STATE OF LOUISIANA
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

CONSTRUCTION PROPOSAL

"CONSTRUCTION SPECIFICATIONS"
(Construction Proposal modified to include: Any addenda, any DBE CS-6AAA Forms, Schedule of Items with bid prices, any additional required returnables, copy of Construction Proposal Signature and Execution Form).

Letting Date: 4/25/07

Checked by: JC 5/31/07

Edwin Lantzer
05/31/2007

STATE PROJECT NO. 263-01-0013
JCT. LA 10 – JCT. LA 43
ROUTE LA 38
ST. HELENA PARISH

STATE OF LOUISIANA
EDWIN L. LANTZER
REG. No. 24733
REGISTERED PROFESSIONAL ENGINEER IN MECHANICAL ENGINEERING

Edwin Lantzer
21 MARCH 2007

KATHLEEN BABINEAUX BLANCO
GOVERNOR

STATE OF LOUISIANA
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
P.O. Box 94245
Baton Rouge, Louisiana 70804-9245

www.dotd.louisiana.gov
225-379-1485

JOHNNY B. BRADBERRY
SECRETARY

April 18, 2007

SUBJECT: GENERAL ADDENDUM FOR LETTING OF 04/25/2007 - REVISION OF FUEL ADJUSTMENT TABLE IN SPECIAL PROVISION ENTITLED "PAYMENT ADJUSTMENT".

Gentlemen:

The **FUEL ADJUSTMENT TABLE** in the special provision entitled **PAYMENT ADJUSTMENT** has been revised for the following projects for which bids are scheduled to be received on Wednesday, April 25, 2007:

Lead Project No.	Project Name	Route	Parish
015-04-0039	Georgetown - Tullos	US 165	Grant and LaSalle
024-06-0033	US 171 Bridge Near Leesville	US 171	Vernon
263-01-0013	Jct. LA 10 - Jct. LA 43	LA 38	St. Helena
694-13-0011	Greenwood Weigh Station	I-20	Caddo
713-36-0103	Michoud Boulevard Bridge (North and South Bound)		Orleans
744-40-0015	Pineville Old Town Trail System		Rapides
804-05-0010	LA 70 - 2.100 miles East of LA 70 and LA 70 - End of Control South	LA 1016-1 and LA 1016-2	Assumption
810-24-0044	US 90 Business: Median Replacement	US 90 Business	Calcasieu
819-16-0009	Junction LA 957 - Junction LA 19	LA 955	East Feliciana

GRADE OF ASPHALT CEMENT	BASE PRICE INDEX $/TON	$/Mg
PG 64-22	$343	$378
PG 70-22m	$422	$466
PG 76-22m	$458	$504

Please note this revision in the proposals previously furnished you and bid accordingly.

Sincerely,

RANDAL D. SANDERS, P. E.
CONTRACTS AND SPECIFICATIONS ENGINEER

pc: Mr. Brian Buckel
Mr. Lawrence Hofsted
Mr. John Oglesby
Mr. Michael Stack
Mr. Frank Standige
Mr. William Fontenot, Jr.
Mr. Michael Eldridge
Mr. John Sanders
Mr. Darrell Goza
Mr. Marshall Hill
Mr. Robert Hennigan
Mr. Lester LeBlanc
Mr. Wayne Marchand
Mr. Robert Mays
Mr. Ricky Moon
Mr. James Free
Mr. Roy Schmidt
Mr. Tom Landry
Ms. Connie Standige
Mr. Stephen Perilloux
Mr. Edwin McClanahan
Mr. Billy Grice
Mr. Phil Meyers (LTM)

STATE PROJECT NO. 263-01-0013
TABLE OF CONTENTS

NOTICE TO CONTRACTORS (01/06)

Sealed bids for the following project will be received by the Louisiana Department of Transportation and Development (DOTD), 1201 Capitol Access Road, Headquarters Administration Building, Room 405-L, Baton Rouge, Louisiana 70802 until 8:00 a.m. on **Wednesday, April 25, 2007**. After 8:00 a.m., bids will be received in the Headquarters Auditorium until 10:00 a.m., at which time and place bids will be publicly opened and read. No bids will be received after 10:00 a.m. Any person requiring special accommodations shall notify the Department of Transportation and Development (DOTD) at (225) 379-1111 not less than 3 business days before bid opening.

STATE PROJECT NO. 263-01-0013
DESCRIPTION: JCT. LA 10 – JCT. LA 43
ROUTE: LA 38
PARISH: ST. HELENA
LENGTH: 9.510 miles.
TYPE: COLD PLANNING ASPHALTIC CONCRETE, SUPERPAVE ASPHALTIC CONCRETE OVERLAY AND RELATED WORK.
LIMITS: State Project No. 263-01-0013: LOCATED ON ROUTE LA 38 FROM ITS JUNCTION WITH ROUTE LA to ITS INTERSECTION WITH ROUTE LA 43.
ESTIMATED COST RANGE: $1,000,000 to $2,500,000
PROJECT ENGINEER: MURRAY, WILLIAM; North side of Route LA 10, 2.2 miles east of Jct. at Route US 51 and Route LA 10, Roseland, LA, 70456, (985) 748-4413.
PROJECT MANAGER: MCCLENDON, JESSE; (985) 375-0100.
COST OF PROPOSAL FORMS: $25.00
COST OF PLANS: Included in proposal (no additional charge).

Bids must be submitted in accordance with Section 102 of the 2000 Louisiana Standard Specifications for Roads and Bridges as amended by the project specifications, and must include all information required by the proposal.

Plans and/or proposals may be obtained in Room 101-A of the DOTD Headquarters Administration Building, 1201 Capitol Access Road in Baton Rouge, or by contacting the DOTD; Email: sknight@dotd.louisiana.gov, Phone (225) 379-1111, FAX: (225) 379-1714, or by written requests sent to the Louisiana Department of Transportation and Development, Contracts Management Section, P. O. Box 94245, Baton Rouge, LA 70804-9245. Proposals will not be issued later than 24 hours prior to the time set for opening bids. Purchase price for plans and proposals is non-refundable. Plans and specifications may be seen at the Project Engineer's office or in Room 101-A of the DOTD's Headquarters Administration Building in Baton Rouge. Upon request, the Project Engineer will show the work.

The U. S. Department of Transportation (DOT) operates a toll free "Hotline" Monday through Friday, 8:00 a.m. to 5:00 p.m., eastern time. Anyone with knowledge of possible bid rigging, bidder collusion, or other fraudulent activities should call 1-800-424-9071. All information will be treated confidentially and caller anonymity will be respected.

GENERAL BIDDING REQUIREMENTS (01/06): The specifications, contract and bonds governing the construction of the work are the 2000 Edition of the Louisiana Standard Specifications for Roads and Bridges, together with any supplementary specifications and special provisions attached to this proposal.

Bids shall be prepared and submitted in accordance with Section 102 of the Standard Specifications.

The plans herein referred to are the plans approved and marked with the project number, route and Parish, together with all standard or special designs that may be included in such plans. The bidder declares that the only parties interested in this proposal as principals are those named herein; that this proposal is made without collusion or combination of any kind with any other person, firm, association, or corporation, or any member or officer thereof; that careful examination has been made of the site of the proposed work, the plans, Standard Specifications, supplementary specifications and special provisions above mentioned, and the form of contract and payment, performance, and retainage bond; that the bidder agrees, if this proposal is accepted, to provide all necessary machinery, tools, apparatus and other means of construction and will do all work and furnish all material specified in the contract, in the manner and time therein prescribed and in accordance with the requirements therein set forth; and agrees to accept as full compensation therefore, the amount of the summation of the products of the quantities of work and material incorporated in the completed project, as determined by the engineer, multiplied by the respective unit prices herein bid.

It is understood by the bidder that the quantities given in this proposal are a fair approximation of the amount of work to be done and that the sum of the products of the approximate quantities multiplied by the respective unit prices bid shall constitute gross sum bid, which sum shall be used in comparison of bids and awarding of the contract.

The bidder further agrees to perform all extra and force account work that may be required on the basis provided in the specifications.

The bidder further agrees that within 15 calendar days after the contract has been transmitted to him, he will execute the contract and furnish the Department satisfactory surety bonds.

If this proposal is accepted and the bidder fails to execute the contract and furnish bonds as above provided, the proposal guaranty shall become the property of the Department; otherwise, said proposal guaranty will be returned to the bidder; all in accordance with Subsection 103.04.

ELECTRONIC BIDDING (04/06). The 2000 Louisiana Standard Specifications for Roads and Bridges and supplemental specifications thereto are amended as follows.

SECTION 101 - GENERAL INFORMATION, DEFINITIONS AND TERMS:
Subsection 101.03 - Definitions.
Revise the following definitions.

Bid. The binding offer of a responsible bidder that was submitted to the Department on the bid forms or via approved electronic media, in accordance with the bidding documents.

Bid Forms. The portion of the bidding documents, either paper or electronic, required to be submitted, in accordance with the bidding documents, in order to constitute a bid.

Add the following definitions.

Bid Express. An on-line service provided by Bidx.com, an Info Tech company, which is under contract to DOTD to facilitate two-way Internet electronic bidding.

Bidx.com. The subsidiary company owned by Info Tech that provides the Bid Express service.

Electronic Bidding. The process by which the Department and the bidder can utilize the Internet to facilitate the bidding process.

Electronic Bid Bond. An instrument by which a contractor and surety can submit a bid guarantee with a bid electronically in lieu of a written, signed paper.

Electronic Signature. A secure and verifiable alpha-numeric code assigned to an individual, replacing or acting instead of a traditional signature.

Expedite. Software developed for AASHTO by Info Tech that enables and facilitates electronic bidding.

SECTION 102 – BIDDING REQUIREMENTS.

Subsection 102.02 - Contractor's Licensing Laws.

Delete the first sentence of the third paragraph and substitute the following.

When the estimated project cost is greater than $50,000 and no FHWA funds are involved, the contractor shall show his license number on the bid envelope unless the contractor submits the bid via the DOTD approved electronic bidding process.

Subsection 102.03 - Contents of Bidding Documents.

Amend the first paragraph to include the following.

The prospective bidder may use the Bid Express services through Bidx.com. The use of these services will require payment by the contractor of additional fees to the service provider.

Delete the first sentence of the third paragraph and substitute the following.

Unless the contractor properly submits the bid forms electronically, the bid forms bound with or attached to the construction proposal should be detached, completed, and returned by the bidder.

Subsection 102.04 - Issuance of Bid Documents.

Delete the first sentence of the first paragraph and substitute the following.

The Department may refuse to issue bid documents to a bidder or allow a bidder access to Bid Express for bidding purposes, for any of the following reasons:

Subparagraphs (b), (c), (f), and (g) are reinstated.

Subsection 102.06 - Examination of Bid Documents and Site of Work.

Amend this subsection to include the following.

Written instructions necessary to use the electronic bidding service and prepare and submit a bid electronically are provided on the Bidx.com Internet site. Fees payable to Bidx.com are required of the contractor to use the service and to establish electronic signatures. The contractor is advised to timely make all necessary arrangements with Bidx.com and to familiarize himself with system and process requirements prior to using the service to submit a bid.

Subsection 102.07 - Preparation of Bid.

Delete the first sentence of the first paragraph and substitute the following.

For paper bids, bids shall be submitted on bid forms provided by the Department or obtained through Bidx.com.

Delete the first sentence of the second paragraph and substitute the following.

A unit bid price, in English and U.S. dollars, shall be specified in the Schedule of Items in words or numerals, either typed or printed in ink, or computer printed in the spaces provided for each pay item or alternate pay item.

Delete the first sentence of the third paragraph and substitute the following.

The Construction Proposal Signature and Execution Form shall be signed either with an authorized electronic signature or with ink by the individual; or a member of the partnership; or an officer of one of the firms representing a joint venture; or an officer of a corporation; or an agent of the contractor legally qualified and acceptable to the state.

Add the following paragraph.

Bid bonds may be furnished and completed by a DOTD approved electronic bond verification service if the contractor elects to prepare and submit an electronic bid.

Subsection 102.08 - Irregular Bids.

Delete Subparagraph (a) and substitute the following.

(a) If the bid, except for legible facsimiles, is on a form other than that furnished by the Department or Bidx.com, or if the bid forms are materially altered.

Delete Subparagraph (j) and substitute the following.

(j) If the portion of the construction proposal form designated as Bid Forms is not properly executed either by hand or electronically and submitted with the bid.

Subsection 102.09 - Proposal/Bid Guaranty.

Delete the fourth paragraph and substitute the following.

All signatures required on the bid bond may be original, mechanical reproductions, facsimiles or electronic. Electronic bonds issued in conjunction with electronic bids must have Departmental approval prior to use. The Department will make a listing of approved electronic sureties providers on the Bidx.com site.

Subsection 102.10 - Delivery of Bids.

Delete this subsection and substitute the following.

Unless delivered electronically through the approved electronic bid submission service, each bid should be submitted in the envelope furnished by the Department. The blank spaces on the envelope shall be filled in correctly to clearly indicate its content. When an envelope other than the one furnished by the Department is used, it shall be the same general size and shape and be similarly marked to indicate its contents. Bids shall be received no later than the time and at the place specified in the Notice to Contractors. Paper bids received after the time set for opening bids will be returned to bidders unopened. Electronic bids shall be submitted via the Internet in accordance with Subsection 102.07. Electronic bids transmitted by the bidder, after the time set for bid opening will not be accepted.

A proposal guarantee and all other required returnables not submitted electronically with an electronic bid must be delivered by the contractor to the Department in a sealed envelope as specified above prior to the date and time of the bid opening.

Subsection 102.11 - Withdrawal or Revision of Bids.
Delete this subsection and substitute the following.

A bidder may withdraw or revise a bid after it has been deposited with the Department, provided the request for such withdrawal or revision is received by the Department in person or in writing before the time set for opening bids and at the location set forth in the Notice to Contractors. Electronic bids submitted to Bid Express may be withdrawn prior to the specified bid opening time by the authorized bidder.

Subsection 102.12 - Public Opening of Bids.
Delete this subsection and substitute the following.

Paper or electronic bids will be publicly opened and read or presented at the time and place indicated in the Notice to Contractors.

SECTION 103 – AWARD AND EXECUTION OF CONTRACT
Subsection 103.01 - Consideration of Bids.
Delete the first paragraph and substitute the following.

After paper or electronic bids are opened and read, they will be compared on the basis of summation of the products of the quantities and the unit bid prices in the Schedule of Items. Results of such comparisons will be available to the public.

Subsection 103.04 - Return of Proposal/Bid Guaranty.
Amend this subsection to include the following.

Electronic bid bonds of unsuccessful bidders will not be returned but will be deemed by the Department to have no force or effect after sixty days.

MAINTENANCE OF TRAFFIC (04/06): Subsection 104.03 of the Standard Specifications is amended to include the following requirements.

The contractor shall provide for and maintain through and local traffic at all times and shall conduct his operations in such manner as to cause the least possible interference with traffic at junctions with roads, streets and driveways.

Between October 1 and January 31, the contractor shall maintain the highway in a condition suitable for large scale sugar cane hauling operations and prior thereto shall perform only those items which will not interfere with the condition of the highway for heavy hauling operations. During this period, the contractor shall provide all equipment and material necessary to keep the highway in satisfactory condition. If the contractor does not properly maintain the highway, the Department reserves the right to maintain same with its own equipment, labor and material and deduct costs of such maintenance from payments for the work. If it becomes necessary to suspend construction operations for heavy hauling during the sugar cane season, contract time will not be assessed for said period of suspension; however, maintenance of traffic shall be continued by the contractor during such period of suspension.

The contractor shall conduct his paving operations on one side of the roadway at a time. The side of the roadway, including shoulder, that is open to traffic shall be clear at all times.

When the plans show asphaltic concrete pavement layers to be placed in thicknesses of 2 inches (50 mm) or less, the contractor will be permitted to pave in one lane for a full day; the adjacent lane may be paved the following workday. When pavement layers are greater than 2 inches (50 mm) thickness, the contractor shall place approximately 1/2 of each day's production in one lane and the remainder in the adjacent lane.

At the end of each day's paving operations, temporary pavement markings shall be in place and proper signs and barricades displayed. During the period that all lanes are open to traffic, the contractor shall neither store material nor park equipment on roadway shoulders.

When asphaltic concrete pavement is cold planed to a depth of 2 inches (50 mm) or less, the contractor will be permitted to cold plane in one lane for a full day; the adjacent lane may be cold planed the following workday. When the depth of cold planing is greater than 2 inches (50 mm), the contractor shall cold plane approximately 1/2 of each day's production in one lane and the remainder in the adjacent lane.

All asphaltic concrete pavement new construction, overlays, and shoulder surfacing operations open to traffic shall be conducted in accordance with the following requirements.

1. Shoulder Subgrade Preparation: Any required embankment widening shall be completed before placement of the asphaltic concrete overlay. All vegetation shall be removed from existing shoulders before beginning temporary or final shoulder construction.

2. Temporary Shoulder Construction: Temporary shoulder construction described herein shall be completed at the end of each day's operations for all asphaltic concrete courses except the final wearing course. There shall be no drop-off from the pavement edge to the shoulder. The contractor shall blade and shape existing shoulder material against, and approximately level with, the top of the pavement surfacing to form a temporary shoulder with a uniform slope from the pavement edge to the existing shoulder line, or to a point 10 feet (3 m) from the pavement edge. If existing shoulder materials are insufficient, the contractor shall furnish, place and shape additional shoulder surfacing materials to form the temporary shoulder. Existing and/or additional materials for temporary shoulders shall be to the satisfaction of the engineer. Compaction shall be by approved methods.

No direct payment will be made for constructing and subsequently reshaping temporary shoulders, except payment for additional materials under appropriate pay items.

All lane closures, including ramps, shall be authorized by the engineer. Unless otherwise authorized, lane closures will only be allowed while work is being performed. The contractor shall provide the engineer a five calendar day notice, prior to any lane closure unless a shorter notification period is allowed by the engineer. A late lane opening rental will be charged to the contractor for any lane closure on any roadway or ramp that extends beyond the allowed closure times. The rental shall be computed in hourly increments only, with fractions of an hour rounded up to the next whole hour. The rental will also apply to any unauthorized lane closures by the contractor, whether short term or long term. Any monies assessed as a late lane opening rental or for an unauthorized lane closure will be deducted from payments due the contractor. The late lane opening rental or unauthorized lane closure rental will be in accordance with the following table for a maximum of four continuous hours.

Unauthorized Lane Closure or Late Lane Opening Rental	
Current Average Daily Traffic (Vehicles per Day)	**Hourly Rate ($/Hour)**
<10,000	250
10,000 - 20,000	1,250
20,000 - 35,000	5,000
35,000 - 50,000	11,500
>50,000	15,000

NIGHTTIME CONSTRUCTION OPERATIONS (02/06): Section 105, Control of Work, of the 2000 Standard Specifications is amended to add the following.

105.20 NIGHTTIME CONSTRUCTION OPERATIONS.

(a) Description: This work consists of furnishing, installing, operating, maintaining, moving, and removing portable light towers and equipment-mounted fixtures for nighttime construction operations. Nighttime construction operations are defined as work performed after sunset and before sunrise.

(b) Equipment Requirements: Materials and equipment shall be in good operating condition and in compliance with applicable OSHA, NEC, and NEMA codes.

The contractor shall furnish, to the engineer, two light meters capable of measuring the level of illuminance. These light meters will be used by the engineer to check the adequacy of illumination throughout the nighttime construction operations. The light meters will become the property of the contractor after final acceptance.

Suitable brackets and hardware shall be provided to mount lighting fixtures on equipment and machinery. Mountings shall be designed so that light fixtures can be positioned as necessary to reduce glare and provide the required illumination. Mounting brackets and fixtures shall not interfere with the equipment operator or any overhead structures and shall be securely connected to the fixtures to insure minimum vibration.

Equipment-mounted systems shall be attached to construction equipment to provide Level II and Level III illuminance. Equipment mounted lighting shall be designed and positioned to be operated independently of general illumination.

Portable systems may consist of ground-mounted, trailer-mounted, or equipment mounted light towers. Portable light towers shall be sturdy and free-standing without the aid of guy wires or bracing. Towers shall be capable of being moved as necessary to keep pace with the construction operation. Extreme caution shall be used when moving portable light towers in the vicinity of overhead utilities. Portable lighting systems shall be positioned to minimize the risk of being impacted by traffic on the roadway or by construction equipment.

Conventional vehicle headlights shall not be permitted as the sole means of illumination while working. All motorized vehicles shall be equipped with conventional vehicle headlights to permit safe movement in non-illuminated areas. Use of strobe lights on vehicles and equipment is prohibited. Use of flashing lights shall be kept to a minimum to prevent motorist distraction. Flashing lights shall not be used behind barrier protection systems.

Switches shall be provided to adequately control the various lights. All wiring shall be weatherproof and installed according to local, state, federal, and OSHA requirements. Ground

fault circuit interrupters shall be provided for electrical outlets used for electrical tools and extension cords. The contractor shall provide sufficient fuel, spare lamps, generators and qualified personnel to ensure that all required lights operate continuously during nighttime construction operations. In the event of any failure of the lighting system, the construction operation shall be discontinued until the required level of illumination is restored. In residential areas, generator systems shall be selected to comply with local noise ordinances. A supply of emergency flares shall be maintained by the contractor for use in the event of emergency or unanticipated situations.

(c) Illumination Requirements: All operations that are performed during nighttime hours shall be properly illuminated to allow for the safe performance and inspection of the work.

Work area is defined as a minimum of 50 feet (15 m) ahead and behind the employee, where work is to be performed. A minimum of 5 foot-candles (54 lux) shall be maintained throughout the work area during nighttime construction operations, and during the setup and removal of lane or roadway closures.

Lighting shall be adequate to meet the required level of illuminance and uniformity over the work area as follows:

(1) Level I (5 foot-candles, 54 lux): This level of illuminance shall be provided for all work areas of general construction operations, such as excavation and embankment; cleaning and sweeping; landscaping; planting and seeding. Stockpiles shall also be illuminated to Level I to enhance safety and improve work efficiency.

(2) Level II (10 foot-candles, 108 lux): This level of illuminance is required for areas on or around construction equipment such as that used for drainage installations, striping, base course construction, milling, asphalt paving operations, and concrete placement and removal. This level is necessary for safe operation of equipment and for obtaining an acceptable level of accuracy.

(3) Level III (20 foot-candles, 215 lux): This level of illuminance is required for tasks requiring a higher level of visual performance or for tasks with a higher level of difficulty. Such tasks include, pavement or structural crack filling, joint repair, joint cleaning, joint sealing, pavement patching and repairs, saw-cutting, installation of signal equipment or other electrical/mechanical equipment, and other tasks involving fine details or intricate parts and equipment.

