterborne Traffic Paint. This specification covers fast drying acrylic waterborne, ready-mixed white and yellow traffic paints, Codes FDWBTW and FDWBTY.

907-710.02.2.1--Composition of Formulation. The composition of the paint shall be left to the discretion of the manufacturer as long as the finished product is composed of 100% acrylic emulsion, Rohm and Haas Emulsion E-2706 or Dow Chemical Emulsion DT 211NA, and meets the requirements of this specification and of any applicable Federal, State or Local regulations for products of this type.

The paint shall contain no lead, chromium, cadmium or barium. The organic yellow shall be pigment yellow C.I. #75 or #65. Rutile titanium dioxide shall be used in the yellow paint, FDWBTY.

907-710.02.2.1.1--Percent Pigment. The percent pigment by weight shall be not less than 45% nor more than 55%.

907-710.02.2.1.2--Total Non-Volatile. The paint shall have not less than 73% total non-volatiles by weight.

907-710.02.2.1.3--Non-Volatile Vehicle. The non-volatile portion of the vehicle shall be composed of a 100% acrylic polymer (Rohm and Haas Emulsion E-2706 or Dow Chemical Emulsion DT 211NA) and shall not be less than 44% by weight.

907-710.02.2.1.4--Organic Matter. The volatile content of the paint shall contain less than 150 grams of volatile organic matter per liter of total non-volatile paint material.

907-710.02.2.1.5--Solids Volume. The volume of solids shall be not less than 58%.

907-710.02.2.1.6--Weight per Gallon. The paint shall weigh a minimum of 12.0 pounds/gallon and the weight of the production batches shall not vary more than ±0.2 pounds/gallon from the weight of the qualification samples.

907-710.02.2.2--No Tracking Time. The paint shall dry to a no tracking condition under traffic in ninety (90) seconds maximum when applied at 15 ±1 mil. wet film thickness and 110-140^{o}F, and from three (3) to ten (10) minutes when applied at ambient temperature with six (6) pounds per gallon of Class A (Standard) glass beads or with twelve (12) pounds per gallon of Class B (High-Visibility) glass beads.

907-710.02.2.3--Viscosity. The consistency of the paint shall be not less than 75 nor more than 95 Krebs Units (KU) at 77°F when tested in accordance with Federal Test Method Standard No. 141.

907-710.02.2.4--Flexibility. The paint shall show no cracking or flaking when tested in accordance with Federal Specification TT-P-1952.

907-710.02.2.5--Dry Opacity. The minimum contrast ratio shall be 0.96 when drawn with a 0.005 Bird applicator.

907-710.02.2.6--Daylight Reflectance. The daylight directional reflectance shall not be less than 85% for white paint and not less than 54% for yellow paint (relative to magnesium oxide), when tested in accordance with Federal Test Method No. 141.

907-710.02.2.7--Abrasion Resistance. No less than 180 liters of sand shall be required for removal of the paint film when tested in accordance with Federal Specification TT-P-1952.

907-710.02.2.8--Glass Bead Adhesion. The test for bead adhesion shall be conducted in accordance with the Abrasion Resistance Test with the exception that the test be modified to require glass beads to be uniformly applied on the paint by gravity flow at the rate of 6 pounds/gallon for Class A (Standard) beads and 12 pounds/gallon for Class B (High-Visibility) beads. No less than 550 liters of sand shall be required for the removal of the beaded film. The application of the glass beads is to be a separate operation, but applied at the same time as the paint.

907-710.02.2.9--Bleeding. The paint shall have a minimum bleeding ratio of 0.97 when tested in accordance with Federal Specification TT-P-1952. The asphalt saturated felt shall conform to Federal Specification HH-R-590.

907-710.02.2.10--Scrub Resistance. The paint shall pass 300 cycles minimum when tested in accordance with ASTM Designation: D 2486.

907-710.02.2.11--Freeze-thaw-Stability. The paint shall show no coagulation or change in consistency greater than 5 Kreb Units, or a decrease in scrub resistance of greater than 10% when tested in accordance with Federal Specification TT-P-1952.

907-710.02.2.12--Dilution Test. The paint shall be capable of dilution with water at all levels without curdling or precipitation such that the wet paint can be readily cleaned up with water only.

907-710.02.2.13--Storage Stability. After 30 days storage in a three-quarters filled, closed container, the paint shall show no caking that cannot be readily remixed to a smooth, homogeneous state, no skinning, livering, curdling, or hard settling. The viscosity shall not change more than 5 Kreb Units from the viscosity of the original sample.

907-710.02.3.14--Acceptance Procedure. The traffic paint must be obtained from a manufacturer on the Department's "List of Approved Traffic Paint Manufacturers". Acceptance will be based on results of tests performed by MDOT Central Laboratory on random samples obtained from delivered batches. Certification, sampling and acceptance shall be in accordance with the requirements of MDOT S.O.P. No. TMD-30-01-00-000.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-712-4 **CODE: (IS)**

DATE: 8/28/97

SUBJECT: Metal Posts and Gates

Section 712, Fence and Guardrail, of the 1990 Edition of the Standard Specifications for Road and Bridge Construction, is hereby amended as follows:

907-712.05--Fence Posts and Braces.

Delete Subsection 712.05.2, Metal Posts, page 712-4, in toto and substitute the following:

907-712.05.2--Metal Posts. All metal posts shall be of the size and configuration specified on the plans.

Delete Subsection 712.05.2.1.2, Pipe Size and Weight, page 712-4, in toto and substitute the following:

907-712.05.2.1.2--Pipe Size and Weight. The pipe shall meet the following nominal requirements for outside diameter, wall thickness and weight per linear foot:

NPS Designator (I.D. Inches)	Outside Diameter (Inches)	Wall Thickness (Inches)	Wt./Ft. (Lbs.)
1 1/4	1.660	.110	1.820
1 1/2	1.900	.120	2.281
2	2.375	.130	3.117
2 1/2	2.875	.160	4.640

NOTE: Allowable tolerances from the above dimensions and weight per foot are as follows:

Outside Diameter: plus or minus 1.0 percent
Wall Thickness: minus 5.0 percent, No limit on plus
Weight per Foot: plus or minus 5.0 percent

Delete Subsection 712.05.2.3, Steel H-Beam Posts, page 712-5, in toto and substitute the following:

907-712.05.2.3--Steel H-Beam Posts. Steel H-Beam posts shall be produced from structural quality weldable steel having a minimum yield strength of 45,000 psi and shall be galvanized in accordance with ASTM Designation: A 123. Steel H-Beam line posts shall be 2.250 inches by 1.625 inches and shall weigh 3.43 lbs. per foot. A tolerance of plus or minus 5.0 percent is allowed for weight per foot. A tolerance of plus or minus 1.0 percent is allowed for dimensions.

After Subsection 712.05.2.4 on page 712-5 add the following subsection:

907-712.05.2.5--Formed Steel Section Posts ("C" Sections). Formed steel section posts shall be formed from sheet steel conforming to ASTM Designation: A 570, Grade 45 and shall be galvanized in accordance with ASTM Designation: A 123. The posts shall meet the dimensions and weight per linear foot set-out below. A tolerance of plus or minus 5.0

percent is allowed for weight per foot. A tolerance of plus or minus 1.0 percent is allowed for dimensions.

SIZE (INCHES)	WEIGHT PER FOOT (LBS./FT.)
1.625 X 1.250	1.35
1.875 X 1.625	1.85
2.250 X 1.700	2.78
3.500 X 3.500	5.10

907-712.12--Gates.

Delete the last sentence of Subsection 712.12.2 on page 712-7, and substitute the following:

Steel sheets used in fabricating gates shall be hot dip galvanized in accordance with ASTM Designation: A 653, G 60 Coating Designation.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-714-6 **CODE: (IS)**

DATE: 10/31/97

SUBJECT: Miscellaneous Materials

Section 714, Miscellaneous Materials, of the 1990 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

After the fifth line of Subsection 714.05.2 on page 714-4, add the following:

The available alkalis, as Na_2O, not to exceed 1.5 percent.

Delete in toto Subsection 714.06 on page no. 714-4 and substitute:

907-714.06--Ground Granulated Blast Furnace Slag (GGBFS).

907-714.06.1--General. GGBFS shall be obtained from an approved source. The acceptance of GGBFS shall be based on certified test reports, certification of shipment from the supplier and tests performed on samples obtained after delivery in accordance with the Department's Standard Operating Procedures.

The Contractor shall provide suitable means for storing and protecting the GGBFS against dampness and contamination. Separate storage silos, bins or containers shall be provided for GGBFS. GGBFS which has become partially set, caked or contains lumps shall not be used.

The Engineer shall be notified in writing of the nature, amount and identity of any processing or other additions made to the GGBFS during production.

GGBFS from different mills shall not be mixed or used alternately in any one class of construction or structure without written permission from the Engineer; except that this requirement will not be applicable to cement treatment of design soils, subbases or bases.

In addition to these requirements, GGBFS shall meet the following specific requirements.

907-714.06.2--Specific Requirements. GGBFS shall meet the requirements of AASHTO Designation: M 302, Grade 120. GGBFS shall contain no chlorides.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-714-10 **CODE: (IS)**

DATE: 12/11/2003

SUBJECT: Geotextiles

Section 714, Miscellaneous Materials, of the 1990 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

Delete in toto Subsection 714.13 beginning on page 714-15 and substitute the following:

907-714.13--Geotextiles.

907-714.13.1--General. Unless specified otherwise, the geotextile may be woven or non-woven. The fibers used in the manufacture of the geotextiles and the threads used in joining geotextiles by sewing, shall consist of long-chain synthetic polymers, composed of at least 95% by weight polyolefins, polyesters, or polyamides. They shall be formed into a network such that the filaments or yarns retain dimensional stability relative to each other, including selvages. The geotextile shall be mildew resistant and inert to biological degradation and naturally encountered chemicals, alkalines and acids. Geotextile which is not protected from sunlight after installation shall contain stabilizers and/or inhibitors to make it resistant to deterioration from direct sunlight, ultraviolet rays, and heat.

The edges of the geotextile shall be selvaged or finished in such a manner to prevent the outer yarn of filaments from raveling. The geotextile shall be free of defects or flaws, which affect the required physical properties.

Geotextile for silt fence shall be manufactured in widths of not less than three feet, and geotextile for other applications shall be manufactured in widths of not less than six feet. Sheets of geotextile may be sewn or bonded together at the factory or other approved locations, but deviation from the physical requirements will not be permitted.

Acceptance testing, except geotextile for silt fence, will be conducted with geotextile samples from each lot shipped to the project, as per Subsection 907-714.13.10.

907-714.13.2--Geotextile for Silt Fence. The geotextile shall conform to the physical requirements of Type I or II as shown in Table I. Unless a specific type is specified in the plans or contract documents, the Contractor may select Type I or II.

907-714.13.2.1--Woven Wire Backing. Except as provided herein, silt fence shall be reinforced with a woven wire backing. The wire backing shall be at least 32 inches high and have no less than six horizontal wires. Vertical wires shall be spaced no more than 12 inches apart. The top and bottom wire shall be 10 gage or larger. All other wire shall be no smaller than 12½ gage.

907-714.13.2.2--Posts. Wood or steel posts may be used. Wood posts shall have a minimum diameter of three inches and length of five feet and shall be straight enough to provide a fence without noticeable misalignment. Steel tee posts shall be five feet long, approximately 1 3/8 inches wide, 1 3/8 inches deep, and 1/8 inch thick with a nominal weight of 1.33 pounds per foot prior to fabrication. The posts shall have projections, notches or holes for fastening the wire backing or geotextile to the posts.

907-714.13.2.3--Staples. Staples shall be made of nine gage wire with a minimum length of one inch after bending.

907-714.13.3--Geotextile for Subsurface Drainage. Unless otherwise specified, the geotextile shall conform to the physical requirements of Type III as shown in Table I.

907-714.13.3.1--Geotextile for Edge Drains. The geotextile shall conform to the physical requirements of Type V as shown in Table I, except the AOS for the woven geotextile shall have a range of 0.15 mm to 0.43 mm.

907-714.13.4--Geotextile Underseal. The geotextile shall be non-woven polyester or polypropylene, which is satisfactory for use with asphalt cements. Unless otherwise specified, the geotextile shall conform to the physical requirements of Type IV in Table I.

907-714.13.5--Geotextile for Use Under Riprap. Unless otherwise specified, the geotextile shall conform to the physical requirements of Type V in Table I. The requirements for grab tensile, puncture, and trapezoidal tear strengths may be reduced 50 percent when the geotextile is cushioned from rock placement by a 6-inch minimum layer of sand.

907-714.13.6--Geotextile Stabilization. The geotextile shall meet the physical requirements as shown in Table I for the Type specified in the plans or contract documents.

907-714.13.7--Securing Pins. Steel pins used for anchoring the geotextile shall be three-sixteenth inch (3/16") in diameter, minimum length of 15 inches, pointed at one end and fabricated with a head for retaining a steel washer. A minimum one and one-half inch (1½") washer shall be installed on each pin.

907-714.13.8--Identification. Each roll of geotextile or container shall be visibly labeled with the name of the manufacturer, type of geotextile or trade name, lot number, and quantity of material.

907-714.13.9--Shipment and Storage. During shipment and storage, the geotextile shall be protected from direct sunlight, ultraviolet rays, temperatures greater than 140°F, mud, dirt, dust, and debris. The geotextile shall be wrapped and maintained in a heavy-duty protective covering, including ends of roll.

907-714.13.10—Certification, Acceptance Sampling and Testing. The Contractor shall furnish to the Engineer three copies of the manufacturer's certification that each lot in a shipment complies with the requirements of the contract. Certification of geotextile for silt fence shall

include a material conformance statement, as per Subsection 700.05.1, that the geotextile meets or exceeds the minimum average roll values specified in Table 1. All fabric, steel pins, washers, fence posts, woven wire and wire staples are subject to approval by the Engineer upon delivery to the work site.

Acceptance testing shall be completed prior to incorporating in the work. Acceptance of geotextile to be used in the work, except geotextile for silt fence, will be based on the results of tests performed by the Department on verification samples submitted from the project. The Engineer will select one roll at random, from each lot in a shipment, for sampling. A sample extending full width of the randomly selected roll and containing at least five square yards of geotextile will be obtained and submitted by the Engineer. The sample shall be provided at no additional cost to the State.

907-714.13.11—Table.

TABLE I
GEOTEXTILES

Type Designation	I[a]	II[a]	III	IV	V	VI		VII		
Application	**Sediment Control**		**Drainage**	**Paving**	**Separation & Drainage**	**Separation, Stabilization & Reinforcement**				
Physical Properties										**Test Method**
Grab Strength (lbs.)	50	90	110	90	200	W 280	NW 180	W 450	NW 280	ASTM D 4632
Elongation %	----	50% max @ 45 lbs.	20% min	50% min @ break	50% min	50% max	50% min	50% max	50% min	ASTM D 4632
Seam Strength (lbs.)	----	----	70	----	180	240	160	400	240	ASTM D 4632
Puncture Strength (lbs.)	----	----	40	----	80	110	75	180	115	ASTM D 4883
Trapezoidal Tear (lbs.)	----	----	40	----	80	100	70	150	100	ASTM D 4533
Asphalt Retention (gal/yd^2)	----	----	----	0.2	----	----	----	----	----	ASTM D 6140
Permittivity (Sec^{-1})	0.05	0.05	0.5	----	0.15	0.2	0.2	0.2	0.2	ASTM D 4491
AOS Woven (mm)	0.15 - 0.84	0.15 - 0.84	0.15 - 0.43	----	0.21 - 0.43	0.15 - 0.21	----	0.15 - 0.21	----	ASTM D 4751
AOS Non-Woven (mm)	<0.84	<0.84	<0.43	----	<0.43	----	<0.43	----	<0.43	ASTM D 4751
Tensile Strength after UV (% Retained)	70@500Hr.	70 @ 500 Hr.	70 @ 150 Hr.	----	70 @ 150 Hr.	70 @ 150 Hr.		70 @ 150 Hr.		ASTM D 4355
Melting Point (°F)	----	----	----	325°F	----	----		----		ASTM D 276

[a]: All property values, with the exception of apparent opening size (AOS), represent minimum average roll values in the weakest principal direction. Values for AOS represent the maximum average roll values.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-715-4 **CODE: (IS)**

DATE: 9/29/2000

SUBJECT: Agricultural Limestone

Section 715, Roadside Development Materials, of the 1990 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

Delete the first sentence of Subsection 715.02.2 on page 715-1and substitute the following:

Combination or manufactured fertilizer shall be "standard commercial products" and shall contain not less than the percentages by weight of the ingredients set out in Table A, except for agricultural limestone which shall meet the requirements of Subsection 907-715-.02.2.1.

In Table A of Subsection 715.02.2 on page 715-2, delete the column titled “Agricultural Limestone” and the row titled “Calcium and Magnesium Carbonate**”.

Delete the third paragraph on page 715-3.

At the end of Subsection 715.02.2 on page 715-3, add the following:

907-715-02.2.1--Agricultural Limestone. Agricultural limestone shall be either a Grade “A” liming material, or a marl or chalk agricultural liming material as addressed in the latest Mississippi Agricultural Liming Material Act of 1993, published by the Mississippi Department of Agriculture and Commerce.

907-715-02.2.1.1--Screening Requirements. Grade “A” liming material, including ground shells, shall not have less than 90% of the material passing the No. 10 sieve, and not less than 50% passing the No. 60 sieve. Marl or chalk lining material shall not have less than 90% of the material passing the No. 10 sieve.

907-715-02.2.1.2--Neutralizing Values. Grade “A” liming material shall not have less than 90% calcium and magnesium carbonate calculated as calcium carbonate equivalent when expressed on a dry weigh basis. Marl or chalk liming material shall not have less than 70% calcium and magnesium carbonate calculated as calcium carbonate equivalent when expressed on a dry weigh basis.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-716-1 **CODE: (IS)**

DATE: 05/16/2002

SUBJECT: Miscellaneous Materials

Section 716, Miscellaneous Metals, of the 1990 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

Delete Subsection 716.04 on page 716-1 and substitute the following:

907-716.04--Gray Iron Casings. Gray iron castings shall conform to AASHTO Designation: M 105. Class 30B shall be furnished unless otherwise specified. For testing purposes a lot size shall be defined as the lesser of either a total of 35,000 pounds or one week's production for the Department. The test bars shall be made from a melt of iron used in production of units for the Department. The test bar length shall be a minimum of 16 inches.

907-716.07--Copper Bearings and Sheet Copper.

Delete Subsection 716.07.1 on page 716-1 and substitute the following:

907-716.07.1--Rolled Copper-Alloy Bearings and Expansion Plates. Rolled copper-alloy bearings and expansion plates shall conform to ASTM Designation: B 100. Alloy UNS No. C51000 shall be furnished unless otherwise specified.

Delete Subsections 716.10 on page 716-2 and substitute the following:

907-716.10--Lead Plates, Pipes, Etc. Lead used for plates, pipes, etc. shall conform to ASTM Designation: B 29, Grade: Pure Lead.

907-716.14--Bar Grates.

Delete Subsection 716.14.1 on page 716-3 and substitute the following:

907-716.14.1--Material Requirements. Plain round steel bars and strap bars shall conform to the following requirements:

B-9 Grates and Bar Grates:	AASHTO Designation M 270, Grade 36.
MI, GI, & SS-3 Grates:	AASHTO Designation: M270, Grade 50W, or as specified in the plans.

Delete the last paragraph of Subsection 716.14.2 on page 716-3 and substitute the following:

After fabrication, the bar grate shall be coated with an approved commercial quality coating designed for coating steel castings and fabricated units. The State Materials Engineer shall approve the coating material prior to application.

MISSISSIPPI STATE HIGHWAY DEPARTMENT

SPECIAL PROVISION NO. 907-720-3 **CODE: (IS)**

DATE: 1/13/92

SUBJECT: Performed Pavement Markings for Construction Zones

Section 720, Pavement Marking Materials, of the 1990 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

907-720.05.2.2--Type 2.

Delete lines 8 thru 18 on page no. 720-13 and substitute:

Removability. The markings shall be removable from asphalt and portland cement concrete pavement, either manually or with a roll-up device, at temperatures above 40^{o}F. with the use of a small amount of controlled heat that does not damage the pavement. The manufacturer shall be able to show that the markings have met this requirement after the following minimum traffic exposure based on transverse test decks with rolling traffic:

Time in place ---------- 365 days
ADT per lane ---------- 9,000 (28% Trucks)
Minimum axle hits ---------- 10,000,000

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-720-11 **CODE: (IS)**

DATE: 9/27/99

SUBJECT: Glass Beads

Section 720, Pavement Marking Materials, of the 1990 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

Delete in toto Subsection 720.01 on page 720-1 and substitute the following:

907-720.01--Glass Beads. The beads shall be transparent, clean, colorless glass, smooth and spherically shaped, free from milkiness, pits, or excessive air bubbles and conform to the specific requirements for the class designated. Unless otherwise specified, Class A (Standard) glass beads shall be furnished.

907-720.01.1--Class A (Standard). The beads shall be Type 1, non-flotation with a moisture resistant coating conforming to the requirements of AASHTO Designation: M 247.

907-720.01.2--Class B (High-Visibility). The beads shall be non-flotation, embedment coated and conform to the following specific requirements.

907-720.01.2.1--Gradation. The beads shall meet the gradation requirements of Table 1.

TABLE 1

U.S. STANDARD SIEVE NO	% RETAINED
12	0
14	0-5
16	5-20
18	40-80
20	10-40
25	0-5
Pan	0-2

907-720.01.2.2--Roundness. The beads shall have a minimum of 80 percent rounds per screen for the two (2) highest sieve quantities. The remaining sieve fractions shall be no less than 75 percent rounds.

907-720.01.2.3--Angular Particles. The beads shall have no more than three (3) percent angular particles per screen.

907-720.01.2.4--Refractive Index. The beads shall have a refractive index of 1.50 to 1.52.

907-720.01.3--Packaging and Marking. The beads shall be packaged in 50 or 55-pound moisture proofed bags. Each bag shall be stamped with the following information: name and address of manufacturer, shipping point, trademark or name, the wording "glass beads", class, weight, lot number and the month and year of manufacture.

907-720.01.4--Acceptance Procedures. The manufacturer shall furnish the MDOT Central Laboratory three copies of the certified test report(s) showing results of all required tests and certification that the material meets the specifications. Acceptance sampling and testing of glass beads will be in accordance with MDOT S.O.P. No. TMD-40-02-00-000.

907-720.02--Thermoplastic Pavement Markings. Delete the second paragraph of Subsection 720.02 on page 720-1 and substitute the following:

Additional beads by the drop-on method shall be applied at a rate of not less than three pounds of beads per 100 feet of six-inch stripe.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-721-7 **CODE: (IS)**

DATE: 01/18/2002

SUBJECT: Reflective Sheeting

Section 721, Materials for Signing, of the 1990 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

Delete in toto Subsection 721.06 beginning on page 721-4 and ending on page 721-12, and substitute the following:

907-721.06--Reflective Sheeting.

907-721.06.1--General. Retroreflective sheeting materials shall comply with all applicable requirements of ASTM Designation: D 4956, except as specifically modified herein, and must be listed on the Department's "Approved Sources of Materials".

Reflective sheeting shall be one of the following types.