(d) Glare Control: All lighting provided under this item shall be designed, installed, and operated to avoid glare interference with roadway traffic or discomfort for residences adjoining the roadway. The contractor shall locate, aim, and adjust the lights to provide the required level of illuminance and uniformity in the work area without the creation of objectionable glare. The engineer shall determine when glare exceeds acceptable levels, either for traffic or adjoining residences. The contractor shall provide shields, visors, or louvers on luminaries as necessary to reduce objectionable levels of glare.

At a minimum, the following requirements shall be met to avoid objectionable glare to oncoming traffic:

(1) Tower-mounted luminaries shall generally be aimed either parallel or perpendicular to the roadway.

(2) All luminaries shall be aimed such that the center of the beam axis is no greater than 60 degrees from the vertical.

(3) Luminous intensity of any luminary shall not exceed 20,000 candelas at an angle of 72 degrees from the vertical.

(e) Operational Requirements: Thirty days prior to the start of night time operations, the contractor shall submit a lighting plan to the engineer for approval. The contractor shall select appropriate lighting systems and design a lighting plan to achieve the required illuminance levels.

The lighting plan shall include location of lights necessary for every aspect of work; description of light equipment to be used; description of power source; attachment and mounting details for lights to be attached to equipment; technical details pertaining to the lighting fixtures; details on hoods, louvers, shields, or other glare control methods; and lighting calculations confirming that the illumination requirements will be met by the layout plan.

Lighting inspection will include (1) light meter measurements to determine illumination levels, (2) subjective observation of the lighting setup to evaluate glare potential for drivers and workers, and (3) a physical check of the lighting equipment to ensure that it complies with the specification requirements included in the contractor's lighting plan.

Prior to the first night of operation, the engineer will check the adequacy of the installed lighting using a light meter. A summary of these measurements will be noted in the inspection records to provide a basis for comparing subsequent measurements. If the required illuminance levels are not met, the contractor shall make the necessary adjustments before any work proceeds.

Operational checks shall be made when construction phasing changes and lighting plan changes are required to accommodate different phases of construction. Periodic checks will be made throughout the duration of nighttime operations. If the required illuminance levels are not met, the contractor shall make the necessary adjustments to the lighting plan before work continues.

During construction operations, in the event of any failure of the lighting system, the operations shall be discontinued until the required level of illumination is restored.

ENVIRONMENTAL PROTECTION (01/04): Subsection 107.14 of the 2000 Standard Specifications is amended to include the following paragraphs at the end of this subsection.

The contractor, by signing this contract, certifies under penalty of law that he understands and will abide by the terms and conditions of the Storm Water Pollution Prevention Plan (SWPPP) and the National Pollution Discharge Elimination System (NPDES) General Permit that requires the discharges from construction sites be managed to prevent pollutants from entering waters of the United States in accordance with the Environmental Protection Agency's (EPA) regulations for storm water discharges with respect to 33 U.S.C. § 1342 (Sections 402 (p) and 405 of Public Law 100-4).

The project engineer will complete and submit the Small Construction Activity Completion Report to the LADEQ by January 28th of the year following the calendar year of project acceptance and stabilization.

The use of erosion control features or methods other than those in the contract shall be as directed.

The Storm Water Pollution Prevention Plan shall be comprised of Section 204 of the standard specifications along with applicable supplemental specifications and special provisions, and Standard Plan EC-01, "Temporary Erosion Control Details."

SUBLETTING OF CONTRACT (1/83): In accordance with Subsection 108.01 of the Standard Specifications, the following items are designated as "Specialty Items":

Item 731-02, Reflectorized Raised Pavement Markers
Item 732-01-A, Plastic Pavement Striping (4" Width)
Item 732-01-E, Plastic Pavement Striping (24" Width)
Item 732-02-A, Plastic Pavement Striping (Solid Line) (4" Width)
Item 732-03-A, Plastic Pavement Striping (Broken Line) (4" Width)
Item 737-03-E, Painted Traffic Striping (Solid Line) (24" Width)

COMPENSATION FOR ALTERATIONS OF THE CONTRACT (07/06): Subsection 109.04 of the 2000 Standard Specifications and the supplemental specifications thereto is amended as follows. Delete this subsection and substitute the following.

109.04 COMPENSATION FOR ALTERATIONS OF THE CONTRACT.

Payment for work performed in accordance with Subsections 104.02 and 105.19 will first be made at the contract's established unit prices. If unit prices are not applicable, the second basis of payment will be negotiated prices agreed to by change order prior to the start of the work. If an acceptable negotiated price cannot be established prior to the work being performed, the Department may require the contractor to perform the work on a "force account" basis.

(1) Unit Prices – When payments are made at the contract's established unit prices, and the work requires a material change in construction method or sequence, adjustment to the unit prices for or against the contractor shall be made in accordance with Subsections 104.02 and 109.03.

(2) Negotiated Prices – The Department's objective is to compensate the contractor using the same pricing formulas established in determining the original bid contract prices. Therefore, reasonable rates for labor burden, company owned equipment internal cost recovery rates, jobsite overhead items and rates, home office overhead and profit mark-upon direct costs, and other subjective pricing components established by the contractor at the time the original contract bid prices were determined will also be used in determining the negotiated prices for the change order work. The change order authorizing the work shall include a detail cost breakdown showing direct labor, materials, equipment, and subcontractor costs, as well as each of the subjective pricing components listed above.

(3) Force Account -When "force account" is the method of payment, the contractor shall be paid the direct cost of the work as determined and documented in Headings (a) through (g) below. Jobsite and home office overhead indirect expenses, and profit for all parties shall be considered fully compensated by a 15 percent mark-up on allowable direct cost items described in the Headings (a) through (d) below, and the mark-up on direct cost for the subcontractor and contractor described in Heading (e) below. The Department may consider additional reimbursement to the contractor for indirect fixed jobsite overhead costs for delays that are not the contractor's fault or responsibility, but are the Department's fault or responsibility or determined by judicial proceeding to be the Department's sole responsibility or are the fault and responsibility of a local government when the change order results in extension of the project's critical work path and the 15 percent mark-up on direct costs is deemed by the Department to be insufficient.

(a) Direct Labor: For labor and working foremen in direct charge of operations, the contractor shall receive the wage rates agreed on in writing before beginning work for each hour

that said labor and foremen are engaged in such work. Jobsite and home office supervisory personnel shall not be included as direct labor.

The contractor shall receive the actual costs paid to, or in behalf of, workers for subsistence and travel allowances, health and welfare benefits, pension fund benefits or other benefits when such amounts are required by collective bargaining agreement or other employment contract applicable to the classes of labor employed on the work, but limited to a maximum daily rate for subsistence and travel allowances. This maximum shall be agreed upon prior to the contractor incurring such charges.

(b) Direct Materials: For materials accepted by the engineer and used, the contractor shall receive the actual cost of such materials delivered to the work, including transportation charges and sales taxes if applicable.

(c) Equipment: For authorized machinery or special equipment the contractor shall receive the rental rates agreed on in writing before such work is begun. For equipment rented from independent outside sources, the contractor will be reimbursed the reasonable actual cost as shown on paid rental invoices. For company owned equipment, the contractor will be reimbursed his internal cost recovery equipment charge rate consistent with his original bid cost estimates. The Department's Engineering Directives and Standards Manual, EDSM III.1.1.27, entitled Equipment Rental Rates, provides additional guidance concerning allowable equipment rental rates and their application. If the contractor chooses to use a rental rate guide book instead of his internal cost recovery rates to establish rental rates for company owned equipment, adjustments to the allowable type of equipment and hours per day must be made as described in the EDSM. In addition, no 15 percent mark up on equipment direct cost for jobsite and home office overhead expenses and profit will be allowed if the contractor chooses to use rental rate guide book prices instead of his internal cost recovery rates.

(d) Bond, Insurance and Tax: For property damage, liability and workmen's compensation insurance premiums, unemployment insurance contributions, social security taxes, and bond costs on force account work, the contractor shall receive the actual cost thereof. The contractor shall furnish satisfactory evidence of the rates paid for such bond, insurance and tax.

(e) Subcontractor Costs: For change order work performed by an approved subcontractor, the subcontractor shall receive the subcontractor's actual and reasonable allowable direct cost of such work as described in Headings (a) through (d) above plus a 15 percent mark-up for the subcontractor's indirect jobsite and home office overhead expenses and profit. In addition, the contractor will be paid a 10 percent mark-up on the subcontractor's total direct and indirect costs, and profit for general supervision and sequencing of the change order work.

(f) Non-allowable Costs: No additional contractor cost reimbursement will be made for general superintendence, small tools or craft specific tool allowances, or other direct or indirect costs not specifically included in Headings (a) through (e) above.

(g) Statements: No payment will be made for force account work until the contractor has furnished the engineer with duplicate itemized statements of the cost of such work detailed as follows:

(1) Name, classification, date, daily hours, total hours, rate and extension for each laborer and foreman.

(2) Designations, dates, daily hours, total hours, rental rate and extension for each unit of machinery and equipment.

(3) Quantities of materials, prices and extensions.

(4) Transportation of materials.

(5) Cost of property damage, liability and workmen's compensation insurance premiums, unemployment insurance contributions, social security taxes, and bond costs.

The contractor's representative and the engineer shall compare records of the cost of work done as ordered on a force account basis. Such comparison shall be made daily. Statements shall be accompanied by invoices for materials used and transportation charges. If materials used on force account work are not purchased for such work, but are taken from the contractor's stock, in lieu of invoices, the contractor shall furnish an itemized list of such materials showing that the quantity claimed was actually used, and that the price and transportation costs claimed represent the actual cost to the contractor. Invoices shall be accompanied by the contractor's notarized statement that payment in full has been made for the materials.

PAYMENT ADJUSTMENT (05/06): Section 109, Measurement and Payment of the 2000 Standard Specifications is amended to add the following.

This project is designated for payment adjustment for asphalt cements and fuels in accordance with Subsection 109.10 as follows.

109.10 PAYMENT ADJUSTMENT (ASPHALT CEMENTS AND FUELS).

(a) General: Payment for contract items indicated herein will be adjusted to compensate for cost differentials of Performance Graded (PG) asphalt cements, gasoline, and diesel fuel when such costs increase or decrease more than 5 percent from the Department's established base prices for these items. The base price indices for asphalt cements and fuels will be the monthly price indices in effect at the time bids are opened for the project. The base price indices for asphalt cements will be as stated in paragraph (b) below. The base price index for fuels will be as stated in paragraph (c) below.

Payment adjustments will be made each monthly estimate period when a price index for this period varies more than 5 percent from its respective base price index. The monthly price indices to be used with each monthly estimate will be the price indices for the month in which the estimate period begins.

If the project is placed in default, payment adjustments will be based on the monthly price indices used for the last monthly estimate period prior to the project being placed in default, unless a monthly price index decreases in which case the lower monthly price index will be used.

If it is determined after completion of work on any eligible item that the total quantity paid to date must be adjusted to reflect more accurate quantity determinations, the Department will prorate the additional quantity to be added or subtracted over all previous estimate periods in which the item of work was performed in order to determine additional payment adjustments. If payment adjustments were made during any of these partial estimate periods, this added or subtracted quantity that has been prorated will likewise have payment adjustments calculated and included.

(b) Performance Graded (PG) Asphalt Cements: The base price index will be the monthly price index in effect at the time of bid opening as shown elsewhere herein. The monthly price indices will be the average of the unit prices for PG 64-22, the average of the unit prices for PG 70-22m, and the average of the unit prices for PG 76-22m. The monthly prices for each of

these asphalt materials will be F.O.B. refinery or terminal as determined from the quoted prices effective on the first calendar day of each month from major suppliers of these materials. These suppliers and materials shall be listed on the Department's Qualified Products List (QPL 41) and must be marketed in Louisiana.

Payment adjustments will be made in accordance with the following formulas:

If Monthly Price Index exceeds Base Price Index,

$$P_a = (A - 1.05B) \times C \times D \times (1.00 + T)$$

If Base Price Index exceeds Monthly Price Index,

$$P_a = (0.95B - A) \times C \times D \times (1.00 + T)$$

Where:

P_a	=	Price adjustment (increase or decrease) for asphalt cement.
A	=	Monthly Price Index for respective PG 64-22, PG 70-22m, or PG 76-22m in dollars per ton/megagram.
B	=	Base Price Index for respective PG 64-22, PG 70-22m, or PG 76-22m in dollars per ton/megagram.
C	=	Tons/megagrams of asphaltic concrete.
D	=	Percent of respective asphalt cement, per job mix formula, in decimals.
T	=	Louisiana sales tax percentage and local sales tax percentage, in decimals.

The engineer will furnish the weights (mass) of asphaltic concrete placed during the monthly estimate period with the respective asphalt cement content. If the asphalt cement content changes during the estimate period, the respective weight (mass) of asphaltic concrete produced at each cement content will be reported.

Item 724-02, Pavement Widening, and all contract pay items under Sections 501, 502, and 508, will be eligible for payment adjustments of asphalt materials. No payment adjustment will be made for other asphalt materials, including emulsions and cutbacks.

The base price indices in dollars per ton/megagram of asphalt cement to be used for payment adjustments for this project are as follows:

GRADE OF ASPHALT CEMENT	BASE PRICE INDEX $/TON	$/Mg
PG 64-22	$343	$378
PG 70-22m	$422	$466
PG 76-22m	$458	$504

(c) Fuels: The base price index for this project will be the monthly price index in effect when bids are opened for the project. The monthly price index will be the minimum price quotations for unleaded gasoline and No. 2 diesel fuel listed for the New Orleans area in *Platt's Oilgram and Price Report* effective on the first calendar day of each month.

Payment adjustment will be made in accordance with the following formulas:

If Monthly Price Index exceeds Base Price Index,
$P_a = (A - 1.05B) \times Q \times F$

If Base Price Index exceeds Monthly Price Index,
$P_a = (0.95B - A) \times Q \times F)$

Where:

P_a	=	Price adjustment
A	=	Monthly Price Index in dollars per gallon/liter.
B	=	Base Price Index in dollars per gallon/liter.
Q	=	Pay Item Quantity (Pay Units)
F	=	Fuel Usage Factor Gal(L)/Pay Unit

The following is a listing of contract pay items that are eligible for payment adjustment and the fuel usage factors that will be used in making such adjustment. Contract items that expand the items listed herein by use of letter designations are also eligible for fuel price adjustments; for example:

Item 601-01-G, Portland Cement Concrete Pavement 8 inches (200 mm) thick.

ELIGIBLE CONTRACT PAY ITEMS & FUEL USAGE FACTORS FOR FUEL PAYMENT ADJUSTMENT

ITEM NO.	PAY ITEM	UNITS	MIN. ORIGINAL CONTRACT QUANTITY FOR PAY ADJUSTMENT	FUEL USAGE FACTORS	
				Diesel[2]	Gasoline
203-01[1]	General Excavation	gal/cu yd	10,000 cu yd	0.29	0.15
203-02	Drainage Excavation	gal/cu yd	10,000 cu yd	0.29	0.15
203-03	Muck Excavation	gal/cu yd	10,000 cu yd	0.29	0.15
203-04[1]	Embankment	gal/cu yd	10,000 cu yd	0.29	0.15
203-05	Nonplastic Embankment	gal/cu yd	10,000 cu yd	0.29	0.15
203-08	Borrow (Vehicular Measurement)	gal/cu yd	10,000 cu yd	0.29	0.15
301-01	Class I Base Course	gal/cu yd	3,000 cu yd	0.88	0.57
301-02	Class I Base Course (" Thick)	gal/sq yd	50,000 sq yd	0.04	0.03
302-01	Class II Base Course	gal/cu yd	3,000 cu yd	0.88	0.57
302-02	Class II Base Course (" Thick)	gal/sq yd	50,000 sq yd	0.04	0.03
303-01	In-Place Cement Stabilized Base Course	gal/sq yd	50,000 sq yd	0.04	0.03
304-02	Lime Treatment (Type B)	gal/sq yd	50,000 sq yd	0.04	0.03
304-03	Lime Treatment (Type C)	gal/sq yd	50,000 sq yd	0.04	0.03
304-04	Lime Treatment (Type D)	gal/sq yd	50,000 sq yd	0.04	0.03
305-01	Subgrade Layer (" Thick)	gal/sq yd	50,000 sq yd	0.04	0.03
308-01	In-Place Cement Treated Base Course	gal/sq yd	50,000 sq yd	0.04	0.03
401-01	Aggregate Surface Course (Net Section)	gal/cu yd	3,000 cu yd	0.88	0.57
401-02	Aggregate Surface Course (Adjusted Vehicular Measurement)	gal/cu yd	3,000 cu yd	0.88	0.57
501-01	Asphaltic Concrete	gal/ton	1,000 ton	2.40[3]	0.2
501-02	Asphaltic Concrete	gal/cu yd	500 cu yd	4.80[4]	0.4
501-03	Asphaltic Concrete (" Thick)	gal/sq yd	10,000 sq yd	0.13[5,6]	0.01[6]
502-01	Superpave Asphaltic Concrete	gal/ton	1000 ton	2.40[3]	0.2
502-02	Superpave Asphaltic Concrete	gal/cu yd	500 cu yd	4.80[4]	0.4
502-03	Superpave Asphaltic Concrete (" Thick)	gal/sq yd	10,000 sq yd	0.13[5,6]	0.01[6]
508-01	Asphaltic Concrete (SMA)	gal/ton	1000 ton	2.40[3]	0.2
601-01	Portland Cement Concrete Pavement (" Thick)	gal/sq yd	15,000 sq yd	0.11	0.15
724-02	Pavement Widening	gal/sq yd	3,000 sq yd	0.86	0.24

1 If project has both 203-01 & 203-04, only the item with larger quantity is eligible.
2 For fuel adjustment purposes, the term "diesel" shall represent No. 2 or No. 4 fuel oils or any of the liquified petroleum gases, such as propane or butane.
3 If natural gas or coal is used instead of diesel for aggregate drying and heating the fuel usage factor shall be 1.67 gal/ton.
4 If natural gas or coal is used instead of diesel for aggregate drying and heating the fuel usage factor shall be 13.34 gal/cu yd.
5 If natural gas or coal is used instead of diesel for aggregate drying and heating the fuel usage factor shall be 0.09 gal/sq yd.
6 Per inch of thickness.

ELIGIBLE CONTRACT PAY ITEMS & FUEL USAGE FACTORS FOR FUEL PAYMENT ADJUSTMENT (METRIC)

ITEM NO.	PAY ITEM	UNITS	MIN. ORIGINAL CONTRACT QUANTITY FOR PAY ADJUSTMENT	FUEL USAGE FACTORS	
				Diesel[2]	Gasoline
203-01[1]	General Excavation	l/m^3	7,600 m^3	1.44	0.74
203-02	Drainage Excavation	l/m^3	7,600 m^3	1.44	0.74
203-03	Muck Excavation	l/m^3	7,600 m^3	1.44	0.74
203-04[1]	Embankment	l/m^3	7,600 m^3	1.44	0.74
203-05	Nonplastic Embankment	l/m^3	7,600 m^3	1.44	0.74
203-08	Borrow (Vehicular Measurement)	l/m^3	7,600 m^3	1.44	0.74
301-01	Class I Base Course	l/m^3	2,300 m^3	4.36	2.82
301-02	Class I Base Course (mm Thick)	l/m^2	41,800 m^2	0.18	0.14
302-01	Class II Base Course	l/m^3	2,300 m^3	4.36	2.82
302-02	Class II Base Course (mm Thick)	l/m^2	41,800 m^2	0.18	0.14
303-01	In-Place Cement Stabilized Base Course	l/m^2	41,800 m^2	0.18	0.14
304-02	Lime Treatment (Type B)	l/m^2	41,800 m^2	0.18	0.14
304-03	Lime Treatment (Type C)	l/m^2	41,800 m^2	0.18	0.14
304-04	Lime Treatment (Type D)	l/m^2	41,800 m^2	0.18	0.14
305-01	Subgrade Layer (mm Thick)	l/m^2	41,800 m^2	0.18	0.14
308-01	In-Place Cement Stabilized Base Course	l/m^2	41,800 m^2	0.18	0.14
401-01	Aggregate Surface Course (Net Section)	l/m^3	2,300 m^3	4.36	2.82
401-02	Aggregate Surface Course (Adjusted Vehicular Measurement)	l/m^3	2,300 m^3	4.36	2.82
501-01	Asphaltic Concrete	l/Mg	900 Mg	10.01[3]	0.83
501-02	Asphaltic Concrete	l/m^3	400 m^3	23.77[4]	1.98
501-03	Asphaltic Concrete (mm Thick)	l/m^2	8,400 m^2	0.59[5,6]	0.45[6]
502-01	Superpave Asphaltic Concrete	l/Mg	900 Mg	10.01[3]	0.83
502-02	Superpave Asphaltic Concrete	l/m^3	400 m^3	23.77[4]	1.98
502-03	Superpave Asphaltic Concrete (mm Thick)	l/m^2	8,400 m^2	0.59[5,6]	0.45[6]
508-01	Asphaltic Concrete (SMA)	l/Mg	900 Mg	10.01[3]	0.83
601-01	Portland Cement Concrete Pavement (mm Thick)	l/m^2	12,500 m^2	0.5	0.68
724-02	Pavement Widening	l/m^2	2,500 m^2	3.89	1.09

1 If project has both 203-01 & 203-04, only the item with larger quantity is eligible.
2 For fuel adjustment purposes, the term "diesel" shall represent No. 2 or No. 4 fuel oils or any of the liquified petroleum gases, such as propane or butane.
3 If natural gas or coal is used instead of diesel for aggregate drying and heating the fuel usage factor shall be 6.97 l/mg.
4 If natural gas or coal is used instead of diesel for aggregate drying and heating the fuel usage factor shall be 16.53 l/m^3.
5 If natural gas or coal is used instead of diesel for aggregate drying and heating the fuel usage factor shall be 0.41 l/m^2.
6 Per mm of thickness.

SUPERPAVE ASPHALTIC CONCRETE MIXTURES (01/05): Section 502 of the 2000 Standard Specifications and the supplemental specifications thereto is amended as follows.

Subsection 502.01, Description.

The fourth paragraph is amended to include the following. A mixture of any design level, including Level A, may be used on the shoulders at the contractor's option.

Subsection 502.12, Quality Control and Acceptance.

The third and fourth paragraphs of Heading (b) are deleted and the following substituted.

Pavement density and surface tolerance requirements will not be applied for short irregular sections, such as drives, aprons and turnouts; however, hot mix shall be placed to provide a neat, uniform appearance and shall be compacted by satisfactory methods. Any mixtures used for shoulders, curbs, driveways, turnouts, crossovers, joint repair, leveling, guardrail widening, islands, bike paths, patching, widening, and miscellaneous handwork will be paid separately in 1000 ton sublots, or portions thereof, in accordance with Section 502.12(c) and Table 502-8.

The first paragraph of Heading (f)(2) is deleted and the following substituted.

Acceptance testing for pavement density will be conducted by the Department. Three pavement samples for each mix use shall be obtained from each sublot within 24 hours after placement. When this falls on a day the contractor is not working, sampling shall be done within 3 calendar days. Sampling shall be performed using the random number tables shown in DOTD S605. If there are different mix uses within the same sublot, i.e. shoulder and roadway, then an additional core may be taken to ensure that there is at least one core per mix use. The density requirement for each lot will be as shown in Table 502-3 determined in accordance with DOTD TR 304. Payment will be made in accordance with Table 502-6 using the total number of cores for the lot in accordance with Subsection 502.12(g). Payment for small quantity lots will be made in accordance with Table 502-8.

Subsection 502.13, Measurement.

The first sentence of the second paragraph of Heading (a) is deleted and the following substituted. Estimated quantities of asphaltic concrete shown on the plans are based on 110 lb/sq yd/inch (2.35 kg/sq m/mm) thickness.

ASPHALTIC CONCRETE EQUIPMENT AND PROCESSES (11/04): Section 503 of the 2000 standard specifications is amended as follows.

Subsection 503.02 Plant Equipment.

Heading (c) Anti-Strip Additive Equipment is amended to include the following. The anti-strip delivery system shall ensure that the proper amount of material is delivered continuously. This system may be a paddle-type no-flow indicator, which triggers a light or alarm in the control room and an alarm in the plant lab when the anti-strip material is not flowing. Other similar systems may be allowed with approval by the District Laboratory Engineer. In either system, if the anti-strip flow is not restored within 15 minutes, production shall be discontinued until the system is repaired.

TEMPORARY SIGNS, BARRICADES, BARRIERS AND PAVEMENT MARKINGS (01/06): Section 713 of the 2000 Standard Specifications and the Supplemental Specifications is amended as follows:

Subsection 713.02, Materials is amended as follows. Heading (b)(1) is deleted and the following substituted.

(1) Temporary Signs and Barricades: On the mainline of freeways and expressways, the initial sequence of advanced warning construction signs shall be fabricated using ASTM D 4956 Type X fluorescent orange reflective sheeting. Reflective sheeting for all other temporary signs and barricades shall comply with the requirements of ASTM D 4956, Type III.

Subsection 713.04, Temporary Signs and Barricades, is amended to include the following:

(d) Project Signs: The contractor shall furnish, install, maintain, and upon completion of the project remove "project signs" in accordance with the following requirements.

Project signs shall conform to the requirements of Section 713 and the project sign detail contained elsewhere herein. Shop drawings will be furnished to the successful bidder by contacting the Department's Traffic Services Sign Shop at (225) 935-0121 or 935-0142.

Project signs shall be required at the beginning and end of the project and shall follow sign G-20-1, "Road Work Next 'X' Miles", or as directed by the engineer.

Payment for project signs shall be included in the contract unit price for Item 713-01 Temporary Signs and Barricades.

Subsection 713.07 Measurement is renumbered to 713.08.

Subsection 713.07 is added as follows.

713.07 Portable Work Zone Traffic Control Devices. All Category I, II, and III portable work zone traffic control devices, as described below, shall be crashworthy as determined by evaluations through the National Cooperative Highway Research Program (NCHRP) 350 for Test Level 3 (TL-3).

(1) Category I devices are low-mass, single-piece traffic cones, tubular markers, single-piece drums and flexible delineators and are, by definition, considered crashworthy devices meeting NCHRP Report 350 TL-3 criteria. Drum and light combinations with Type A or C warning lights and fastener hardware consisting of vandal resistant 1/2 inch (13 mm) diameter cadmium plated steel bolts and nuts used with 1 1/2 inch (38 mm) diameter by 3/4 inch (19 mm) cup washers are included as Category I devices. In lieu of testing for crashworthiness, acceptance of Category I devices for compliance with NCHRP 350 will be allowed based on self-certification by the supplier. The supplier shall certify that the product is crashworthy in accordance with the evaluation criteria of NCHRP 350. This certification may be a one-page affidavit signed by the supplier, with supporting documentation kept on file to be furnished if requested.

(2) Category II devices include other low mass traffic control devices such as portable barricades either with or without lights and or signs, portable sign stands, portable vertical panel assemblies, and drums with lights not meeting the drum and light combination requirements for Category I. Individual crash testing is required for Category II devices. FHWA letters of approval shall serve as verification that these devices comply with the crash testing requirements of NCHRP Report 350 TL-3. The contractor shall provide the engineer a listing of all the Category II devices to be used on the project prior to installation including a reference to the FHWA Work Zone letter number for each device. The contractor shall also certify that each device has been crash tested and meets the NCHRP 350 requirements.

(3) Category III devices include massive devices such as concrete barriers, water filled barriers and portable attenuators. Individual crash testing is required for Category III devices. FHWA letters of approval shall serve as verification that these devices comply with the crash testing requirements of NCHRP Report 350 TL-3. The contractor shall provide the engineer a listing of all the Category III devices to be used on the project prior to installation including a

reference to the FHWA Work Zone letter number for each device. The contractor shall also certify that each device has been crash tested and meets the NCHRP 350 requirements.

Subsection 713.08 Payment is renumbered to 713.09, and amended as follows.

Table 713-2 Payment Schedule is deleted and the following substituted.

Table 713-2
Payment Schedule
Temporary Signs, Barricades and Related Devices

Percent of Total Contract Amount Earned	Allowable Percent of Lump Sum Price for Temporary Signs and Barricades
Initial Erection	20
25	40
50	60
75	80
100	100

The third sentence of the second paragraph is deleted and the following substituted. The concrete in temporary precast barriers furnished by the contractor will be identified by lots and shall be subject to pay adjustments in accordance with Table 901-3 and Note 1 therein.

A pay item is added as follows.

Pay Item	
713-10	Temporary Portable Barrier (Type), Each

PORTLAND CEMENT CONCRETE (06/20/06): Section 901 of the 2000 Standard Specifications and the supplemental specifications thereto is amended as follows.

Subsection 901.06 is amended as follows.

Heading (b) is deleted and the following substituted.

(b) Quality Control Tests: The contractor shall be responsible for determining gradation and moisture content of fine and coarse aggregates used in the concrete mixture and for testing the mixture at the job site for slump, unit weight (mass), temperature, and air content (when used). The contractor shall conduct operations to produce a mix complying with the reviewed and accepted mix design, except that variations will be permitted within specified control limits for individual samples. The contractor shall be responsible for monitoring the components (cement, mineral and chemical admixtures, aggregates) in their mix to protect against any changes due to component variations. As component shipments arrive, the contractor shall verify slump, air content and set time by testing at ambient temperatures. The contractor shall make adjustments to the mix design to rectify any changes which would adversely affect constructability, concrete placement or the specifications. The contractor shall submit test results to the Department for review each day of paving. Testing to validate component consistency will be documented on the control logs. Conformance or variation in mix parameters (workability, set times, air content, etc.) shall be noted on the control logs. The contractor shall provide a copy of the proposed testing plan to the engineer for record. Acceptance of the plan does not relieve the contractor's responsibility for consistency. Test results for gradation, slump, unit weight (mass), and air content shall be plotted on control charts for individual samples. These control charts shall be submitted to the engineer.

Times at which to obtain control test samples shall be set by the contractor using random number tables in accordance with DOTD S 605 or by random selection. Gradation control limits of aggregates shall be as shown in Subsection 1003.02. When required, additional test samples shall be taken as directed for slump, concrete temperature, and air content.

The minimum number of quality control tests to be performed by the contractor for structural and pavement concrete shall be in accordance with the Materials Sampling Manual.

For minor structure concrete only, the contractor will not be required to have a Certified Concrete Technician or Authorized Concrete Field Tester, but shall implement a quality control testing program to ensure that the concrete meets the requirements of these specifications.

When producing concrete for Type B and D pavements, gradations shall be determined daily on each stockpile of aggregate to be used. All gradation calculations shall be based on percent of dry weight (mass). Upon determination of the gradation of each stockpile, the percent of the total aggregates retained shall be determined mathematically based on the proportions of the combined aggregate blend, and checked for conformance with Table 1003-1A.

Subsection 901.08 is amended as follows.

The second paragraph of Heading (a) is deleted and the following substituted.

For concrete placements having a least dimension of 48 inches (1200 mm) or greater, or if designated on the plans or the project specifications as being mass concrete, the allowable cement type shall be Type II portland cement, Type IP portland-pozzolan cement, or Type IS portland blast furnace slag cement. The cement or combination of cement and fly ash or ground granulated blast furnace slag, shall be certified to generate a heat of hydration of not more than 70 calories/gram (290 kJ/kg) at 7 days.

Table 901-02, Master Proportion Table for Portland Cement Concrete, is deleted and the following substituted.

Table 901-2
Master Proportion Table for Portland Cement Concrete

	Average Compressive Strength, psi (MPa) at 28 days	Grade of Coarse Aggregate	Min. Cement, lb/yd^3 (kg/m^3) of Concrete [9]	Maximum Water/Cement ratio, lb/lb(kg/kg) [1,9]	Total Air Content (Percent by volume) [4]	Slump Range [10], inches (mm)		
						Non-Vibrated	Vibrated	Slip Form Paving [2]
Structural Class [11]								
AA(M)	4400 (30.4)	A, P	560 (332)	0.44	5±1	2-5 (50-125)	2-4 (50-100)	N.A.
AA	4200 (29.0)	A, P	560 (332)	0.44	5±1	2-5 (50-125)	2-4 (50-100)	N.A.
A(M)	4400 (30.4)	A, P	510 (302)	0.53	5±2	2-5 (50-125)	2-4 (50-100)	N.A.
A	3800 (26.2)	A, F [8], P	510 (302)	0.53	5±2	2-5 (50-125)	2-4 (50-100)	1-2.5 (25-65)
D	3300 (22.8)	A, B, D, P	420 (249)	0.58	5±2	2-5 (50-125)	1-3 (25-75)	N.A.
F	3400 (23.5)[5]	A,P	460 (273)	0.44	5±1	2-5 (50-125)	2-4 (50-100)	N.A.
P(X)	7500 (51.7)[5]	A, F [8], P	700 (415)	0.40	5±2	N.A.	2-10 (50-250)	N.A.
P(M)	6000 (41.4)[5]	A, F [8], P	600 (356)	0.44	5±2	N.A.	2-6 (50-150)[7]	N.A.
P	5000 (34.5)[5]	A, F [8], P	560 (332)	0.44	5±2	N.A.	2-6 (50-150)[7]	N.A.
S	3800 (26.2)	A,P	650 (385)	0.53	5±2	6-8 (150-200)	N.A.	N.A.
Minor Structure Class [11]								
M	3000 (20.7)	A, B, P	470 (279)	0.56	5±2	2-5 (50-125)	2-4 (50-100)	1-2.5 (25-65)
R	1800 (12.4)	A, B, D, P	370 (219)	0.70	5±2	2-5 (50-125)	2-4 (50-100)	N.A.
Y	3000 (20.7)	Y	560 (332)	-[3]	6-9	N.A.	1-3 (25-75)	N.A.
Pavement Type [11]								
B	4000 (27.6)[6]	N/A [13]	475 (282)	0.53	5±2	N.A.	2-4 (50-100)	1-2.5 (25-65)
D	4000 (27.6)[6]	N/A [13]	450 (267)	0.53	5±2	N.A.	2-4 (50-100)	1-2.5 (25-65)
E	4000 (27.6)[6]	A, F[12], P	600 (356)	0.40	5±2	N.A.	2-4 (50-100)	1-2.5 (25-65)

N.A. – Not Applicable

[1] Except for Class AA, AA(M), or F concrete, the maximum volume of water; gal. (L), shall be reduced 5 percent when a water-reducing admixture is used, and 10 percent when an air-entraining admixture, or air-entraining and water-reducing admixtures, is used. When the coarse aggregate portion of the mix is 100 percent crushed aggregate, the water may be increased by 5 percent provided the maximum water listed in Table 901-2 is not exceeded.

[2] Also slump range for other concrete placed by extrusion methods.

[3] Refer to Subsection 901.08(c).

[4] Total air content ranges when air-entrainment is allowed or specified. Air content shall be designed at midrange.

[5] Values shown represent the minimum compressive strengths allowed.

[6] Average compressive strengths for Pavement Type concrete shall be 3600 psi (24.8 MPa) when air-entrainment is used.

[7] No more than a 2 inch (50 mm) slump differential for any design pour.

[8] Grade F coarse aggregate shall be used only when specified or permitted. The minimum cement content shall be increased when this aggregate is used.

[9] For mixes including partial replacement of cement with fly ash or ground granulated blast furnace slag, the minimum cement and maximum water contents shown apply to the total cement and fly ash or ground granulated blast furnace slag content of the mix. Additional cement may be required to achieve minimum compressive strength.

[10] When a slump range is specified in other sections, that range shall govern.

[11] See Subsection 901.08(a) for allowable types of cement.

[12] For use in partial depth patching.

[13] Aggregate grading shall comply with the requirements of Subsection 1003.02(c).

ITEM S-001, COLD PLANING ASPHALTIC PAVEMENT:

DESCRIPTION: This work consists of removing asphaltic concrete surfacing in accordance with these specifications and in conformity with the average depth, width, grade, cross-slope and typical sections shown on the plans or established.

EQUIPMENT: Equipment for cold planing asphaltic surfacing shall be an approved, self-propelled planing machine or grinder. They shall have sufficient power, traction and stability to remove the thickenss of asphaltic concrete necessary to provide profile grade and cross slope uniformly across the surface. Cold planing equipment shall be capable of working from an erected stringline, shoe device or approved traveling reference plane that will accurately reflect, the average grade of the surface on which it is to be operated and shall have an automatic system for controlling cross slope at a given rate. Adequate loading equipment shall be provided to immediately remove materials cut from the surface and discharge the cuttings into a truck or on the shoulder as specified or directed. When cuttings are placed directly on the shoulder or used in asphaltic concrete, surfacing with lightweight aggregate shall be removed separately. Adequate personnel shall be provided to ensure that the cuttings are removed from the surface daily. The drum shall be round and true with sufficient number of teeth to yield a uniform and fine textured surface for bonding of the subsequent overlay. The machine shall be equipped with means to control dust created by the cutting action and shall have a system providing for uniformly varying the depth of cut while the machine is in motion.

CONSTRUCTION REQUIREMENTS:

(a) General: The maximum forward speed of the planing machine shall be 40 feet (12.0 m) per minute. The engineer may approve forward speeds greater than 40 feet (12.0 m) per minute provided the planed surface is uniform and fine textured and conforms to the surface tolerance requirements for a binder course. This speed shall be reduced as directed to provide a planed surface of uniform and fine texture with the specified grade and cross slope. Ridges left in the surface due to missing teeth shall be corrected by additional passes. The maximum depth of cold planing shall be 2 inches (50 mm) per pass when traffic is being maintained. Teeth lost during planing shall be immediately replaced.

The traveling reference plane will be used on the first pass of the cold planing machine. The shoe device may be used on adjacent passes. This is the minimum acceptable and the contractor must meet or exceed current profilograph specifications for surface tolerance.

When the entire roadway width has not been planed to a flush surface by the end of a work period resulting in a vertical or near vertical longitudinal face exceeding 2 inches (50 mm) in height, this longitudinal face shall be sloped as directed. Transverse faces present at the end of a work period shall be beveled as directed. Provisions shall be made at drives and turnouts to maintain local traffic.

Asphaltic concrete next to structures that cannot be removed by the planing machine shall be removed by other acceptable methods.

Pavement surfaces resulting from planing operations shall be of uniform texture, grade and cross-slope and free from loose material. Planed surfaces not meeting these requirements shall be replaned at no direct pay. No uneven, undulating surfaces will be accepted. The contractor shall provide drainage of planed areas by cutting through the shoulder to the ditch.

The cold planing operation shall not precede the subsequent paving operation by more than 15 calendar days. This time may be extended if extensive joint repairs or patching is required. For single lift overlays requiring shoulder stabilization, the cold planing operation shall not precede the subsequent paving operation by more than 30 days.

On roadways that are open to traffic, pavement striping removed by planing shall be replaced with temporary pavement markings at the end of each day's planing operations in accordance with Section 713.

The Department of Transportation shall retain 100 percent of the reclaimed asphaltic pavement material (RAP) generated by the project and the RAP shall be hauled to the storage facility indicated on the plans and stockpiled by the contractor as directed at no direct pay.

Required joint repairs shall be made after planing. Pavement patching shall be completed before planing. When additional areas requiring patching are exposed by planing operations, such additional patching shall be performed after planing. Pavement patching shall be in accordance with Section 724.

(b) The surface tolerance requirements of the cold planed surface for single lift overalays shall meet the requirements for binder course in Section 501.

MEASUREMENT: Measurement will be made by lump sum of asphaltic concrete surfacing satisfactorily removed.

PAYMENT: Payment of cold planing asphaltic pavement will be made at the contract unit price, which includes removal of asphaltic concrete surfacing and disposal of removed materials. Payment for temporary pavement markings will be included under appropriate pay items.

Payment will be made under:

Item S-001, Cold Planing Asphaltic Pavement, per lump sum.

ITEM S-002, U-CHANNEL POST INSTALLATION: This item consists of loading, transporting, unloading and installing U-channel posts and mounting new or removing and remounting existing traffic signs to the U-channel post in accordance with these specifications, as shown on the plans and as directed by the Project Engineer.

All aluminum sign panels, U-channel posts and hardware shall be furnished by the Department at no cost to the contractor. The contractor shall load the aluminum sign panels, U-channel posts and hardware at the District 62 Headquarters Sign Shop located at 685 N. Morrison Blvd. in Hammond, La., deliver them to the construction site and complete the installation as required.

Aluminum sign panels shall be connected to the U-channel post with 5/16 inch diameter bolts with hexagonal heads. Each bolt shall be installed with one flat nylon washer on the sign face, one lock washer on the U-channel face, and a hexagonal-head nut.

U-channel posts shall be ground mounted, driven to a minimum depth of 3 feed below natural ground using a suitable protective driving cap, and shall be vertical.

Mounting specifications for traffic signs shall conform to Sections 729 and 1015 of the Standard Specifications.

Payment for U-channel post installation will be made at the contract unit price per each, which shall include all labor, equipment, tools, and incidentals necessary to complete this item.

Payment will be made under:

Item S-002, U-channel Post Installation, per each.

CONTRACT TIME (03/05): The entire contract shall be completed in all details and ready for final acceptance in accordance with Subsection 105.17(b) within **fifty (50) working** days.

Prior to assessment of contract time, the contractor will be allowed 30 calendar days from the date stipulated in the Notice to Proceed to commence with portions of the contract work including but not limited to assembly periods, preparatory work for materials fabrications such as test piles, or other activities which hinder progress in the beginning stages of construction. Prior to issuance of the Notice to Proceed, the Department will consider extending the assembly period upon written request from the contractor justifying the need for additional time.

The contractor shall be responsible for maintenance of traffic from the beginning of the assembly period. During the assembly period, the contractor will be allowed to do patching and other maintenance work necessary to maintain the roadway with no time charges when approved by the engineer.

If the contractor begins regular construction operations prior to expiration of the assembly period, the assessment of contract time will commence at the time construction operations are begun.

(04/06)

LOUISIANA
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
SUPPLEMENTAL SPECIFICATIONS
(FOR 2000 STANDARD SPECIFICATIONS)

TABLE OF CONTENTS

Supplemental Specifications Table of Contents (04/06)

LOUISIANA
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
SUPPLEMENTAL SPECIFICATIONS

The 2000 Louisiana Standard Specifications for Roads and Bridges and supplemental specifications thereto are amended as follows.

SECTION 101 – GENERAL INFORMATION, DEFINITIONS AND TERMS

Subsection 101.03 – Definitions (11/04), Pages 3 – 12.

Delete the third paragraph and substitute the following.

Assembly Period. Time the contractor is given to acquire approvals of required drawings, brochures, and other submittals, assemble or relocate asphaltic concrete plants or portland cement concrete plants, begin the purchase and assembly of materials, perform maintenance patching only, perform selective clearing or structural removal if utility relocations are involved, perform construction layout, perform pile tests, erect or install a project site laboratory, conduct preexisting site survey, install erosion control items, install fencing if existing fencing is removed during clearing, and perform bleeder ditching to prevent water table rise during winter months. The contractor will not be charged contract time during an assembly period.

SECTION 102 – BIDDING REQUIREMENTS:

Subsection 102.03 – Contents of Bidding Documents (05/02), Pages 14 and 15.

Delete the second sentence of the second paragraph and substitute the following.

The construction proposal will state the time in which the work must be completed, and the date, time and place of opening bids.

Subsection 102.08 – Irregular Bids (02/04), Pages 17 and 18.

Add the following subparagraphs.

(m) If the bidder is disqualified in accordance with Subsection 108.04.

(n) If the bidder is debarred in accordance with Part XIII-B of Chapter I of LRS 48.

(o) If the bidder is disqualified for Proposal/Bid Guaranty forfeiture or non-payment in accordance with Subsection 103.07.

Subsection 102.09 – Proposal/Bid Guaranty (05/02), Pages 18 and 19.

Delete the text of this subsection and substitute the following:

Each bid shall be accompanied by a proposal/bid guaranty in an amount not less than five percent of the total bid amount when the bidder's total bid amount as calculated by the Department in accordance with Subsection 103.01 is greater than $250,000. No proposal/bid guaranty is required for projects when the bidder's total bid amount as calculated by the Department is $250,000 or less. The official total bid amount for projects that include alternates is the total of the bidder's base bid and all alternates bid on and accepted by the Department. The

proposal/bid guaranty submitted by the bidder shall either be a certified check, cashier's check, bidder's company check, postal money order, bank money order or bid bond made payable to the Louisiana Department of Transportation and Development or as specified.

When the proposal/bid guaranty submitted by the bidder is a bid bond, this bond shall be on the "Bid Bond" form provided in the construction proposal; on a form that is materially the same in all respects to the "Bid Bond" form provided, or an electronic form that has received Department approval prior to submission. The bid bond shall be filled in completely, shall be signed by an authorized officer, owner or partner of the bidding entity, or each entity representing a joint venture; shall be signed by the surety's agent or attorney-in-fact; and shall be accompanied by a notarized document granting general power of attorney to the surety's signer. The bid bond shall not contain any provisions that limit the face amount of the bond.

When a bid bond is used it will be written by a surety or insurance company that is in good standing and currently licensed to write surety bonds in the State of Louisiana by the Louisiana Department of Insurance and also conform to the requirements of LSA-R.S. 48:253.

All signatures required on the bid bond may be original, mechanical reproductions, facsimiles or electronic. Electronic signatures must have written Departmental approval prior to use.

Subsection 102.13 – Withdrawal of Bids Due to Mistake (05/02), Pages 19 – 21.