Type III A high-intensity retroreflective sheeting. This shall be an encapsulated glass-bead or unmetallized microprismatic retroreflective material. This sheeting shall have a protected, pre-coated, pressure-sensitive adhesive backing.

Type VII A super high-intensity retroreflective sheeting. This shall be an unmetallized microprismatic retroreflective material. This sheeting shall have a protected, pre-coated, pressure sensitive adhesive backing.

Type VIII A super high-intensity retroreflective sheeting. This shall be an unmetallized microprismatic retroreflective material. This sheeting shall have a protected, pre-coated, pressure sensitive adhesive backing.

Type IX A very-high intensity retroreflective sheeting. This shall be an unmetallized, microprismatic retroreflective material. This sheeting shall have a protected, pre-coated, pressure sensitive, adhesive backing.

All other retroreflective sheeting shall be as shown in the plans.

907-721.06.2--Performance Requirements. The retroreflective sheeting shall have the following minimum brightness values at 0.2° and 0.5° observation angle (in addition 1.0° for Type IX sheeting) expressed as average candelas per footcandle per square foot of material.

Sheetings and inks processed and applied in accordance with the manufacturer's recommendations, shall perform effectively for the number of years stated below. The sheeting will be considered unsatisfactory if it has deteriorated due to natural causes to the extent that: (1) the sign is ineffective for its intended purpose when viewed from a moving vehicle under normal day and night driving conditions or (2) the coefficient of retroreflection

is less than the minimum specified for that sheeting during the periods listed below. For screen printed transparent colored areas on white sheeting, the coefficients of retroreflection shall not be less than 70% of the values for the corresponding color in the table.

Type III Sheeting
Retain 85% of initial values listed in Table 1 through 7 years
Retain 80% of initial values listed in Table 1 between 7 & 10 years

Type VII Sheeting
Retain 85% of initial values listed in Table 2 through 7 years
Retain 80% of initial values listed in Table 2 between 7 & 10 years
Retain 50% of initial values listed in Table 2 through 3 years (Fluorescent Orange)

Type VIII Sheeting
Retain 85% of initial values listed in Table3 through 7 years
Retain 80% of initial values listed in Table 3 between 7 & 10 years
Retain 50% of initial values listed in Table 3 through 3 years (Fluorescent Orange)
Retain 80% of initial values listed in Table 3 through 7 years (Fluorescent Yellow/Green) (Fluorescent Yellow)

Type IX Sheeting
Retain 85% of initial values listed in Table 4 through 7 years
Retain 80% of initial values listed in Table 4 between 7 & 10 years
Retain 80% of initial values listed in Table 4 for 7 years (Fluorescent Yellow/Green)(Fluorescent Yellow)

MINIMUM COEFFICIENTS OF RETROREFLECTION
(Candela per foot candle per square foot) - cd/fc/ft²
(Per ASTM E 810)

TABLE 1
Type III Sheeting

Observation Angle	Entrance Angle	White	Yellow	Orange	Green	Red	Blue	Brown
0.2°	-4°	250	170	100	45	45	20	12
0.2°	+30°	150	100	60	25	25	11	8.5
0.5°	-4°	95	62	30	15	15	7.5	5.0
0.5°	+30°	65	45	25	10	10	5.0	3.5

TABLE 2
Type VII Sheeting

Observation Angle	Entrance Angle	White	Yellow	Green	Red	Blue	Brown	Fluorescent Orange
0.2°	-4°	750	560	75	150	34	23	200
0.2°	+30°	430	320	43	86	20	10	85
0.5°	-4°	240	180	24	48	11	8	90
0.5°	+30°	135	100	14	27	6.0	4	50

TABLE 3
Type VIII Sheeting

Observation Angle	Entrance Angle	White	Yellow	Green	Red	Blue	Brown	Fluorescent Orange	Fluorescent Yellow/ Green	Fluorescent Yellow
0.2°	-4°	700	525	70	105	42	21	200	480	375
0.2°	+30°	325	245	33	49	20	10	85	240	170
0.5°	-4°	250	190	25	38	15	7.5	90	235	165
0.5°	+30°	115	86	12	17	7	3.5	50	110	85

TABLE 4
Type IX Sheeting

Observation Angle	Entrance Angle	White	Yellow	Green	Red	Blue	Fluorescent Yellow/ Green	Fluorescent Yellow
0.2°	-4.0°	380	285	38	76	17	325	240
0.2°	+30.0°	215	162	22	43	10	205	150
0.5°	-4.0°	240	180	24	48	11	240	165
0.5°	+30.0°	135	100	14	27	6.0	110	75
1.0°	-4.0°	80	60	8	16	3.6	65	45
1.0°	+30.0°	45	34	4.5	9	2.0	35	25

907-721.06.3--Certification. The Contractor shall require the supplier to furnish certified evidence and/or samples to the Engineer showing conformance to these requirements. Manufacturer's warranties or guarantees provided as customary trade practice shall be furnished the Department.

907-721.06.4--Color. Reflective sheeting shall meet the color requirements of ASTM Designation: D 4956. See Table 5 below for color specifications for fluorescent yellow green, fluorescent orange, and fluorescent yellow sheeting.

TABLE 5
Color Specification Limits for New Sheeting (Daytime)

Color	Chromaticity Coordinate 1 x y	Chromaticity Coordinate 2 x y	Chromaticity Coordinate 3 x y	Chromaticity Coordinate 4 x y	Total Luminance Factor Limit Y? Min.
Fluorescent Yellow Green	0.387 0.610	0.460 0.540	0.438 0.508	0.376 0.568	60%
Fluorescent Orange	0.562 0.350	0.645 0.355	0.570 0.429	0.506 0.404	30%
Fluorescent Yellow	0.521 0.424	0.557 0.442	0.479 0.520	0.454 0.491	40%

907-721.06.5--Adhesive. The retroreflective sheeting shall include a pre-coated pressure sensitive adhesive (ASTM Designation: D 4956, Class I) applied without the necessity of additional adhesive coats on the retroreflective sheeting or application surface.

The Class I adhesive shall be a pressure sensitive adhesive of the aggressive tack type requiring no heat solvent or other preparation for adhesion to smooth clean surfaces.

The protective liner attached to the adhesive shall be removed by peeling without soaking in water or other solutions and shall be easily removed after accelerated storage for four hours at 160º F under a weight of 2.5 pounds per square inch.

907-721.06.6--Additional Contract Requirements. In addition to the above requirements, the following requirements are applicable only when the sheeting material is being purchased for use in the MDOT Sign Shop.

907-721.06.6.1--Sheeting Manufacturer's Replacement Obligation. Where it can be shown that retroreflective traffic signs with Type III, Type VII, Type VIII, or Type IX sheeting supplied and used according to the sheeting manufacturer's recommendations have not met the performance requirements, the sheeting manufacturer shall replace the sheeting required to restore the sign surface to its original effectiveness during the entire 10 years. In addition, during the first seven (7) years the manufacturer of Type III, Type VII, Type VIII, or Type IX sheeting shall cover the cost of restoring the sign surface to its original effectiveness at no cost to the Department for materials and labor for both sign manufacture and installation.

907-721.06.6.2--Technical Assistance Requirements.

Instruction and Training. The manufacturer supplying the retroreflective sheeting shall provide at no additional cost the services of a qualified technician for instruction and training at the sign manufacturing facility. This instruction shall be provided bi-annually or when requested, and shall include but not be limited to training films, material application, equipment operation, silk screening techniques, packaging, storage, and other proven sign shop practices as they apply to the retroreflective sheeting supplied by the manufacturer, and to assure that the resulting signs can comply with the applicable specifications.

Technical Service. The sheeting manufacturer shall, without additional cost to the Department, provide the sign shop with competent technical service and product information including service on screen printing problems with the inks furnished by the manufacturer.

Equipment. The manufacturer supplying the retroreflective sheeting shall provide technical assistance for the recommended sheeting application equipment and certify that trained personnel shall be available on 72 hours notice to render such service necessary to adjust ink consistency or otherwise modify the application of silk screen equipment to accommodate use of manufacturer's sheeting. "Service" is understood to mean the capability of calibration and trouble shooting, as well as the training and retaining of personnel as required.

907-721.06.6.3--Warranty. Any warranties prepared by the manufacturer shall be included with the bid documents.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-804-15 **CODE: (IS)**

DATE: 01/04/2002

SUBJECT: Concrete for Bridges and Structures

Section 804, Concrete Bridges and Structures, of the 1990 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is deleted in toto and replaced as follows:

SECTION 907-804--CONCRETE BRIDGES AND STRUCTURES

907-804.01--Description. This work consists of constructing concrete bridges and structures in accordance with these specifications and in reasonably close conformity with the dimensions, designs, lines, and grades indicated on the plans or established.

Construction of box bridges shall be in accordance with Sections 601 and 602.

907-804.02--Materials.

907-804.02.1--General. Concrete produced and controlled from this specification shall be accepted upon proper certification of concrete production through an approved quality control plan and verification by job site acceptance criteria. The Contractor shall develop and implement a quality control plan that will be used to maintain the required properties of concrete. For large volume projects, 2000 cubic yards and more, quality control and acceptance shall be achieved through statistical evaluation of test results. For small volume projects, less than 2000 cubic yards, quality control and acceptance shall be achieved by individual test results.

The materials used in this construction, when sampled and tested in accordance with 700.03, shall meet the requirements of the following subsections:

Portland Cement	701.01 and 701.02
Admixtures	713.02
Fly Ash	714.05
Water	714.01.1 and 714.01.2
Fine Aggregate	703.02
Coarse Aggregate	703.03
Curing Materials	713.01
Joint Materials	707.01, 707.02, and 707.07
Structural Steel Joints and Bearing Devices	717.01
Sheet Copper	716.07.2
Bronze Bearing Devices	716.06
Copper-Alloy Bearing Devices	716.07.1
Self-Lubricating Bearing Plates	716.08
Bearing Pads	714.10
Wire Rope or Wire Cable for Prestressed Concrete	700.01 and 711.03
Sprayed Finish for Concrete Surface	714.12
Reinforcing Steel	711.02

907-804.02.2--Use, Care and Handling. The use, care and handling of materials shall conform to the applicable requirements of 501.03.10 and the specific requirements of 907-804.02.4 and 907-804.02.5. Unless otherwise authorized, only fine aggregate or coarse aggregate of one type and from the same source shall be used in the construction of any one

unit of a structure. Should the Contractor, with written permission of the Engineer, elect to substitute high early strength cement for cement of the type specified, the Contractor will not receive additional compensation for the substitution.

907-804.02.3--Sampling & Testing. Sampling and testing shall meet the requirements of these specifications.

907-804.02.4--Care and Storage of Concrete Aggregates. The handling and storage of aggregates shall be such as to prevent segregation or contamination with foreign materials. The Engineer may require that aggregates be stored on separate platforms at satisfactory locations.

When specified, coarse aggregates shall be separated into two or more sizes in order to secure greater uniformity of the concrete mixture. Different sizes of aggregate shall be stored in separate stock piles sufficiently removed from each other to prevent the material at the edges of the piles from becoming intermixed.

907-804.02.5--Storage of Cement. All cement shall be stored in suitable weather-proof buildings or bins. These buildings or bins shall be placed in locations approved by the Engineer. Provision for storage shall be ample, and the shipments of cement as received shall be stored separately or other provisions made to the satisfaction of the Engineer for easy access for the identification, inspection, and sampling of each shipment as deemed desirable. Stored cement shall meet the test requirements at any time after storage when a retest is ordered by the Engineer.

On small jobs, open storage consisting of a raised platform and ample waterproof covering may be permitted by written authorization from the Engineer.

When specified, the Contractor shall keep accurate records of deliveries of cement and of its use in the work. Copies of these records shall be supplied in the form required by the Engineer.

907-804.02.6--Classification and Uses of Concrete. When a specific class of concrete is not specified on the plans or in the contract documents, the structure or parts thereof shall be constructed with the class of concrete as directed by the Engineer.

The classes and their uses are as follows:

(1) Class AA - Concrete for bridge construction and concrete exposed to seawater.
(2) Class A - Concrete for use where indicated.
(3) Class B - General use, heavily reinforced sections, cast-in-place concrete piles, and conventional concrete piles.
(4) Class C - Massive sections or lightly reinforced sections.
(5) Class D - Massive unreinforced sections and riprap.
(6) Class F - Concrete for prestressed members.
(7) Class FX - Extra strength (as shown on plans) concrete for prestressed members.
(8) Class S - For all seal concrete deposited under water.

907-804.02.7--Composition of Concrete. The composition of concrete mixtures shall meet the requirements of these specifications.

907-804.02.8--Laboratory Accreditation. The Contractor shall be responsible for furnishing the laboratory used to perform concrete quality control tests. The laboratory may be the Contractor's facility, the concrete producer's facility, or a certified independent testing laboratory.

Only laboratories certified by the Mississippi Department of Transportation are qualified to perform material testing. Certification by AASHTO Accreditation Program (AAP) will be acceptable if the laboratory is listed in the latest AASHTO Accreditation Program publication and maintains accreditation to completion of concrete work.

The Contractor's laboratory designated for quality control testing shall have equipment necessary to test aggregates and concrete for the test methods listed in Table 1.

Table 1

AASHTO: T 2	Sampling Aggregates
AASHTO: T 19	Bulk Density ("Unit Weight") and Voids in Aggregates
AASHTO: T 22	Compressive Strength of Cylindrical Concrete Specimens
AASHTO: T 23	Making and Curing Concrete Test Specimens in the Field
AASHTO: T 27	Sieve Analysis of Fine and Coarse Aggregates
AASHTO: T 84	Specific Gravity and Absorption of Fine Aggregate
AASHTO: T 85	Specific Gravity and Absorption of Coarse Aggregate
AASHTO: T 119	Slump of Hydraulic Cement Concrete
AASHTO: T 121	Mass per Cubic Meter (Cubic Foot), Yield, and Air Content (Gravimetric) of Concrete
AASHTO: T 126	Making and Curing Concrete Test Specimens in the Laboratory
AASHTO: T 141	Sampling Freshly Mixed Concrete
AASHTO: T 152	Air Content of Freshly Mixed Concrete by Pressure Method *
AASHTO: T 196	Air Content of Freshly Mixed Concrete by the Volumetric Method *
AASHTO: T 231	Capping Cylindrical Concrete Specimens
AASHTO: T 248	Reducing Field Samples of Aggregate to Testing Size
AASHTO: T 255	Total Evaporable Moisture Content of Aggregate by Drying
ASTM: C 1064	Temperature of Freshly Mixed Portland Cement Concrete

* Equipment necessary for either pressure or volumetric air content.

Testing equipment shall have been inspected by the Department or through AAP. Testing equipment calibration files shall be made available upon request by the Department.

907-804.02.9--Testing Personnel. Technicians testing Portland cement concrete, for either acceptance or production control purposes, shall be certified by an accepted certification program. Recertification is required for each Class after five years. Certification requirements are listed in Table 2.

Table 2

Required Certification	Concrete Technician's Tasks
MDOT Class I or ACI Grade I	Field Testing of Plastic Concrete (AASHTO T 23, T 119, T 121, T 141, T 152, T 196, and ASTM C 1064)
MDOT Class II	Aggregate Sampling, Total Moisture, and Sieve Analysis (AASHTO T 2, T 27, T 248, T 255)
MDOT Class III	Unit Weight and Voids of Aggregates, Specific Gravity; Concrete Mix Design, Capping and Compressive Strength of Cylindrical Concrete Specimens (AASHTO T 19, T 22, T 84, T 85, T 126, T 231)

Any technicians can cap and break concrete test specimens or perform aggregate specific gravity tests upon certification by the Central Laboratory during the laboratory inspection of equipment.

907-804.02.10--Portland Cement Concrete Mix Design. At least 30 days prior to production of concrete, the Contractor shall submit to the Engineer proposed concrete mix designs. Materials shall be from approved sources meeting the requirements of the Standard Specifications. Proportions for the mix designs shall be for the class concrete required by the contract plans and shall meet the requirements of the "Master Proportion Table for Structural Concrete Design" listed in Table 3. The concrete producer shall assign a permanent unique mix number to each mix design. Each mix design will be field verified as required in 907-804.02.10.3.

Table 3
MASTER PROPORTION TABLE FOR STRUCTURAL CONCRETE DESIGN

CLASS	COARSE AGGREGATE SIZE NO. *	MAXIMUM WATER/ CEMENTITIOUS ** RATIO	SPECIFIED COMPRESSIVE STRENGTH (f'_c) psi	MAXIMUM SLUMP *** inches	TOTAL AIR CONTENT %
AA	57 or 67	0.45	4000	3	3.0 to 6.0
A	57 or 67	0.45	4000	3	3.0 to 6.0
B	57 or 67	0.50	3500	4	3.0 to 6.0
C	57 or 67	0.55	3000	4	3.0 to 6.0
D	57 or 67	0.70	2000	4	3.0 to 6.0
F	67	0.40	5000	3	****
FX	67	(As required by special provisions)		3	****
S	57 or 67	0.45	3000	8	3.0 to 6.0

* Maximum size aggregate shall conform to the concrete mix design for the specified aggregate.

** Maximum replacement of Portland cement by weight is 25% for fly ash or 50% for ground granulated blast furnace slag.

*** The slump may be increased up to 6 inches with an approved mid-range water reducer or up to 8 inches with an approved type F or G high range water reducer. A mid-range water reducer is classified as a water reducer that reduces the mix water a minimum of 8% when compared to a control mix with no admixtures.

**** No entrained air except for pilings exposed to seawater.

Either Type A, D, F, G, or mid-range chemical admixture, shall be used in all classes of concrete. Any combinations of water reducing admixtures shall be approved by the Engineer before their use.

907-804.02.10.1--Proportioning of Portland Cement Concrete Mix Design. Proportioning of Portland cement concrete shall be based on an existing mix of which the producer has field experience and documentation or based on a recently batched laboratory mix tested according to the required specifications.

907-804.02.10.1.1--Proportioning on the Basis of Previous Field Experience of Trial Mixtures. Where a concrete production facility has a record, based on at least 10 consecutive strength tests within the past 12 months, the standard deviation shall be calculated. The record of tests from which the standard deviation is calculated shall:

a) Represent similar materials and conditions to those expected. Changes in materials and proportions within the test record shall not have been more closely restricted than those for the proposed work.

b) Represent concrete produced to meet a specified strength.

c) Consist of at least 10 consecutive tests (average of two cylinders per test).

The standard deviation , s , shall be calculated as:

$$s = \left[\sum \left(X_i - \overline{X}\right)^2 \div (N-1)\right]^{1/2}$$

where:

X_i = the strength result of an individual test
$\overline{X}$ = the average of all individual tests in a series
N = number of tests in the series

When the concrete production facility does not have a record of tests for calculation of standard deviation, as required in the above formula, the requirements of 907-804.02.10.1.2 shall govern.

The required average compressive strength (f'_{cr}) used as the basis for selection of concrete proportions shall conform to the inequality listed below, while using a standard deviation, s, calculated as shown above.

$$f'_{cr} \geq f'_c + 1.43s$$

where:

f'_c = specified compressive strength of concrete, psi
f'_{cr} = required average compressive strength of concrete, psi
s = standard deviation, psi
1.43 represents the Lower Quality Index necessary to assure that 93% of compressive strength tests are above f'_c.

907-804.02.10.1.2--Proportioning on the Basis of Laboratory Trial Mixtures. When an acceptable record of field test results is not available, concrete proportions shall be established based on laboratory trial mixtures meeting the following restrictions:

a) The combination of materials shall be those intended for use in the proposed work.

b) Trial mixtures having proportions and consistencies suitable for the proposed work shall be made using the ACI 211.1 as a guide to proportion the mix design.

c) Trial mixtures shall be designed to produce a slump within ± 3/4 in. of the maximum permitted, and for air-entrained concrete, 6.0 ± 0.5 percent total air content. The temperature of freshly mixed concrete in trial mixtures shall be reported.

d) For each proposed mixture, at least three compressive test cylinders shall be made and cured in accordance with AASHTO Designation: T 126. Each change of water-cement ratio shall be considered a new mixture. The cylinders shall be tested for strength in accordance with AASHTO Designation: T 22 at 28 days.

e) The required average strength of laboratory trial mixes shall exceed f'_c by 1200 psi for concrete mix designs less than 5000 psi and by 1400 psi for concrete mix designs of 5000 psi or more.

907-804.02.10.2--Documentation of Average Strength. Documentation that the proposed concrete proportions will produce an average strength equal to or greater than the required average shall consist of the strength test records from field tests or results from laboratory trial mixtures.

907-804.02.10.3--Field Verification of Concrete Mix Design. All concrete mix designs will be reviewed by the Central Laboratory prior to use. Concrete mix designs disapproved will be returned to the Contractor with a statement explaining the disapproval. Concrete mix designs will only be tentatively approved pending field verification. Mix designs may be transferred to other projects without additional field verification testing, once the mix design has passed the field verification process. Qualification testing described in 907-804.02.10.1.1 will be required to transfer a mix design to another project.

The Contractor's Certified Quality Control Technicians shall test each concrete mix design upon the first placement of the mix. Aggregates and concrete tests during the first placement shall be as follows:

Aggregates

Specific Gravity
Moisture
Gradation

Concrete

Water Content
Slump
Air Content
Unit Weight
Yield
3, 7, & 28 day Strengths

The mix shall be verified to yield within 2.0% of the correct volume when all the mix water is added to the batch, producing a slump within a minus 1½ inches tolerance of the maximum permitted, and air-entrained concrete within a minus 1½ percent tolerance of the maximum allowable air content (allow a minimum of 4 inch slump with Type F or G chemical admixture). The mix shall be adjusted and retested, if necessary, on subsequent placements until the above mentioned properties are met. Any mix design adjustments are to be made by a Class III Certified Technician representing the Contractor. After the mix design has been verified and adjustments made, verification test results will be reviewed by the Central Laboratory. Any subsequent adjustments to the mix design shall be reviewed by the Central Laboratory.

907-804.02.10.4--Adjustments of Laboratory Trial Mixtures. If the concrete mix design was proportioned on the basis of laboratory trial mixture, after ten compressive tests have been performed of which a standard deviation is calculated, the formula in 907-804.02.10.1.1 may be used to adjust the mix design as long as the average strength is more than the calculated required average compressive strength (f'_{cr}) and the adjusted mix design contains the water/cement ratio requirement listed in Table 3. Any adjustments of the concrete mix design shall necessitate repeat of field verification procedure as described in 907-804.02.10.3

907-804.02.11--Concrete Batch Plants. The concrete batch plant shall meet the requirements of the National Ready Mixed Concrete Association Quality Control Manual,

Section 3, Plant Certification Checklist. A copy of the checklist along with proof of calibration of batching equipment, i.e. scales, water meter and admixture dispenser, shall be furnished to the Project Engineer 45 days prior to the production of concrete. The plant shall meet the requirements of a semi-automatic system or automatic system as described in the checklist and be capable of recording batch weights.

Mixer trucks to be used on the project are to be listed in the checklist and shall meet the requirements of the checklist.

The concrete batch plant shall have available adequate facilities to cool concrete during hot weather.

The concrete batch plant shall have a moisture meter on the fine aggregate bin capable of:

a) Automatically compensating moisture weight in fine aggregate for an automatic batching system,

or

b) Moisture compensation indicated from meter be preset in fine aggregate in a semi-automatic system.

For small volume projects, where the total volume of concrete is less than two thousand (2000) cubic yards, the batch plant can be a manually operated plant with a moisture meter visible to the plant operator.

907-804.02.12--Contractor's Quality Control. The Contractor shall provide and maintain a quality control system that will provide reasonable assurance that all materials and products submitted to the Department for acceptance will conform to the contract requirements, whether manufactured or processed by the Contractor or procured from suppliers, subcontractors or vendors.

The Contractor shall perform, or have performed, the inspections and tests required to substantiate product conformance to contract document requirements and shall also perform, or have performed, all inspections and tests otherwise required.

The Contractor's quality control inspections and tests shall be documented and shall be available for review by the Engineer throughout the life of the contract.

The Contractor shall maintain standard equipment and qualified personnel as required to assure conformance to contract requirements.

907-804.02.12.1--Quality Control Plan. The Contractor shall prepare a Quality Control Plan detailing the type and frequency of inspection sampling and testing deemed necessary to measure and control the various properties of materials and construction governed by the specifications. As a minimum, the sampling and testing plan shall detail sampling location, sampling techniques and test frequency. As set out in these specifications, quality control sampling and testing performed by the Contractor shall be used by the Department for determination of acceptability of the concrete. The Quality Control Plan shall be submitted in writing to the Engineer for approval 45 days prior to the production of concrete.

The Plan shall identify the personnel responsible for the Contractor's quality control. This shall include the company official who will act as liaison with Department personnel, as well as the Certified Technician who will direct the inspection program.

The class(es) of concrete involved will be listed separately. If an existing mix design(s) is to be used, the mix design number(s) as previously approved shall be listed.

Quality control sampling, testing, and inspection shall be an integral part of the Contractor's Quality Control Plan. In addition to the above requirements, the Contractor's Quality Control Plan shall document the quality control requirements shown in Table 4, "CONTRACTOR'S MINIMUM REQUIREMENTS FOR QUALITY CONTROL". The quality control activities shown in the table are considered to be normal activities necessary to control the production and placing of a given product or material at an acceptable quality level. To facilitate the Department's activities, all completed gradation samples shall be retained by the Contractor until further disposition is designated by the Department.

The Contractor's Quality Control Plan shall encompass the requirements of AASHTO M 157 into concrete production and control, equipment requirements, testing, and batch ticket information. The requirement of Section 11.7 of AASHTO M 157 shall be followed except, on arrival to the job site, a maximum of 1½ gallons per cubic yard shall be allowed to be added to bring the slump within the required limits. Water shall not be added at a later time.

It is intended that sampling and testing be in accordance with standard methods and procedures, and that measuring and testing equipment be standard and properly calibrated. If alternative sampling methods and procedures, and inspection equipment are to be used, they shall be detailed in the Quality Control Plan.

907-804.02.12.1.1--Elements of Plan. The Plan shall address all elements that affect the quality of the structural concrete including but not limited to the following:

1) Mix Design(s)
2) Aggregate Uniformity
3) Quality of Components
4) Stockpile Management
5) Batching - Including any added water
6) Mixing and Transportation - Including time from batching to completion of delivery
7) Concrete Batch Weights for each material.
8) Initial Mix Properties - Including temperature, air content, and consistency
9) Placement and Consolidation
10) Compressive Strength
11) Finishing and Curing
12) Conditions for Admixture Type and Dosage Rates
13) Procedures for Corrective Actions for Non Compliance of Specifications
14) Procedure for Controlling Concrete Temperatures

907-804.02.12.1.2--Personnel Requirements.

1) The Plan shall detail:

    a) The frequency of sampling and testing, coordination of activities, corrective actions to be taken, and documentation.

    b) How the duties and responsibilities are to be accomplished and documented, and whether more than one Certified Technician is required.

    c) The criteria used by the Technician to correct or reject unsatisfactory materials.

2) The Certified Technician shall perform and use quality control tests and other quality control practices to assure that delivered materials and proportioning meet the requirements of the mix design including temperature, slump, air content, and strength

and shall periodically inspect all equipment used in transporting, proportioning, and mixing.

3) The Contractor's Designated Technician shall periodically inspect all equipment used placing, consolidating, finishing, and curing to assure it is operating properly and that placement, consolidation, finishing, and curing conform with the mix design and other contract requirements.

907-804.02.12.2--Documentation. The Contractor shall maintain adequate records of all inspections and tests. The records shall indicate the nature and number of observations made, the number and type of deficiencies found, date and time of samples taken, the quantities approved and rejected, and the nature of corrective action taken as appropriate. The Contractor's documentation procedures will be subject to approval of the Department prior to the start of the work and to compliance checks during the progress of the work.

All conforming and non-conforming inspections and test results shall be kept complete and shall be available at all times to the Department during the performance of the work. Forms shall be on a computer-acceptable medium where required. Batch tickets and gradation data shall be documented in accordance with Department requirements. Copies shall be submitted to the Department as the work progresses.

Test data for Portland cement concrete, including gradation, shall be charted in accordance with the applicable requirements.

The Contractor may use additional control charts as deemed appropriate. It is normally expected that testing and charting will be completed within 24 hours after sampling.

All charts and records documenting the Contractor's quality control inspections and tests shall become the property of the Department upon completion of the work.

907-804.02.12.3--Corrective Action. The Contractor shall take prompt action to correct conditions that have resulted, or could result, in the submission to the Department of materials and products that do not conform to the requirements of the contract documents. All corrective actions shall be documented.

907-804.02.12.4--Non-Conforming Materials. The Contractor shall establish and maintain an effective and positive system for controlling non-conforming material, including procedures for its identification, isolation and disposition. Reclaiming or reworking of non-conforming materials shall be in accordance with procedures acceptable to the Department.

All non-conforming materials and products shall be positively identified to prevent use, shipment, and intermingling with conforming materials and products. Holding areas, mutually agreeable to the Department and the Contractor, shall be provided by the Contractor.

TABLE 4
CONTRACTOR'S MINIMUM REQUIREMENTS FOR QUALITY CONTROL

Portland Cement Concrete		
Control Requirement	**Frequency**	**AASHTO/ASTM Designation**
A. PLANT AND TRUCKS		
1. Mixer Blades	Prior to start of job & weekly	
2. Scales		
a. Tared	Daily	
b. Calibrate	Prior to start of job and/or every 6 mo.	
c. Check Calibration	Weekly	
3. Gauges & Meters - Plant & Truck		
a. Calibrate	Prior to start of job and/or every 6 mo.	
b. Check Calibration	Weekly	
4. Admixture Dispenser		
a. Calibrate	Prior to start of job and/or every 6 mo.	
b. Check Operation & Calibration	Daily	
B. AGGREGATES		
1. Sampling		T 2
2. Fine Aggregate		
a. Gradation / FM	250 yd^3 Concrete	T 27
b. Moisture	Check Meter Against Test Results Weekly	T 255
c. Specific Gravity / Absorption	2500 yd^3 Concrete	T 84
3. Coarse Aggregates		
a. Gradation / FM	250 yd^3 Concrete	T 27
b. Moisture	Minimum of once daily or more as needed to control production	T 255
c. Specific Gravity / Absorption	2500 yd^3 Concrete	T 85
C. PLASTIC CONCRETE		
1. Sampling		T 141
2. Air Content	First load then one per 50 yd^3	T 152 or T 196
3. Slump	First load then one per 50 yd^3	T 119
4. Compressive Strength	One set (two cylinders) for 0-100 yd^3 inclusive and one set for each additional 100 yd^3 or fraction thereof for each class concrete delivered and placed on a calendar day from a single supplier. A test shall be the average of two cylinders.	T 22, T 23, T 231
5. Yield	Each 400 yd^3	T 121
6. Temperature	With each sample	ASTM C 1064

907-804.02.13--Quality Assurance Sampling and Testing. Quality Assurance (QA) inspection and testing shall be provided by the Department to assure that the Contractor's Quality Control (QC) testing meets the requirements of these specifications.

Acceptance of the material is based on the inspection of the construction, monitoring of the Contractor's quality control program, QC test results, and the comparison of the QA test

results to the QC test results. The Department may use the results of the Quality Control Plan as a part of the acceptance procedures, provided:

a) The Department's inspection and monitoring activities indicate that the Contractor is following the approved Quality Control Plan and,
b) The results from the Contractor's quality control and the Department's quality assurance testing of aggregate both meet gradation requirements; and Contractor's and Department's concrete strengths compare when using the data comparison computer program with an alpha value of 0.01 for large volume projects (≥ 2000 yd^3); or, strength comparisons are within 990 psi for small volume projects (< 2000 yd^3).

The minimum frequency for QA testing of aggregate and plastic concrete by the Department will follow the frequencies listed in Table 5, "DEPARTMENT'S MINIMUM REQUIREMENTS FOR QUALITY ASSURANCE".

When it is determined that the Contractor's QC test results of aggregate gradation and concrete compressive strengths are comparative to that of the Department's QA test results, then the Department's QA testing frequency can be reduced to a frequency of no less than 50 percent of the frequency for testing listed in the Table 5.

TABLE 5
DEPARTMENT'S MINIMUM REQUIREMENTS FOR QUALITY ASSURANCE

Quality Assurance Tests	Frequency	AASHTO/ASTM Designation
A. AGGREGATES		
1. Sampling		T 2
2. Fine Aggregate Gradation and FM	250 yd^3 Concrete	T 27
3. Coarse Aggregates Gradation and FM	250 yd^3 Concrete	T 27
B. PLASTIC CONCRETE		
1. Sampling		T 141
2. Air Content	First load, then every 100 yd^3	T 152 or T 196
3. Slump	First load, then every 100 yd^3	T 119
4. Compressive Strength	One set (two cylinders) for every 100 yd^3 inclusive. A test shall be the average of two cylinders.	T 22, T 23, T 231
5. Temperature	With each sample	ASTM C 1064

Periodic inspection by the Department of the Contractor's QC testing and production will continue through the duration of the project. Weekly reviews will be made of the Contractor's QC records and charts. Comparison of data of the Contractor's QC strength test results to those of the Department's QA strength test results will be made monthly during concrete production periods according to Department Standard Operating Procedures. If the Contractor's QC strength test results fail to compare to those of the Department's QA strength test results, Department testing will continue as shown in Table 5 until the Contractor's and Department's strength test data compare.

907-804.02.13.1--Basis of Acceptance.

907-804.02.13.1.1--Slump. Slump of plastic concrete shall meet the requirements of Table 3: MASTER PROPORTION TABLE FOR STRUCTURAL CONCRETE DESIGN. A check test shall be made on another portion of the sample before rejection of any load.

907-804.02.13.1.2--Air. Total air content of concrete shall be within the specified range for the class of concrete listed in Table 3: MASTER PROPORTION TABLE FOR STRUCTURAL CONCRETE DESIGN. A check test shall be made on another portion of the sample before rejection of any load.

907-804.02.13.1.3--Yield. If the yield of the concrete mix design is more than plus or minus 3% of the designed volume, the mix shall be adjusted by a Class III Certified Technician representing the Contractor to yield the correct volume plus or minus 3%.

907-804.02.13.1.4--Temperature. Cold weather concreting shall follow the requirements of 907-804.03.16.1. Hot weather concreting shall follow the requirements of 907-804.03.16.2 except the maximum allowable temperature for concrete shall be 95°F for concrete mixes containing pozzolanic materials as a replacement of Portland cement and 90°F for concrete mixes without pozzolanic materials, when measured according to ASTM C 1064. Concrete with a temperature more than the maximum allowable temperature shall be rejected and not used in Department work.

907-804.02.13.1.5--Compressive Strength. Laboratory cured concrete compressive strength tests shall conform to the specified strength (f'_c) listed in the specifications. Concrete represented by compressive strength test below the specified strength (f'_c) may be removed and replaced by the Contractor. If the Contractor elects not to remove the material, it will be evaluated by the Department as to the adequacy for the use intended. All concrete evaluated as unsatisfactory for the intended use shall be removed and replaced by the Contractor at no additional cost to the Department. For concrete allowed to remain in place, reduction in payment will be as follows:

Large Volume Projects ($\geq$ 2000 yd^3). When the evaluation indicates that the work may remain in place, a statistical analysis will be made of the QC and QA concrete test results. If this statistical analysis indicates at least 93% of the material would be expected to have a compressive strength equal to or greater than the specified strength (f'_c) and 99.87% of the material would be expected to have a compressive strength at least one standard deviation above the allowable design stress (f_c), the work will be accepted. If the statistical analysis indicates that either of the two criteria are not met, the Engineer will provide for an adjustment in pay as follows for the material represented by the test result.

Total Pay on Material in Question = Unit Price - (Unit Price x % Reduction)

$$\% \text{ Reduction} = \frac{(f'_c - X)}{f'_c - (f_c + s)} \times 100$$

where:

f'_c = Specified 28-day compressive strength, psi
X = Individual compressive strength below f'_c, psi
s = standard deviation, psi*
f_c = allowable design stress, psi

* Standard deviation used in the above reduction of pay formula shall be calculated from the nine preceding compressive strengths test results plus the individual compressive strength below f'_c. If below f'_c strengths occur during the project's first ten compressive strength tests, the

standard deviation shall be calculated from the first ten compressive strength tests results.

Small Volume Projects (< 2000 yd³). When the evaluation indicates that the work may remain in place, a reduction in pay (percentage) will be based on a comparison of the deficient 28-day test result to the specified strength. The Engineer will provide for an adjustment in pay as follows for the material represented by the test result.

Total Pay on Material in Question = Unit Price - (Unit Price x % Reduction)

$$\% \text{ Reduction} = \frac{(f'_c - X)}{f'_c} \times 100$$

where:

f'_c = Specified 28-day compressive strength, psi
X = Individual compressive strength below f'_c, psi

907-804.02.14--Dispute Resolution. Disputes over variations between Contractor's QC test results and the Department's QA test results shall be resolved at the lowest possible level. When there are significant discrepancies between the QC test results and the QA test results, the Contractor's Quality Control Manager, the Project Engineer, and/or the District Materials Engineer shall look for differences in the procedures, and correct the inappropriate procedure before requesting a third party resolution.

If the dispute cannot be resolved at the project or District level, the Department's Central Laboratory will serve as a third party to resolve the dispute. The Central Laboratory's decision shall be binding.

The Contractor shall be responsible for the cost associated with the third party resolution if the final decision is such that the Department's QA test results were correct. Likewise, the Department will be responsible for the cost when the final decision is such that the Contractor's QC test results were correct.

907-804.03--Construction Requirements.

907-804.03.1--Measurement of Materials.

907-804.03.1.1--General. The accuracy for measuring materials shall be in accordance with AASHTO Designation: M 157.

907-804.03.1.2--Measurement by Weighing. Except when otherwise specified or authorized, materials shall be measured by weighing. The apparatus provided for weighing materials shall be suitably designed and constructed for this purpose. Cement and aggregates shall be weighed separately. Cement in standard bags need not be weighed, but bulk cement shall be weighed. The mixing water shall be measured by volume or by weight. All measuring devices shall be subject to approval.

907-804.03.2--Blank.

907-804.03.3--Blank.

907-804.03.4--Hand Mixing. Hand mixing of concrete will not be allowed.

907-804.03.5--Delivery. The plant supplying concrete shall have sufficient capacity and transporting apparatus to insure continuous delivery at the rate required. The rate of delivery shall be such as to provide for the proper continuity in handling, placing, and furnishing of the concrete. The rate shall be such that the interval between batches shall not exceed 20 minutes. The methods of delivering and handling the concrete shall be that which will facilitate placing with minimum rehandling and without damage to the structure or the concrete.

907-804.03.6--Handling and Placing Concrete.

907-804.03.6.1--General. Prior to placing concrete, all reinforcement shall have been accurately placed in the position shown on the plans and fastened as set out in Section 805. All sawdust, chips, and other construction debris and extraneous matter shall have been removed from the interior of the forms. Temporary struts, braces, and stays holding the forms in correct shape and alignment shall be removed when the concrete placing has reached an elevation rendering their service unnecessary. These temporary members shall be entirely removed from the forms and shall not be buried in the concrete.

No concrete shall be placed until the forms and reinforcement have been inspected.

Except as provided for truck mixers and truck agitators, concrete shall be placed in the forms within 30 minutes after the time that the cement is first added to the mix.

Concrete shall be placed so as to avoid segregation of materials and displacement of reinforcement. The use of troughs, chutes, and pipes over 25 feet in length for gravity conveyance of concrete to the forms, will not be permitted except when authorized by the Engineer and subject to the production of quality concrete.

Only approved mechanical conveyors will be permitted.

Open troughs and chutes shall be metal or metal lined. The use of aluminum pipes, chutes or other devices made of aluminum that come into direct contact with the concrete shall not be used. Where steep slopes are required, the chutes shall be equipped with baffles or be in short sections that change the direction of movement.

All chutes, troughs, and pipes shall be kept clean and free from coatings of hardened concrete by thoroughly flushing with water after each run. Water used for flushing shall be discharged clear of the structure.

When placing operations involve dropping the concrete more than five feet, it shall be deposited through sheet metal or other approved pipes to prevent segregation and unnecessary splashing. The pipes shall be made in sections to permit discharging and raising as the placement progresses. A non-jointed pipe may be used if sufficient openings of the proper size are provided to allow for the flow of the concrete into the shaft. As far as practicable, the pipes shall be kept full of concrete during placing, and their ends shall be kept buried in the newly placed concrete.

Except as hereinafter provided, concrete shall be placed in horizontal layers not more than 12 inches thick. When, with the Engineer's approval, less than the complete length of a layer is placed in one operation, it shall be terminated in a vertical bulkhead. Each layer shall be placed and compacted before the preceding layer has taken its initial set and shall be compacted so as to avoid the formation of a construction joint with the preceding layer.

907-804.03.6.2--Consolidation. Concrete, during and immediately after depositing, shall be thoroughly consolidated by the use of approved mechanical vibrators and suitable spading tools. Hand spading alone will be permitted on small structural members such as railing and small culvert headwalls. Mechanical vibration of concrete shall be subject to the following:

A. The vibration shall be internal unless special authorization of other methods is given by the Engineer or as provided herein.

B. In general, vibrators shall be a type and design approved by the Engineer. They shall be capable of vibration frequencies of at least 4500 impulses per minute.

C. The intensity of vibration shall be such as to visibly affect a mass of concrete of one inch slump over a radius of at least 18 inches.

D. The Contractor shall provide sufficient vibrators to properly compact each batch immediately after it is placed in the forms.

E. Vibrators shall be manipulated so as to thoroughly work the concrete around the reinforcement and embedded fixtures and into the corners and angles of the forms.

   Vibration shall be applied at the point of deposit and in the area of freshly deposited concrete. The vibrators shall be inserted into and withdrawn out of the concrete slowly. The vibration shall be of sufficient duration and intensity to thoroughly compact the concrete, but shall not be continued so as to cause segregation. Vibration shall not be continued at any one point to the extent that localized areas of grout are formed.

   Application of vibrators shall be at points uniformly spaced and not farther apart than twice the radius over which the vibration is visibly effective.

F. Vibration shall not be applied directly or through the reinforcement to sections or layers of concrete which have taken initial set. It shall not be used to make concrete flow in the forms over distances so great as to cause segregation, and vibrators shall not be used to transport concrete in the forms.

G. Vibration shall be supplemented by spading as necessary to insure smooth surfaces and dense concrete along form surfaces, in corners, and in locations impossible to reach with vibrators.

H. These provisions shall apply to the filler concrete for steel grid floors except that the vibrator shall be applied to the steel.

I. These provisions shall apply to precast piling, concrete cribbing, and other precast members except that, if approved by the Engineer, the manufacturer's methods of vibrations may be used.

When hand spading is used for consolidation, a sufficient number of workmen with spading tools shall be provided. They will be required to flush a thin layer of mortar to all the surfaces and thoroughly and satisfactorily consolidate the concrete.

The entire operation of depositing and consolidating the concrete shall be conducted so that the concrete shall be smooth and dense and free from honeycomb or pockets of segregated aggregate.

907-804.03.6.3--Discontinuance of Placing. When placing is temporarily discontinued, the concrete, after becoming firm enough to retain its form, shall be cleaned of laitance and other objectionable material to a sufficient depth to expose sound concrete. To avoid visible joints insofar as possible upon exposed faces, the top surface of the concrete adjacent to the forms shall be smoothed with a trowel. Where a "feather edge" might be produced at a construction joint, such as in the sloped top surface of a wing wall, an inset form work shall be used in the preceding layer to produce a blocked out portion that will provide an edge thickness of at least six inches in the succeeding layer. Work shall not be discontinued within 18 inches of the top of any face unless provision has been made for a coping less than 18 inches thick. In this case and if permitted by the Engineer, the construction joint may be made at the under side of the coping.

Immediately following the discontinuance of placing concrete, all accumulations of mortar splashed on the reinforcement and the surface of forms shall be removed. Dried mortar chips and dust shall not be puddled into the unset concrete. If the accumulations are not removed prior to the concrete becoming set, care shall be exercised not to break or injure the concrete-steel bond at and near the surface of the concrete while cleaning the reinforcement. After initial set the forms shall not be jarred, and no strain shall be placed on the ends of projecting reinforcement until the concrete has sufficiently set to insure against any damage by such jarring or strain.

907-804.03.6.4--Placing Bridge Concrete. The method and sequence of placing concrete shall conform to the provisions and requirements set forth for the particular type of construction.

907-804.03.6.4.1--Foundations and Substructures. Concrete seals shall be placed in accordance with 907-804.03.9. All other concrete for foundations shall be poured in the dry unless otherwise stipulated or authorization is given in writing by the Engineer to do otherwise. Concrete shall not be placed in foundations until the foundation area has been inspected and approved.

Unless otherwise specified, the placement of concrete in the substructure shall be in accordance with the general requirements of 907-804.03.6.

Unless otherwise directed, concrete in columns shall be placed in one continuous operation, and shall be allowed to set at least 12 hours before the caps are placed.

907-804.03.6.4.2--Superstructure. For simple spans, concrete shall preferably be deposited by beginning at the center of the span and working toward the ends. For continuous spans, concrete shall be deposited as shown on the plans. Concrete in girders shall be uniformly deposited for the full length of the girder and brought up evenly in horizontal layers.

Unless otherwise permitted by the Engineer, concrete shall not be placed in the superstructure until the column forms have been stripped sufficiently to determine the character of the concrete in the columns. Unless otherwise permitted by the Engineer, the load of the superstructure shall not be placed on pile bents until the caps have been in place at least seven days and shall not be placed on other types of bents until the bents have been in place at least 14 days.

In placing concrete around steel shapes, it shall be placed on one side of the shape until it flushes up over the bottom flange of the shape on the opposite side, after which it shall be placed on both sides to completion.

Concrete in girder haunches less than three feet in height shall be placed at the same time as that in the girder stem. Whenever a haunch or fillet has a height of three feet or more at the abutment or columns, the haunch and the girder shall be poured in three successive stages:

first, up to the lower side of the haunch; second, to the lower side of the girder; and third, to completion.

Except when intermediate construction joints are specified, concrete in slab, T-beam, or deck-girder spans shall be placed in one continuous operation for each span.

The floors and girders of through-girder superstructures shall be placed in one continuous operation unless otherwise specified, in which case special shear anchorage shall be provided to insure monolithic action between girder and floor.

Concrete in box girders shall be placed as shown on the plans.

Concrete shall not be chuted directly into the forms of the span and shall be placed continuously with sufficient speed to be monolithic and to allow for finishing before initial set.