Delete Heading (a) and substitute the following:

(a) Criteria:

(1) Withdrawal of Bid: The Department may allow a bidder to withdraw a bid after the scheduled time of bid opening in accordance with state law upon a determination that:

a. A mistake was in fact made in preparation of the bid; and,

b. The mistake in the bid is of a mechanical, clerical or mathematical nature and not one of bad judgment, careless inspection of the work site, or in reading the plans and specifications; and,

c. The mistake is found to be in good faith and was not deliberate or by reason of gross negligence; and,

d. The mistake is patently obvious on the face of the bid; and,

e. The notice of the mistake, request for withdrawal of the bid by reason of the mistake, and written evidence of the mistake, is delivered to the DOTD Chief Engineer within 72 hours after the bid opening, excluding Saturdays, Sundays, and legal holidays. The written evidence of the mistake supplied to the DOTD Chief Engineer shall be duly sworn before a Notary Public as original, unaltered documents used in the preparation of the bid or any other facts relevant to the bidder's request to withdraw the bid as evidence of the existence of a mistake; and,

f. The sworn, written evidence furnished to the DOTD Chief Engineer within 72 hours of the bid opening, excluding Saturdays, Sundays, and legal holidays, constitutes clear and convincing evidence of the bidder's mistake.

(2) Other bid protests: The Department may also allow a bidder to protest any matter regarding the bidding or award of a contract after the scheduled time of bid opening in accordance with the following provisions:

a. The protest of a bidder must be submitted in writing and, specifically set forth the grounds and/or reasons for the protest; and,

b. The written protest must be delivered to the DOTD Chief Engineer within 72 hours after notice of bid rejection, irregularity or any other action regarding the bidding of the contract, excluding Saturdays, Sundays, and legal holidays.

SECTION 103 – AWARD AND EXECUTION OF CONTRACT:

Subsection 103.05 – Payment, Performance, and Retainage Bonds (01/02), Pages 23 and 24.

Delete the text of this subsection and substitute the following:

At the time of execution of the contract, the successful bidder shall furnish the following bonds on the forms provided by the Department.

(a) Payment bond in a sum equal to one hundred percent (100%) of the contract amount.

(b) Performance bond in a sum equal to one hundred percent (100%) of the contract amount.

(c) Retainage bond in a sum equal to five percent (5%) of the contract amount for contract amounts greater than $500,000 unless an election is made to have the Department withhold five percent (5%) of the contract amount; and, retainage bond in a sum equal to ten percent (10 %) of the contract amount for contract amounts equal to or less than $500,000 unless an election is made to have the Department withhold ten percent (10 %) of the contract amount.

The bonds shall be written by a surety or insurance company that is in good standing and currently licensed to write surety bonds in the State of Louisiana by the Louisiana Department of Insurance and also conform to the requirements of LSA-R.S. 48:255.

All signatures required on the "Bond Form" shall be original signatures, in ink, and are not to be mechanical reproductions or facsimiles.

Subsection 103.07 – Failure to Execute Contract (01/02), Pages 24 and 25.

Delete the text of this subsection and substitute the following:

Failure by the bidder to comply with Subsection 103.06 will be cause for cancellation of the award and forfeiture of the proposal/bid guarantee. For those projects wherein a proposal/bid guarantee was not provided with the bid, failure to comply with Subsection 103.06 will be cause for cancellation of the award and bidder to be disqualified from bidding or subcontracting for a period of one year from the award date. Awards, which were cancelled, may then be made to the next lowest responsible bidder or the work may be readvertised for bids, at the Department's discretion.

Should a proposal/bid guaranty be required to be forfeited by the bidder to the Department or other named obligee, and if for any reason the full amount of the proposal/bid guaranty is not collected or collectable by the Department upon demand, the bidder will be disqualified from bidding or subcontracting for a period of one year from the date of non-payment.

SECTION 104 – SCOPE OF WORK:

Subsection 104.03 – Maintenance of Traffic (06/01), Page 27.

Delete the third sentence of the third paragraph and substitute the following:

The contractor shall maintain existing drainage and also provide and maintain in a safe condition all temporary approaches or crossings, intersections with roads, streets, businesses, parking lots, residences, garages and farms, at no direct pay.

SECTION 105 – CONTROL OF WORK:

Subsection 105.05 – Cooperation by Contractor (04/01), Page 33.

Delete the third paragraph and substitute the following:

The contractor shall have on the work site at all times, as the contractor's agent, a competent representative capable of reading and understanding the plans and project specifications and experienced in the type of work being performed, who shall receive and execute directions from the engineer. At the preconstruction conference or upon request, the contractor shall furnish the engineer written notice of the name and home telephone number of the representative. The representative shall have authority to execute orders or directions of the engineer without delay and to promptly supply such materials, equipment, tools, labor and incidentals as required. The representative shall be furnished regardless of the amount of work sublet.

Subsection 105.15 – Maintenance During Construction (05/02), Page 38.

Add the following:

The contractor shall maintain the roadway in a satisfactory condition to allow traffic to safely travel through the work zone at the posted speed limit.

Subsection 105.16 – Failure to Maintain Roadway or Structure (05/02), Page 39.

Delete the text of this subsection and substitute the following.

If the contractor fails to comply with Subsections 104.03 and 105.15, the engineer will immediately notify the contractor in writing of such noncompliance. If the contractor fails to remedy the condition within 24 hours after receipt of the written notice, the Department will have the option to immediately remedy the condition with its own in-house forces or by another contractor, and the cost thereof will be deducted from payments for the work.

When the condition requires more immediate remedy due to hazard to life, health and property, the engineer will immediately remedy the condition as above and the costs thereof will be deducted from payments for the work.

Subsection 105.19 – Value Engineering Proposals (03/05), Pages 40 - 44.

Delete the fifth sentence of the seventh paragraph and substitute the following.

Proposed changes in basic configuration and design of a bridge, hydraulic capacity of drainage facilities, typical roadway section, type or minimum thickness of pavements, or changes in grade or alignment which do not meet the geometric standards of the project as conceived, will not be considered as acceptable VE Proposals. Typically, changes in materials for roadway sections will not be considered as acceptable VE proposals.

SECTION 107 – LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC:

Subsection 107.07 – Public Convenience and Safety (02/06), Page 53.

Delete the third paragraph and substitute the following:

When the contractor works at night, adequate artificial lighting shall be provided in accordance with Subsection 105.20. Signs, flaggers or other traffic controls shall also be provided to protect workers, the work and the traveling public. When such work affects traffic safety, the contractor shall submit to the engineer for approval a plan of lighting, signing, flagmen or other traffic controls. If the approved plan proves inadequate after work begins, the contractor shall make such changes as directed. If the engineer finds that the night work is so hazardous as to preclude the beginning or require the discontinuing of such work, the contractor shall immediately cease all such operations.

SECTION 108 – PROSECUTION AND PROGRESS:

Subsection 108.04 – Prosecution of Work (03/05). Pages 69 and 70.

Delete the third paragraph of Heading (b) and substitute the following.

During the period of disqualification, the contractor will not be permitted to bid on contracts nor be approved as a subcontractor on contracts. Any bid submitted by the contractor during the period of disqualification will be considered irregular under Subsection 102.08. The period of disqualification shall continue until the contractor completes the work on the contract within the foregoing percentages or until all work on the contract has been satisfactorily completed. Should the surety or the Department take over prosecution of the work, the contractor shall remain disqualified for a period of one year from the completion of the project, unless debarment proceedings are instituted.

When the Department of Transportation and Development is not the contracting agency on the project, the second paragraph under Heading (c) is deleted.

Subsection 108.09 – Default and Termination of Contract (09/04), Pages 73 – 75.

Delete the second sentence of subparagraph (c) and substitute the following.

Within thirty days of receipt of such notification, the surety shall present to the Department either a plan to assume performance of the contract and procure completion of the project, or provide the Department in writing with a reasonable response for the contractor's default.

SECTION 109 – MEASUREMENT AND PAYMENT:

Subsection 109.04 – Compensation for Alterations of the Contract (11/02), Pages 80 – 82.

Delete Heading (f) and substitute the following.

When the Department authorizes the work to be performed by an approved subcontractor(s), the contractor will be paid the actual and reasonable cost of such subcontracted work computed as outlined above, plus an additional allowance of 10 percent of the first $50,000 of the total cost of all subcontracted work and 5 percent of the total cost of all subcontracted work that exceeds $50,000. Reimbursement for bond costs will be in accordance with Heading (b).

SECTION 201 – CLEARING AND GRUBBING:

Subsection 201.02 General Construction Requirements (06/02), Page 88.

Delete the fifth sentence and substitute the following.

The contractor shall, at no direct pay, use a licensed landscape arborist to repair damage to bark, trunks, limbs or roots of vegetation marked to remain using horticultural and tree surgery practices published by the American Association of Nurserymen (AAN).

SECTION 202 – REMOVING OR RELOCATING STRUCTURES AND OBSTRUCTIONS:

Subsection 202.02 – General Construction Requirements (07/05), Pages 91 – 95.

Add the following.

The contractor shall provide a DEQ accredited asbestos inspector to inspect any structure that is to be removed or relocated for the existence of asbestos and the condition thereof. Copies of the inspection report for each structure shall be provided to the project engineer.

Add the following to Heading (c).

When underground storage tanks (UST) have been filled with concrete, sand, or other such material and are designated on the plans for removal, the contractor or certified UST subcontractor shall remove, transport and dispose of such tanks in accordance with the recommendations of the American Petroleum Institute (API) and the requirements of the Louisiana Department of Environmental Quality (DEQ) or other regulatory agency of jurisdiction. When such UST are discovered during construction and removal is necessary to achieve soil compaction or to meet other construction requirements, the contractor shall stop construction activity in the immediate vicinity of the UST and notify the project engineer in accordance with this subsection elsewhere in the standard specifications. The DOTD Materials and Testing Section will verify the closure status of such filled UST discovered during construction prior to any UST site activity by the contractor or certified UST subcontractor.

The contractor or certified UST subcontractor shall collect and submit for laboratory analysis, a representative sample of the storage tank fill material for landfill acceptance. The results of the laboratory analysis shall be used to determine the disposition of the UST fill material. The contractor or certified UST subcontractor shall provide a copy of all laboratory analyses to the Department's Materials and Testing Section for verification prior to profiling materials for landfill acceptance.

Delete the second paragraph of Heading (f) and substitute the following.

Unless otherwise directed or shown on the plans, substructures shall be removed to natural stream bottom and those parts outside the stream shall be removed to 1 foot (0.3 m) below natural ground surface. Existing structures within the limits of a new structure shall be removed as necessary to accommodate construction of the new structure.

Add the following to Heading (h).

When the existing shoulder underdrain at the pavement edge is to remain in place and in service and removal of the shoulder surfacing and base is required, the work shall be done in such manner as to avoid damaging the existing shoulder underdrains. Damaged shoulder underdrains shall be satisfactorily repaired at no direct pay.

Add the following headings.

(i) Paint Containing Lead or Other Hazardous Materials on Metal Surfaces: Steel members of structures protected by paint containing lead or other hazardous materials as shown on the plans or as discovered in the field shall be removed and prepared for transport by methods approved by the Department.

Such steel members shall be delivered to a licensed recycling center capable of processing steel members coated with paint identified by the Resource Conservation and Recovery Act (RCRA) as hazardous.

Prior to removal, transport, treatment or disposal of any steel members, the contractor shall submit the following to the engineer.

(1) Plan of removal of steel members.

(2) Plan for transport of steel members.

(3) Name and address of the licensed recycling center.

All steel members shall be transported in accordance with all federal, state and local laws. Certificates of Disposal, Chain of Custody forms, or other applicable documents shall be provided within 21 days following each shipment.

(j) Treated Timber: Creosoted and other treated timber or lumber shown on the plans or discovered in the field shall be removed and prepared for transport by methods approved by the Department. All materials that are not designated to be salvaged by the Department or salvaged by the contractor are to be disposed of in an appropriate landfill. Certificates of Disposal, Chain of Custody Forms, or other applicable documents shall be provided within 21 days following each shipment.

(k) Universal Wastes. Universal wastes are hazardous wastes defined in LAC Title 33, Part V, Chapter 38, Section 3813 to include batteries, pesticides, thermostats, lamps and antifreeze. Universal wastes shall be removed by the contractor in accordance with the plans and shall be stored and prepared for transport as specified in LAC Title 33, Part V, Chapter 38 and herein.

A lamp is the bulb or tube portion of an electric lighting device. Universal waste lamps include, but are not limited to, fluorescent, high intensity discharge, neon, mercury vapor, high pressure sodium, and metallic halide. Such lamps shall be removed and stored in containers or packages that are structurally sound, adequate to prevent breakage, and compatible with the contents of the lamps. Such containers shall remain closed and lack evidence of leakage, spillage or damage that could cause releases of mercury or other hazardous constituents to the environment under reasonably foreseeable conditions. The containers shall be clearly labeled or marked with the words "Universal Waste – Lamps" and with the earliest date that any lamp in the container was discarded as waste. If a container develops a leak, it shall be placed into an over-pack container. The contractor shall immediately clean up any leakage and place in a container any lamp that shows evidence of breakage, leakage, or damage.

Universal waste lamps will not be allowed to accumulate for a period longer than one year from the date the lamps were discarded. The waste lamps shall be delivered to a universal waste disposal site or destination facility by a Universal Waste Transporter in accordance with the applicable U.S. Department of Transportation Regulations, 49 CFR, Parts 172-180.

The contractor shall be responsible for informing all employees who handle universal wastes of the proper handling and emergency procedures appropriate to the type of waste.

Subsection 202.05 – Measurement (07/05), Page 97.

Delete the fourth paragraph and substitute the following.

When an item is included for the removal of bridges, the removal of the approach slabs, superstructure, and substructure will be considered part of the work unless otherwise shown on the plans.

Add the following.

Removing steel members of structures protected by paint containing lead or other hazardous materials, or creosoted timbers or lumber, and transporting them to the designated recycling center or landfill will be considered part of the work when shown on the plans and will not be measured for payment.

When a structure to be removed or relocated is shown on the plans to contain universal wastes, the removal, storage and transport of the universal waste to an approved disposal site or destination facility will not be measured for payment but will be included in the structure to be removed or relocated.

Subsection 202.06 – Payment (07/05), Pages 97 – 99.

Add the following to the second paragraph.

Payment for removal of bridges will include removal of the approach slabs, superstructure and substructure.

Delete the last sentence of the third paragraph and substitute the following.

When a structure is found to contain friable or non-friable asbestos and it has not been identified on the plans as containing asbestos, payment for the removal and disposal of the asbestos will be made in accordance with Subsection 109.04, including the cost of all testing.

Payment for inspection to determine the presence and condition of asbestos by DEQ certified asbestos abatement contractors or subcontractors will be included in the appropriate pay items for the removal or relocation of structures.

Add the following:

Payment for removing steel members of a structure identified on the plans as being protected by paint containing lead or other hazardous materials, or creosoted timbers or lumber, and transporting them to the designated recycling center or landfill, will be included in the bid price for removal or relocation of the structure. When a structure is found to have steel members protected by paint containing lead or other hazardous materials, or creosoted timber or lumber, and it has not been identified on the plans as such, payment for removal and transport of the members to a licensed recycling center or landfill will be made in accordance with Subsection 109.04.

When the plans show that a structure to be removed or relocated contains a universal waste, payment for the removal of the universal waste will be included in the contract unit price for the removal or relocation of the structure which will also include all equipment, labor, and, materials required for the removal, storage, and transport of the universal waste in accordance with LAC Title 33, Part V, Chapter 38. When a structure to be removed or relocated is found to contain a universal waste and it is not identified as such on the plans, payment for the removal, storage and transport of such universal waste in accordance with LAC Title 33, Part V, Chapter 38 will be made in accordance with Subsection 109.04.

SECTION 203 – EXCAVATION AND EMBANKMENT:

Subsection 203.04 – Muck Excavation (06/01), Page 101.

Delete the text of this subsection and substitute the following:

Muck excavation consists of the removal of saturated or unsaturated mixtures of soils, organic matter, and debris that are unsuitable for foundation material. Materials, which will decay or produce subsidence in the embankment, or materials containing decaying stumps, roots, logs, humus or other material are not satisfactory for use in the embankment. The engineer will determine the material to be classified as muck and to be removed. Material, which cannot be used, shall be removed and disposed of in accordance with Subsection 202.02.

Subsection 203.05 – Borrow (12/04), Pages 101 and 102.

Add the following.

Soils contaminated with hazardous or toxic materials shall not be used for borrow material.

Subsection 203.06 – Soil Usage (11/02) Pages 102 – 104.

Delete Headings (a) and (b) and substitute the following:

(a) Usable Soils: Usable soils shall have a maximum PI of 25 and a maximum organic content of 5 percent. Soils with a silt content of 50 percent or greater and also a PI of 10 or less will not be allowed.

(b) Selected Soils: Selected soils are natural soils with a maximum PI of 20, maximum Liquid Limit of 35, and a maximum organic content of 5 percent. Soils with a silt content of 50 percent or greater and also a PI of 10 or less will not be allowed. Soils to be used for in-place cement stabilization shall be in accordance with Subsection 302.02(a).

Subsection 203.07 – General Requirements (12/04), Pages 104 – 107.

Delete the term "maximum dry weight density" and substitute "maximum dry density".

Delete the fifth sentence of the third paragraph and substitute the following:

The moisture content at the time of compaction, tested in accordance with DOTD TR 403, shall be within a range of ±2.0 percent of optimum established in accordance with DOTD TR 418 or the lifts shall be reprocessed and recompacted until these requirements are met.

Subsection 203.09 – Nonplastic Embankment (05/01), Pages 108 and 109.

Delete the term "maximum dry weight density" from Heading (d) and substitute "maximum dry density".

Subsection 203.14 – Measurement (03/02), Pages 111 – 113.

Delete the first and second paragraphs of Heading (b) and substitute the following.

The measurement of quantities will be computed by the average end area method and will be that area bound by (1) the original ground line established by location (plan) cross sections (if accurate) or new original cross sections obtained by the contractor, and (2) the final theoretical pay line as shown on the plans, or established by the engineer, adjusted for field changes.

After clearing and grubbing operations, the contractor will take original cross sections for the entire length of the project. All original cross section shall be taken in the presence of a designated DOTD employee. Cross sections shall be taken at sufficient intervals to accurately determine earthwork quantities, not to exceed 100 linear feet (30 lin m). The cross sections shall be taken in accordance with DOTD procedures, and results must be furnished to the Department in a format satisfactory to the engineer. The Department reserves the right to take additional cross sections as needed to verify the contractor's cross sections. In the event the cross sections do not verify, the contractor will investigate and reconcile any differences.

The original cross sections will be used to determine the accuracy of the location cross sections by using random sections not farther apart than 1000 linear feet (300 lin m) and centerline elevations at intervals of 100 linear feet (30 lin m). The location cross sections will be considered to be usable if the average of the differentials do not exceed ±0.3 foot (±0.1m). For significant portions of the project with obvious errors between location and original cross sections, the contractor's original field cross sections will be used, and will not be part of the verification process. In all cases where location sections are unavailable, new originals are to be taken and used.

Add the following to Heading (b)(1):

No payment will be made to the contractor to recompute new plan quantities.

SECTION 301 – CLASS I BASE COURSE:

Subsection 301.06 – Mixing of Soil Cement, Cement Stabilized Sand Shell, and Cement Stabilized Sand Clay Gravel (04/02), Page 130.

Delete the first sentence of the fourth paragraph and substitute the following:

Optimum moisture of the mixture will be determined in accordance with DOTD TR 415 or TR 418.

Subsection 301.16 – Acceptance Requirements (11/02), Pages 136 – 140.

Delete the third sentence of the second paragraph and substitute the following:

The percent cement being incorporated into the mixture shall not be more than 0.1 percent by weight (mass) of the total material below the approved percent cement, or operations shall be discontinued until corrections have been made.

Delete the sentence in Heading (a)(3) and substitute the following.

When any test value is less than that required in Table 301-1, compaction shall continue until the specified density is obtained.

SECTION 302 – CLASS II BASE COURSE:

Subsection 302.02 – Materials (01/03), Page 143.

Add the following to the first paragraph:

Geotextile Fabric 203.11 & 1019

Delete the seventh sentence of Heading (a) and substitute the following:

Soils may be blended to adjust the percentages of sand or silt to meet specification requirements; however, in-place blending will not be allowed. The District Laboratory Engineer

will approve materials prior to blending and the final product. Soils that do not meet PI requirements shall not be blended or treated to reduce PI.

Subsection 302.04 – General Construction Requirements (12/04), Page 144.

Add the following:

If an aggregate base course is to be placed on untreated or lime-treated soils, a Class D geotextile separator fabric will be required.

Subsection 302.05 – Mixing (04/02), Pages 144 – 146.

Delete the term "maximum dry weight density" from Heading (a)(1) and substitute "maximum dry density".

Subsection 302.13 – Measurement (09/02), Pages 153 and 154.

Add the following:

Geotextile fabric used beneath the base course will not be measured for payment.

Subsection 302.14, - Payment (09/02), Page154.

Add the following:

Payment for geotextile fabric will be included in the contract unit price for base course.

SECTION 303 – IN-PLACE CEMENT STABILIZED BASE COURSE:

Subsection 303.02 – Materials (05/01), Page 155.

Delete the third paragraph and substitute the following:

Soils or soil-aggregate combinations furnished by the contractor for stabilization in accordance with this section shall comply with the requirements of Subsection 302.02(a).

Subsection 303.04 – Preparation of Roadbed (05/01), Pages 156 and 157.

Delete the term "maximum dry weight density" and substitute "maximum dry density".

Subsection 303.05 – Mixing (05/01), Pages 157 and 158.

Delete the first sentence of the fourth paragraph and substitute the following:

Optimum moisture of the mixture will be determined in accordance with DOTD TR 415 or TR 418.

SECTION 304 – LIME TREATMENT:

Subsection 304.07 – Compacting and Finishing (05/01), Pages 167 and 168.

Delete the term "maximum dry weight density" from Heading (a) and substitute "maximum dry density".

SECTION 305 –SUBGRADE LAYER:

Subsection 305.02 – Materials (09/02), Pages 173 and 174.

Add the following to the first paragraph:

Geotextile Fabric	203.11 & 1019

Subsection 305.04 – Construction Requirements (12/04), Pages 174 and 175.

Add the following sentence to Heading (a)(2):

The bid price for pay item 305-01, Subgrade Layer, will be adjusted for the actual percentage of cement required.

Add the following to Heading (b):

If an aggregate subgrade layer is used, a Class D geotextile fabric will be required to separate the aggregate subgrade layer from untreated soil.

Delete the term "maximum dry weight density" from Heading (d) and substitute "maximum dry density".

Subsection 305.05 – Measurement (12/02), Page 175.