907-804.03.7--Pneumatic Placing. Pneumatic placing of concrete will be permitted only if specified in the contract or if authorized by the Engineer. The equipment shall be so arranged that no vibrations result which might damage freshly placed concrete.

Where concrete is conveyed and placed by pneumatic means the equipment shall be suitable in kind and adequate in capacity for the work. The machine shall be located as close as practicable to the place of deposit. The position of the discharge end of the line shall not be more than 10 feet from the point of deposit. The discharge lines shall be horizontal or inclined upwards from the machine. At the conclusion of placement the entire equipment shall be thoroughly cleaned.

907-804.03.8--Pumping Concrete. Placement of concrete by pumping will be permitted only if specified in the contract or if authorized in writing by the Engineer. If used, the equipment shall be arranged so that no vibrations result which might damage freshly placed concrete.

Where concrete is conveyed and placed by mechanically applied pressure, the equipment shall be suitable in kind and adequate in capacity for the work. The operation of the pump shall be such that a continuous stream of concrete without air pockets is produced. When pumping is completed, the concrete remaining in the pipe line, if it is to be used, shall be ejected in such a manner that there will be no contamination of the concrete or separation of the ingredients. After this operation, the entire equipment shall be thoroughly cleaned.

The use of aluminum pipe as a conveyance for the concrete will not be permitted.

907-804.03.9--Depositing Concrete Under Water. Concrete shall not be deposited in water except with the approval of the Engineer.

Concrete deposited under water shall be Class S.

Concrete deposited under water shall be carefully placed in a compact mass in its final position by means of a tremie, a bottom dump bucket, or other approved method and shall not be disturbed after being deposited. Special care shall be exercised to maintain still water at the point of deposit. No concrete shall be placed in running water and all form work designed to retain concrete under water shall be water-tight. The consistency of the concrete shall be carefully regulated, and special care shall be exercised to prevent segregation of materials.

Concrete seals shall be placed continuously from start to finish, and the surface of the concrete shall be kept as nearly horizontal as practicable at all times. To insure thorough

bonding, each succeeding layer of a seal shall be placed before the preceding layer has taken initial set.

When a tremie is used, it shall consist of a tube having a diameter of at least 10 inches and constructed in sections having flanged couplings fitted with gaskets. The means of supporting the tremie shall be such as to permit the free movement of the discharge over the entire top surface of the work and to permit it to be lowered rapidly when necessary to choke off or retard the flow of concrete. The discharge end shall be closed at the start of the work so as to prevent water entering the tube and shall be entirely sealed. The tremie tube shall be kept full to the bottom of the hopper. When a batch is dumped into the hopper, the flow of concrete shall be induced by slightly raising the discharge end, always keeping it in the deposited concrete. The flow is then stopped by lowering the tremie. The flow shall be continuous until the work is completed.

Depositing of concrete by the drop bottom bucket method shall conform to the following: The top of the bucket shall be open. The bottom doors shall open freely downward and outward when tripped. The bucket shall be completely filled and slowly lowered to avoid backwash. It shall not be dumped until it rests on the surface upon which the concrete is to be deposited and when discharged shall be withdrawn slowly until well above the concrete.

Dewatering may proceed when the concrete seal is sufficiently hard and strong. As a general rule, this time will be 48 hours for concrete made with high-early-strength cement and three days for concrete made with other types of cement. All laitance and other unsatisfactory material shall be removed from the exposed surface by scraping, chipping, or other means which will not injure the surface of the concrete.

907-804.03.10--Construction Joints.

907-804.03.10.1--General. Unless otherwise approved by the Engineer, construction joints shall be made only where located on the plans or shown in the pouring schedule.

In the event the Contractor plans to deviate from the pouring schedule for spans as shown on the plans, the Contractor shall submit a proposed pouring schedule to the Bridge Engineer for approval prior to commencing the pour.

If not detailed on the plans, or in the case of emergency, construction joints shall be placed as directed by the Engineer. Shear keys or inclined reinforcement shall be used where necessary to transmit shear or to bond the two sections together.

907-804.03.10.2--Bonding. Before depositing new concrete on or against concrete which has hardened, the forms shall be retightened. The surface of the hardened concrete shall be roughened as required by the Engineer and in a manner that will not leave loosened particles of aggregate or damaged concrete at the surface. It shall be thoroughly cleaned of foreign matter and laitance and saturated with water. When directed by the Engineer, the cleaned and saturated surfaces, including vertical and inclined surfaces, shall first be thoroughly covered with a coating of mortar or neat cement grout against which the new concrete shall be placed before the grout has attained its initial set.

The placing of concrete shall be carried continuously from joint to joint. The face edges of all joints which are exposed to view shall be carefully finished, true to line and elevation.

In order to bond successive courses suitable depressed or raised keys of the designated size shall be constructed. Raised keys shall be monolithic with the concrete of the lower course.

907-804.03.11--Concrete Exposed to Seawater. Unless otherwise specifically provided, concrete for structures exposed to seawater shall be Class AA concrete (Reference 907-

804.02.10). The clear distance from the face of the concrete to the nearest face of reinforcing steel shall be at least four inches. The mixing time and the water content shall be carefully controlled and regulated so as to produce concrete of maximum impermeability. The concrete shall be thoroughly compacted, and stone pockets shall be avoided. No construction joints shall be formed between the levels of extreme low water and extreme high water as determined by the Engineer. Between these levels, seawater shall not come in direct contact with the new concrete until at least 30 days have elapsed. The surface concrete as left by the forms shall be left undisturbed.

907-804.03.12--Blank.

907-804.03.13--Falsework. The Contractor shall submit to the Engineer four copies of structural design analysis and detail drawings, which show the method of falsework or centering. These designs and detail plans shall be prepared and bear the seal of a Registered Professional Engineer with experience in falsework design.

Falsework plans shall include falsework elevations together with all other dimensions and details which is considered necessary for the construction.

Other pertinent data needed is size and spacing of all falsework members and minimum bearing requirements for false piles.

Upon completion of falsework erection, the Registered Professional Engineer shall certify that the erected falsework is capable of supporting the load for construction.

Falsework piling shall be spaced and driven so that the bearing value of each pile is sufficient to support the load that will be imposed upon it. The bearing value of the piles should be calculated according to the appropriate formula given in Section 803.

For designing falsework and centering, a weight of 150 pounds per cubic foot shall be assumed for green concrete. All falsework shall be designed and constructed to provide the necessary rigidity and to support the loads without appreciable settlement or deformation. The Contractor may be required to employ screw jacks or hardwood wedges to take up slight settlement in the falsework either before or during the placing of concrete. An allowance shall be made for anticipated compressibility of falsework and for the placement of shims, wedges, or jacks to produce the permanent structural camber shown on the plans. If during construction, any weakness develops and the falsework shows any undue settlement or distortion, the work shall be stopped, the part of the structure affected removed, and the falsework strengthened before work is resumed. Falsework which cannot be founded on a satisfactory footing shall be supported on piling, which shall be spaced, driven, and removed (reference 907-804.03.15) in a manner approved by the Engineer.

All structures built across a public street or highway on which maintenance of traffic is required, shall have falsework so arranged that a vertical clearance of at least 12'-6" is provided. Unless otherwise specified, a horizontal clearance of at least the width of the traveled way shall be provided at all times. If the vertical clearance is less than 13'-6" or the horizontal clearance is less than the full crown width of the roadway, the Contractor shall install and maintain appropriate safety devices, clearance signs and warning lights, and shall notify the Engineer sufficiently in advance of restricting the clearance for the Engineer to advise both the Traffic Engineering and the Maintenance Divisions. All traffic control and safety devices shall be in accordance with the Manual on Uniform Traffic Control Devices (MUTCD).

907-804.03.14--Forms.

907-804.03.14.1--General. Forms shall be wood, metal, or other material approved by the Engineer. All forms shall be built mortar-tight and sufficiently rigid to prevent distortion due to pressure of the concrete and other loads incident to the construction operations. Forms shall be constructed and maintained so as to prevent warping and the opening of joints due to shrinkage. The forms shall be substantial and unyielding and shall be so designed that the finished concrete will conform to the proper dimensions and contours. The design of the forms shall take into account the effect of vibration of concrete as it is placed.

Minimum requirements for slab overhang forms shall be 3/4-inch plywood supported on 2" x 6" S4S wood timbers placed flatwise on 16-inch centers.

Adjustable brackets for support of slab overhang forms shall be spaced at a maximum distance of 3'-0" center to center unless specifically approved otherwise. Grade points for forms shall coincide with the location of the adjustable form brackets.

Forms for surfaces exposed to view shall be of uniform thickness with a smooth inside surface of an approved type. Joints in forms for exposed surfaces shall be closely fitted to eliminate fins, stone pockets, or other variations in the surface of the concrete which would mar a smooth and uniform texture.

Forms shall be filleted at all sharp corners and shall be given a bevel or draft in the case of all projections, such as girders and copings, to insure easy removal.

Metal ties or anchorages within the forms shall be so constructed as to permit their removal, without injury to the concrete, to a depth of at least the reinforcing steel clearance shown on the plans. In case ordinary wire ties are permitted, all wires, upon removal of the forms, shall be cut back at least 1/4 inch from the face of the concrete with chisels or nippers. Nippers shall be used for green concrete. All fittings for metal ties shall be designed so that upon their removal the cavities which are left will be the smallest practicable size. The cavities shall be filled with cement mortar and the surface left sound, smooth, even, and uniform in color.

Forms shall be set and maintained to the lines designated until the concrete is sufficiently cured for form removal. Forms shall remain in place for periods which shall be determined as hereinafter specified. If forms are deemed to be unsatisfactory in any way, either before or during the placing of concrete, the Engineer will order the work stopped until the defects have been corrected.

The shape, strength, rigidity, water-tightness, and surface smoothness of reused forms shall be maintained at all times. Warped or bulged lumber shall be resized before being reused. Forms which are unsatisfactory in any respect shall not be reused.

Access to the lower portions of forms for narrow walls and columns shall be provided for cleaning out extraneous material immediately before placing the concrete.

All forms shall be treated with an approved oil or saturated with water immediately before placing the concrete. For rail members or other members with exposed faces, the forms shall be treated only with an approved oil to prevent the adherence of concrete. Any material which will adhere to or discolor the concrete shall not be used.

When metal forms are used they shall be kept free from rust, grease, or other foreign matter which will discolor the concrete. They shall be of sufficient thickness and so connected that they will remain true to shape and line, and shall conform in all respects as herein prescribed for mortar tightness, filleted corners, beveled projections, etc. They shall be constructed so as to insure easy removal without injury to concrete. All inside bolt and rivet heads shall be countersunk.

All chamfer strips shall be dressed, straight, and of uniform width and shall be maintained as such at all times.

907-804.03.14.2--Stay-In-Place Metal Forms. The use of stay-in-place metal forms will not be allowed.

907-804.03.15--Removal of Falsework, Forms, and Housing. In the determination of the time for the removal of falsework, forms, and housing and the discontinuance of heating, consideration shall be given to the location and character of the structure, the weather and other conditions influencing the setting of the concrete, and the materials used in the mix. No forms or supports shall be removed prior to approval by the Engineer. During cold weather, removal of housing and the discontinuance of heating shall be in accordance with 907-804.03.16.1.

Concrete in the last pour of a continuous superstructure shall have attained a compressive strength of 2,400 psi, as determined by cylinder tests, prior to striking any falsework. It is important that falsework be removed as evenly as possible to prevent excessive deflection stresses in the spans.

At the Contractor's option and with the approval of the Engineer, the time for removal of forms may be determined by cylinder tests, in which case the Contractor shall furnish facilities for testing the cylinders. The facilities shall include an approved concrete testing machine of sufficient capacity and calibrated by an acceptable commercial laboratory. Tests shall be conducted in the presence of a Department representative to witness and record strengths obtained on each break or performed by a Department certified technician in an approved testing laboratory.

When form removal or placing of beams is not controlled by cylinder tests, Column A (exclusive of the days when the ambient temperature is below 40°F) herein shall apply as a guide for removal of forms and falsework. When cylinder tests are used, Column B shall be used. The cylinders shall be cured under conditions which are not more favorable than those existing for the portions of the structure which they represent.

If Type IP cement or Type I or II Portland cement plus fly ash is used, only Column B will be applicable.

	Column A (Minimum Cure)	Column B (Minimum psi)
Forms:		
Columns	24 Hours	1000
Side of Beams	24 Hours	1000
Walls (not under pressure)	24 Hours	1000
Floor Slabs (overhead)	7 Days	2000
Floor Slabs (between beams)	7 Days	2000
Slab Spans	14 Days	2400
Other Parts	24 Hours	1000
Centering:		
Under Beams	14 Days	2400
Under Bent Caps	7 Days	2000
Limitation for Placing Beams on:		
Pile Bents (pile under beam)	3 Days	2000
Frame Bents (two or more columns)	7 Days	2200
Frame Bents (single column)	14 Days	2400

Methods of form removal likely to cause overstressing of the concrete shall not be used. Forms and supports shall be removed in a manner that will permit the concrete to uniformly and gradually take the stresses due to its own weight. Centers shall be gradually and uniformly lowered in a manner that will avoid injurious stresses in any part of the structure.

As soon as concrete for railings, ornamental work, parapets and vertical faces which require a rubbed finish has attained a safe strength, the forms shall be carefully removed without marring the surfaces and corners, the required finishing performed, and the required curing continued.

Prior to final inspection of the work, the Contractor shall remove all falsework, forms, excavated material or other material placed in the stream channel during construction. Falsework piles may be cut or broken off at least one foot below the mudline or ground line unless the plans specifically indicate that they are to be pulled and completely removed from the channel.

907-804.03.16--Cold or Hot Weather Concreting.

907-804.03.16.1--Cold Weather Concreting. In cold weather, the temperature of the concrete when delivered to the job site shall conform to the temperature limitations of "Temperature Limitations on Concrete when Delivered to Job Site" listed in Table 6 below.

When the Contractor proposes to place concrete during seasons when there is a probability of ambient temperatures lower than 40°F, the Contractor shall have available on the project the approved facilities necessary to enclose uncured concrete and to keep the temperature of the air inside the enclosure within the ranges and for the minimum periods specified herein.

When there are indications of temperatures of less than 40°F during the first four days after placement of the concrete, the concrete shall be protected from cold temperatures by maintaining a temperature between 50°F and 100°F for at least four days after placement and between 40°F and 100°F for at least three additional days. The Contractor shall use such heating equipment such as stoves, salamanders, or steam equipment as deemed necessary to protect the concrete. When dry heat is used, means of maintaining atmospheric moisture shall be provided.

One or more of the aggregates and/or mixing water may be heated. The aggregates may be heated by steam, dry heat or by placing in the mixing water which has been heated. Frozen aggregates shall not be used. When either aggregates or water are heated above 100°F, the aggregates and water shall be combined first in the mixer before the cement is added to avoid flash set. Cement shall not be mixed with water or with a mixture of water and aggregate having a temperature greater than 100°F.

The use of salt or other chemical admixtures in lieu of heating will not be permitted.

Before placing concrete, all ice or frost shall be removed from the forms and reinforcement.

In the case of concrete placed directly on or in the ground, such as for footings or bottom slabs, protection and curing during cold weather may be provided as set for concrete pavement under 501.03.20.3.

The Contractor shall assume all risk and added cost connected with the placing and protecting of concrete during cold weather. Permission given by the Engineer to place concrete during such time will in no way relieve the Contractor of responsibility for satisfactory results. Should it be determined at any time that the concrete placed under such conditions is

unsatisfactory, it shall be removed and replaced with satisfactory concrete by the Contractor without extra compensation.

TABLE 6
TEMPERATURE LIMITATIONS ON CONCRETE WHEN DELIVERED TO JOB SITE

Ambient Temperature °F	Minimum Concrete Temperature °F	
	For sections with least dimension less than 12 in.	For sections with least dimensions 12 in. or greater
30 to 45	60	50
0 to 30	65	55
Below 0	70	60

907-804.03.16.2--Hot Weather Concreting. The manufacture, placement, and protection of concrete during hot weather requires special attention to insure that uniform slump ranges and satisfactory placement qualities are maintained, that surface cracking is held to a minimum, and that design strengths are produced.

907-804.03.17--Curing Concrete. Concrete surfaces shall be protected from premature drying by covering as soon as possible with a satisfactory curing material. When wetted burlap is used, it shall be not less than two thicknesses of Class 3 burlap or its equivalent, and the burlap shall be kept continuously and thoroughly wet. Careful attention shall be given to the proper curing and protection of concrete, and curing by the wetting method shall continue for a period of at least seven days after placing the concrete. If high-early-strength cement is used, this period may be reduced to four days.

Surfaces to have a Class 2 rubbed or sprayed finish and bridge deck surfaces when the atmospheric temperature is 90°F or above shall be cured only by wetting methods. The curing of concrete bridges with membrane curing will be permitted only under the conditions specified herein.

Surfaces on which curing is to be by liquid membrane shall be given the required surface finish prior to the application of curing compound. During the finishing period the concrete shall be protected by the water method of curing. Concrete surfaces cured by the liquid membrane method shall receive two applications of curing compound. The first application shall be applied immediately after the finishing is completed and accepted. Prior to applying the first application, the concrete shall be thoroughly wetted with water and the liquid membrane applied just as the surface film of water disappears. The second application shall be applied immediately after the first application has set. The rate of application of curing compound will be as prescribed by the Engineer with a minimum spreading rate per application of one gallon per 200 square feet of concrete surface. The coating shall be protected against marring for at least 10 days after the application of the curing compound. The coating on bridge decks shall receive extra attention and may require additional protection as required by the Engineer. All membrane marred or otherwise disturbed shall be given an additional coating. Should the surface coating be subjected repeatedly to injury, the Engineer may require that the water curing method be applied at once.

When using curing compound, the compound should be thoroughly mixed within an hour before use. If the use of curing compound results in a streaked or blotched appearance, the method shall be stopped and water curing applied until the cause of defective appearance is corrected.

Other precautions to insure the development of strength shall be taken as directed.

Adequate tarpaulins of ample size shall be on the project and used as necessary to protect the work in case of rain or other emergencies.

Conditions governing the placement of concrete and the requirements for the placement, protection, and curing of concrete during cold or hot weather shall conform to the limitations, conditions, and requirements stipulated in 907-804.03.16 as applicable.

907-804.03.18--Expansion and Fixed Joints, Bearings, Anchor Bolts, Plates, Castings, Pipes, Drains, Conduits, Etc. All joints shall be constructed according to details shown on the plans. The edges of the concrete at open or filled joints shall be chamfered or edged as indicated on the plans.

907-804.03.18.1--Open Joints. Open joints shall be placed in the locations shown on the plans and shall be constructed by the insertion and subsequent removal of a wood strip, metal plate, or other approved material. The insertion and removal of the template shall be accomplished without chipping or breaking the corners of the concrete. Reinforcement shall not extend across an open joint unless so specified on the plans.

907-804.03.18.2--Filled Joints. Poured expansion joints and joints to be sealed with premolded materials shall be constructed similar to open joints. When premolded types are specified, the filler shall be placed in correct position as the concrete on one side of the joint is placed. When the form is removed, the concrete on the other side shall be placed. Adequate water stops of metal, rubber, or plastic shall be carefully placed as shown on the plans.

907-804.03.18.3--Premolded and Preformed Joint Seals. When preformed elastomeric compressive joint seals are specified, the previously formed and cured open joint shall be thoroughly cleaned of all foreign matter, the required adhesive uniformly applied, and the seal installed in accordance with the recommendations of the manufacturer of the seal.

When premolded filler is used for the joints in the roadway slab, the tops shall be adequately sealed with poured joint filler in accordance with details on the plans. Premolded filler shall be permanently fastened to an adjacent concrete surface by appropriate use of copper wire, copper nails, or galvanized nails.

907-804.03.18.4--Steel Joints. The plates, angles, or other structural shapes shall be accurately shaped at the shop to conform to the section of the concrete floor. Fabrication and painting shall conform to the specifications covering those items. When called for on the plans or in the special provisions, the material shall be galvanized in lieu of painting. Care shall be taken to insure that the surface in the finished plane is true and free of warping. Positive methods shall be employed in placing the joints to keep them in correct position during the placing of the concrete. The opening at expansion joints shall be that designated on the plans at normal temperature, and care shall be taken to avoid impairment of the clearance in any manner.

907-804.03.18.5--Water Stops. Adequate water stops of metal, rubber, or plastic shall be placed as shown on the plans. Where movement at the joint is provided for, the water stops shall be of a type permitting movement without injury. They shall be spliced, welded, or soldered to form continuous watertight joints.

907-804.03.18.6--Bearing Devices. Bearing plates, rockers, and other bearing devices shall be constructed according to details shown on the plans. Unless otherwise specified or set in plastic concrete, they shall be set in grout to insure uniform bearing. Structural steel and painting shall conform to the requirements of Section 810 and 814. When specified, the material shall be galvanized in lieu of painting. The rockers or other expansion bearing devices shall be set, considering the temperature at the time of erection, so that the required position of the device is provided.

At all points of bearing contact, concrete members shall be separated from underlying members by dimensioned bearing pads or by methods and/or materials specified on the plans.

When not otherwise specifically provided, contact areas between concrete super-structures and substructures shall be separated by three layers of No. 15 (Type I) roofing felt.

907-804.03.18.7--Friction Joints. Metal friction joints shall consist of plates as indicated on the plans and shall be securely anchored in correct position. All sliding surfaces shall be thoroughly coated with an approved graphite grease. Movement shall not be impeded by the concrete in which the plates are embedded.

907-804.03.18.8--Placing Anchor Bolts, Plates, Castings, Grillage, Conduits, Etc. All anchor bolts, plates, castings, grillage, conduits, etc. indicated on the plans to be placed in or on the concrete shall be placed, set, or embedded as indicated or as directed. These items of the construction shall be set in Portland cement mortar (Subsection 714.11.5) except that anchor bolts may, as permitted by the Engineer, be built into the masonry, set in drilled holes, or placed as the concrete is being constructed by inserting encasing pipe or oiled wooden forms of sufficient size to allow for adjustment of the bolts. After removal of the pipe or forms, the space around the bolts shall be filled with Portland cement mortar (Subsection 714.11.5) completely filling the holes. The bolt shall be set accurately and perpendicular to the plane of the seat.

Anchor bolts which are to be set in the masonry prior to the erection of the superstructure shall be carefully set to proper location and elevation with a template or by other suitable means.

When bed plates are set in mortar, no superstructure or other load shall be placed thereon until this mortar has been allowed to set for a period of at least 96 hours (subject to the restrictions for cold weather concreting in 907-804.03.16.1). The mortar shall be kept well moistened during this period.

Weep hole drains shall be installed in abutments and retaining walls, and roadway drains or scuppers shall be installed in the roadway slabs in accordance with the details shown on the plans.

Where backfill is to be made at weep holes or openings in the structure, sand or stone chimneys or French drains shall be constructed as specified and shall extend through the portion of the backfill to be drained. Except as otherwise provided, the sand, stone, or slag used in this construction shall meet the requirements of Subsection 704.04.

907-804.03.19--Finishing Concrete Surfaces.

907-804.03.19.1--Classes of Finishes. Surface finishes of exposed concrete surfaces shall be classified as follows:

Class 1 - Ordinary Surface Finish
Class 2 - Rubbed or spray Finish
Class 3 - Tooled Finish
Class 4 - Sand-Blast Finish
Class 5 - Wirebrush or Scrubbed Finish
Class 6 - Floated Surface Finish

907-804.03.19.2--Class 1, Ordinary Surface Finish. Immediately following the removal of forms, all fins and irregular projections shall be removed from all surfaces except from those which are not to be exposed or not to be waterproofed. On all surfaces, the cavities produced

by form ties and all other holes, honeycomb spots, broken corners or edges, and other defects shall be thoroughly cleaned, and after having been kept saturated with water for at least three hours shall be carefully pointed and trued with a mortar of cement and fine aggregate mixed in the proportions used in the class of the concrete being finished. Mortar used in pointing shall be not more than one hour old. The mortar patches shall be cured as specified under 907-804.03.17. All construction and expansion joints shall be left carefully tooled and free of mortar and concrete. The joint filler shall be left exposed for its full length with clean and true edges.

The resulting surfaces shall be true and uniform. All surfaces which cannot be repaired to the satisfaction of the Engineer shall be given a Class 2 rubbed finish.

907-804.03.19.3--Class 2, Rubbed or Spray Finish.

907-804.03.19.3.1--Rubbed Finish. After removal of forms, the Class 1 finish shall be completed and the rubbing of concrete shall be started as soon as its condition will permit. Immediately before starting this work, the concrete shall be kept thoroughly saturated with water for at least three hours. Surfaces shall be rubbed with a medium course Carborundum stone using a small amount of mortar on its face. The mortar shall be composed of cement and sand mixed in the proportions used in the concrete being finished. Rubbing shall be continued until all form marks, projections, and irregularities have been removed, all voids are filled, and a uniform surface has been obtained. The paste produced by this rubbing shall be left in place at this time.

After all concrete above the surface being treated has been cast, the final finish shall be obtained by rubbing with a fine carborundum stone and water. This rubbing shall continue until the entire surface is of a smooth texture and uniform color.

After the final rubbing is completed and the surface has dried, it shall be rubbed with burlap to remove loose powder and objectionable marks.

907-804.03.19.3.2--Spray Finish. Prior to the spray finish, the concrete shall be given a Class 1 finish in accordance with 907-804.03.19.2, supplemented if necessary with a grout meeting the requirements of Subsection 714.11 with fine aggregate modified to require 100 percent passing the No. 16 Sieve.

Grout shall be applied with burlap pads or float sponges, and as soon as the grout has dried the surface shall be brushed to remove all loose grout and the surface left smooth and free of air holes. Surfaces to be sprayed shall be free of efflorescence, flaking coatings, dirt, oil, and other foreign substances. Prior to application of the spray finish, the surfaces shall be free of moisture, as determined by sight and touch, and in a condition consistent with the manufacturer's published recommendations.

The spray finish shall be applied with heavy duty spray equipment capable of maintaining a constant pressure as necessary for proper application. The material shall be applied as recommended by the manufacturer except the rate of application shall not be less than one gallon per 50 square feet of surface area without prior written approval of the Engineer.

The completed finish shall be tightly bonded to the structure and present a uniform appearance and texture equal to or better than a rubbed finish. If necessary, additional coats shall be sprayed to produce the desired surface texture and uniformity. Upon failure to adhere positively to the structure without chipping or cracking or to attain the desired surface appearance, the coatings shall be completely removed and the surface given a rubbed finish in accordance with 907-804.03.19.3.1, or other approved methods shall be used to obtain the desired surface finish to the satisfaction of the Engineer without additional cost to the State.

907-804.03.19.4--Classes 3, 4, and 5 Finishes. If required, specifications for these finishes will be contained in the special provisions.

907-804.03.19.5--Class 6, Floated Surface Finish. After the concrete has been deposited in place, it shall be consolidated and the surface shall be struck off by means of a strike board and floated with a wooden or cork float. An edging tool shall be used on edges and expansion joints. The surface shall not vary more than 1/8 inch under a 10-foot straightedge. The surface shall have a granular or matte texture which will not be slick when wet.

907-804.03.19.6--Required Finishes for Various Surfaces.

907-804.03.19.6.1--General. Unless otherwise specified, the top surface of sidewalks, the top horizontal surfaces of footings, and top slabs of box bridges, box culverts, or other structures shall be given a Class 6 finish. All formed concrete surfaces shall be given a Class 1 finish, except on surfaces which are completely enclosed, such as the inside surfaces of cells of box girders, the removal of fins and form marks and the rubbing of mortared surfaces to a uniform color will not be required.

In reference to finishing, exposed surfaces are surfaces or faces which may be seen after all backfill has been placed. Exposed surfaces requiring a Class 2 finish shall be finished at least one foot below the ground line or the low water elevation, whichever is higher.

The Class 2 finish shall be made upon a Class 1 finish. After the removal of forms the Class 1 finish shall be completed and the rubbing of concrete shall be started as soon as the condition of the concrete will permit.

Bridge floors shall be finished in accordance with 907-804.03.19.7.

907-804.03.19.6.2--Finishing Formed Concrete Surfaces of Box Bridges, Box Culverts, Pipe Headwalls, and Minor Structures. The exposed surfaces of wing walls and parapets of box bridges and box culverts to be used as vehicular or pedestrian underpasses shall be given a Class 2 finish. Exposed surfaces of other box culverts or box bridges, pipe culvert headwalls, and other minor structures shall be given a Class 1 finish unless otherwise indicated on the plans.

The exposed surfaces of retaining walls including copings and parapets shall receive a Class 2 finish.

907-804.03.19.6.3--Finishing Formed Concrete Surface of Bridges. All formed concrete bridge surfaces which are exposed shall have a Class 1 or 2 finish as set forth herein unless designated otherwise on the plans.

Bridges with designated surfaces for Class 2 finish are classified as follows:

Group A - Bridges over highways, roads and streets.
Group B - Bridges over waterways and railroads.
Group BB - Twin or adjacent bridges of Group B category.

When a Group B or BB bridge also spans a highway, road or street, exposed concrete surfaces shall be finished in accordance with Group A requirements.

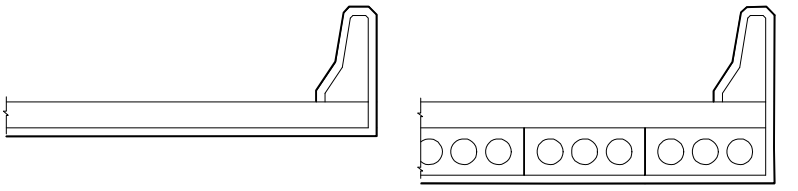
(A) Superstructures. Concrete surfaces to be given a Class 2 finish shall be the exposed surfaces of wings and rails and other exposed surfaces indicated by a double line in Figures 804-1, 804-2, and 804-3.

When a Group B or BB also spans a highway, road or street, the superstructure of spans over and extending one span in each direction beyond the lower level highway, road or street shall be given a Class 2 finish as shown for Group A.

(B) Substructures. Concrete surfaces to be given a Class 2 finish are as follows:

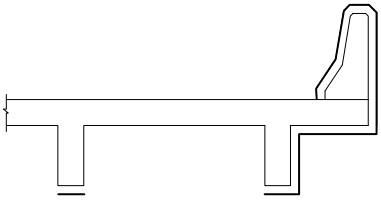
Group A. Exposed surfaces of abutments, end bents, end bent posts, wing walls, railing, retaining walls, parapets, copings, piers, columns, piles, caps, struts or walls between columns or piles, encasement of steel piles, arch rings and spandrel walls.

Group B and BB. Exposed surfaces of abutments, wing walls, end bent posts, railing, retaining walls, parapets and copings.

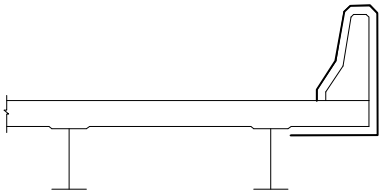


CONCRETE SLAB SPAN & HOLLOW SLAB SPAN

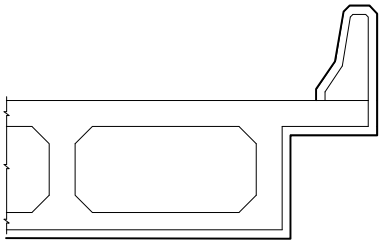
PRECAST HOLLOW SLAB SPAN



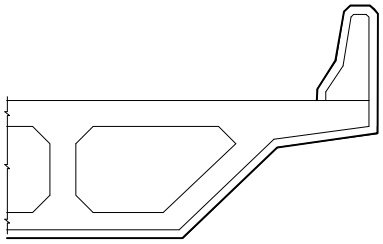
CONCRETE GIRDER SPAN



STEEL BEAM SPAN

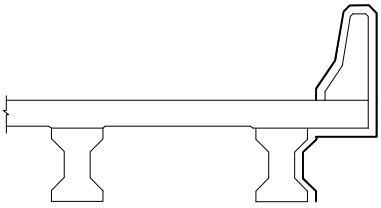


Vertical Face

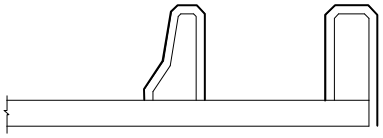


Slope Face

CONCRETE BOX GIRDER SPAN



PRESTRESSED CONCRETE BEAM SPANS



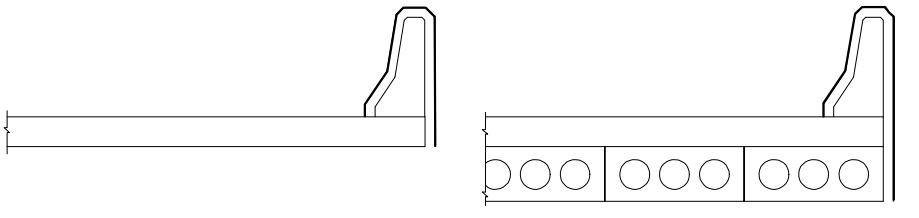
For Finishing On The Remainder Of Superstructure, See The Appropriate Section On This Page.

TYPICAL SIDEWALK SECTION

GROUP "A"

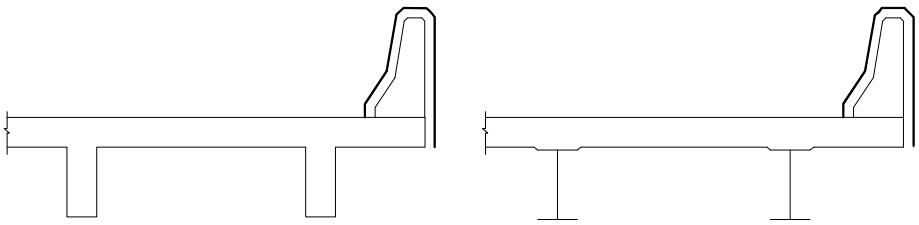
BRIDGES OVER HIGHWAYS, ROADS & STREETS

CLASS 2 FINISH - BRIDGE SUPERSTRUCTURES - FIG. 804-1



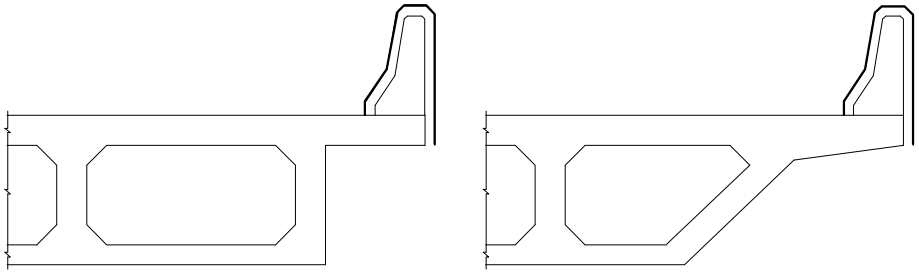
CONCRETE SLAB SPAN & HOLLOW SLAB SPAN

PRECAST HOLLOW SLAB SPAN



CONCRETE GIRDER SPAN

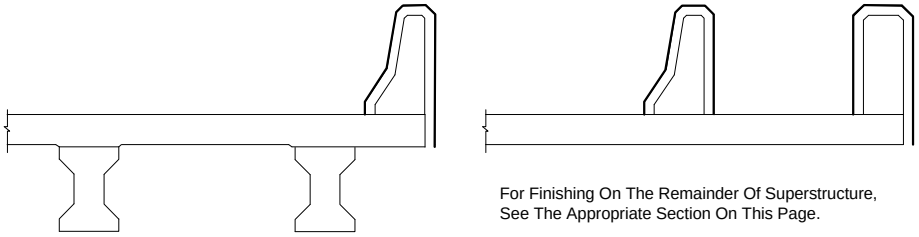
STEEL BEAM SPAN



Vertical Face

Slope Face

CONCRETE BOX GIRDER SPAN



For Finishing On The Remainder Of Superstructure, See The Appropriate Section On This Page.

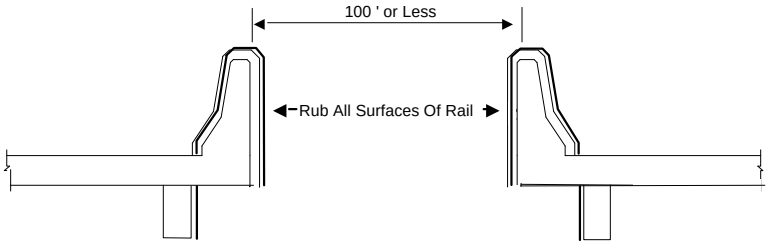
PRESTRESSED CONCRETE BEAM SPANS

TYPICAL SIDEWALK SECTION

GROUP "B"

BRIDGES OVER WATERWAYS AND BRIDGES OVER RAILROAD TRACKS

CLASS 2 FINISH - BRIDGE SUPERSTRUCTURES - FIG. 804-2



GROUP "B B" - ADJACENT BRIDGES

GROUP "B B"

TWIN or DUAL BRIDGES

CLASS 2 FINISH - BRIDGE SUPERSTRUCTURES - FIG. 804-3

907-804.03.19.7--Finishing Bridge Floors.

907-804.03.19.7.1--General. Concrete bridge decks shall be struck off and finished by the method(s) designated on the plans.

In the event a method is not designated, the Contractor may use either the longitudinal or transverse method subject to the requirements contained in these specifications.

Except when indicated otherwise on the plans, the final surface texture of the bridge floor shall be either a drag, belt or broom finish. The surface texture specified and surface requirements shall be in accordance with the applicable requirements of 501.03.17 and 501.03.18 modified only as the Engineer deems necessary for bridge deck construction operations.

907-804.03.19.7.2--Longitudinal Method. The longitudinal method requires that the strike-off screed be supported on accurately graded and supported bulkheads or templates placed across the full width at the end(s) of the pour. Before the concrete is placed, approved fixed templates or wooden bulkheads of not less than 1 ¼-inch lumber shall be placed perpendicular to the centerline of the roadway, or in the case of skew bridges at the angle of skew. The upper surface of the template or bulkheads shall be accurately set to conform to the required grade and crown.

Special attention shall be given to the gutter lines where the strike-off screed cannot reach. The gutters shall be finished by hand and tested with the straight edge. Floor drains shall be set lower than the finished gutter line and finished over. After initial set, the concrete shall be dished out and finished around the drains to form an outlet.

After the concrete has been deposited and rough graded, it shall be struck off by means of a strike-off screed resting on the bulkheads or fixed templates. The strike-off screed shall be of a type satisfactory to the Engineer and shall have sufficient strength to retain its shape under all working conditions. The final surface shall comply with the applicable requirements of Subsections 501.03.17.6 and 501.03.18, and unless otherwise specified in the contract, the final finish under this method shall be the belt finish.

In general, the overall strike-off screed should be trussed, with bracing heavy enough to support the weight of a man without deflecting, and should be adjustable for camber and correction of sag.

The strike-off screed will ride on the bulkheads or fixed templates at the ends of the section being finished. Care shall be taken to see that the bulkhead or fixed template elevations are accurately set since the entire span surface will be controlled by them. The manipulation of the screed shall be such that neither end is raised from the bulkheads or templates during the process.

The concrete shall be struck off by beginning at one curb and proceeding entirely across the span. A slight excess of concrete shall be kept in front of the cutting edge at all times. This operation shall be repeated at least three times. In each case, the strike-off screed shall be picked up and carried back to the point of beginning. No backward strokes will be allowed. The strike-off screed shall be moved along the bulkheads or fixed templates with a combined longitudinal and transverse motion. This operation may be manual or mechanical. Standing or walking in the fresh concrete ahead of the strike- off screed will not be permitted.

907-804.03.19.7.3--Transverse Method. The transverse method requires that the screeding equipment be supported on accurately graded and supported rails placed beyond the gutter lines and parallel with the centerline of the bridge.

The machine shall be so constructed and operated as to produce a bridge floor of uniform density with minimum manipulation of the fresh concrete and achieved in the shortest possible time. Manual transverse methods of screeding will not be permitted.

The finishing machine shall be supported on vertically adjustable rails set a sufficient distance from the gutter line to allow free movement of the screed from gutter line to gutter line. Satisfactory means of load distribution with minimum rail deflection shall be provided. The screed rails for a deck pour shall be completely in place for the full length of the pour and shall be firmly secured prior to placing concrete. The screed rails shall be adjusted as necessary to compensate for settlement and deflection occurring during the screeding operations. Supports for the screed rail shall be located directly over slab overhang support brackets (reference 907-804.03.14.1).

At least one dry run shall be made the length of each pour with a "tell-tail" device attached to the screed carriage to assure the specified clearance to the reinforcing steel.

The screed shall be equipped with a metal cutting edge or other approved mechanical means for accurately fine grading the plastic concrete to the required grade and surface smoothness and shall be supported by a bridging structure sufficiently rigid and heavy to perform operations satisfactorily on concrete of minimum slump without vibration, distortion, and wrecking of forms. The screed shall be mechanically actuated to deliver the screeding action and for travel in a longitudinal direction at a uniform rate along the bridge floor.

The screed shall complete sufficient passes to strike off all of the excess concrete with ample mortar along the entire leading edge to assure filling of low spots. Care shall be taken to remove all objectionable material from the gutters where final hand finishing will be required.

The selection of the transverse method may require the Contractor to furnish bridge deck concrete which contains an approved water-reducing set retarding admixture in the quantities approved by the Engineer at no additional cost to the State. (Reference Subsection 713.02)

Other finishing requirements shall be in accordance with the general requirements in 907-804.03.19.7.1 and as specified on the plans.

907-804.03.19.7.4--Acceptance Procedure for Bridge Deck Smoothness. After the bridge decks and bridge end slabs are completed and preferably before the construction of the bridge railing, they shall be tested for ride quality using a Contractor furnished profilograph. Profile Index Values shall be determined in accordance with Department SOPs and these specifications. The profilograph shall meet the requirements of 907-401.02.6.5. Profiles will be obtained in the wheel paths of the main thru lanes and, where conditions allow, in the wheel paths of any auxiliary lanes or tapers. Profile Index Values for bridge decks and bridge end slabs shall be obtained for all state roads with four lanes or more, on state roads three lanes or less where the current traffic count is 2,000 ADT or higher, or as designated on the plans. Ride quality tests will begin at a point where the rearmost wheel of the profilograph is as close to the beginning of the bridge end slab as possible and shall proceed forward across the remainder of the bridge end slab, across the bridge deck and continue across the next bridge end slab to a point where the frontmost wheel of the profilograph reaches the farmost edge of the bridge end slab. Bridges and bridge end slabs not requiring a ride quality test must meet a 1/8 inch in 10-foot straightedge requirement in longitudinal and transverse directions. Bridges in horizontal curves having a radius of less than 1,000 feet at the centerline and bridges within the superelevation transition of such curves are excluded from a test with the profilograph.

The Profile Index Value for bridge decks including the bridge end slabs shall be averaged for the left and right wheel path for each lane and where applicable, each auxiliary lane and taper,

and shall not exceed 65 inches per mile for each lane. In addition, individual bumps or depressions exceeding 0.3 of an inch, when measured from a chord length of 25 feet, shall be corrected and the surface shall meet a 1/8 inch in 10-foot straightedge check made transversely across the deck or slab.

Bridge decks and bridge end slabs not meeting the preceding requirements shall be corrected. Corrective work shall be done at no additional cost to the Department. Corrective work shall consist of grinding the bridge deck in accordance with this specification. All corrective work shall precede final surface texturing. All surface areas, corrected by grinding, shall be sealed with a sealant approved by the Bridge Engineer.

In case the bridge end slabs are to be constructed on a future project, the bridge deck(s) alone shall be tested for ride quality using the acceptance procedure outlined above, except that the ride quality test will begin at a point where the rearmost wheel of the profilograph is as close to the beginning of the bridge as possible and shall proceed forward across the bridge deck to a point where the frontmost wheel of the profilograph reaches the farmost edge of the bridge.

Expansion joint installation shall be delayed and the joint temporarily bridged to facilitate operation of the profilograph and grinding equipment across the joint wherever feasible.

It shall be the Contractor's responsibility to schedule profilograph testing. The Contractor shall notify the Department at least five (5) days in advance of profilograph testing. The Contractor shall ensure that the area to be tested has been cleaned and cleared of all obstructions. Profilograph testing of bridge decks and bridge end slabs shall be performed by the Contractor under supervision of the Engineer. All profilograph testing shall be performed at no additional cost to the Department. The Contractor will be responsible for traffic control associated with this testing operation.

907-804.03.19.7.4.1--Grinding Bridge Decks.

907-804.03.19.7.4.1.1--Equipment. The grinding equipment shall be a power driven, self-propelled machine that is specifically designed to smooth and texture portland cement concrete pavement with diamond blades. The effective wheel base of the machine shall not be less than 12.0 feet. It shall have a set of pivoting tandem bogey wheels at the front of the machine and the rear wheels shall be arranged to travel in the track of the fresh cut pavement. The center of the grinding head shall be no further than 3.0 feet forward from the center of the back wheels.

The equipment shall be of a size that will cut or plane at least 3.0 feet wide. It shall also be of a shape and dimension that does not encroach on traffic movement outside of the work area. The equipment shall be capable of grinding the surface without causing spalls at cracks, joints, or other locations.

907-804.03.19.7.4.1.2--Grinding. The grinding areas will be determined by the Contractor and approved by the Engineer. The Contractor shall develop and submit to the Engineer for approval a Grinding Plan. The Contractor shall allow up to 45 days for the Department to review the Plan prior to starting any grinding operations. This plan shall include as a minimum:

1. Name of the project superintendent in responsible charge of the grinding operation.
2. List and description of all equipment to be used.
3. Maximum depth of each pass allowed by the grinding equipment.
4. Maximum width of each pass allowed by the grinding equipment.
5. Details of a sequence of the grinding operation.
6. Complete data from Profilograph runs, based on a 0.3 inch bump height, for each wheel path over the entire bridge including bridge end slabs, which shall include profile

index, bump locations (in stations), bump heights and proposed final cross-slopes. When a computerized profilograph is used, a complete printout of the profile including the header information for each wheel path will be required.

7. Data showing reinforcing steel clearance in all areas to be ground.
8. A detailed drawing of the deck showing areas to be ground with station numbers and grinding depths clearly indicated.
9. A description of grinding in areas where drains are in conflict with grind areas.
10. Details of any changes in deck drainage (anticipated ponding, etc.)