Add the following:

Geotextile fabric used beneath the subgrade layer will not be measured for payment.

Subsection 305.06 – Payment (12/02), Pages 175 and 176.

Add the following:

Payment for geotextile fabric will be included in the contract unit price for subgrade layer.

SECTION 306 – SCARIFYING AND COMPACTING ROADBED:

Subsection 306.02 – Construction Requirements (05/01), Page 177.

Delete the term "maximum dry weight density" and substitute "maximum dry density".

SECTION 401 – AGGREGATE SURFACE COURSE:

Subsection 401.04 – Shoulder Construction (05/01), Pages 184 and 185.

Delete the term "maximum dry weight density" from Headings (b) and (c) and substitute "maximum dry density".

SECTION 402 – TRAFFIC MAINTENANCE AGGREGATE:

Subsection 402.02 – Materials (05/02), Page188.

Delete the text of this subsection and substitute the following.

Aggregate for maintenance of traffic shall be stone, wash gravel, recycled portland cement concrete, reclaimed asphaltic pavement (RAP), or shell satisfactory to the engineer.

SECTION 507 – ASPHALTIC SURFACE TREATMENT:

Subsection 507.02 – Materials (07/02), Pages 278 and 279.

Delete the last paragraph and substitute the following.

Hot asphalt shall be smooth and homogeneous and shall comply with the specifications for gelled asphalt or PAC-15 as shown in Table 1002-11.

Delete Tables 507-1 and 507-2 and substitute with Tables 507-1 and 507-2 contained elsewhere herein.

Delete Table 507-3.

Table 507-1
Asphaltic Surface Treatment (AST) Requirements
(Emulsion)

TYPE AST	Course No.	TYPE A[1]		TYPE B[1]		TYPE C[1]	TYPE D			TYPE E[2] (Interlayer)
Agg. Friction Rating		I, II		I, II, III		I, II, III	I, II, III, IV			I, II, III, IV
Asphalt Emulsion		CRS-2P		CRS-2P		CRS-2P	CRS-2P			CRS-2P
Application Temp. Minimum Maximum		160°F (70°C) 175°F (80°C)		160°F (70°C) 175°F (80°C)		160°F (70°C) 175°F (80°C)	160°F (70°C) 175°F (80°C)			160°F (70°C) 175°F (80°C)
Number of Applications		2	1	2	1	1	3	2	1	2
Asphalt Emulsion[3] Application Rates Per Course	1	0.39 (1.77)	0.41 (1.86)	0.39 (1.77)	0.31 (1.40)	0.41 (1.86)	0.46 (2.08)	0.39 (1.77)	0.31 (1.40)	0.39 (1.77)
	2	0.29 (1.31)	---	0.29 (1.31)	---	---	0.36 (1.63)	0.29 (1.31)	---	0.29 (1.31)
	3	---	---	---	---	---	0.26 (1.18)	---	---	---
Aggregate[4] Application Rates Per Course	1	S2-0.0111 (S2-0.010)	S2-0.0111 (S2-0.010)	S2-0.0111 (S2-0.010)	S3-0.0075 (S3-0.007)	S2-0.0111 (S2-0.010)	S1-0.0200 (S1-0.018)	S2-0.0111 (S2-0.010)	S3-0.0075 (S3-0.007)	S2-0.0111 (S2-0.010)
	2	S3-0.0075 (S3-0.007)	---	S3-0.0075 (S3-0.007)	---	---	S2-0.0111 (S2-0.010)	S3-0.0075 (S3-0.007)	---	S3-0.0075 (S3-0.007)
	3	---	---	---	---	---	S3-0.0075 (S3-0.007)	---	---	---

[1] Only lightweight aggregate, crushed slag or crushed stone shall be used for Types A, B or C Asphaltic Surface Treatment.
[2] Lightweight aggregate will not be allowed.
[3] Application rates are in gallons of asphalt emulsion per square yard (liters of asphalt emulsion per sq m) of AST.
[4] Size aggregate and application rates. For example, S2 is Size 2 aggregate and 0.0111 is the application rate in cubic yards of aggregate per square yard (0.010 cu m of aggregate per sq m) of AST.

Table 507-2
Asphaltic Surface Treatment (AST) Requirements
(Hot Application)

TYPE AST	Course No.	TYPE A[1]		TYPE B[1]		TYPE C[1]	TYPE D			TYPE E[2] (Interlayer)
Agg. Friction Rating		I, II		I, II, III		I, II, III	I, II, III, IV			I, II, III, IV
Asphalt Cement[3]		Gelled Asphalt or PAC-15		Gelled Asphalt or PAC-15		Gelled Asphalt or PAC-15	Gelled Asphalt or PAC-15			Gelled Asphalt or PAC-15
Application Temp. Minimum Maximum		300°F (149°C) 360°F (182°C)		300°F (149°C) 360°F (182°C)		300°F (149°C) 360°F (182°C)	300°F (149°C) 360°F (182°C)			300°F (149°C) 360°F (182°C)
Number of Applications		2	1	2	1	1	3	2	1	2
Asphalt Cement[4] Application Rates Per Course	1	0.30 (1.36)	0.31 (1.40)	0.30 (1.36)	0.24 (1.09)	0.31 (1.40)	0.36 (1.63)	0.30 (1.36)	0.24 (1.09)	0.30 (1.36)
	2	0.23 (1.04)	---	0.23 (1.04)	---	---	0.28 (1.27)	0.23 (1.04)	---	0.23 (1.04)
	3	---	---	---	---	---	0.20 (0.91)	---	---	---
Aggregate[5] Application Rates Per Course	1	S2-0.0111 (S2-0.010)	S2-0.0111 (S2-0.010)	S2-0.0111 (S2-0.010)	S3-0.0075 (S3-0.007)	S2-0.0111 (S2-0.010)	S1-0.0200 (S1-0.018)	S2-0.0111 (S2-0.010)	S3-0.0075 (S3-0.007)	S2-0.0111 (S2-0.0010)
	2	S3-0.0075 (S3-0.007)	---	S3-0.0075 (S3-0.007)	---	---	S2-0.0111 (S2-0.010)	S3-0.0075 (S3-0.007)	---	S3-0.0075 (S3-0.007)
	3	---	---	---	---	---	S3-0.0075 (S3-0.007)	---	---	---

[1] Only lightweight aggregate, crushed slag or crushed stone shall be used for Types A, B or C Asphaltic Surface Treatment.
[2] Lightweight aggregate will not be allowed.
[3] See Table 1002-11.
[4] Application rates are in gallons of asphalt cement per square yard (liters of asphalt cement per sq m) of AST.
[5] Size aggregate and application rates. For example, S2 is Size 2 aggregate and 0.0111 is the application rate in cubic yards of aggregate per square yard (0.010 cu m of aggregate per sq m) of AST.

SECTION 508 – STONE MATRIX ASPHALT:

Subsection 508.01, Description (03/03). Page 288.

Delete the fourth sentence and substitute the following.

Mineral filler and/or fibers shall be used to control draindown.

Subsection 508.02, Materials (03/03), Pages 288 and 289.

Delete the sentence in Heading (a), Asphaltic Cement, and substitute the following.

Asphalt cement shall be PG76-22m as listed on QPL 41 and complying with Section 1002.

Delete the first sentence of Heading (c), Additives, and substitute the following.

Additives shall meet the requirements of Subsection 502.02(b) except mineral filler and/or fibers will be required.

Delete the sentence in Heading (c)(2), Mineral Filler, and substitute the following.

Mineral filler shall comply with Subsection 1003.06(a)(6).

Delete the first sentence of Heading (c)(3), Fibers, and substitute the following.

A cellulose or mineral fiber, pre-approved by the Department, shall be used to prevent draindown or to serve as a filler.

Subsection 508.03, Job Mix Formula (JMF)(03/03), Page 289.

Delete the fifth sentence of the first paragraph and substitute the following.

An anti-strip additive shall be included in accordance with Section 502.

Delete Heading (a), Marshall Design.

Subsection 508.04, Validation (03/03), Page290.

Delete the second sentence and substitute the following.

Validation will be on the first sublot and will include the QC and QA results on mixture gradation, percent asphalt cement, volumetrics, asphalt draindown, percent anti-strip additive, and moisture susceptibility testing.

Subsection 508.05, Quality Control (03/03), Page290.

Delete the first sentence of the first paragraph and substitute the following.

Percent asphalt cement, gradation, G_{mm}, and volumetrics shall be measured in accordance with Section 502. A lot size shall be 5000 tons (5000 Mg) and a sublot size shall be 1000 tons (1000 Mg).

Delete Heading (b), Marshall Design.

Subsection 508.06, Acceptance Testing (03/03), Pages 290 and 291.

Delete the fifth sentence of the first paragraph and substitute the following.

Plant acceptance tests will include, percent anti-strip, air voids, VMA and gradation [No. 4 and No. 200 (4.75 mm and 75 μm) sieves].

Delete Heading (b), Marshall Design.

Delete the sentence in Heading (f), Surface Tolerance and substitute the following.

Surface tolerance will be measured in accordance with Section 502.

Subsection 508.07, Acceptance for Pay (03/03), Pages 291-293.

Delete the second sentence of the first paragraph and substitute the following.

Acceptance is based on Plant Acceptance Tests and Roadway Acceptance Tests as follows:

Delete Heading (a), Asphalt Cement Properties.

Delete the first sentence of Heading (c)(2), Surface Tolerance, and substitute the following.

The percent payment reported for surface tolerance will be for the entire lot in accordance with Section 502.

Delete the second sentence of Heading (d), Total Percent Payment.

Subsection 508.10, Compaction (03/03), Page293.

Add the following.

Excessive rippling of the mat surface will not be accepted. Ripples are small bumps in the pavement surface, which usually appear in groups in a frequent and regular manner. Specifically, a ripple is visible on the profilograph trace, but does not necessarily appear above or below the 0.2 inch (5 mm) blanking band required by DOTD TR 641. There shall be no more than 12 ripples or peaks in any 100-foot (30 m) section. Rippling indicates a problem with the paving operation or mix that requires immediate corrective action by the contractor; otherwise operations shall cease. Unacceptable areas shall be corrected at no direct pay.

Subsection 508.11, Measurement (03/03), Page 293.

Delete the first sentence and substitute the following.

SMA will be measured by the ton (Mg) lot in accordance with Subsection 502.13(a) and as amended herein.

Subsection 508.12, Payment (03/03), Pages 293 and 294.

Delete the second sentence and substitute the following.

Payment will be made at an adjusted contract unit price per lot in accordance with Table 508 -2.

Delete Tables 508-1 and 508-2 and substitute with Tables 508-1 and 508-2 contained herein.

Table 508-1
Stone Matrix Asphalt (SMA) Mix Properties

A. MIXTURE REQUIREMENTS					
GRADATION			VOLUMETRICS		
US Sieve (Metric Sieve)	Percent Passing	JMF Tolerance, %	Properties	Requirements	Tolerance
3/4 inch (19 mm)	100	±4	Air Voids, %		
1/2 inch (12.5 mm)	90 - 100	±4	Superpave Gyratory Compactor (@ 100 revolutions)	4.0	±1.0
3/8 inch (9.5 mm)	75 Max.	±4	VMA, %	16.0 minimum	
No.4 (4.75 mm)	24 - 34	±4	VFA, %	For Info. Only	
No.8 (2.36 mm)	16 - 28	±4	G_{mb} (Control Only)	Per JMF	±0.022
No. 30 (600 µm)	12 - 25	±3	G_{mm} (Control Only)	Per JMF	±0.020
No. 50 (300 µm)	11 - 22	±3			
No. 200 (75 µm)	7 - 13	±1			
B. PAVEMENT DENSITY REQUIREMENTS					
Density, Minimum 94.0 % (Percent of Theoretical Maximum Specific Gravity, AASHTO T 209) Travel Lanes Density, Minimum 92.0 % (Percent of Theoretical Maximum Specific Gravity, AASHTO T 209) Shoulders					
C. SURFACE TOLERANCE REQUIREMENTS					
Surface Tolerance Variation - Refer to Section 502, Table 502-3					

Table 508-2
Payment Adjustment Schedules

Values shall be based on average of sublots unless otherwise noted:	Percent of Contract Unit Price Per Lot			
	100	95	80	50 or Remove[1]
A. Asphalt Properties, % (Reference Table 1002-1)	---	---	---	---
B. Plant Acceptance:				
Anti-Strip Additive, % Below JMF per Sublot	---	0.2 or More Below	---	---
% Air Voids, Average Sublot % Deviation from JMF Limits/Lot	0.0 - 0.1	0.2 - 0.3	0.4 - 0.5	0.6 and Greater
% VMA, Average Sublot % Deviation from JMF Below the Minimum Limit/Lot	0.0 - 0.2	0.3 - 0.5	0.6 - 0.8	0.9 and Greater
Aggregate Gradation, Average Sublot % Deviation from JMF Limits/Lot				
No. 4 (4.75 mm)	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 and Greater
No. 200 (75 µm)	0.0 - 0.5	0.6 - 1.0	1.1 - 2.0	2.1 and Greater
C. Roadway Acceptance:				
Roadway Density, Average Individual Sublot % Deviation from Minimum	0.0	0.1 - 1.0	1.1 - 2.5	2.6 and Greater
Surface Tolerance, Profilograph Reading in inches/mile (mm/km) (Reference Table 502-7)	---	---	---	---

[1] At the option of the engineer.

SECTION 509 – COLD PLANING ASPHALTIC PAVEMENT

Subsection 509.03, Construction Requirements (03/02), Pages 297-299.

Delete the eighth paragraph of Heading (a), General, and substitute the following.

The DOTD encourages reclamation and recycling of all materials obtained within the project limits. All reclaimed asphaltic pavement (RAP) material to be retained by the DOTD for its recycling program, or by other government entities, shall be hauled by the contractor to the storage facility indicated on the plans and stockpiled as directed. The contractor may also be required to retain a specified percentage or quantity of the RAP generated by the project. When so specified, the bidder shall indicate in his bid the value of the retained material that he used in calculating his bid.

Delete Heading (b) and substitute the following.

(b) The surface tolerance requirements of the cold planed surface for single lift overlays shall meet the requirements for binder course in Sections 501 and 502.

Subsection 509.04, Measurement (03/02), Page 299.

Delete this subsection and substitute the following.

Measurement of cold planing will be made by the square yard (sq m) of asphaltic concrete surfacing satisfactorily removed. The quantity of asphaltic concrete surfacing to be removed from a project and retained by the contractor will be measured by the cubic yard (cu m), theoretical in-place plan quantity, and will be credited to the Department by treating it as a negative quantity in the Schedule of Pay Items.

Subsection 509.05, Payment (03/02), Page 299.

Delete this subsection and substitute the following.

Payment for cold planing of asphaltic pavement will be made at the contract unit price per square yard (sq m), which includes the costs for removing, hauling and stockpiling of RAP material retained by either the Department or the contractor. The value of the RAP material retained by the contractor will be credited to the Department at the contract unit price for the retained material.

Payment for temporary pavement markings will be included under appropriate pay items.

Payment will be made under:

Item No	Pay Item	Pay Unit
509-01	Cold Planing Asphaltic Pavement	Square Yard (Sq m)
509-02	Contractor Retained Reclaimed Asphaltic Pavement	Cubic Yard (Cu m)

SECTION 601 – PORTLAND CEMENT CONCRETE PAVEMENT:

Subsection 601.02 - Materials (06/05), Page 302.

Add the following to the first paragraph.

Aggregates 1003.

Delete the second paragraph and substitute the following.

The contractor shall furnish either Type B or D concrete. The same type of concrete shall be used throughout the project, unless otherwise authorized in writing.

Subsection 601.09 – Joints (06/05), Pages 310 – 317.

Delete the fourth paragraph of Heading (i) and substitute the following.

Dowel bars with slightly damaged coatings may be used with the approval of the engineer provided the bars are lightly oiled or greased prior to placement.

Delete the first sentence of the fourth paragraph of Heading (k) and substitute the following.

The concrete used for full depth pavement patching repair shall be the same type used throughout the project. If approved by the engineer, full depth patching can be substituted with Type E concrete.

Add the following paragraph to Heading (k).

Concrete used for panel replacement repair shall be the same type used throughout the project. If approved by the engineer, Class A concrete can be substituted for panel replacement pavement repair.

Subsection 601.17 - Opening to Traffic (09/02), Page 331.

Delete the text of this subsection and substitute the following.

The pavement shall not be opened to traffic until standard test specimens complying with Subsection 601.07 have attained a compressive strength of 3,000 psi (21.0 MPa) when tested in accordance with DOTD TR 230. For regular portland cement concrete, if the compressive strength tests are not conducted, the pavement shall not be opened to traffic until 14 days after concrete has been placed. For concrete containing fly ash or ground granulated blast-furnace slag, the pavement shall be closed to all traffic, including vehicles of the contractor, until the test specimens have attained a compressive strength of 3,000 psi (21.0 MPa). The pavement shall be cleaned and joints sealed in accordance with Subsection 601.13 prior to opening to traffic.

SECTION 602 – PORTLAND CEMENT CONCRETE PAVEMENT REHABILITATION:

Subsection 602.07 - Full Depth Corner Patching of Jointed Concrete Pavement (06/05), Pages 339 – 341.

Delete the first sentence of the seventh paragraph and substitute the following.

Concrete for pavement patching shall be Type E complying with Section 901.

Subsection 602.08, Full Depth Patching of Jointed Concrete Pavement (06/05), Pages 341 and 342.

Delete the first sentence of the eighth paragraph and substitute the following.

Concrete for pavement patching shall be Type E complying with Section 901.

Subsection 602.09, Partial Depth Patching of Jointed Concrete Pavement (06/05), Pages 343 – 345.

Delete the first sentence of the first paragraph of Heading (b)(1) and substitute the following.

Portland cement concrete for pavement patching shall be Type E complying with Section 901, except that a Grade F aggregate shall be used.

Subsection 602.10, Patching Continuously Reinforced Concrete Pavement (06/05), Pages 345 – 347.

Delete the first sentence of the eighth paragraph and substitute the following.

Concrete for pavement patching shall be Type E complying with Section 901.

Subsection 602.18, Payment (06/01), Page 358.

Delete Pay Item No. 602-15, Cross-Stitching Longitudinal Joints.

Delete Pay Item No. 602.16, Cross-Stitching Random Longitudinal Joints and substitute the following.

Item No. 602-16 Cross-Stitching Random Longitudinal Cracks Linear Foot (lin m)

SECTION 701 – CULVERTS AND STORM DRAINS:

Subsection 701.02 – Materials (08/04), Pages 361 – 363.

Delete the text of this subsection and substitute the following.

701.02 Materials. Materials shall comply with the following:

Usable Soil	203.06(a)
Selected Soil	203.06(b)
Plastic Soil Blanket	203.10
Flowable Fill	710
Mortar	702.02
Portland Cement Concrete	901
Granular Material	1003.07
Bedding Material	1003.08
Concrete Sewer Pipe	1006.02
Reinforced Concrete Pipe	1006.03
Reinforced Concrete Pipe Arch	1006.04
Gasket Materials	1006.06
Plastic Pipe	1006.07
Sewer Pipe	1006.07
Split Plastic Coupling Bands	1006.07(d)(4)
Plastic Yard Drain Pipe	1006.09
Bituminous Coated Corrugated Steel Pipe and Pipe Arch	1007.02
Structural Plate for Pipe and Pipe Arch	1007.04
Corrugated Aluminum Pipe and Pipe Arch	1007.05
Coupling Bands	1007.09
Reinforcing Steel	1009
Geotextile Fabric	1019

(a) Quality Assurance: Manufacturing plants will be periodically inspected for compliance with specified manufacturing methods, and material samples will be randomly obtained for laboratory testing for verification of manufacturing lots. Materials approved at the manufacturing plant will be subject to visual acceptance inspections at the jobsite or point of delivery.

(b) Side Drain Pipe or Side Drain Pipe Arch: When the item for Side Drain Pipe or Side Drain Pipe Arch is included in the contract, the contractor has the option of furnishing reinforced concrete pipe or reinforced concrete pipe arch, corrugated metal pipe or corrugated metal pipe arch, or plastic pipe, unless otherwise specified.

(c) Cross Drain Pipe or Cross Drain Pipe Arch: When the item for Cross Drain Pipe or Cross Drain Pipe Arch is included in the contract, the contractor has the option of furnishing reinforced concrete pipe or reinforced concrete pipe arch, corrugated metal pipe or corrugated metal pipe arch, or plastic pipe, unless otherwise specified.

(d) Storm Drain Pipe or Storm Drain Pipe Arch: When the item for Storm Drain Pipe or Storm Drain Pipe Arch is included in the contract, the contractor has the option of furnishing reinforced concrete pipe or reinforced concrete pipe arch, or plastic pipe, unless otherwise specified.

(e) Material Type Abbreviations:

(1) Reinforced Concrete Pipe:

RCP	Reinforced Concrete Pipe
RCPA	Reinforced Concrete Pipe Arch

(2) Corrugated Metal Pipe:

CAP	Corrugated Aluminum Pipe
CAPA	Corrugated Aluminum Pipe Arch
CMP	Corrugated Metal Pipe
CMPA	Corrugated Metal Pipe Arch
CSP	Corrugated Steel Pipe
CSPA	Corrugated Steel Pipe Arch
BCCSP	Bituminous Coated Corrugated Steel Pipe
BCCSPA	Bituminous Coated Corrugated Steel Pipe Arch

(3) Plastic Pipe:

PP (or PCP)	Plastic Pipe
PVCP (or PVC)	Polyvinyl Chloride Pipe
RPVCP (or RPVCCP)	Ribbed Polyvinyl Chloride Pipe
CPEPDW (or CPECP)	Corrugated Polyethylene Pipe (Double Wall)

(f) Joint Type Abbreviations:

T1	Type 1 Joint
T2	Type 2 Joint
T3	Type 3 Joint

(g) Yard Drain Pipe: When the item for Yard Drain Pipe is included in the contract, the contractor has the option of furnishing concrete sewer pipe, plastic yard drain pipe or plastic pipe in accordance with Section 1006 unless otherwise specified.

Subsection 701.06 – Joining Pipe, (07/02), Pages 364 – 366.

Delete the second sentence of the second paragraph in Heading (b) and substitute the following.

For pipe equal to or less than 36 inches (900 mm) in diameter, any approved method for joining pipe may be used which does not damage the pipe.

Subsection 701.08 – Backfilling (09/05), Pages 366 and 367.

Delete this subsection and substitute the following.

701.08 BACKFILLING.

(a) General: Prior to backfilling, pipes found to be damaged or out of alignment or grade shall be removed and reinstalled, or replaced.

Type A backfill material shall be stone, recycled portland cement concrete, or flowable fill.

Type B backfill material shall be stone, recycled portland cement concrete, flowable fill, selected soils, or granular material.