The Engineer will evaluate the grinding plan for conformance with the plans and specifications, after which the Engineer will notify the Contractor of any additional information required and/or changes that may be needed. Any part of the plan that is unacceptable will be rejected and the Contractor shall submit changes for reevaluation. All approvals given by the Engineer shall be subject to trial and satisfactory performance in the field, and shall not relieve the Contractor of the responsibility to satisfactorily complete the work.

The construction operation shall be scheduled and proceed in a manner that produces a uniform finished surface. Grinding will be accomplished in a manner that eliminates joint or crack faults while providing positive lateral drainage by maintaining a constant cross-slope between grinding extremities in each lane. Auxiliary or ramp lane grinding shall transition as required from the mainline edge to provide positive drainage and acceptable riding surface.

The operation shall result in a finished surface that conforms as close as possible to the typical cross-section and the requirements specified in Subsection 907-804.03.19.7.4.1.3.

The Contractor shall establish positive means for removal of grinding residue. Residue shall not be permitted to flow across lanes used by public traffic or into gutters or drainage facilities.

907-804.03.19.7.4.1.3--Final Surface Finish. The grinding process shall produce a finish surface that is as close as possible to grade and uniform in appearance with a longitudinal line type texture. The line type texture shall contain parallel longitudinal corrugations that present a narrow ridge corduroy type appearance. The peaks of the ridges shall be approximately 1/16 inch higher than the bottoms of the grooves with approximately 53 to 57 evenly spaced grooves per foot. Grinding chip thickness shall be a minimum of 0.080 inches thick.

The finished bridge decks and bridge end slabs shall be retested for riding quality using a Contractor furnished profilograph meeting the requirements of 907-401.02.6.5. The finished results shall meet the following conditions:

(a) Individual bumps or depressions shall not exceed 0.3 inches when measured from a chord length of 25 feet.
(b) The final index value for the bridge deck and bridge end slabs shall be an average of both the right and left wheel paths of each lane and shall not exceed 65 inches per mile.

The final profilogram will be furnished to the Engineer for informational purposes.

907-804.03.19.8--Finishing Horizontal Surfaces of Footings or Top Slabs of Box Bridges, Culverts, or Other Structures. The finishing of horizontal surfaces of footing or top slabs of box bridges, culverts, or other structures shall be achieved by placing an excess of material in the form and removing or striking off the excess with a template, forcing the coarse aggregate below the mortar surface. After the concrete has been struck off the surface shall be given a Class 6 finish.

907-804.03.19.9--Finishing Exposed Surfaces of Sidewalks. After the concrete has been deposited in place it shall be consolidated and the exposed surface shall be given a Class 6 finish. An edging tool of the required radius shall be used on all edges and at all expansion joints. The surface shall have a granular texture which will not be slick when wet.

Sidewalk surfaces shall be laid out in blocks with an approved grooving tool as shown on the plans or as directed.

907-804.03.20--Opening Bridges.

907-804.03.20.1--Public Traffic. Unless otherwise specified, concrete bridge floors shall be closed to public highway traffic for a period of at least 21 days after placing concrete.

907-804.03.20.2--Construction Traffic. Unless otherwise specified, concrete bridge floors shall be closed to construction traffic for a period of 7 days after placing concrete and the minimum required compressive strength for the concrete placed is obtained.

907-804.03.21--Final Cleanup. Upon completion of the work all equipment, surplus materials, forms, and waste material shall be removed, the bridge cleaned, and the site of the work given a final cleanup.

907-804.03.22--Precast-Prestressed Concrete Bridge Members.

907-804.03.22.1--General. All installations and plants for the manufacture of precast-prestressed bridge members shall be PCI (Prestressed Concrete Institute) Certified. Bridge members manufactured in plants or installations not so approved will not be accepted for use in the work. The Contractor or other manufacturer shall employ a technician skilled in the adopted system of prestressing to supervise the manufacturing operations. This technician shall be certified according to the guidelines of this specification. The Contractor shall develop and implement a Quality Control Program as per Division I of PCI Quality Control Manual, 3rd Edition. The Quality Control Program shall be submitted to the District Materials Engineer for approval.

907-804.03.22.2--Stressing Requirements. The jacks for stressing shall be equipped with accurate calibrated gages for registering the jacking pressure. Means shall be provided for measuring elongation of strands to at least the nearest 1/16 inch.

Prior to beginning work, the Contractor or manufacturer shall have all jacks to be used, together with their gages, calibrated by an approved laboratory. All jacks and gages shall have an accuracy of reading within two percent. The testing agency shall furnish the Engineer a statement certifying that the jacks and gages meet this requirement. During the progress of the work, if a gage appears to be giving erratic results or if the gage pressure and elongations indicate materially differing stresses, recalibration will be required.

Calibration of jacks and gages shall be repeated at intervals deemed necessary by the Engineer. These intervals for calibration shall not exceed one year.

Shop drawings of prestressed beams, including an erection plan, shall be submitted in duplicate to the Bridge Engineer for approval prior to manufacture of members.

907-804.03.22.2.1--Methods. Plans for the particular bridge members will show prestressing by one of the following methods:

(A) Pretensioning. The prestressing strands are stressed initially. After the concrete is placed, cured, and has attained the compressive strength shown on the plans, the stress is

transferred to the member. The method used for pretensions shall be in accordance to Division II of PCI Quality Control Manual, 3rd Edition.

(B) Posttensioning. The posttensioning tendons are installed in voids or ducts and are stressed and anchored after development of the compressive strength specified on the plans. The voids or ducts are then pressure grouted.

(C) Combined Method. Part of the reinforcing is pretensioned and part posttensioned. Under this method all applicable requirements for the two methods specified shall apply to the respective stressing elements being used.

907-804.03.22.2.2--Alternate Details for Prestressed Members. In the event that the Contractor (Manufacturer) desires to use materials or methods that differ in any respect from those shown on the plans or described in these specifications, the Contractor shall submit for approval full plan details (on acceptable tracings suitable for reproduction) and specifications, and these shall become the property of the Department. In order for alternate materials and/or methods to be considered, they will be required to comply fully with the following:

A. Provisions equal to those stipulated in these specifications.
B. Current AASHTO Specifications.
C. Recommendations of materials manufacturer.
D. Camber tolerance of beams and spans shown on plans.

(Note: Alternate materials and methods will not be authorized on Federal-Aid Projects.)

The Engineer shall be the sole judge as to the adequacy and propriety of any variation of materials or methods.

907-804.03.22.2.3--Stressing Procedure.

(A) General. Stressing shall be performed by suitable jacks working against unyielding anchorages and capable of maintaining the required stress for an indefinite period without movement or yielding. Strands may be stressed singularly or in a group.

The tension to be applied to each strand shall be as shown on the plans. The tension shall be measured by both jacking gages and elongations in the strands and the result shall check within close limits.

It is anticipated that there will possibly be a difference in indicated tension between jack pressure and elongation of about five (5) percent. In this event, the discrepancy shall be placed on the side of slight overstress rather than understress.

In the event of an apparent discrepancy between gage pressure and elongation of as much as five (5) percent, the entire operation shall be carefully checked, and the source of error determined before proceeding further.

Elongation is to be measured after the strands have been suitably anchored, and all possible slippage at the anchorages has been eliminated.

In all stressing operations, the stressing force shall be kept as nearly symmetrical about the vertical axis of the member as practicable.

(B) Pretensioning. All strands to be prestressed shall be brought to a uniform initial tension prior to being given their full pretensioning. This uniform initial tension of approximately 1000 to 2000 pounds shall be measured by suitable means such as a dynamometer so that its value can be used as a check against elongation computed and measured.

After the initial tensioning, the strand or group shall be stressed until the required elongation and jacking pressure is within the limits specified.

When the strands are stressed in accordance with the plan requirements and these specifications and all other reinforcing is in place, the concrete shall be placed in the prepared forms.

Strand stress shall be maintained until the concrete between anchorages has attained the required compressive strength as determined by cylinder tests, after which the strands shall be cut off flush with the ends of column members, and cut as shown on the plans for beams, girders, etc. Strands shall be cut or released in such a manner that eccentricity of prestress will be kept to a minimum and no damage to the member will result. The strand cutting pattern shall be as shown on the plans or as approved by the Bridge Engineer.

(C) Posttensioning. For all posttensioning tendons/bars the anchor plates shall set exactly normal in all directions to the axis of the tendon/bar. Parallel wire anchorage cones shall be recessed within the beams. Tensioning shall not take place until the concrete has reached the compressive strength shown on the plans.

Elongation and jacking pressures shall make appropriate allowance for all possible slippage or relaxation of the anchorage. Posttensioning tendons/bars shall be stressed in the order and manner shown on the plans.

The units shall be tensioned until the required elongations and jacking pressures are attained and reconciled within the limits specified in 907-804.03.22.2.3(A) with such overstresses as approved by the Engineer for anchorage relaxation.

Independent references shall be established adjacent to each anchorage to indicate any yielding or slippage that may occur between the time of initial stressing and final release of the strands.

Straight tendons/bars may be tensioned from one end. Unless otherwise specified, curved tendons shall be stressed by jacking from both ends of the tendons.

(D) Combined Method. In the event that girders are manufactured with part of the reinforcement pretensioned and part posttensioned, the applicable portions of the requirements listed herein shall apply to each type.

907-804.03.22.3--Manufacture.

907-804.03.22.3.1--Forms. The forms used for precast-prestressed bridge members shall meet the requirements of Division V of the PCI Quality Control Manual, 3rd Edition.

907-804.03.22.3.2--Placing and Fastening Steel. Placing and fastening of all steel used for precast-prestressed bridge members shall meet the requirements of Division V of the PCI Quality Control Manual, 3rd Edition.

907-804.03.22.3.3--Holes for Prestressing Tendons/Bars. Holes provided in girders for prestressing tendons/bars shall be formed by means of inflatable rubber tubing, flexible metal conduit, metal tubing, or other approved means.

907-804.03.22.4--Placing and Curing Concrete.

907-804.03.22.4.1--Placing. The placing of concrete shall meet the applicable requirements of Division III of PCI Quality Control Manual, 3rd Edition.

907-804.03.22.4.2--Curing. Initial curing of all members shall be accomplished by fogging, wet burlap, or other approved methods and shall begin as soon as the concrete has hardened sufficiently to withstand surface damage. This curing shall continue until the concrete has attained its initial set; however, the minimum initial curing period shall be three hours and the maximum, five hours. If a retarding agent is used, the minimum period shall be five hours and the maximum seven hours. Following the initial curing, curing shall be resumed by steam, specified as follows.

In steam curing the member shall be enclosed in a suitable enclosure. The enclosure shall be of sturdy construction to withstand wind and shall be weather-tight to minimize moisture and heat losses. There shall be at least six inches of space between the enclosure and concrete for proper circulation of steam. Application of the steam shall not be directly on the surface of the concrete.

The steam shall be completely saturated in order to prevent loss of humidity and to provide excess moisture for proper hydration of the cement. When weather conditions require, and when directed, additional moisture shall be applied during steam curing in order that the surface of the concrete will show free moisture. This can be accomplished by use of fogging, spraying, wet burlap, or other approved methods.

The temperature of the interior of the enclosure shall be at least 80°F and not more than 160°F. The ideal temperature is 100° to 130°F. During initial application of the steam, the ambient air temperature within the enclosure shall increase at a rate not exceeding 40°F per hour.

At least one recording thermometer for each enclosure shall be furnished by the producer. If the enclosure is longer than 300 feet, an additional recording thermometer shall be furnished for each additional 300 feet of length or fraction thereof. Each recording thermometer shall be placed within the enclosure at a point designated by the inspector. An approved portable thermometer shall be furnished by the producer for use by the producer and the Inspector in determining the temperature(s) at other points within the enclosure. The temperature at any point within the enclosure shall not vary more than 10°F from that of the recording thermometer or the average of the recording thermometers if more than one is used.

An alternate means of determining and recording temperatures may consist of the use of temperature bulbs connected electrically to a central recorder. The same number of such bulbs will be required as specified above for recording thermometers, and the central recorder shall record the temperature of each bulb.

Steam may be temporarily suspended, if necessary, during removal of side forms. This operation shall be performed in such a manner that the concrete in any portion of the member shall not be exposed for more than one hour. If directed, due to low humidity or temperature, the exposed concrete shall be kept wet. In discontinuing the steam, it shall be cut off for at least one hour before uncovering the member. No restrictions as to the rate of increase of temperature are applicable for applying steam after this operation is completed.

Steam may be suspended, if necessary, during transfer of the tensioning load (detensioning or posttensioning). No restrictions as to rate of increase or decrease of temperature are applicable to discontinuing or re-applying steam for this operation. However, the concrete shall be kept wet during exposure.

After the stress-transfer operation, curing may be resumed either by steam, cotton mats, wetted burlap, constant fogging, or liquid membrane. When used, liquid membrane shall be white pigmented and shall be applied at the rate of one gallon per 150 square feet of surface.

Membrane shall not be applied to portions of units designated to be bonded to other concrete or which are to receive a Class 2 finish. Such portions shall be cured by other methods.

907-804.03.22.4.3--Removal of Side Forms. Side forms may be removed after the concrete has attained sufficient strength to maintain a true section. In order to obtain "sufficient strength", it may be necessary to cure members for 12 hours or more as prescribed in 907-804.03.22.4.2, or to attain a minimum compressive strength of 1,000 psi.

If high-early-strength concrete is obtained by use of low slump (0 to 1.5 inch) concrete, vacuum process, or other approved methods, side forms may be removed earlier; however, approval of the methods and revision from normal schedules will be made only after inspections by the District and Jackson Laboratories have determined that satisfactory results will be attained by the methods and schedules proposed.

907-804.03.22.4.4--Grouting. The holes through posttensioned members in which the tendons are installed shall be equipped with approved grouting vents. All prestressing tendons to be bonded shall be free of dirt, loose rust, grease, or other deleterious substances. Before grouting, the ducts shall be free of water, dirt, and other foreign substances. The ducts shall be blown out with compressed air until no water comes through the ducts. For long members with draped tendons an open tap at low points may be necessary. After completion of stressing, the annular space between sides of tendon and sides of hole shall be grouted as set in the following paragraphs.

With the grouting vent open at one end of the core hole, grout shall be applied continuously under moderate pressure at the other end until all entrapped air is forced out through the open grout vent, as evidenced by a steady stream of grout at the vent. Whereupon, the open vent shall be closed under pressure. The grouting pressure shall be gradually increased to refusal (at least 75 psi) and held at this pressure for approximately 10 seconds, and the vent shall then be closed under this pressure.

Portland cement grout shall consist of a mixture of:

1	part Type 1 Portland cement
1/4	part fly ash
3/4	part washed sand (all passing No. 16 sieve and not more than five percent retained on No. 30)
4 to 6	gallons of water per bag of cement.

A plasticizing admixture, subject to approval by the Engineer, shall be used in accordance with the manufacturer's recommendations.

The grout shall be mixed in a mechanical mixer, shall have the consistency of heavy paint, and shall be kept agitated until placed.

Members shall not be moved before the grout has set, ordinarily at least 24 hours at 80°F or higher.

907-804.03.22.5--Finishing and Marking. Units shall be given a Class 1 finish at the plant and shall be given a Class 2 finish after erection when required.

Recesses in girders at end of diaphragm bars, holes left by form ties, and other surface irregularities shall be carefully cleaned and patched with an approved non-shrink commercial grout or a non-shrinkage mortar of the following composition:

1 part Type 1 cement
1 1/2 to 2 parts fine sand

1/2 to 3/4 ounces aluminum powder per bag of cement
Approved admixture per Subsection 713.02.
Sufficient water to produce a workable but rather stiff mix.

The units shall be clearly marked in accordance with Department SOP.

907-804.03.22.6--Handling, Storage, and Installation. Posttensioned members may be handled immediately after completion of stressing and grout has set. Pretensioned members may be handled immediately after release of tensioning. In either case, the members shall have developed a minimum compressive strength of 4000 psi prior to handling. In the event stressing is not done in a continuous operation, members shall not be handled before they are sufficiently stressed, as determined by the Engineer, to sustain all forces and bending moments due to handling. In the handling, storage, and transporting of beams or girders, they shall be maintained in an upright position (position as cast) at all times and shall be picked up from points within distance from beam ends equal to beam depth or at pick-up points designated on the plans. Disregard of this requirement and dropping of units may be cause for rejection, whether or not injury to the unit is apparent. Piles shall be picked up and loaded for shipment at points shown by the suspension diagram on the plans. Extreme care shall be used in handling and storing piles to prevent damage. The dropping of a pile may be cause for rejection of same, whether or not there is apparent injury to the member.

Care shall be exercised during the storage, hoisting, and handling of precast units to prevent damage. Damaged units shall be replaced by the Contractor at no additional costs to the State.

When members are stacked for storage, each layer shall be supported at or near the pick-up points. Supports shall be carefully placed in a vertical line in order that the weight of any member will not stress an underlying member. To prevent damage in moving members it is suggested that rigid supports be covered with a cushion of wood or other resilient material.

Members shall not be transported until at least one day after the concrete has reached a compressive strength of 5,000 psi or greater strength when shown on the plans.

Piles used in salt water shall not be driven until concrete is seven days old, and air-entrained concrete shall be used in such piles.

After prestressed concrete voided slab units are set, doweled and bolted in their final position the keyways and dowel holes shall be filled with an approved non-shrink grout. Traffic shall not be permitted on the spans for 24 hours after grouting, and heavy construction equipment exceeding 15 tons will not be permitted on the spans for a period of 72 hours after grouting.

Adjacent slab units that mismatch more than one-fourth inch shall be adjusted prior to grouting of the shear keys. The maximum deviation from cross-section and grade (exclusive of camber) at any point shall not exceed one-fourth inch; and when the surface is checked with a ten-foot straightedge applied both parallel and perpendicular to the centerline, the variance shall not exceed one-fourth inch.

In addition to the requirements set out in this section, the applicable requirements of Section 803 shall apply.

907-804.03.22.7--Tolerances for Accepting Precast Prestressed Concrete. Member shall meet the dimension tolerances set by Division VI of PCI Quality Control Manual, 3rd Edition.

907-804.03.22.8--Testing of Materials. The frequency of testing shall meet the requirements of Table 4 of this Special Provision, "CONTRACTOR'S MINIMUM REQUIREMENTS

FOR QUALITY CONTROL", except the minimum requirements of plastic concrete shall meet those in Division VI of PCI Quality Control Manual, 3rd Edition.

907-804.03.22.9--Testing Personnel. Technicians testing Portland cement concrete used in the production of precast-prestressed members shall be PCI Quality Control Technician/Inspector Certified. Each producer of precast-prestressed members shall have at least one PCI Level II certified technician on site during production for Department projects.

907-804.03.22.10--Documentation. The Precast-Prestressed Producer for each Precast-Prestressed concrete bridge member shall maintain documentation as set forth in Department SOPs. Testing and inspection record forms shall be approved by the Central Laboratory and as a minimum contain information listed in Division VI of PCI Quality Control Manual, 3rd Edition.

907-804.03.22.11--Use in the Work. Before any Precast-Prestressed member is incorporated into the work, documentation as described in 907-804.03.22.10 is required along with visual inspection of the member at the bridge construction site. Project Office personnel as per Department SOP will make visual inspection of the prestressed member at the bridge construction site.

907-804.04--Method of Measurement. The volume of concrete, complete and accepted, will be measured in cubic yards. In computing the volume, the neat dimensions shown on the plans will be used, except for such variations as may be ordered in writing by the Engineer. The quantity of concrete involved in fillets, scorings, and chamfers one square inch or less in cross-sectional area will be neglected. Deductions shall be made for the following:

(1) The volume of structural steel, including steel piling encased in concrete.
(2) The volume of timber piles encased in concrete, assuming the volume to be 0.80 cubic foot per linear foot of pile.
(3) The volume of concrete piles encased in concrete.
(4) Any deductions in total pay as a result of the formula shown in 907-804.02.13.1, Basis of Acceptance.

No deduction will be made for the volume of concrete displaced by steel reinforcement, floor drains, or expansion joint material that is one inch or less in width normal to the centerline of the joint. Where railing is bid as a separate item, that portion of the railing above the top of the curb, above the surface of the sidewalk, or above the bridge roadway, as the case may be, will not be included in the measurement of concrete, but will be measured as railing. Massive pylons or posts which are to be excepted from payment for railing and are intended to be measured for as concrete will be so noted on the plans.

When shown on the plans or directed by the Engineer, concrete placed as a seal for cofferdams will be measured by the cubic yard actually in place, except that no measurement will be made of seal concrete placed outside of an area bounded by vertical planes 18 inches outside the neat lines of the footing as shown on the plans or as directed and parallel thereto.

Reinforcing steel will be measured and paid for in pounds as set out in Section 805.

Unless otherwise specified, structural steel will be measured and paid for as set out in Section 810.

Excavation for bridges will be measured and paid for as in Section 801.

Piling will be measured and paid for as set out in Sections 802 and 803.

Railing will be measured and paid for as set out in Section 813.

Prestressed concrete beams and plank will be measured by the linear foot.

Prestressed concrete voided slab units (interior and exterior with railing) and precast concrete caps (intermediate and end cap with winged abutment wall) of the size and type specified will be measured by the unit complete in place and accepted. Railing, winged abutment walls, grout, tie rods, nuts, washers, bearing pads and other appurtenances will not be measured for separate payment.

907-804.05--Basis of Payment. Concrete will be paid for at the contract unit price per cubic yard for the class or classes specified, complete in place. Prestressed concrete beams and plank will be paid for at the contract unit per linear foot of specified size and type.

Prestressed concrete voided slab units and precast caps will be paid for at the contract unit price per each for the specified types and sizes, complete in place and accepted; which price shall be full compensation for furnishing, hauling and erecting the members; including all prestressing reinforcement and other reinforcement in the members. Payment at the contract unit prices bid shall be full compensation for furnishing all materials, equipment, tools, labor and incidentals necessary to complete the work.

Payment will be made under:

907-804-A: Bridge Concrete (Class ____) - per cubic yard

907-804-B: Box Bridge Concrete (Class ___) - per cubic yard

907-804-C: _____ Prestressed Concrete Beam, Type _____ - per linear foot
(Length)

907-804-D: _____ Prestressed Concrete Plank - per linear foot
(Length)

907-804-E: _____ Prestressed Concrete Voided Slab (_*_ Int.) - per each
(Length)

907-804-F: _____ Prestressed Concrete Voided Slab (_*_ Ext.) - per each
(Length)

907-804-G: _____ Precast Concrete Caps (End Unit with Wall) - per each
(Length)

907-804-H: _____ Precast Concrete Caps (Intermediate Unit) - per each
(Length)

*Description

SPECIAL PROVISION NO. 906-3

Training Special Provisions

This Training Special Provision supersedes subparagraph 7b of the Special Provision entitled "Specific Equal Employment Opportunity Responsibilities," (Attachment 1), and is in implementation of 23 U.S.C. 140(a).

As part of the Contractor's equal employment opportunity affirmative action program training shall be provided as follows:

> The Contractor shall provide on-the-job training aimed at developing full journeymen in the type of trade or job classification involved.

The number of trainees to be trained under this special provision will be as indicated in the bid schedule of the contract.

In the event that a Contractor subcontracts a portion of the contract work, he shall determine how many, if any, of the trainees are to be trained by the subcontractor, provided, however, that the Contractor shall retain the primary responsibility for meeting the training requirements imposed by this special provision. The Contractor shall also insure that this training special provision is made applicable to such subcontract. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training.