When Type A backfill material is used, geotextile fabric shall be placed in accordance with plan details prior to placing backfill material. Care shall be taken to prevent damage to geotextile fabric during placement of backfill material.

Adjacent rolls of fabric shall be overlapped or sewn. When rolls are overlapped, the overlap shall be a minimum of 18 inches (450 mm), including the ends of the rolls. The top layer of the fabric shall be parallel with adjacent rolls and in the direction of backfill materials placement. When rolls are sewn, the contractor shall join adjacent rolls by sewing with polyester, or Kevlar thread. Field sewing shall employ the "J" seam or "Butterfly" seam with the two pieces of geotextile fabric mated together, turned in order to sew through 4 layers of fabric and sewn with 2 rows of Type 401, two-threaded locking chain stitch. Factory seams other than specified shall be submitted to the Materials and Testing Section for approval.

Damaged fabric shall be either removed and replaced with new fabric or covered with a second layer of fabric extending 2 feet (0.6 m) in each direction from the damaged area.

(b) Backfill Applications:

(1) Paved Areas: Cross drains and side drains in paved areas subject to traffic loads such as roadway travel lanes, shoulders, and turnouts shall be backfilled with Type A material. Type B backfill material shall be used in all other paved areas including driveways, detour roads and similar installations. Selected soils will not be allowed as backfill material. Placement and compaction shall be as specified in Heading (c) below.

(2) Nonpaved Areas: Pipe backfill material, except for plastic pipe, shall be Type B backfill material placed by approved methods and compacted to the density of surrounding soil. Plastic pipe shall be backfilled with granular material or Type A backfill Material.

(c) Placement and Compaction: When corrugated metal pipe is used, the backfill material shall be tested and shall have a resistivity greater than 1500 ohm-cm and a pH greater than 5 when tested in accordance with DOTD TR 429 and DOTD TR 430 respectively.

If the top of pipe is even with or below the top of the trench, backfill material shall be brought up evenly on both sides of pipe for its full length to an elevation of 12 inches (300 mm) above the top of pipe [or to subgrade if less than 12 inches (300 mm)] or to natural ground elevation, whichever is greater.

When the top of the pipe is above the top of the trench, backfill material shall be brought up evenly on both sides of pipe for its full length to 12 inches (300 mm) above the top of pipe or to subgrade if less than 12 inches (300 mm). Material in the trench and above the top of the trench for a distance on each side of the pipe equal to the horizontal outside diameter for corrugated metal or plastic pipe and 18 inches (450 mm) for concrete pipe, and to 12 inches (300 mm) above the top of pipe or to subgrade if less than 12 inches (300 mm) shall be backfill material.

The embankment shall be constructed to a minimum of 24 inches (600 mm) over the pipe before heavy construction equipment is allowed to cross the installation. Where practical, installations with less than 24 inches (600 mm) of cover over the top of the pipe shall be constructed after heavy hauling is completed over the pipe location. After completion of hauling operations, the contractor shall remove excess cover material. Pipe damaged by hauling and backfilling operations shall be removed and reinstalled, or replaced, at no direct pay.

(1) Backfill Methods:

a. General: Compaction by flooding will not be allowed.

b. Selected Soils: Backfill shall be placed at or near optimum moisture content determined in accordance with DOTD TR 415 or TR 418 in layers not exceeding 8 inches (200 mm) compacted thickness. Backfill material shall be thoroughly compacted under the haunches of the pipe. Each layer shall be compacted by approved methods to at least 95 percent of maximum dry density prior to placement of a subsequent layer.

c. Granular Material: Backfill shall be placed at or near optimum moisture content determined in accordance with DOTD TR 415 or TR 418. Backfill material shall be thoroughly compacted under the haunches of the pipe and then compacted in layers not exceeding 12 inches (300 mm) compacted thickness. Each layer shall be compacted by approved methods to at least 95 percent of maximum dry density prior to placement of a subsequent layer. Exposed slopes at the pipe ends shall be covered by at least 12 inches (300 mm) compacted thickness of plastic soil blanket.

d. Flowable Fill: Flowable fill shall be in accordance with Section 710.

e. Stone or Recycled Portland Cement Concrete: Backfill shall be placed at or near optimum moisture content determined in accordance with DOTD TR 415 or TR 418. Backfill material shall be thoroughly compacted under the pipe haunches and then compacted in layers not exceeding 8 inches (200 mm) compacted thickness. With approval of the engineer, layer thickness may be increased to 12 inches (300 mm) with verification of satisfactory installation and performance. Each layer shall be compacted by approved methods to at least 95 percent of maximum dry density prior to placement of a subsequent layer. The contractor shall control placement operations so as not to damage protective coatings on metal pipes. The contractor shall repair damaged coatings at no additional pay.

(2) Density Requirements: Maximum dry density will be determined in accordance with DOTD TR 415 or TR 418 and in-place density determined in accordance with DOTD TR 401.

Subsection 701.09 – Inspection of Pipe (07/02), Pages 367 and 368.

Delete the fifth paragraph of Heading (a) and substitute the following.

The mandrel shall be a rigid, nonadjustable, odd-numbered legged (minimum 9 legs) mandrel having a length not less than its nominal diameter or 24 inches (600 mm), whichever is less. The minimum diameter at any point shall be 5.0 percent less than the base inside diameter of the pipe being tested. The mandrel shall be fabricated of steel, aluminum or other approved material fitted with pulling rings at each end. The nominal pipe size and outside diameter of the mandrel shall be stamped or engraved on some segment other than a runner. A suitable carrying case shall be furnished.

Subsection 701.13 – Payment (08/04), Page 370.

Add the following to Heading (a), Payment.

When plastic pipe is specified on the plans or elected to be used by the contractor, payment will be made at the contract unit price per linear foot (lin m) of the types and sizes specified in accordance with the payment schedule of Table 701-1.

Table 701-1
Payment Schedule for Plastic Pipe

Percent Payment	Stage of Completeness
75	After placement and backfill has been completed
25	After the pipe has met vertical deflection requirements in accordance with Subsection 701.09(a)

Add the following pay item to the second paragraph of Heading (e).

Item No.	Pay Item	Pay Unit
701-16	Plastic Pipe (Extension)	Linear Foot (Lin m)

SECTION 702 – MANHOLES, JUNCTION BOXES, CATCH BASINS, AND END TREATMENTS:

Subsection 702.02 – Materials (06/02), Page371.

Delete "Manholes, Frames, Grates and Covers" from the first paragraph and substitute the following.

Frames, Grates and Covers for Manholes, Catch Basins and Junction Boxes 1018.04.

Delete the second sentence of the second paragraph.

Subsection 702.03 – Quality Assurance (06/02), Page 371.

Delete the second sentence of the first paragraph and substitute the following.

Material samples will be randomly obtained for laboratory testing for verification of manufacturing lots.

Subsection 702.07 – Payment (06/01), Page 374.

Delete the first sentence of the second paragraph and substitute the following:

The concrete in cast-in-place manholes, junction boxes, catch basins, and culvert end treatments and safety ends will be identified by lots and shall be subject to pay adjustments in accordance with Table 901-4 and Note 1 therein.

SECTION 704 – GUARD RAIL

Subsection 704.03 – General Construction Requirements (01/05), Pages 380 and 381.

Add the following to subparagraph (d), Guard Rail End Treatments.

All end treatments shall bear a label indicating the manufacturer and exact product name of the end treatment along with its assigned NCHRP 350 test level. This label shall resist weathering and shall be permanently affixed to the railing in such a way as to be readily visible.

SECTION 705 – FENCES:

Subsection 705.06 - Chain Link Fence and Gates (06/01), Pages 384 and 385.

Delete the second sentence of the first paragraph of Heading (a) and substitute the following:

Portable mixing of concrete in accordance with Subsection 901.10(g) will be permitted for small quantities of concrete.

SECTION 706 – CONCRETE WALKS, DRIVES AND INCIDENTAL PAVING:

Subsection 706.01 – Description (12/03), Page 387.

Delete this subsection and substitute the following.

This work consists of furnishing and constructing portland cement concrete walks, handicapped curb ramps, drives and incidental paving slabs in accordance with these specifications and in conformity with lines, grades and dimensions shown on the plans or established.

Subsection 706.03 – Construction Requirements (12/03), Pages 387 and 388.

Add the following.

(g) Detectable Warning Surface for Handicap Ramps: Handicapped curb ramps installed shall be equipped with a detectable surface warning system consisting of raised truncated domes as a transition between the sidewalk and the street as required by the Americans with Disabilities Act, 28 CFR Part 36, ADA Standards for Accessible Design. These standards are further described in the Americans with Disabilities Act Accessibility Guidelines (ADAAG), Section 4.29.2.

Detectable warnings (truncated domes) shall be installed on the ramp surface over the full width of the ramp throat for a distance of 24 inches (600 mm) in the direction of travel from the back of the curb. Truncated domes shall be laid out on a square or triangular grid in order to allow enough space for wheelchairs to roll between the domes.

Light reflectance of the truncated domes and the underlying surface must meet the 70 percent contrast requirement of ADAAG.

Subsection 706.04 – Measurement (12/03), Page 388.

Add the following.

Handicapped curb ramps included in the construction of a concrete walk, including the detectable surface warning system, will not be measured for payment.

SECTION 707 – CURBS AND GUTTERS:

Subsection 707.12 – Payment (06/01), Pages 392 and 393.

Delete the first sentence of Heading (b) and substitute the following:

The concrete in the curbs and/or gutters will be identified by lots and shall be subject to pay adjustments per linear foot (lin m) in accordance with Table 901-4.

SECTION 709 – STEEL CATTLE GUARDS:

Subsection 709.05 – Payment (06/01), Page 397.

Delete the second sentence and substitute the following:

The concrete placed in cattle guards will be identified by lots and shall be subject to pay adjustments in accordance with Table 901-4 and Note 1 therein.

SECTION 713 – TEMPORARY SIGNS, BARRICADES, BARRIERS AND PAVEMENT MARKINGS:

Subsection 713.08 – Payment (06/01), Pages 414 and 415.

Delete the third sentence of the second paragraph and substitute the following:

The concrete in temporary precast barriers furnished by the contractor will be identified by lots and shall be subject to pay adjustments in accordance with Table 901-3 and Note 1 therein.

SECTION 714 – SLAB SODDING

Subsection 714.08 – Measurement (07/03), Page 417.

Delete Heading (b), Water.

Subsection 714.09 – Payment (07/03), Page 417.

Delete the first sentence of the first paragraph and substitute the following.

Payment for slab sodding will be made at the contract unit price.

Delete Pay Item No. 714-02, Water.

SECTION 717 – SEEDING:

Subsection 717.06 – Temporary Seeding (06/01), Page 423.

Add the following to Table 717-1, Temporary Seeding. Type G, Seed Mixtures, is amended to add Unhulled Bermuda.

Subsection 717.08 – Measurement (07/03). Page 424.

Delete the second sentence and substitute the following.

Topsoil, fertilizer, and agricultural lime will be measured in accordance with Sections 715 and 718.

Subsection 717.09 – Payment (07/03), Page 424.

Delete the second sentence of the first paragraph and substitute the following.

Payment for topsoil, fertilizer, and agricultural lime will be made in accordance with Sections 715 and 718.

SECTION 719 – LANDSCAPING:

Subsection 719.07 – Period of Establishment and Replacement (05/05), Pages 433 – 435.

Delete the first paragraph of Heading (a) and substitute the following.

The contractor shall care for planted and mulched areas for a period of establishment, which shall be one full growing season, after provisional acceptance is made. A growing season

shall begin April 16 and extend one full year until April 16 of the next year. The contractor can complete planting any time during the planting season specified in Subsection 719.06(a) prior to April 16. If the contractor completes planting prior to April 16, the growing season shall begin at provisional acceptance and extend to April 16 of the following year. Any extension of the planting season past April 15 shall result in an extension of the period of establishment to October 31 of the following year. During the period of establishment, the contractor shall preserve plants in a healthy, growing condition. Such plant establishment work shall include cultivation, weeding, watering, pruning, controlling insects, pests and disease and other work determined necessary by the engineer to ensure healthy plant growth.

Subsection 719.08 – Measurement (07/03), Page 435.

Delete the second paragraph.

SECTION 723 – GRANULAR MATERIAL:

Subsection 723.03 – Construction Requirements (06/01), Page 442.

Delete the text of this subsection and substitute the following:

Materials shall be placed, properly shaped and uniformly compacted by approved methods to a minimum of 95 percent of maximum dry density. Maximum dry density will be determined in accordance with DOTD TR 415 or TR 418 and in-place density will be determined in accordance with DOTD TR 401. Granular materials shall not be displaced during subsequent operations.

SECTION 724 – PAVEMENT PATCHING, WIDENING AND JOINT REPAIR:

Subsection 724.02 – Materials (09/02), Page 444.

Delete the second paragraph and substitute the following.

Asphaltic concrete for patching and widening may be any type mixtures listed in Section 501 or 502, except that the 1/2-inch (12.5 mm) nominal size mixture shall not be used. Asphaltic concrete for joint repair shall be incidental paving wearing course complying with Section 501 or 502. Asphalt tack coat shall comply with Section 504.

SECTION 729 – TRAFFIC SIGNS AND DEVICES:

Subsection 729.02 – Materials (01/06). Pages 457 & 458.

Delete the second paragraph and Table 729-1 and substitute the following.

Reflective sheeting for the permanent signs of Table 729-1 shall meet the requirements of ASTM D 4956 Type IX.

Table 729-1
Permanent Signs for Use with ASTM D 4956
Type IX Reflective Sheeting

Sign	MUTCD Number
Stop	R1-1
Yield	R1-2
4-Way	R1-3
All Way	R1-4
Do Not Enter	R5-1
Wrong Way	R5-1a
Chevrons	W1-8
No Passing Zone Pennants	W14-3
Type 3 Object Marker	OM-3 (Right & Left)
Type 2 Object Marker	-------
Guardrail End Decals	-------

Subsection 729.03 – General Requirements (08/02), Pages 458 and 459.

Delete Heading (c) and substitute the following.

(c) Material Sampling and Certification: Material sampling and certification for sign faces, sign mountings and U-channel posts shall be in accordance with the Materials Sampling Manual.

Subsection 729.04 – Fabrication of Sign Panels and Markers (01/06), Pages 459 – 462.

Delete the third paragraph of Heading (c) and substitute the following.

ASTM D 4956 Type IX reflective sheeting shall be applied with an orientation determined by the engineer to obtain the optimum entrance angle performance. Fabricated vertical splices in ASTM D 4956 Type IX reflective sheeting will be allowed only when the horizontal dimension of the sign face or attached shield is in excess of the maximum manufactured width of the sheeting. Fabricated vertical splices in ASTM D 4956 Type IX reflective sheeting will also be allowed when the specified orientation will create excessive sheeting waste.

Subsection 729.09 – Payment (06/01), Pages 465 – 467.

Delete the second sentence of Heading (f) and substitute the following:

The concrete in footings will be identified by lots and shall be subject to pay adjustments in accordance with Table 901-4 and Note 1 therein.

SECTION 730 – ELECTRICAL SYSTEMS:

Subsection 730.02 – Equipment and Materials (05/04), Pages 468 and 469.

Delete the third line of the seventh paragraph and substitute the following.

Portland Cement Concrete (Classes M and S) 901

Subsection 730.09 – Payment (06/01), Page 474.

Delete the second sentence and substitute the following:

The concrete in foundations for light poles, high mast poles, and other electrical equipment will be identified by lots and shall be subject to pay adjustments in accordance with Table 901-4 and Note 1 therein.

SECTION 732 – PLASTIC PAVEMENT MARKINGS:

Subsection 732.02 – Materials, (05/02), Page 478.

Delete the fourth sentence of the second paragraph in Heading (a) and substitute the following.

Glass beads used on drop-on application to molten plastic shall be shipped in moisture resistant sacks (packages).

Subsection 732.03 – Construction Requirements (05/02), Pages 478 – 484.

Delete the eighth sentence of the first paragraph of Heading (a) and substitute the following.

Glass beads shall be applied to the molten surface of completed stripes by either a single drop or a double drop application depending on the thickness of the thermoplastic striping as shown in Table 1015-15. The first bead drop shall be applied by a gravity bead dispenser attached to the striping machine in such a manner that beads are dispensed simultaneously with the thermoplastic material at a controlled rate of flow on installed lines. The second bead drop shall be applied immediately after the first bead drop by a gravity bead dispenser attached to the striping machine.

Delete the second sentence of the second paragraph of Heading (d)(1) and substitute the following.

Immediately after application of the markings, glass beads for a single drop application shall be applied at a minimum rate of 300 pounds per mile (85 kg/km) for a 4-inch (100 mm) solid line stripe. Glass beads for a double drop application shall be applied at a rate of 211 pounds per mile (60 kg/km) for the first drop on a 4-inch (100 mm) solid line and 211 pounds per mile (60 kg/km) for the second drop.

Subsection 732.04 – Measurement (05/02), Pages 484 and 485.

Delete Heading (c) and substitute the following.

Removal of existing pavement markings for undivided highways will be measured by the linear mile (km) of full roadway width including shoulders. For divided highways, the full roadway width including shoulders and ramps will be measured separately for each direction of travel. Removal of pavement markings will include removal of lane lines, edge lines, gore markings, symbols, and raised pavement markings.

SECTION 733 – CONCRETE ROADWAY BARRIERS:

Subsection 733.05 – Payment (06/01), Page 487.

Delete the second and third sentences of the first paragraph and substitute the following:

The concrete in cast-in-place roadway barriers will be identified by lots and shall be subject to pay adjustments in accordance with Table 901-4 and Note 1 therein. The concrete in precast roadway barriers will be identified by lots and shall be subject to pay adjustments in accordance with Table 901-3 and Note 1 therein.

SECTION 736 – TRAFFIC SIGNALS:

Subsection 736.13 – Vehicle and Pedestrian Signal Heads (04/04), Page 498.

Add the following.

A 12-inch (300 mm) light emitting diode (LED) traffic signal lamp unit shall be provided as part of a new traffic signal head or as a retrofitted replacement into a new or existing signal housing in accordance with Section 1020, the plans and these specifications including all materials, tools, equipment, labor and incidentals necessary to complete the work.

Installation of a retrofitted replacement LED traffic signal lamp unit into a new or existing signal housing shall only require removal of the existing lens and incandescent lamp, fitting of the new unit securely in the housing door, and connecting the new unit to existing electrical wiring or terminal block by means of simple connectors. The LED retrofit shall not require the removal of the reflector. The existing wiring for the incandescent socket shall remain in place, but shall be disconnected from the terminal block, and neatly coiled adjacent to the terminal block with connectors taped with electrical tape to prevent accidental short circuits.

If proper orientation of the LED traffic signal lamp unit is required for optimum performance, prominent and permanent directional marking(s), such as an "UP arrow", for correct indexing and orientation shall exist on the unit.

The contractor shall neatly inscribe the installation date on the back of each LED traffic signal lamp unit.

Each LED traffic signal lamp unit shall be provided with the following documentation:

1. Complete and accurate installation wiring guide.
2. Contact name, address, and telephone number for the representative, manufacturer, or distributor for warranty replacement.

Each LED traffic signal lamp unit shall be individually packaged, and delivered securely bound on pallets. Each package shall be labeled with the manufacturer's name, individual serial number, manufactured date, model, and batch or lot number.

Subsection 736.21 – Measurement (04/04), Pages 502 and 503.

Delete Heading (c), Jacking or Boring Conduit, and substitute the following.

(c) Jacked or Bored Conduit: Jacked or bored conduit will be measured by the linear foot (lin m) of conduit furnished and installed. Measurement will include the conduit, fittings, excavation, backfilling and duct markers.

Delete Heading (e), Signal Heads, and substitute the following.

Signal heads will be measured per each head installed and/or retrofitted, and accepted. Measurement will include disconnect hangers, traffic signal wiring attached to overhead span, closure caps, mounting hardware, LED traffic signal lamp units, head programming, mounting connections and hardware.

Subsection 736.22 – Payment (07/03), Pages 503 and 504.

Delete the first sentence of the second paragraph and substitute the following:

The concrete in foundations for signal supports, signal controllers, and other signal equipment will be identified by lots and shall be subject to pay adjustments in accordance with Table 901-4 and Note 1 therein.

Delete Pay Item No. 736-03, Jacking or Boring Conduit (Size & Type), and substitute the following.

736-03	Jacked or Bored Conduit (Size & Type)	Linear Foot (lin. m)

SECTION 737 – PAINTED TRAFFIC STRIPING:

Subsection 737.03 – Equipment (03/02), Page 505.

Delete Heading (d) and substitute the following.

(d) Equipment shall provide a gravity bead dispenser for drop-on application of glass beads.

Subsection 737.06 – Application (03/02), Page 506.

Delete the first sentence of the second paragraph of Heading (b) and substitute the following.

Glass beads shall be applied at the same time, but in a separate operation, at the rate of 12 pounds of beads per gallon of paint (1.44 kg/L). Beads shall be applied at a rate of 10 miles per hour (16 km/h) or less.

SECTION 738 – MULCH SODDING

Subsection 738.06 – Payment (07/03), Page 509.

Delete the second sentence of the first paragraph.

SECTION 739 – HYDRO-SEEDING

Subsection 739.03 – Hydro-Seeding General (12/04), Pages 510 and 511.

Delete the first paragraph and substitute the following.

Hydro-seeding shall consist of mixing and applying seed, commercial fertilizer, water management gel, polyacrylamide tackifier, and mycorrhizal inoculum with paper or wood fiber and water. Seed and commercial fertilizer shall be uniformly spread over the area at the rates specified in Table 717-1 and Table 718-1. Paper or wood fiber shall be mixed and applied with the seed in accordance with the manufacturer's recommendations and as approved by the engineer. The contractor will be permitted to include fertilizer and lime in the seeding slurry for application during hydro-seeding operations.

SECTION 740 – CONSTRUCTION LAYOUT:

Subsection 740.01 – Description (07/04), Page 512.

Delete the second sentence and substitute the following.

The work consists of establishing lines and grades, taking all cross sections, and staking out the construction work in accordance with these specifications, plan details, and as directed.

Add the following.

This work also includes assistance in the coordination of utility relocation activities to ensure that the placement of relocated facilities will not conflict with required construction.

Subsection 740.02 – Construction Requirements (07/04), Pages 512 and 513.

Add the following.

The contractor shall provide sufficient qualified staff, of at least one employee, on site during relocation periods. The contractor shall provide any necessary survey work to ensure there are no utility conflicts with required construction. The contractor shall provide daily documentation of utility relocation activities for incorporation into the project diaries.

Subsection 740.03 – Measurement (07/04), Page 513.

Add the following.

Utility Oversight and Coordination will be measured as a lump sum which will include all labor, materials, and incidentals required to complete the work.

Subsection 740.04 – Payment (07/04), Page 513.

Add the following.

Payment for Utility Oversight and Coordination will be made at the contract lump sum price.

Payment will be made under:

Item No.	Pay Item	Pay Unit
740-02	Utility Oversight and Coordination	Lump Sum

SECTION 801 – GENERAL REQUIREMENTS FOR STRUCTURES:

Subsection 801.04 – Temporary Bridge Works (04/02), Page 522.

Delete the text of this subsection and substitute the following:

Guidance on the design and construction of all temporary bridge works is contained in two AASHTO publications: "Guide Design Specifications for Bridge Temporary Works" 1995 and "Construction Handbook for Bridge Temporary Works" 1995. These specifications should be followed to ensure the safe design and construction of temporary bridge works.

All field welding of temporary works shall be done by certified welders.

SECTION 805 – STRUCTURAL CONCRETE:

Subsection 805.02 – Materials (12/02), Pages 559 and 560.

Delete Table 805-1, Classes and Uses of Concrete and substitute the following:

Table 805-1
Classes and Uses of Concrete

Concrete Class	Use
A or A(M)	Concrete exposed to sea water, and all other concrete except as listed herein.
AA or AA(M)	Cast-in-place bridge superstructure
D	Pier footings
F	Dams and flood control structures
P or P(M)	Precast bridge members
P(X)	Precast-prestressed bridge girders
R	Nonreinforced sections
S	Underwater sections

Subsection 805.03 – Handling and Placing Concrete and Precast Units (12/02), Pages 560 – 564.

Add the following to the second paragraph of Heading (a):

For concrete containing fly ash or ground granulated blast-furnace slag, the deck shall be closed to all traffic, including vehicles of the contractor, until the test specimens have attained a compressive strength of 3,200 psi (22.0 MPa).

Subsection 805.11 – Removal of Falsework and Forms (12/02), Pages 569 and 570.

Add the following to the second paragraph:

For concrete containing fly ash or ground granulated blast-furnace slag, only Method 1 shall be used.

Subsection 805.14 – Prestressed Concrete (12/02), Pages 576 – 585.

Add the following to the fourth paragraph of Heading (a):

This office shall also contain two separate telephone lines, one dedicated to the telephone and the other dedicated to a computer.

Subsection 805.18 – Payment (06/01), Pages 588 and 589.

Add the following to Heading (d):

Acceptance and payment for bridge superstructure and substructure will be made on a lot basis at the contract unit price per span, adjusted in accordance with the following provisions. A lot will be considered an identifiable pour as described in Heading (a) of this subsection. Acceptance and payment for each cast-in-place bridge superstructure and substructure lot will be in accordance with Table 901-3 and Note 1 therein. Acceptance for each precast bridge superstructure and substructure lot will be in accordance with Table 901-2.

Add the following to Heading (e):

Acceptance and payment for reinforced concrete box culverts will be made on a lot basis at the contract unit price per linear foot (linear meter), adjusted in accordance with the following provisions. A lot will be considered an identifiable pour as described in Heading (a) of this subsection. Acceptance and payment for each cast-in-place reinforced concrete box culvert lot

will be in accordance with Table 901-3 and Note 1 therein. Acceptance for each precast reinforced concrete box culvert will be in accordance with ASTM C 1433 (C 1433M).

SECTION 807 – STRUCTURAL METALS:

Subsection 807.04 – Minimum Shop Requirements for Fabrication of Major Bridge Members (04/02), Pages 597 and 598.

Delete the heading and text of this subsection and substitute the following:

MINIMUM SHOP REQUIREMENTS FOR FABRICATION OF STEEL STRUCTURES.

The contractor (fabricator) shall provide sufficient lifting capacity, physical plant and equipment for the fabrication of structural steel. The cranes in each working area shall have a combined rated capacity equal to the lifting weight of the heaviest assembly fabricated for shipment unless alternate lifting and turning facilities are approved.

Lifting chains shall be provided with adequate softeners to prevent damage to the corners of material during lifting and turning. When hooks are used for lifting, they shall have sufficient width of jaw and throat to prevent damage to the flanges or to the web-to-flange welds.

Spreader beams, or multiple cranes, shall be provided for lifting plates and long slender members to prevent overstress and distortion from handling.

Shops shall have sufficient enclosed floor spaces to allow oxygen cutting, air carbon arc gouging, assembly and welding to be performed inside, except that shop assembly of field connections for trusses, girders and arches may be performed outside the shop buildings. The fabrication of major steel bridge components (includes all bridge structures other than unspliced rolled beam bridges) shall only be by fabrication shops having a current AISC Certification for Major Steel Bridges. Current AISC Certification for Simple Steel Bridges will be required for fabrication of highway sign structures, secondary members of bridges (such as cross frames), and unspliced rolled beam bridges. Structures that have fracture critical members shall require an AISC Fracture Critical Endorsement to the fabricator's Simple or Major Steel Bridge Certification. The contractor will be required to provide the engineer with documentation of the certification prior to beginning fabrication.

The engineer may approve limited fabrication and welding outside the shop, provided the fabricator has made provisions to ensure that the quality of the work produced outside the shop buildings will not be adversely affected by weather or other conditions.

All cutting, fitting and welding shall be done in areas that are kept dry. Areas for automatic and semiautomatic welding shall be kept at a temperature not lower than 40°F (5°C) for at least 1 hour before work begins and at all times when work is being performed.

Subsection 807.05 – Inspection (04/02), Pages 598 and 599.

Add the following to the sixth paragraph of Heading (a).

This office shall also contain two separate telephone lines, one dedicated to the telephone and the other dedicated to a computer. The contractor or fabricator shall be responsible for paying all utility bills.

Subsection 807.08 – Straightening Material and Curving Rolled Beams and Welded Girders (05/05), Page 600.

Delete the third sentence of the paragraph of Heading (a) and substitute the following.

Heat straightening of ASTM A 709, Grade 100 (A 709M, Grade 690), and A 709, Grade 100W (A 709M, Grade 690W) steel shall be done only under rigidly controlled procedures, each application subject to approval of the engineer.

Subsection 807.21 – Connections Using High Strength Bolts (05/05), Pages 607 – 623.

Delete the paragraph of Heading (e)(2) and substitute the following.

When the plans specify the steel as unpainted ASTM A 709, Grade 50W (A 709M, Grade 345W), A 709, Grade HPS 50W (A 709M, Grade HPS 345W), A 709, Grade HPS 70W (A 709M, Grade HPS 485W), or A 709, Grade 100W (A 709M, Grade 690W) contact surfaces within joints shall be thoroughly cleaned by Commercial Blast Cleaning in accordance with Subsection 811.06(c) or other approved methods that will remove all dirt, oil, grease, rust scale, loose mill scale, weld slag and other foreign matter, and shall remain unpainted.

Subsection 807.30 – Bent Plates (05/05), Pages 625 & 626.

Delete the fourth and fifth paragraphs and substitute the following.

Allowance for springback of ASTM A 709, Grade 100 (A 709M, Grade 690), and A 709, Grade 100W (A 709M, Grade 690W) steel should be about three times that for structural carbon steel. For brake press forming, the lower die span should be at least 16 times the plate thickness. Multiple hits are advisable.

If shorter radii are essential, plates shall be bent hot at a temperature not greater than 1150°F (620°C), except for ASTM A 709, Grade 100 (A 709M, Grade 690), and A 709, Grade 100W (A 709M, Grade 690W) steel. If ASTM A 709, Grade 100 (A 709M, Grade 690), and A 709, Grade 100W (A 709M, Grade 690W) steel plates to be bent are heated to a temperature greater than 1125°F (610°C), they must be requenched and tempered in accordance with the producing mill's practice. Hot-bent plates shall conform to the requirements herein for cold-bent plates.

Subsection 807.47 – Straightening Bent Material and Cambering (05/05), Page 632.

Delete the first paragraph of Heading (a) and substitute the following.

Straightening of plates, angles, other shapes and built-up members, when permitted, shall be done by methods that will not produce fracture or other damage. Distorted members shall be straightened by mechanical means or, if approved, by supervised application of a limited amount of localized heat, except that heat straightening of ASTM A 709, Grade 100 (A 709M, Grade 690), and A 709, Grade 100W (A 709M, Grade 690W) steel shall be done only under rigidly controlled procedures, each application subject to approval of the engineer. In no case shall the maximum temperature of ASTM A 709, Grade 100 (A 709M, Grade 690), and A 709, Grade 100W (A 709M, Grade 690W) steel exceed 1125°F (610°C), nor shall the temperature exceed 950°F (510°C) at weld metal or within 6 inches (150 mm) of weld metal. Heat shall not be applied directly on weld metal. In all other steels, the temperature of the heated area shall not exceed 1150°F (620°C) (a dull red) as controlled by temperature indicating crayons, liquids or bi-metal thermometers.

Delete the paragraph of Heading (b) and substitute the following.

Correction of errors in camber in welded beams and girders of ASTM A 709, Grade 100 (A 709M, Grade 690), and A 709, Grade 100W (A 709M, Grade 690W) steel shall be done only under rigidly controlled procedures, each application subject to approval.

Subsection 807.52 – Weathering Steel (05/05), Pages 633 & 634.

Delete the first paragraph and substitute the following.

When ASTM A 709, Grade 50W (A 709M, Grade 345W), A 709, Grade HPS 50W (A 709M, Grade HPS 345W), A 709, Grade HPS 70W (A 709M, Grade HPS 485W), or A 709, Grade 100W (A 709M, Grade 690W) weathering steel is specified to be left unpainted, the following modifications in the requirements of this subsection shall apply.

Subsection 807.53 – Measurement (05/05), Pages 634 & 635.

Delete the eighth paragraph of Heading (a) and substitute the following.

ASTM A 709, Grade 36 (A 709M, Grade 250), A 709, Grade 50 (A 709M, Grade 345), A 709, Grade 50W (A 709M, Grade 345W), A 709, Grade HPS 50W (A 709M, Grade HPS 345W), A 709, Grade HPS 70W (A 709M, Grade HPS 485W), A 709, Grade 100 (A 709M, Grade 690), or A 709, Grade 100W (A 709M, Grade 690W) steel shall include all steel classified as such in the plans or specifications.

Subsection 807.54 – Payment (05/05), Page 636.

Delete Pay Item 807-04 Steel (ASTM A 709, Grade 70W) (A 709M, Grade 485W).

Add the following Pay Items.

Item No.	Pay Item	Pay Unit
807-07	Steel (ASTM A 709, Grade HPS 50W) (A 709M, Grade HPS 345W)	Pound (kg)
807-08	Steel (ASTM A 709, Grade HPS 70W) (A 709M, Grade HPS 485W)	Pound (kg)
807-09	Steel (ASTM A 709, Grade 100W) (A 709M, Grade 690W)	Pound (kg)

SECTION 810 – BRIDGE RAILINGS AND BARRIERS:

Subsection 810.09 – Payment (06/01), Pages 659 and 660.

Delete the fourth sentence and substitute the following:

Payment for each lot will be subject to adjustments in accordance with Table 901-3 and Note 1.

SECTION 811 – PAINTING AND PROTECTIVE COATINGS:

Subsection 811.01 – Description (08/05), Page 661.

Delete the second paragraph and substitute the following.

Unless otherwise specified, an approved zinc paint system shall be used for coating metal surfaces requiring painting.

Subsection 811.03 – Materials (08/05), Page 661.

Add the following:

(d) Corrosion Inhibiting Alkyd Paint shall comply with Subsection 1008.06.

(e) Zinc Paint Systems for New Steel and 100 Percent Bare Existing Steel: The zinc paint system shall be an approved system listed on QPL 78. Each system shall be tested in accordance with AASHTO R 31 and meet the requirements of Subsection 1008.07.

The contractor has the option of using any one of these systems; however, no modifications or combinations of the systems will be permitted and the same system shall be used throughout the project.

Subsection 811.04 – Painting Metal (08/05), Pages 661 and 662.

Add the following:

(c) Corrosion Inhibiting Alkyd Paint System: Corrosion Inhibiting Alkyd Paint shall be a non-polluting pigmented alkyd paint to be used in a three-coat paint system on properly prepared structural steel surfaces to be permanently exposed. The contractor has the option of using either System A or System B, however, whichever system is selected shall be used on the entire project. The primer and intermediate coats shall be tinted for color contrast.

The minimum dry film thickness of the coatings shall be as follows:

Prime Coat	-	2.0 mils (50 µm)
Intermediate Coat	-	2.0 mils (50 µm)
Aluminum Topcoat	-	2.0 mils (50 µm) - AASHTO M69, Type I

(d) Zinc Paint Systems for New Steel and 100 Percent Bare Existing Steel: The specified dry film thickness of coatings shall be as published in QPL 78.

Subsection 811.08 – Application (08/05), Pages 664 & 665.

Add the following:

(c) Zinc Paint Systems for New Steel and 100 Percent Bare Existing Steel: Each coat of paint shall be applied with airless or conventional spray equipment. The spray equipment shall apply paint in a fine, even spray. If thinning of paint is allowed, it shall be done in accordance with the paint manufacturer's recommendations, but in no case shall exceed 10 percent. An approved oil/moisture trap shall be placed between air supply and pressure pot. Fluid pressure shall be regulated to deliver a uniform and wet coat of material from the spray gun.

On surfaces inaccessible to spray equipment, paint shall be applied with brush or approved daubers to ensure coverage.

(1) Primer (Shop Primer): Primer for new steel shall be applied after fabrication with one coat of the inorganic zinc paint applied at the shop. The dry-to-handle curing time shall be based on the temperature and relative humidity requirements of the manufacturer's product data sheet curing schedule. A 72 hour curing time will be required for steel painted at the shop before it can be shipped.

(2) Field Painting: Primer for existing steel and damaged areas of newly erected steel with a shop primer coat of inorganic zinc paint shall be applied after the steel is blast cleaned in accordance with Subsection 811.06(b) or power tool cleaned to bare metal in accordance with SSPC SP11 with an approved organic zinc paint system listed on QPL 78. Each coat of paint

shall be applied in accordance with the dry film thickness requirements listed on QPL 78 and allowed to cure in accordance with temperature and relative humidity requirements of the manufacturer's product data sheet curing schedule.

(3) Intermediate Coat and Topcoat: Unless otherwise specified, intermediate coat and topcoat paint for new steel shall be applied after field erection, field spot painting and cleaning of primer surfacing. Dust film, dry spray, overspray or other residue shall be removed prior to painting. The use of sand paper for cleaning is acceptable, provided the minimum dry film thickness of primer remains.

SECTION 813 – CONCRETE APPROACH SLABS:

Subsection 813.10 – Payment (06/01), Page 677.

Delete the last sentence of the second paragraph and substitute the following:

Acceptance and payment for each lot will be made in accordance with Table 901-3 and Note 1.

SECTION 814 – DRILLED SHAFT FOUNDATIONS:

Subsection 814.23 – Payment (06/01), Pages 703 and 704.

Delete the fifth sentence of the second paragraph of Heading (a) and substitute the following:

Acceptance and payment for each lot will be made in accordance with Table 901-3 and Note 1.

SECTION 901 – PORTLAND CEMENT CONCRETE:

The term "Ground Iron Blast-Furnace Slag is deleted and replaced by the term "Ground Granulated Blast Furnace Slag" throughout Section 901.

Subsection 901.06 – Quality Control of Concrete (03/04), Pages 713 - 715

Add the following to Heading (a).

In developing mix designs for portland cement concrete pavement Types B and D, the proportions of the aggregate sizes to be used shall meet the requirements of Subsection 1003.02(c). All gradation calculations shall be based on percent of dry weight (mass). The percent of the total aggregates retained on each sieve shall be determined mathematically based on the proportions of the combined aggregate blend, and checked for conformance with Table 1003-1A.

Add the following to Heading (b).

When producing concrete for Types B and D pavements, gradations shall be determined daily on each stockpile of aggregate to be used. All gradation calculations shall be based on percent of dry weight (mass). Upon determination of the gradation of each stockpile, the percent of the total aggregates retained shall be determined mathematically based on the proportions of the combined aggregate blend, and checked for conformance with Table 1003-1A.

Delete the first paragraph of Heading (c) and substitute the following.

The contractor may vary the proportions of the aggregate sizes as reviewed and accepted, but in no case shall they be varied so as to materially affect the volume of concrete. If the

proportions of the aggregate sizes used do not satisfy the gradation requirements of Subsection 1003.02(c) due to changes in the gradation of one or more stockpiles, the proportions shall be adjusted to bring the combined aggregates back within specification limits. These minor adjustments for gradation will not require a new mix design. The mix produced shall be uniform and within the specification limits of Table 901-2. When plant operations do not produce a uniform mix, plant operations will be discontinued.

Delete the first sentence in the third paragraph of Heading (c) and substitute the following.

Adjustments to the proportions of the sizes of aggregates shall not cause the minimum cement factor to deviate from that accepted on the mix design.

Add the following Heading (d).

(d) Acceptance and Verification for Types B and D Pavements: Sampling and testing for acceptance and verification for concrete for Types B and D pavements shall be in accordance with the provisions of the Materials Sampling Manual, except as follows:

(1) Gradation testing for acceptance will not be required.

(2) Verification tests will be performed by the District Laboratory to assure conformance to the gradation of the total combined aggregates shown in Table 1003-1A at the frequency of one sample per aggregate size per lot, with a maximum of one sample per aggregate size per day. Samples are to be obtained from the aggregate feed (conveyor) belt as described in the Materials Sampling Manual, DOTD Designation S101, Aggregates and Aggregate Mixtures.

(3) Upon determination of the gradation of each aggregate size sampled, the percent retained based on the dry weight (mass) of the total combined aggregates will be determined mathematically based on the proportions of the combined aggregate blend, and checked for conformance with Table 1003-1A.

(4) If the results of the verification sample indicate that the combination of aggregates being used does not meet the requirements of Subsection 1003.02(c), the aggregates shall be re-sampled and tested again. If the results of the second verification sample indicate that the combination of aggregates being used does not meet the requirements of Subsection 1003.02(c), the contractor will be notified and required to make adjustments to his operations to produce a mix meeting these specifications. No concrete from this plant shall be placed on DOTD projects until the adjustments are made and approved by the District Laboratory Engineer. An additional verification sample may be required prior to resuming operations.

Subsection 901.07 – Substitutions (06/05), Pages 715 and 716.

Delete this subsection and substitute the following.

901.07 SUBSTITUTIONS. Mixtures may be substituted with approval in accordance with Table 901-1.

Table 901-1
Portland Cement Concrete Mixture Substitutions

Structural Class[1]	Substitute
AA(M)	No Substitutions
AA	AA(M)
A(M)	AA(M), AA
A	AA(M), AA, A(M)
D	No Substitutions
F	No Substitutions
P(X)	No Substitutions
P(M)	No Substitutions
P	P(M)
S	No Substitutions
Minor Structure Class[1]	
M	AA(M), AA, A(M), A, B
R	AA(M), AA, A(M), A, B, M
Y	No Substitutions
Pavement Type[1,2]	
B	D
D	B
E	No Substitutions

[1]The mixture being substituted shall meet the requirements of Table 901-2 and the mix design for its class or type. The compressive strength of the substituted mix shall meet the strength requirements of the original mixture specified.

[2]When justified in writing and approved by the engineer, small irregular areas of paving projects using Types B or D concrete may be substituted with Class A concrete.

Subsection 901.08 – Composition of Concrete (12/05), Pages 716 – 719.

Delete the second paragraph of Heading (a) and substitute the following.

For concrete placements having a least dimension of 48 inches (1200 mm) or greater, or if designated on the plans or the project specifications as being mass concrete, the allowable cement type shall be Type II portland cement, Type IP portland-pozzolan cement, or Type IS portland blast furnace slag cement. The cement or combination of cement and fly ash or ground granulated blast furnace slag, shall be certified to generate a heat of hydration of not more than 70 calories/gram (290 kJ/kg) at 7 days.

Delete the fourth paragraph of Heading (a) and substitute the following:

The contractor will be permitted partial substitution on a pound (kilogram) for pound (kilogram) basis of fly ash, grade 100 or grade 120 ground granulated blast-furnace slag for portland cement in concrete mixes only when using Type I, I(B) or II portland cement. The contractor may use a maximum of 25 percent fly ash by weight (mass) of cement for concrete pipe, up to 20 percent fly ash by weight (mass) of cement for other minor structures and concrete pavement, and up to 15 percent fly ash by weight (mass) of cement for structural concrete. When substituted at the ready-mix plant, the contractor may use the substitution rate of grade

100 or grade 120 ground granulated blast-furnace slag conforming to Subsection 1018.28 up to 45 percent by weight (mass) of cement for minor structures (including concrete pipe), structures, and pavement. If the producer wants to increase the substitution rate of grade 100 or grade 120 ground granulated blast-furnace slag above 45 percent up to a maximum of 50 percent, the cement and slag must be blended at the cement plant or terminal. The blended cement containing over 45 percent of grade 100 or grade 120 ground granulated blast-furnace slag must be in compliance with Subsection 1001.04 for portland blast-furnace slag cement.

Delete the third sentence of the fifth paragraph of Heading (b) and substitute the following:

When the ambient air temperature is 85°F (30°C) or above, the water-reducing admixture shall be the set-retarding type, except for concrete containing fly ash or ground granulated blast furnace slag where this choice is optional.

Delete the first sentence of the second paragraph of Heading (c) and substitute the following:

Because of the absorptive nature of lightweight aggregate and the inability to obtain a true saturated surface dry condition for determining free moisture, a maximum amount of water cannot be specified for Class Y concrete.

Delete Heading (d) and substitute the following.

(d) Aggregate: All aggregates for use in portland cement concrete shall meet the requirements of Subsection 1003.01.

(1) Coarse Aggregate: Coarse aggregate, except for gradations for Types B and D pavements, shall be the grade specified in Table 901-2 and shall comply with the requirements of Subsection 1003.02(b).

(2) Fine Aggregate: Fine aggregate, except for gradations for Types B and D pavements, shall comply with the requirements of Subsection 1003.02(a).

(3) Aggregates for Types B and D Pavements: Aggregates shall comply with the requirements of Subsection 1003.02(c).

Subsection 901.11 – Temperature Limitations, (12/02), Pages 726 and 727.

Delete Heading (c) and substitute the following:

(c) Cold Weather Limitations: Mixing and concreting operations for concrete mixes not containing ground granulated blast-furnace slag or Type IS cement shall be discontinued when a descending air temperature in the shade and away from artificial heat reaches 40°F (5°C), and shall not be resumed until an ascending air temperature in the shade and away from artificial heat reaches 35°F (2°C) provided the high temperature forecasted by the U.S. Weather Service is above 40°F (5°C). For concrete mixes containing ground granulated blast-furnace slag or Type IS cement, operations shall be discontinued at a descending air temperature in the shade and away from artificial heat of 55°F (13°C) and can resume at a temperature of 50°F (10°C) and rising provided the high temperature forecasted by the U.S. Weather Service is above 55°F (13°C). Production shall not begin until the temperature at the point of placement is within the above limitations. Concrete shall not be placed if the temperature is forecasted by the U.S. Weather Service to be less than 35°F (2°C) within the 24 hour period following placement.