The number of trainees shall be distributed among the work classifications on the basis of the Contractor's needs and the availability of journeymen in the various classifications within a reasonable area of recruitment. Prior to commencing construction, the Contractor shall submit to the State highway agency for approval the number of trainees to be trained in each selected classification and training program to be used. Furthermore, the Contractor shall specify the starting time for training in each of the classifications. The Contractor will be credited for each trainee employed by him on the contract work who is currently enrolled or becomes enrolled in an approved program and will be reimbursed for such trainees as provided hereinafter.

Training and upgrading of minorities and women toward journeymen status is a primary objective of this Training Special Provision. Accordingly, the Contractor shall make every effort to enroll minority trainees and women (e.g., by conducting systematic and direct recruitment through public and private sources likely to yield minority and women trainees) to the extent that such persons are available within a reasonable area of recruitment. The Contractor will be responsible for demonstrating the steps that he has taken in pursuance thereof, prior to a determination as to whether the Contractor is in compliance with this Training Special Provision. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

No employee shall be employed as a trainee in any classification in which he has successfully completed a training course leading to journeyman status or in which he has been employed as a

journeyman. The Contractor should satisfy this requirement by including appropriate questions in the employee application or by other suitable means. Regardless of the method used the Contractor's records should document the findings in each case.

The minimum length and type of training for each classification will be as established in the training program selected by the Contractor and approved by the State highway agency and the Federal Highway Administration. The State highway agency and the Federal Highway Administration shall approve a program if it is reasonably calculated to meet the equal employment opportunity obligations of the Contractor and to qualify the average trainee for journeyman status in the classification concerned by the end of the training period. Furthermore, apprenticeship programs registered with the U.S. Department of Labor, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau and training programs approved but not necessarily sponsored by the U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and Training shall also be considered acceptable provided it is being administered in a manner consistent with the equal employment obligations of Federal-aid highway construction contracts. Approval or acceptance of a training program shall be obtained from the State prior to commencing work on the classification covered by the program. It is the intention of these provisions that training is to be provided in the construction crafts rather than clerk-typists or secretarial-type positions. Training is permissible in lower level management positions such as office engineers, estimators, timekeepers, etc., where the training is oriented toward construction applications. Training in the laborer classification may be permitted provided that significant and meaningful training is provided and approved by the division office. Some offsite training is permissible as long as the training is an integral part of an approved training program and does not comprise a significant part of the overall training.

Except as otherwise noted below, the Contractor will be reimbursed 80 cents per hour of training given an employee on this contract in accordance with an approved training program. As approved by the engineer, reimbursement will be made for training persons in excess of the number specified herein. This reimbursement will be made even though the Contractor receives additional training program funds from other sources, provided such other does not specifically prohibit the Contractor from receiving other reimbursement. Reimbursement for offsite training indicated above may only be made to the Contractor where he does one or more of the following and the trainees are concurrently employed on a Federal-aid project; contributes to the cost of the training, provides the instruction to the trainee or pays the trainee's wages during the offsite training period.

No payment shall be made to the Contractor if either the failure to provide the required training, or the failure to hire the trainee as a journeyman, is caused by the Contractor and evidences a lack of good faith on the part of the Contractor in meeting the requirements of this Training Special Provision. It is normally expected that a trainee will begin his training on the project as soon as feasible after start of work utilizing the skill involved and remain on the project as long as training opportunities exist in his work classification or until he has completed his training program. It is not required that all trainees be on board for the entire length of the contract. A

Contractor will have fulfilled his responsibilities under this Training Special Provision if he has provided acceptable training to the number of trainees specified. The number trained shall be determined on the basis of the total number enrolled on the contract for a significant period.

Trainees will be paid at least 60 percent of the appropriate minimum journeyman's rate specified in the contract for the first half of the training period, 75 percent for the third quarter of the training period, and 90 percent for the last quarter of the training period, unless apprentices or trainees in an approved existing program are enrolled as trainees on this project. In that case, the appropriate rates approved by the Departments of Labor or Transportation in connection with the existing program shall apply to all trainees being trained for the same classification who are covered by this Training Special Provision.

The Contractor shall furnish the trainee a copy of the program he will follow in providing the training. The Contractor shall provide each trainee with a certification showing the type and length of training satisfactorily completed.

The Contractor will provide for the maintenance of records and furnish periodic reports documenting his performance under this Training Special Provision.

SPECIAL PROVISION NO. 906-4

2000 MISSISSIPPI DEPARTMENT OF TRANSPORTATION ON-THE-JOB TRAINING PROGRAM

ALTERNATE TRAINING SPECIAL PROVISION

PURPOSE

The purpose of the On-The-Job Training (OJT) Program is to provide training for minority, female and economically disadvantaged individuals in order that they may develop marketable skills and gain journey status in the skilled craft classifications in which they are being trained.

INTRODUCTION

The Year 2000 OJT Program has been developed through the partnering efforts of the Road Builders of Mississippi, the Federal Highway Administration (FHWA) and the Mississippi Department of Transportation (MDOT).

The OJT Program has been designed for use by participating contractors and subcontractors in meeting their training needs. The objective of the OJT Program is to develop skilled workers in the skilled craft trade areas of highway construction who are sufficiently trained to be productive employees in the highway construction industry work force.

The success of the OJT Program will require that contractors and subcontractors follow uniform and basic procedures in training in keeping records of trainees' progress toward journey status, and in reporting trainees' successful completion or termination from the program.

FUNDING

MDOT will establish an annual OJT Fund in which, contractors and subcontractors may bill the Department directly for hours worked by trainees. The funding source of this money will be state and federal funds for MDOT's OJT Program, with a cap of $50,000.00.

PROCEDURE

Trainee positions will be selected by prime and sub contractors and will not be project specific. Provided below are some of the factors that will be used to establish the number of trainee positions each contracting year, they are:

- number of contracts let during a contracting year
- dollar volume
- type of project
- location
- available trainees
- training program(s) submitted by contractor

Each contractor will submit a yearly certification with regard to their participation in the OJT Program. This certification will also identify the number of trainees each prime or sub contractor intends to train on either federal or state funded highway projects.

DISBURSEMENT OF FUNDS

Contractors will be paid $3.00 rate for each hour of training performed by all trainees in an approved training program. Program reimbursements will be made directly to the prime or sub contractor. Request for payment will be submitted to the Contract Administration Office for approval.

Contractors must complete the form providing the following information to be reimbursed.

Contractor's Name
Mailing Address

Trainee Name _____

Social Security Number _____

Type of Program _____

Total Number of Training Hours Required _____

Training Hours Completed for Reimbursement _____

Type of Statement: Monthly _____ Quarterly _____ Annual _____

Work Period or Time Frame	Project Number	Total Hours Worked By Project	Cumulative Hours in Program	Number of Hours to be paid on this Voucher

I hereby certify that this information is true... (Must have customary certification of information).

Signed by: _____ Date: _____

TRAINING PROGRAM APPROVAL

A. To use the OJT Program on highway construction projects, the contractor will notify the Department Contract Administration Office using the Request for On-the-Job Training Program Approval. The notification must include the following information:

- Trainee Starting Date
- Project number (s) trainee starting on
- Training program (classification) to be used; and
- Anticipated date of trainee employment
- Number of classroom training hours by subject

B. If a contractor chooses to use a training program different from those listed in the OJT Program, or desires to train in a different classification, the training program must be submitted in its entirety for approval by the Department and FHWA. The training proposal must include the following:

1. The primary objective of the program: To provide training for minority, female and economically disadvantaged individuals for development to full journey status in the work classifications in which they are being trained.

2. The minimum number of hours and type of training the trainee will receive as it relates to each specific task required to achieve journey status.

3. Minimum wage.

4. Trainee certification of completion.

5. Records and reports submitted to the Contract Administration Office on a quarterly basis.

DEPARTMENT RESPONSIBILITY

1. Department project staff will monitor trainees on the project. They will monitor payrolls for payment of correct wage rates and fringe benefits. The Contract Administration Office will maintain a master list by contractor name, project number, trainee name and trainee social security number to aid project staff in monitoring trainees who work on multiple projects.

2. The Contract Administration Office may elect to interview trainees periodically during the training period to assess their performance and training program. To facilitate the interviews, the Contract Administration Office will contact contractors for the location of the trainees.

CONTRACTOR RESPONSIBILITY

1. Trainees must be identified on payrolls (i.e. dragline trainee).

2. The contractor will submit a quarterly report of training hours completed by trainees to the Contract Administration Office by the tenth working day of the first month of the new quarter using the Federal-Aid Highway Construction Contractors Monthly Training Report form (CAD-322). The trainee must also be provided a copy of the report.

3. When any trainee completes a program, or is terminated for a reason or reasons other than successful completion, the contractor must include the date of completion or an explanation for the termination and date of termination on the quarterly training report.

4. The contractor will assign each trainee to a particular person--either a supervisor or a journeyman/woman who is proficient in the craft the trainee is being trained in, to ensure that timely instructional experience is received by the trainee. This person, cooperating with the appropriate company personnel, will see that proper

records and the total intended training hours are completed during the allocated number of hours set up in the classification criteria.

5. The contractor has the prerogative of terminating the training period of the trainee and advancing the trainee to journey status. Approval requests must be submitted to the Contract Administration Office with an explanation (***refer to 2 above***).

6. Upon notification from the contractor, the Department will issue a certificate of completion to the trainee.

7. Trainees may be transferred to state-aid highway construction projects in order to complete the training program. If transfers are made the Contract Administration Office must be notified on the Quarterly Reporting Form. All of the training hours completed by trainees will count toward overall program completion.

8. Program reimbursements will be made directly to the prime or sub contractor.

CLASSROOM TRAINING

1. Classroom training programs must be pre-approved by the Department, if the contractor wishes to count the hours toward the trainee's training program.

2. Contractors will be reimbursed for classroom training hours after the trainee has completed 20 hours of work on a highway construction project.

3. Reimbursement for classroom training will be limited to 40 hours per trainee per construction season.

- ***NOTE:*** All proposed classroom training must be submitted as part of the trainee's OJT training program.

WAGE RATE

1. The wage rate for all trainees is $5.15, during their OJT training program. Trainees shall be paid full fringe benefit amounts, where applicable. At the completion of the training program, the trainee shall receive the wages of a skilled journey.

2. For the purpose of this training program, a quarter does not represent three months. The first two quarters of a 500-hour training program would end after 250 hours. On a 750-hour training program, the first two quarters would end after 375 hours, the third quarter after 560 or an additional 186 hours or work and the fourth after 750 hours.

JOURNEY WORKER RATIO

The ratio of trainee to journey will be less than 1:4 and not more than 1:10.

RECRUITMENT AND SELECTION PROCEDURES

A. Prerequisites for Trainees

To be qualified for enrollment in the OJT Program, trainees must possess basic physical fitness for the work to be performed, dependability, willingness to learn and ability to follow instructions.

B. Licenses

Truck driver trainees must possess appropriate driver permits or licenses for the operation of Class A, B and C trucks. However, when an instructional permit is used in lieu of a license, the trainee must be accompanied by an operator who:

1. Holds a license corresponding to the vehicle being operated;

2. Has had at least one year of driving experience; and

3. Is occupying the seat next to the driver.

C. Recruitment

1. Notices and posters setting forth the contractor's Equal Employment Opportunity Policy and availability of training programs will be placed in areas readily accessible to employees, applicants for employment and potential employees.

2. The contractor must target minority, female or economically disadvantaged trainees.

3. The contractor will conduct systematic and direct recruitment through public and private employee referral sources. Contractors must submit the trainee's name and completed application form to the Contact Administration Office for review and approval. Approval must be obtained before the trainee can begin work under the training program.

4. Present employees will be screened for upgrading.

D. Selection

1. The selection and employment of a person by participating contractor shall qualify the person for the OJT Program.

2. Selection will be made without regard to race, color, religion, sex, age or national origin and shall be completely nondiscriminatory.

3. Employment of trainees will be in accordance with the work force requirements of the contractor. Each contractor will hire and train the trainees for uses in their own organization.

4. Written certification of individuals under the category of economically disadvantaged can be provided to the contractor at the time of the interview. This certification must then be provided to the Contract Administration Office with the other required information as part of the approval process for trainees.

- ***NOTE:*** The OJT Program is to provide training for minority, female and economically disadvantaged individuals in order that they may develop marketable skills and gain journey status in the skilled craft classifications in which they are being trained. However, this program does not exclude trainees that are not members of the above groups.

S E C T I O N 9 0 5 - P R O P O S A L

Date _____

Mississippi Transportation Commission
Jackson, Mississippi

Sirs: The following proposal is made on behalf of _____
_____ of _____
_____
for constructing the following designated project(s) within the time(s) hereinafter specified.

The plans are composed of drawings and blue prints on file in the offices of the Mississippi Department of Transportation, Jackson, Mississippi.

The Specifications are the current Standard Specifications and Supplemental Specifications of the Mississippi Department of Transportation approved by the Federal Highway Administration, except where superseded or amended by the plans, Special Provisions and Notice(s) to Bidders attached hereto and made a part thereof.

I (We) certify that I (we) possess a copy of said Standard and Supplemental Specifications.

Evidence of my (our) authority to submit the Proposal is hereby furnished. The proposal is made without collusion on the part of any person, firm or corporation. I (We) certify that I (we) have carefully examined the Plans, the Specifications, including the Special Provisions and Notice(s) to Bidders, herein, and have personally examined the site of the work. On the basis of the Specifications, Special Provisions, Notice(s) to Bidders, and Plans, I (we) propose to furnish all necessary machinery, tools, apparatus and other means of construction and do all the work and furnish all the materials in the manner specified. I (We) understand that the quantities mentioned herein are approximate only and are subject to either increase or decrease, and hereby propose to perform any increased or decreased quantities of work at the unit prices bid, in accordance with the above.

Attached hereto is a certified check, cashier's check or Proposal Guaranty Bond in the amount as required in the Advertisement (or, by law).

INSTRUCTION TO BIDDERS: Alternate and Optional Items on Bid Schedule.

1. Two or more items entered opposite a single unit quantity WITHOUT DEFINITE DESIGNATION AS "ALTERNATE ITEMS" are considered as "OPTIONAL ITEMS". Bidders may or may not indicate on bids the Optional Item proposed to be furnished or performed WITHOUT PREJUDICE IN REGARD TO IRREGULARITY OF BIDS.

2. Items classified on the bid schedule as "ALTERNATE ITEMS" and/or "ALTERNATE TYPES OF CONSTRUCTION" must be preselected and indicated on bids. However, "Alternate Types of Construction" may include Optional Items to be treated as set out in Paragraph 1, above.

3. Optional items not preselected and indicated on the bid schedule MUST be designated in accordance with Subsection 907-102.06 prior to or at the time of execution of the contract.

4. Optional and Alternate items designated must be used throughout the project.

I (We) further propose to perform all "force account or extra work" that may be required of me (us) on the basis provided in the Specifications and to give such work my (our) personal attention in order to see that it is economically performed.

S E C T I O N 9 0 5 -- P R O P O S A L (CONTINUED)

I (We) further propose to execute the attached contract agreement (Section 902) as soon as the work is awarded to me (us), and to begin and complete the work within the time limit(s) provided for in the Specifications and Advertisement. I (We) also propose to execute the attached contract bond (Section 903) in an amount not less than one hundred (100) percent of the total of my (our) part, but also to guarantee the excellence of both workmanship and materials until the work is finally accepted.

I (We) enclose a certified check, cashier's check or bid bond for **five percent (5%) of total bid** and hereby agree that in case of my (our) failure to execute the contract and furnish bond within Ten (10) days after notice of award, the amount of this check (bid bond) will be forfeited to the State of Mississippi as liquidated damages arising out of my (our) failure to execute the contract as proposed. It is understood that in case I am (we are) not awarded the work, the check will be returned as provided in the Specifications.

Bidder acknowledges receipt of and has added to and made a part of the proposal and contract documents the following addendum (addenda):

ADDENDUM NO. _____ DATED _____ ADDENDUM NO. _____ DATED _____
ADDENDUM NO. _____ DATED _____ ADDENDUM NO. _____ DATED _____

TOTAL ADDENDA: _____
(Must agree with total addenda issued prior to opening of bids)

Respectfully submitted, _____
Contractor

BY _____

TITLE _____

ADDRESS _____

Date _____, _____

(To be filled in if a corporation.)

Our corporation is chartered under the Laws of the State of _____ and the names, titles and business addresses of the executives are as follows:

_____
President Address

_____
Secretary Address

_____
Treasurer Address

The following is my (our) itemized proposal.

SECTION 905

PROPOSAL (Sheet No. 2- 1)

CONSTRUCTION NCESSARY TO IMPROVE THE PARKING LOT & DRIVE FOR THE STADIUM & LAB COMPLEX, KNOWN AS STATE PROJECT NO. BWO-9001-25(009) / 501464, IN THE COUNTY OF HINDS, STATE OF MISSISSIPPI.

I (We) agree to complete the entire project within the specified contract time.

*** SPECIAL NOTICE TO BIDDERS ***

BIDS WILL NOT BE CONSIDERED UNLESS BOTH UNIT PRICES AND ITEM TOTALS ARE ENTERED

BIDS WILL NOT BE CONSIDERED UNLESS THE BID CERTIFICATE LOCATED AT THE END OF THE BID SHEETS IS SIGNED

BID SCHEDULE

REF. NO.	PAY ITEM NO.	ADJ. CODE	APPROX. QUANTITY	UNIT	DESCRIPTION	UNIT PRICE DOLLAR	UNIT PRICE CENT	ITEM TOTAL DOLLAR	ITEM TOTAL CENT
					DIRECT PAY ITEMS				
(10)	201-B		2	acre	Clearing and Grubbing				
(20)	202-A			lump sum	Removal of Obstructions	XXXXXXXXXXX XXXXXXXXXXX XXXXXXXXXXX XXXXXXXXXXX	XXXX XXXX XXXX XXXX		
(30)	202-B		1,731	linear foot	Removal of Curb & Gutter (All Types)				
(40)	202-B		5	each	Removal of Inlets (All Sizes)				

REF. NO.	PAY ITEM NO.	ADJ. CODE	APPROX. QUANTITY	UNIT	DESCRIPTION	UNIT PRICE DOLLAR	UNIT PRICE CENT	ITEM TOTAL DOLLAR	ITEM TOTAL CENT
(50)	202-B		3,104	square yard	Removal of Asphalt Pavement (All Depths)				
(60)	202-B		118	linear foot	Removal of Hand Rail				
(70)	202-B		229	linear foot	Removal of Pipe (8" And Above)				
(80)	202-B		8	each	Removal of Trees 10" to 20"				
(90)	907-203-A	(E)	2,940	cubic yard	Unclassified Excavation (FM) (AH)				
(100)	907-203-EX	(E)	8,024	cubic yard	Borrow Excavation (AH)(LVM) (Class B15)				
(110)	203-G	(E)	9,305	cubic yard	Excess Excavation (FM)				

REF. NO.	PAY ITEM NO.	ADJ. CODE	APPROX. QUANTITY	UNIT	DESCRIPTION	UNIT PRICE DOLLAR	UNIT PRICE CENT	ITEM TOTAL DOLLAR	ITEM TOTAL CENT
(120)	211-B	(E)	2,478	cubic yard	Topsoil for Slope Treatment (Contractor Furnished) (LVM)				
(130)	211-C	(E)	9	cubic yard	Topsoil for Plant Holes (Contractor Furnished) (LVM)				
(140)	211-D	(E)	254	cubic yard	Topsoil for Plant Pits (Contractor Furnished) (LVM)				
(150)	212-B		3,609	square yard	Standard Ground Preparation				
(160)	907-213-A		1	ton	Agricultural Limestone				
(170)	213-B		1	ton	Combination Fertilizer (13-13-13)				
(180)	213-B		1	ton	Combination Fertilizer (8-8-8)				

REF. NO.	PAY ITEM NO.	ADJ. CODE	APPROX. QUANTITY	UNIT	DESCRIPTION	UNIT PRICE DOLLAR	UNIT PRICE CENT	ITEM TOTAL DOLLAR	ITEM TOTAL CENT
(190)	213-C		1	ton	Superphosphate				
(200)	213-D		1	ton	Ammonium Nitrate				
(210)	214-A		30	pound	Seeding (Bermudagrass)				
(220)	214-A		30	pound	Seeding (Annual Ryegrass)				
(230)	215-A		3	ton	Vegetative Materials for Mulch				
(240)	216-B		1,102	square yard	Solid Sodding (Bermuda)				
(250)	230-A		110	each	Shrub Planting (Jack Evans Indian Hawthorn)				

REF. NO.	PAY ITEM NO.	ADJ. CODE	APPROX. QUANTITY	UNIT	DESCRIPTION	UNIT PRICE DOLLAR	UNIT PRICE CENT	ITEM TOTAL DOLLAR	ITEM TOTAL CENT
(260)	230-A		70	each	Shrub Planting (Carissa Holly)				
(270)	230-A		18	each	Shrub Planting (Burgundy Loropetalum)				
(280)	230-A		148	each	Shrub Planting (Dwarf Burford Holly)				
(290)	230-A		66	each	Shrub Planting (Snow Kurume Azalea)				
(300)	230-A		2,275	each	Shrub Planting (Majestic Liriope)				
(310)	230-B		16	each	Tree Planting (Chinese Elm)				
(320)	230-B		31	each	Tree Planting (Eastern Red Oak)				

REF. NO.	PAY ITEM NO.	ADJ. CODE	APPROX. QUANTITY	UNIT	DESCRIPTION	UNIT PRICE DOLLAR	UNIT PRICE CENT	ITEM TOTAL DOLLAR	ITEM TOTAL CENT
(330)	230-B		5	each	Tree Planting (Bald Cypress)				
(340)	230-B		7	each	Tree Planting (Willow Oak)				
(350)	907-230-C		205	linear foot	Bed Edging				
(360)	907-230-D		4,578	square foot	Bed Preparation				
(370)	907-230-E		127	cubic yard	Type V Mulch				
(380)	232-A		1	M	Fertilizer for Woody Plant Material (Tablet) (21 gram)				
(390)	232-A		2	M	Fertilizer for Woody Plant Material (Tablet) (10 gram)				

REF. NO.	PAY ITEM NO.	ADJ. CODE	APPROX. QUANTITY	UNIT	DESCRIPTION	UNIT PRICE DOLLAR	UNIT PRICE CENT	ITEM TOTAL DOLLAR	ITEM TOTAL CENT
(400)	233-A		68	cubic yard	Tree Bark Mulch (Type I)				
(410)	907-234-A		1,500	linear foot	Temporary Silt Fence				
(420)	907-234-C		509	linear foot	Temporary Tree Protection Fencing				
(430)	907-242-A			lump sum	Electrical Work	XXXXXXXXXXX XXXXXXXXXXX XXXXXXXXXXX XXXXXXXXXXX	XXXX XXXX XXXX XXXX		
(440)	907-243-A		14	each	Landscape Mowing				
(450)	907-258-PP		2	each	Bollards (Per Plans)				
(460)	907-282-A		17	each	Sprinkler Head (6412-ADV-15H)				

REF. NO.	PAY ITEM NO.	ADJ. CODE	APPROX. QUANTITY	UNIT	DESCRIPTION	UNIT PRICE DOLLAR	UNIT PRICE CENT	ITEM TOTAL DOLLAR	ITEM TOTAL CENT
(470)	907-282-A		18	each	Sprinkler Head (6412-ADV-15Q)				
(480)	907-282-A		2	each	Sprinkler Head (6404-ADV-15H)				
(490)	907-282-A		8	each	Sprinkler Head (6404-ADV-15Q)				
(500)	907-282-A		39	each	Sprinkler Head (6412-ADV-EST)				
(510)	907-282-A		20	each	Sprinkler Head (6412-ADV-SST)				
(520)	907-282-A		6	each	Sprinkler Head (6404-ADV-EST)				
(530)	907-282-A		10	each	Sprinkler Head (6404-ADV-SST)				

REF. NO.	PAY ITEM NO.	ADJ. CODE	APPROX. QUANTITY	UNIT	DESCRIPTION	UNIT PRICE DOLLAR	UNIT PRICE CENT	ITEM TOTAL DOLLAR	ITEM TOTAL CENT
(540)	907-282-A		36	each	Sprinkler Head (6412-ADV-10H)				
(550)	907-282-A		8	each	Sprinkler Head (6412-ADV-10Q)				
(560)	907-282-A		15	each	Sprinkler Head (6404-ADV-10H)				
(570)	907-282-A		8	each	Sprinkler Head (6404-ADV-10Q)				
(580)	907-282-A		3	each	Sprinkler Head (6002-7)				
(590)	907-282-A		25	each	Sprinkler Head (6002-6)				
(600)	907-282-A		6	each	Sprinkler Head (6002-5)				

REF. NO.	PAY ITEM NO.	ADJ. CODE	APPROX. QUANTITY	UNIT	DESCRIPTION	UNIT PRICE DOLLAR	UNIT PRICE CENT	ITEM TOTAL DOLLAR	ITEM TOTAL CENT
(610)	907-282-B		1,167	linear foot	Piping (1/2" Diameter)				
(620)	907-282-B		1,033	linear foot	Piping (3/4" Diameter)				
(630)	907-282-B		254	linear foot	Piping (1" Diameter)				
(640)	907-282-B		119	linear foot	Piping (1 1/4" Diameter)				
(650)	907-282-B		47	linear foot	Piping (1 1/2" Diameter)				
(660)	907-282-B		564	linear foot	Piping (2" Diameter)				
(670)	907-282-C		201	linear foot	Sleeves (6" Diameter)				

REF. NO.	PAY ITEM NO.	ADJ. CODE	APPROX. QUANTITY	UNIT	DESCRIPTION	UNIT PRICE DOLLAR	UNIT PRICE CENT	ITEM TOTAL DOLLAR	ITEM TOTAL CENT
(680)	907-282-D		2,202	linear foot	Valve Control Wire				
(690)	907-282-E		5,229	linear foot	Trench Excavation and Backfill				
(700)	907-282-G		1	each	Electric Controller (12 Station)				
(710)	907-282-H		5	each	Electric Control Globe Valve (1")				
(720)	907-282-H		6	each	Electric Control Globe Valve (1 1/2")				
(730)	907-282-J		3	each	Isolation Valve (2 1/2")				
(740)	907-282-K		2	each	Quick Coupler Valve With Key In Box				

REF. NO.	PAY ITEM NO.	ADJ. CODE	APPROX. QUANTITY	UNIT	DESCRIPTION	UNIT PRICE DOLLAR	UNIT PRICE CENT	ITEM TOTAL DOLLAR	ITEM TOTAL CENT
(750)	907-288-A		9,923	square yard	Site Grading				
(760)	907-304-H	(GY)	1,353	cubic yard	3/4" and Down Crushed Stone (LVM)				
(770)	907-403-A	(B) (A1)	599	ton	Hot Mix Asphalt, ST, 12.5-mm mixture				
(780)	907-403-A	(B) (A1)	898	ton	Hot Mix Asphalt, ST, 19-mm mixture				
(790)	907-409-A		5,441	square yard	Geotextile Fabric (Underseal) (Type V)				
(800)	601-B	(S)	60	cubic yard	Class "B" Structural Concrete, Minor Structures				
(810)	602-A	(S)	9,278	pound	Reinforcing Steel				

REF. NO.	PAY ITEM NO.	ADJ. CODE	APPROX. QUANTITY	UNIT	DESCRIPTION	UNIT PRICE DOLLAR	UNIT PRICE CENT	ITEM TOTAL DOLLAR	ITEM TOTAL CENT
(820)	603-C-A		264	linear foot	12" Reinforced Concrete Pipe, Class III				
(830)	603-C-A	(S)	311	linear foot	15" Reinforced Concrete Pipe, Class III				
(840)	603-C-A	(S)	162	linear foot	18" Reinforced Concrete Pipe, Class III				
(850)	604-A		2,186	pound	Castings				
(860)	907-604-C		7	linear foot	Precast Manhole (48" Diameter)				
(870)	907-607-B		618	linear foot	72" Type I Chain Link Fence (Class I) (With Top Arm And Barbed Wire) (Dark Green Color)				
(880)	907-607-G		1	each	Gate 6' x 6' Chain Link (With Barbed Wire) (Dark Green Color)				

REF. NO.	PAY ITEM NO.	ADJ. CODE	APPROX. QUANTITY	UNIT	DESCRIPTION	UNIT PRICE DOLLAR	UNIT PRICE CENT	ITEM TOTAL DOLLAR	ITEM TOTAL CENT
(890)	907-607-G		1	each	Gate 6' x 24' Heavy Duty Cantilever Slide (With Barbed Wire) (Dark Green Color)				
(900)	907-607-G		1	each	Gate 6' x 26' Heavy Duty Cantilever Slide (With Barbed Wire) (Dark Green Color)				
(910)	907-607-G		1	each	Gate 6' x 34' Heavy Duty Cantilever Slide (With Barbed Wire) (Dark Green Color)				
(920)	609-D	(S)	2,846	linear foot	Combination Concrete Curb and Gutter Type 1				
(930)	613-E		2	each	Adjustment of Existing Curb Inlet				
(940)	613-E		1	each	Adjustment of Manhole				
(950)	619-G4		12	linear foot	Barricades (Type III) (Double Faced)				

REF. NO.	PAY ITEM NO.	ADJ. CODE	APPROX. QUANTITY	UNIT	DESCRIPTION	UNIT PRICE DOLLAR	UNIT PRICE CENT	ITEM TOTAL DOLLAR	ITEM TOTAL CENT
(960)	907-625-C		805	linear foot	Traffic Stripe (Continuous White)				
(970)	907-626-GG		291	linear foot	Thermoplastic Detail Stripe (6" Equivalent Length)(White)(90 mil.min.)				
(980)	907-626-GG		686	linear foot	Thermoplastic Detail Stripe (6" Equivalent Length)(Yellow)(90 mil.min.)				
(990)	907-626-H		384	square foot	Thermoplastic Legend (White)(120 mil. min.)				
(1000)	630-A		63	square foot	Standard Roadside Signs (Sheet Aluminum, 0.125" Thickness)				
(1010)	630-C		85	linear foot	Steel U-Section Posts (3.0 to 3.5 lb/ft)				
(1020)	907-679-R			lump sum	Relocation of Existing Telephone Pole (Per Plans)	XXXXXXXXXX XXXXXXXXXX XXXXXXXXXX XXXXXXXXXX	XXXX XXXX XXXX XXXX		

REF. NO.	PAY ITEM NO.	ADJ. CODE	APPROX. QUANTITY	UNIT	DESCRIPTION	UNIT PRICE DOLLAR	UNIT PRICE CENT	ITEM TOTAL DOLLAR	ITEM TOTAL CENT

SUBTOTAL - DIRECT PAY ITEMS.....$

DEPENDENT PAY ITEMS

(1030)	618-A		lump sum		Maintenance of Traffic	XXXXXXXXXXX XXXXXXXXXXX XXXXXXXXXXX XXXXXXXXXXX	XXXX XXXX XXXX XXXX		
(1040)	620-A		lump sum		Mobilization	XXXXXXXXXXX XXXXXXXXXXX XXXXXXXXXXX XXXXXXXXXXX	XXXX XXXX XXXX XXXX		
(1050)	907-699-A		lump sum		Roadway Construction Stakes	XXXXXXXXXXX XXXXXXXXXXX XXXXXXXXXXX XXXXXXXXXXX	XXXX XXXX XXXX XXXX		

SUBTOTAL - DEPENDENT ITEMS.....$

TOTAL BID - DIRECT AND DEPENDENT ITEMS.....$_____

*** SIGNATURE STATEMENT ***

BIDDER ACKNOWLEDGES THAT HE/SHE HAS CHECKED ALL ITEMS IN THIS PROPOSAL FOR ACCURACY AND CERTIFIED THAT THE FIGURES SHOWN THEREIN CONSTITUTE THEIR OFFICIAL BID.

_____
BIDDER'S SIGNATURE

CONDITIONS FOR COMBINATION BID

If a bidder elects to submit a combined bid for two or more of the contracts listed for this month's letting, the bidder must complete and execute these sheets of the proposal in each of the individual proposals to constitute a combination bid. In addition to this requirement, each individual contract shall be completed, executed and submitted in the usual specified manner.

Failure to execute this Combination Bid Proposal in each of the contracts combined will be just cause for each proposal to be received and evaluated as a separate bid.

* *

COMBINATION BID PROPOSAL

I. This proposal is tendered as one part of a Combination Bid Proposal utilizing option ____* of Subsection 102.11 on the following contracts:

* Option to be shown as either (a), (b), or (c).

	Project No.	County		Project No.	County
1.	____________	____________	6.	____________	____________
2.	____________	____________	7.	____________	____________
3.	____________	____________	8.	____________	____________
4.	____________	____________	9.	____________	____________
5.	____________	____________	10.	____________	____________

A. If option (a) has been selected, then go to II, and sign Combination Bid Proposal.

B. If option (b) has been selected, then complete the following, go to II, and sign Combination Bid Proposal.

Project Number	Pay Item Number	Unit	Unit Price Reduction	Total Item Reduction	Total Contract Reduction
1. _____	_____ _____	_____ _____	_____ _____	_____ _____	
2. _____	_____ _____	_____ _____	_____ _____	_____ _____	
3. _____	_____ _____	_____ _____	_____ _____	_____ _____	
4. _____	_____ _____	_____ _____	_____ _____	_____ _____	
5. _____	_____ _____	_____ _____	_____ _____	_____ _____	
6. _____	_____ _____	_____ _____	_____ _____	_____ _____	
7. _____	_____ _____	_____ _____	_____ _____	_____ _____	
8. _____	_____ _____	_____ _____	_____ _____	_____ _____	

Project Number	Pay Item Number	Unit	Unit Price Reduction	Total Item Reduction	Total Contract Reduction
9. _____	_____ _____	_____ _____	_____ _____	_____ _____	
10. _____	_____ _____	_____ _____	_____ _____	_____ _____	

C. If option (c) has been selected, then initial and complete one of the following, go to II. and sign Combination Bid Proposal.

_____ I (We) desire to be awarded work not to exceed a total monetary value of $ _____.

_____ I (We) desire to be awarded work not to exceed _____ number of contracts.

II. It is understood that the Mississippi Transportation Commission not only reserves the right to reject any and all proposals, but also the right to award contracts upon the basis of lowest separate bids or combination bids most advantageous to the State.

It is further understood and agreed that the Combination Bid Proposal is for comparison of bids only and that each contract shall operate in every respect as a separate contract in accordance with its proposal and contract documents.

I (We), the undersigned, agree to complete each contract on or before its specified completion date.

SIGNED _____

_____

_____

TO: EXECUTIVE DIRECTOR, MISSISSIPPI DEPARTMENT OF TRANSPORTATION
JACKSON, MISSISSIPPI

CERTIFICATE

If awarded this contract, I (we) contemplate that portions of the contract will be sublet. I (we) certify that those subcontracts which are equal to or in excess of fifty thousand dollars ($50,000.00) will be in accordance with regulations promulgated and adopted by the Mississippi State Board of Contractors on January 13, 1999.

I (we) agree that this notification of intent DOES NOT constitute APPROVAL of the subcontracts.

NOTE: Insert name and address of subcontractors. (Subcontracts equal to or in excess of fifty thousand dollars ($50,000.00) ONLY.)

_____	_____
(Individual or Firm)	(Address)
_____	_____
(Individual or Firm)	(Address)
_____	_____
(Individual or Firm)	(Address)
_____	_____
(Individual or Firm)	(Address)

NOTE: Failure to complete the above DOES NOT preclude subsequent subcontracts. Subsequent subcontracts, if any, equal to or in excess of fifty thousand dollars ($50,000.00) will be in accordance with regulations promulgated and adopted by the Mississippi State Board of Contractors on January 13, 1999.

Contractor _____

By _____

Title _____

CERTIFICATE MUST BE EXECUTED

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

CERTIFICATION
(Execute in duplicate)

State of Mississippi

County of _____

I,_____,
(Name of person signing certification)

individually, and in my capacity as _____ of
(Title)

_____ do hereby certify under
(Name of Firm, Partnership, or Corporation)

penalty of perjury under the laws of the United States and the State of Mississippi that

_____, Bidder
(Name of Firm, Partnership, or Corporation)

on Project No. _____,

in_____ Count ____, Mississippi, has not either directly or indirectly entered into any agreement, participated in any collusion; or otherwise taken any action in restraint of free competitive bidding in connection with this contract; nor have any of its corporate officers or principal owners.

Except as noted hereafter, it is further certified that said legal entity and its corporate officers, principal owners, managers, auditors and others in a position of administering federal funds are not currently under suspension, debarment, voluntary exclusion or determination of ineligibility; nor have a debarment pending; nor been suspended, debarred, voluntarily excluded or determined ineligible within the past three years by the Mississippi Transportation Commission, the State of Mississippi, any other State or a federal agency; nor been indicted, convicted or had a civil judgment rendered by a court of competent jurisdiction in any matter involving fraud or official misconduct within the past three years.

Initial here "_____" if exceptions are attached and made a part thereof. Any exceptions shall address to whom it applies, initiating agency and dates of such action.

Note: Exceptions will not necessarily result in denial of award but will be considered in determining bidder responsibility. Providing false information may result in criminal prosecution or administrative sanctions.

All of the foregoing and attachments (when indicated) is true and correct.

Executed on _____ _____
Signature

(11/23/92S)

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

CERTIFICATION
(Execute in duplicate)

State of Mississippi

County of _____

I,_____,
(Name of person signing certification)

individually, and in my capacity as _____ of
(Title)

_____ do hereby certify under
(Name of Firm, Partnership, or Corporation)

penalty of perjury under the laws of the United States and the State of Mississippi that

_____, Bidder
(Name of Firm, Partnership, or Corporation)

on Project No. _____,

in_____ Count ____, Mississippi, has not either directly or indirectly entered into any agreement, participated in any collusion; or otherwise taken any action in restraint of free competitive bidding in connection with this contract; nor have any of its corporate officers or principal owners.

Except as noted hereafter, it is further certified that said legal entity and its corporate officers, principal owners, managers, auditors and others in a position of administering federal funds are not currently under suspension, debarment, voluntary exclusion or determination of ineligibility; nor have a debarment pending; nor been suspended, debarred, voluntarily excluded or determined ineligible within the past three years by the Mississippi Transportation Commission, the State of Mississippi, any other State or a federal agency; nor been indicted, convicted or had a civil judgment rendered by a court of competent jurisdiction in any matter involving fraud or official misconduct within the past three years.

Initial here "_____" if exceptions are attached and made a part thereof. Any exceptions shall address to whom it applies, initiating agency and dates of such action.

Note: Exceptions will not necessarily result in denial of award but will be considered in determining bidder responsibility. Providing false information may result in criminal prosecution or administrative sanctions.

All of the foregoing and attachments (when indicated) is true and correct.

Executed on _____ _____
Signature

(11/23/92S)

S E C T I O N 9 0 2

CONTRACT FOR _____

LOCATED IN THE COUNTY OF _____

STATE OF MISSISSIPPI,

COUNTY OF HINDS

This contract entered into by and between the Mississippi Transportation Commission on one hand, and the undersigned contractor, on the other witnesseth;

That, in consideration of the payment by the Mississippi Transportation Commission of the prices set out in the proposal hereto attached, to the undersigned contractor, such payment to be made in the manner and at the time of times specified in the specifications and the special provisions, if any, the undersigned contractor hereby agrees to accept the prices stated in the proposal in full compensation for the furnishing of all materials and equipment and the executing of all the work contemplated in this contract.

It is understood and agreed that the advertising according to law, the Advertisement, the instructions to bidders, the proposal for the contract, the specifications, the revisions of the specifications, the special provisions, and also the plans for the work herein contemplated, said plans showing more particularly the details of the work to be done, shall be held to be, and are hereby made a part of this contract by specific reference thereto and with like effect as if each and all of said instruments had been set out fully herein in words and figures.

It is further agreed that for the same consideration the undersigned contractor shall be responsible for all loss or damage arising out of the nature of the work aforesaid; or from the action of the elements and unforeseen obstructions or difficulties which may be encountered in the prosecution of the same and for all risks of every description connected with the work, exceptions being those specifically set out in the contract; and for faithfully completing the whole work in good and workmanlike manner according to the approved Plans, Specifications, Special Provisions, Notice(s) to Bidders and requirements of the Mississippi Department of Transportation.

It is further agreed that the work shall be done under the direct supervision and to the complete satisfaction of the Executive Director of the Mississippi Department of Transportation, or his authorized representatives, and when Federal Funds are involved subject to inspection at all times and approval by the Federal Highway Administration, or its agents as the case may be, or the agents of any other Agency whose funds are involved in accordance with those Acts of the Legislature of the State of Mississippi approved by the Governor and such rules and regulations issued pursuant thereto by the Mississippi Transportation Commission and the authorized Federal Agencies.

The Contractor agrees that all labor as outlined in the Special Provisions may be secured from list furnished by

It is agreed and understood that each and every provision of law and clause required by law to be inserted in this contract shall be deemed to be inserted herein and this contract shall be read and enforced as though it were included herein, and, if through mere mistake or otherwise any such provision is not inserted, then upon the application of either party hereto, the contract shall forthwith be physically amended to make such insertion.

The Contractor agrees that he has read each and every clause of this Contract, and fully understands the meaning of same and that he will comply with all the terms, covenants and agreements therein set forth.

Witness our signatures this the _____ day of _____, _____.

_____
Contractor (s)

By _____ MISSISSIPPI TRANSPORTATION COMMISSION

Title _____ By _____
Signed and sealed in the presence of: Executive Director
(names and addresses of witnesses)

_____ _____
Secretary to the Commission

Award authorized by the Mississippi Transportation Commission in session on the ____ day of _____, _____, Minute Book No. _____, Page No. _____.

Revised 8/06/2003

S E C T I O N 9 0 3

CONTRACT BOND FOR: _____

LOCATED IN THE COUNTY OF: _____

STATE OF MISSISSIPPI,

COUNTY OF HINDS

Know all men by these presents: that we, _____

_____ Principal, a _____

residing at _____ in the State of _____

and _____

residing at _____ in the State of _____,

authorized to do business in the State of Mississippi, under the laws thereof, as surety, are held and firmly bound unto the State of Mississippi in the sum of _____

_____

($_____) Dollars, lawful money of the United States of America, to be paid to it for which payment well and truly to be made, we bind ourselves, our heirs, administrators, successors, or assigns jointly and severally by these presents.

Signed and sealed this the _____ day of _____ A.D. _____.

The conditions of this bond are such, that whereas the said _____

_____

principal, has (have) entered into a contract with the Mississippi Transportation Commission, bearing the date of ____ day of _____ A.D. _____ hereto annexed, for the construction of certain highways in the State of Mississippi as mentioned in said contract in accordance with the plans, specifications and special provisions therefor, on file in the offices of the Mississippi Department of Transportation, Jackson, Mississippi.

Now therefore, if the above bounden _____

_____ in all things shall stand to and abide by and well and truly observe, do keep and perform all and singular the terms, covenants, conditions, guarantees and agreements in said contract, contained on his (their) part to be observed, done, kept and performed and each of them, at the time and in the manner and form and furnish all of the material and equipment specified in said contract in strict accordance with the terms of said contract which said plans, specifications and special provisions are included in and form a part of said contract and shall maintain the said work contemplated until its final completion and acceptance as specified in Subsection 109.11 of the approved specifications, and save harmless said Mississippi Transportation Commission from any loss or damage arising out of or occasioned by the negligence, wrongful or criminal act, overcharge, fraud, or any other loss or damage whatsoever, on the part of said principal (s), his (their) agents, servants, or employees in the performance of said work or in any manner connected therewith, and shall be liable and responsible in a civil action instituted by the State at the instance of the Mississippi Transportation Commission or any officer of the State authorized in such cases, for double any amount in money or property, the State may lose or be overcharged or otherwise defrauded of, by reason of wrongful or criminal act, if any, of the Contractor(s), his (their) agents or employees, and shall promptly pay the said agents, servants and employees and all persons furnishing labor, material, equipment or supplies therefor, including premiums incurred, for Surety Bonds, Liability Insurance, and Workmen's Compensation Insurance; with the additional obligation that such Contractor shall promptly make payment of all taxes,

SECTION 903 - CONTINUED

licenses, assessments, contributions, damages, any liquidated damages which may arise prior to any termination of said principal's contract, any liquidated damages which may arise after termination of the said principal's contract due to default on the part of said principal, penalties and interest thereon, when and as the same may be due this state, or any county, municipality, board, department, commission or political subdivision: in the course of the performance of said work and in accordance with Sections 31-5-51 et seq. Mississippi Code of 1972, and other State statutes applicable thereto, and shall carry out to the letter and to the satisfaction of the Executive Director of the Mississippi Department of Transportation, all, each and every one of the stipulations, obligations, conditions, covenants and agreements and terms of said contract in accordance with the terms thereof and all of the expense and cost and attorney's fee that may be incurred in the enforcement of the performance of said contract, or in the enforcement of the conditions and obligations of this bond, then this obligation shall be null and void, otherwise to be and remain in full force and virtue.

Witness our signatures and seals this the _____ day of _____ A.D. _____.

_____ _____

(Contractors) Principal Surety

By _____ By _____

(Signature) Attorney in Fact

_____

Title _____ _____

(Contractor's Seal) (Name and address of local (Mississippi) representative.)

(Surety Seal)

Revised 1/18/2000

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

HAUL PERMIT FOR BRIDGES

WITH

POSTED LOAD LIMITS

DATE: _____

PROJECT: BWO-9001-25(009) / 501464

COUNTY: HINDS COUNTY

LOCATION: CENTRAL MAINTENANCE FACILITY IN HINDS COUNTY

A permit is issued to _____ for transporting loads exceeding the posted limit for any such bridge located on State designated routes within the project termini provided that such transport vehicles comply with all other governing statutory load limits.

This permit is valid on all State designated routes from the point of origin to the point of delivery for materials and equipment utilized in construction of said project and also valid for sub-contractors and vendors upon written permission of the Contractor. The permit is non-transferable and no other haul permit for posted bridges will be issued to other individuals, vendors, or companies for construction of this project.

A copy of this signed permit shall be carried in all vehicles operating under the authority of this permit and also a copy of the Contractor's written permission when the vehicle is other than Contractor owned.

In accordance with State law, the above named Contractor will be liable for damages directly attributable to vehicles operating under this permit.

_____

EXECUTIVE DIRECTOR