When concrete placement at lower air temperatures is authorized in writing, aggregates may be heated by either steam or dry heat prior to being placed in the mixer. The apparatus used shall heat the mass uniformly and shall be arranged to prevent occurrence of overheated areas. If the air temperature is less than 35°F (2°C) at the time of placing concrete, the engineer may require water or aggregates to be heated to not less than 70°F (20°C) nor more than 150°F (65°C). After placement the concrete shall be protected by additional covering, insulating materials, or other methods approved by the engineer.

Table 901-2, Master Proportion Table for Portland Cement Concrete (06/05), Page 728.

Delete this table and substitute the following.

Table 901-2
Master Proportion Table for Portland Cement Concrete

	Average Compressive Strength, psi (MPa) at 28 days	Grade of Coarse Aggregate	Min. Cement, lb/yd^3 (kg/m^3) of Concrete [9]	Maximum Water/Cement ratio, lb/lb(kg/kg) [1,9]	Total Air Content (Percent by volume) [4]	Slump Range [10], inches (mm)		
						Non-Vibrated	Vibrated	Slip Form Paving [2]
Structural Class [11]								
AA(M)	4400 (30.4)	A, P	560 (332)	0.44	5±1	2-5 (50-125)	2-4 (50-100)	N.A.
AA	4200 (29.0)	A, P	560 (332)	0.44	5±1	2-5 (50-125)	2-4 (50-100)	N.A.
A(M)	4400 (30.4)	A, P	510 (302)	0.53	5±2	2-5 (50-125)	2-4 (50-100)	N.A.
A	3800 (26.2)	A, F [8], P	510 (302)	0.53	5±2	2-5 (50-125)	2-4 (50-100)	1-2.5 (25-65)
D	3300 (22.8)	A, B, D, P	420 (249)	0.58	5±2	2-5 (50-125)	1-3 (25-75)	N.A.
F	3400 (23.5)[5]	A,P	460 (273)	0.44	5±1	2-5 (50-125)	2-4 (50-100)	N.A.
P(X)	7500 (51.7)[5]	A, F [8], P	700 (415)	0.40	5±2	N.A.	2-10 (50-250)	N.A.
P(M)	6000 (41.4)[5]	A, F [8], P	600 (356)	0.44	5±2	N.A.	2-6 (50-150)[7]	N.A.
P	5000 (34.5)[5]	A, F [8], P	560 (332)	0.44	5±2	N.A.	2-6 (50-150)[7]	N.A.
S	3800 (26.2)	A,P	650 (385)	0.53	5±2	6-8 (150-200)	N.A.	N.A.
Minor Structure Class [11]								
M	3000 (20.7)	A, B, P	470 (279)	0.53	5±2	2-5 (50-125)	2-4 (50-100)	1-2.5 (25-65)
R	1800 (12.4)	A, B, D, P	370 (219)	0.70	5±2	2-5 (50-125)	2-4 (50-100)	N.A.
Y	3000 (20.7)	Y	560 (332)	-[3]	6-9	N.A.	1-3 (25-75)	N.A.
Pavement Type [11]								
B	4000 (27.6)[6]	N/A [13]	475 (282)	0.53	5±2	N.A.	2-4 (50-100)	1-2.5 (25-65)
D	4000 (27.6)[6]	N/A [13]	450 (267)	0.53	5±2	N.A.	2-4 (50-100)	1-2.5 (25-65)
E	4000 (27.6)[6]	A, F[12], P	600 (356)	0.40	5±2	N.A.	2-4 (50-100)	1-2.5 (25-65)

N.A. – Not Applicable

[1] Except for Class AA, AA(M), or F concrete, the maximum volume of water; gal. (L), shall be reduced 5 percent when a water-reducing admixture is used, and 10 percent when an air-entraining admixture, or air-entraining and water-reducing admixtures, is used. When the coarse aggregate portion of the mix is 100 percent crushed aggregate, the water may be increased by 5 percent provided the maximum water listed in Table 901-2 is not exceeded.

[2] Also slump range for other concrete placed by extrusion methods.

[3] Refer to Subsection 901.08(c).

[4] Total air content ranges when air-entrainment is allowed or specified. Air content shall be designed at midrange.

[5] Values shown represent the minimum compressive strengths allowed.

[6] Average compressive strengths for Pavement Type concrete shall be 3600 psi (24.8 MPa) when air-entrainment is used.

[7] No more than a 2 inch (50 mm) slump differential for any design pour.

[8] Grade F coarse aggregate shall be used only when specified or permitted. The minimum cement content shall be increased when this aggregate is used.

[9] For mixes including partial replacement of cement with fly ash or ground granulated blast furnace slag, the minimum cement and maximum water contents shown apply to the total cement and fly ash or ground granulated blast furnace slag content of the mix. Additional cementmay be required to achieve minimum compressive strength.

[10] When a slump range is specified in other sections, that range shall govern.

[11] See Subsection 901.08(a) for allowable types of cement.

[12] For use in partial depth patching.

[13] Aggregate grading shall comply with the requirements of Subsection 1003.02(c).

Tables 901-3E and 901-3M, Acceptance and Payment Schedules for Cast-In-Place Structural Concrete (03/04), Pages 729 and 730.

Delete these tables and substitute the following.

Table 901-3E
Acceptance and Payment Schedules
Cast-In-Place Structural Concrete

Average Compressive Strength per Lot, psi (28 to 31 days)					
Class A or S	Class AA	Class A(M) or AA(M)	Class D	Class F	Percent of Contract Price[1]
3800 & above	4200 & above	4400 & above	3300 & above	3400 & above	100
3400-3799	3800-4199	4200-4399	3000-3299	---	98
3000-3399	3500-3799	4000-4199	2500-2999	---	90
below 3000	below 3500	below 4000	below 2500	below 3400	50 or remove and replace[2]

Table 901-3M
Acceptance and Payment Schedules
Cast-In-Place Structural Concrete

Average Compressive Strength per Lot, MPa (28 to 31 days)					
Class A or S	Class AA	Class A(M) or AA(M)	Class D	Class F	Percent of Contract Price[1]
26.2 & above	29.0 & above	30.4 & above	22.8 & above	23.5 & above	100
23.5-26.1	26.2-28.9	29.0-30.3	20.7-22.7	---	98
20.7-23.4	24.1-26.1	27.6-28.9	17.2-20.6	---	90
below 20.7	below 24.1	below 27.6	below 17.2	below 23.5	50 or remove and replace[2]

[1]When concrete is part of an item or not a direct pay item, lot sizes, sampling and acceptance testing for the required quantities will be in accordance with Subsection 805.18. The value for each cubic yard (cu m) required will be assessed at $250 ($330) for the purpose of applying payment adjustment percentages. The amount of payment adjustment for the quantity of concrete involved will be deducted from payment.

Acceptance and payment schedules shall apply to the contract item itself for cast-in-place piling.

[2]When the average compressive strength of any batch in a lot is less than 4000 psi (27.6 MPa) for Class A(M) or AA(M), less than 3500 psi (24.1 MPa) for Class AA, less than 3000 psi (20.7 MPa) for Class A or S , less than 2500 psi (17.2 MPa) for Class D, or less than 3400 psi (23.5 MPa) for Class F, an investigation will be made. If concrete is allowed to remain in place, payment will be based on the average compressive strength for the lot. If concrete is not allowed to remain in place, the identifiable deficient areas shall be removed and replaced at no direct pay.

When the average compressive strength for a lot is less than 4000 psi (27.6 MPa) for Class A(M) or AA(M), less than 3500 psi (24.1 MPa) for Class AA, less than 3000 psi (20.7 MPa) for Class A or S , less than 2500 psi (17.2 MPa) for Class D, or less than 3400 psi (23.5 MPa) for Class F, an investigation will be made. If concrete is allowed to remain in place, payment for the lot will be based on 50 percent of the contract price.

Any cores obtained in these investigations will be used for evaluation purposes only and payment will be based on original acceptance samples.

Tables 901-4E and 901-4M, Acceptance and Payment Schedules for Cast-In-Place Minor Structure Concrete (06/05), Pages 729 and 730.

Delete these tables and substitute the following.

Table 901-4E

Acceptance and Payment Schedules
Cast-In-Place Minor Structure Concrete

Average Compressive Strength, psi (28 to 31 days)		
Class M or Y	Class R	Percent of Contract Price [1]
3000 & Above Below 3000	1800 & Above Below 1800	100 50 or Remove [2]

Table 901-4M
Acceptance and Payment Schedules
Cast-In-Place Minor Structure Concrete

Average Compressive Strength, MPa (28 to 31 days)		
Class M or Y	Class R	Percent of Contract Price [1]
20.7 & Above Below 20.7	12.4 & Above Below 12.4	100 50 or Remove [2]

[1]When concrete is part of an item or not a direct pay item, sampling and acceptance testing for the required quantities shall be in accordance with this section. The value for each cubic yard (cu m) of concrete required will be assessed at $250 ($330) for the purpose of applying payment adjustment percentages. The amount of payment adjustment for the quantity of concrete involved will be deducted from payment.

[2]When the average compressive strength is less than 3,000 psi (20.7 MPa) for Class M or Y, and 1,800 psi (12.4 MPa) for Class R, an investigation will be made. If concrete is allowed to remain in place, payment will be based on 50 percent of the contract price.

Any cores obtained in these investigations will be used for evaluation purposes only. Payment will be based on original acceptance samples.

SECTION 1001 – HYDRAULIC CEMENT:

Subsection 1001.01 – Portland Cement (11/04), Page 733.

Add the following subheading.

(c) Process Additions: Process additions may be used in amounts not to exceed 3 percent by weight (mass) of portland cement clinker provided it meets the requirements for the cement portion of ASTM C 465 and the test results are submitted to the Department for review and approval.

Subsection 1001.04 – Portland Blast-Furnace Slag Cement (09/02), Page 734.

Delete the fourth sentence and substitute the following:

Grade 100 and grade 120 ground granulated blast-furnace slag for use in Type IS cement shall comply with AASHTO M 302.

SECTION 1002 – ASPHALT MATERIALS AND ADDITIVES:

Subsection 1002.01 – Asphalt (03/03), Page 735.

Delete the second sentence of the third paragraph.

Delete the fifth paragraph and substitute the following.

When asphalt materials sampled at the point of delivery do not comply with specification requirements, and in the opinion of the engineer have resulted in an unsatisfactory product based on an investigation, the materials shall be removed and replaced or otherwise corrected at no direct pay.

Subsection 1002.02 – Asphalt Material Additives (03/03). Pages 735-744.

Delete Tables 1002-01, 1002-02, 1002-05, and 1002-11 and substitute the following.

Table 1002-1 (03/03)
Performance Graded Asphalt Cements

Property	AASHTO Test Method	PG76-22m[1]	PG70-22m[1]	PG64-22[1]	PG58-28[1]
Test on Original Binder					
Rotational Viscosity @ 135°C, Pa·s [2]	T 316	3.0	3.0	3.0	3.0
Dynamic Shear, 10 rad/s, G*/Sin Delta, kPa	T 315	1.00+ @ 76°C	1.00+ @ 70°C	1.30+ @ 64°C	1.00+ @ 58°C
Flash Point, °C	T 48	232+	232+	232+	232+
Solubility, % [3]	T 44	99.0+	99.0+	99.0+	99.0+
Separation of Polymer, 163°C, 48 hours, °C difference in R & B from top to bottom [5]	ASTM D 7173 AASHTO T 53	2-	2-	---	---
Force Ductility Ratio (f_2/f_1, 4°C, 5 cm/min., f_2 @ 30 cm elongation)	T 300	0.30+	---	---	---
Force Ductility, 4°C, 5 cm/min, 30 cm elongation, kg	T 300	---	0.23+	---	---
Tests on Rolling Thin Film Oven Residue	T 240				
Mass loss, %	T 240	1.00-	1.00-	1.00-	1.00-
Dynamic Shear, 10 rad/s, G*/Sin Delta, kPa	T 315	2.20+ @76°C	2.20+ @ 70°C	2.20+ @ 64°C	2.20+ @ 58°C
Elastic Recovery, 25°C, 10 cm elongation, % [4]	T 301	60+	40+	---	---
Ductility, 25°C, 5 cm/min, cm	T 51	---	---	100+	---
Test on Pressure Aging Vessel Residue	R 28				
Dynamic Shear, @ 25°C, 10 rad/s, G* Sin Delta, kPa	T 315	5000-	5000-	5000-	5000- @ 19°C
Bending Beam Creep Stiffness, S, MPa @ -12°C.	T 313	300-	300-	300-	300- @ -18°C
Bending Beam Creep Slope, m value,@ -12°C	T 313	0.300+	0.300+	0.300+	0.300+ @ -18°C

[1] PG76-22m or PG70-22m shall be required in the top two lifts of all hot mix asphalt construction for roadways; PG64-22 may be used in base course and incidentals; When 20-30% RAP is used in the base course PG 58-28 is required.

[2] The rotational viscosity will be measured to determine product uniformity. The rotational viscosity measured by the supplier shall be noted on the Certificate of Delivery. A binder having a rotational viscosity of 3.0 Pa·s or less will typically have adequate mixing and pumping capabilities. Binders with rotational viscosity values higher than 3.0 Pa·s should be used with caution and only after consulting with the supplier as to any special handling procedures and guarantees of mixing and pumping capabilities.

[3] Not all polymers are soluble in the specified solvents. If the polymer modified asphalt digested in the solvent will not pass the filter media, a sample of the base asphalt used in making the polymer modified asphalt should be tested for solubility. If the solubility of the base asphalt is at least 99.0%, the material will be considered as passing.

[4] AASHTO T 301 except the standard v-shaped sides for the specimen mold shall be replaced by straight-sided inserts of the same length, so that the specimen will contain a section 1 cm x 1 cm x 3 cm.

[5] Prepare samples per ASTM D 7173. Determine softening point of top and bottom per AASHTO T 53.

Table 1002-2 (03/03)
PG 70-22m Alternate[1]

Property	AASHTO Test Method	PG 70-22m Alternate[2] Specification
Test on Original Binder:		
Rotational Viscosity @ 135°C, Pa·s[3]	T 316	3.0-
Dynamic Shear, @ 70°C and 10 rad/s, G*/Sin Delta, kPa	T 315	1.50+
Flash Point, °C	T 48	232+
Solubility, %[4]	T 44	99.0+
Softening Point, Ring & Ball, °C	T 53	70.0+
Tests on Rolling Thin Film Oven Residue:	T 240	
Mass Loss, %	T 240	1.00-
Dynamic Shear, @ 70°C and 10 rad/s, G*/Sin Delta, kPa	T 315	2.20+
Tests on Pressure Aging Vessel Residue:	R 28	
Dynamic Shear, @ 25°C and 10 rad/s, G*Sin Delta, kPa	T 315	5000-
Bending Beam Creep Stiffness, S, @ -12°C, MPa	T 313	300-
Bending Beam Creep Slope, @ -12°C, m value	T 313	0.300+

[1] Use only with Superpave asphaltic concrete Level 1 and Level A mixes with less than 2500 ADT.

[2] Handling of all samples for testing shall be in accordance with ASTM D 4957, Section 7.2, which requires heating the sample in an oven maintained at 190° ± 2°C. Stir the sample occasionally until homogenous and pour in suitable container for testing. Pouring temperatures shall be 180° ± 2°C for all tests.

[3] The rotational viscosity will be measured to determine product uniformity. The rotational viscosity measured by the supplier shall be noted on the Certificate of Delivery. A binder having a rotational viscosity of 3.0 Pa·s or less will typically have adequate mixing and pumping capabilities. Binders with rotational viscosity values higher than 3.0 Pa·s should be used with caution and only after consulting with the supplier as to any special handling procedures and guarantees of mixing and pumping capabilities.

[4] Not all polymers are soluble in the specified solvents. If the polymer modified asphalt digested in the solvent will not pass the filter media, a sample of the base asphalt used in making the polymer modified asphalt should be tested for solubility. If the solubility of the base asphalt is at least 99.0%, the material shall be considered as passing.

Table 1002-5 (10/01)
Emulsified Polymerized Asphalt (CRS-2P)1

	Test Method	Percent of Contract Unit Price/Liter or Shipment[2]		
		Specifications	Deviatons	
		100	80	50 or Remove[3]
Viscosity, Saybolt Furol @ 50°C	AASHTO T 59	100-400	56-99 401-444	55- 445+
Storage Stability Test, 24 h, %	AASHTO T 59	1.0-	---	---
Settlement, 5 Day, %	AASHTO T 59	5.0-	---	---
Classification Test	AASHTO T 59	Pass	---	Fail
Particle Charge Test	AASHTO T 59	Pos.	---	Neg.
Sieve Test (Retained on 850 µm), %	AASHTO T 59	0.1-	---	---
Distillation:	AASHTO T 59			
Oil Distillate by Vol. of Emulsion, %		3.0-	---	---
Residue from Distillation, %		65+	61-64	60-
Tests on Residue by Distillation:				
Penetration, 25°C, 100 g, 5 s, dmm	AASHTO T 49	100-200	80-99 201-225	79- 226+
Softening Point (Ring & Ball), °C	AASHTO T 53	38.0-52.0	32.1-37.9 52.1-58.9	32.0- 59.0+
Solubility, %	AASHTO T 44	97.5+	---	---
Tests on Residue by Evaporation[4]:				
Force Ductility Ratio (f_2/f_1, 4°C, 5 cm/min, f_2 at second peak)	AASHTO T 300	0.30+	0.21-0.29	0.20-
Elastic Recovery, 10°C, 20 cm elongation, %	AASHTO T 301[5]	58+	51-57	50-

[1] The addition of latex, rubber or other additives to emulsified polymerized asphalt will not be allowed.
[2] When the unit of pay is not based on the liter, the deduction will be applied to the contract unit price.
[3] At the Department's option.
[4] The residue asphalt for running ductility tests, tensile stress test and elastic recovery test shall be obtained by means of residue by evaporation (Oven) rather than residue by distillation (Aluminum-alloy Still). The material supplier shall certify by independent testing that the Tensile Stress requirements have been attained.
[5] AASHTO T 301 except the standard v-shaped sides for the specimen mold shall be replaced by straight-sided inserts of the same length, so that the specimen will contain a section 1 cm x 1 cm x 3 cm.

Table 1002-11 (03/03)
Hot Applied Modified Asphalt Cements for Asphalt Surface Treatment[1]

Property	AASHTO Test Method	Gelled Asphalt		PAC 15	
		Spec.	Deviation	Spec.	Deviation
		100	90 or Remove	100	90 or Remove
Tire Rubber Content, %	---	---	---	5+	---
Penetration @ 25°C, 100 g., 5 s, dmm	T 49	55-100	54- 101+	75-125	74- 126+
Viscosity, @ 60°C, Pa·s	T 202	100+	99-	150+	149-
Rotational Viscosity @ 135°C, Pa·s[2]	T 316	0.7-3.0	0.6- 3.1+	3.0-	3.1+
Force Ductility Ratio, f_2/f_1, 4°C, 5cm/min, f_2 @ 30 cm elongation	T 300	---	---	0.30+	0.29-
Softening Point, °C	T 53	53+	52-	45+	44-
Flash Point, °C	T 48	230+	228-	230+	228-
Solubility, %	T 44	99.0+	---	---	---
Separation of Rubber, 163°C, 48 hours difference in R & B from top to bottom sample, °C	DOTD TR 326	---	---	2-	---
Tests on Residue from Rolling Thin Film Oven Test:	T 240				
Elastic Recovery, 25°C, 10 cm elongation, %	T 301[3]	---	---	55+	54-
Penetration Retention 25°C, RTFO/Original	T 49	---	---	0.60+ 1.00-	0.59- 1.01+
Viscosity Ratio, 60°C, RTFO/ Original	T 202	2.5-	2.6+	---	---

[1]Handling of all samples for testing shall be in accordance with ASTM D 4957, Section 7.2, which requires heating the sample in an oven maintained at 195° ± 2°C. Stir the sample occasionally until homogenous and pour in suitable container for testing. Pouring temperatures shall be 180° ± 2°C for all tests.

[2]The rotational viscosity will be measured to determine product uniformity. The rotational viscosity measured by the supplier shall be noted on the Certificate of Delivery. A binder having a rotational viscosity of 3.0 Pa·s or less will typically have adequate mixing and pumping capabilities. Binders with rotational viscosity values higher than 3.0 Pa·s should be used with caution and only after consulting with the supplier as to any special handling procedures and guarantees of mixing and pumping capabilities.

[3]AASHTO T 301 except the standard v-shaped sides for the specimen mold shall be replaced by straight-sided inserts of the same length, so that the specimen will contain a section 1 cm x 1 cm x 3 cm.

SECTION 1003 – AGGREGATES:

Subsection 1003.02 – Aggregates for Portland Cement Concrete and Mortar (06/05), Pages 746-749.

Delete the first paragraph and substitute the following.

All aggregates for use in portland cement concrete shall comply with the requirements of Subsection 1003.01. Aggregates for use in Types B and D pavement concrete shall also conform to the requirements of Subsection 1003.02(c).

Delete the first sentence of Heading (a) and substitute the following.

Sand shall be a natural silica sand from a source listed in QPL 2.

Delete the second paragraph of Heading (a) and substitute the following.

Fine aggregate for all portland cement concrete except Types B and D pavements shall conform to the following gradations:

Concrete Sand

U.S. Sieve	Metric Sieve	Percent Passing
3/8 inch	9.5 mm	100
No. 4	4.75 mm	95-100
No. 16	1.18 mm	45-90
No. 50	300 µm	7-30
No. 100	150 µm	0-7
No. 200	75 µm	0-3

Mortar Sand

U.S. Sieve	Metric Sieve	Percent Passing
No. 4	4.75 mm	100
No. 8	2.36 mm	95-100
No. 100	150 µm	0-25
No. 200	75 µm	0-10

Delete Heading (b)(1) and substitute the following.

(1) Uncrushed Coarse Aggregate: Uncrushed coarse aggregate for all portland cement concrete except Types B and D pavements shall comply with Table 1003-1.

Delete Table 1003-1, Portland Cement Concrete Aggregates and substitute the following:

Table 1003-1
Portland Cement Concrete Aggregates

Percent Passing						
U.S. Sieve	Metric Sieve	Grade A (Size 57)	Grade B (Size 467)	Grade D (Size 357)	Grade F ---	Grade P (Size 67)
2 1/2 inch	63 mm	---	---	100	---	---
2 inch	50 mm	---	100	90-100	---	---
1 1/2 inch	37.5 mm	100	85-100	---	---	---
1 inch	25.0 mm	90-100	---	35-70	---	100
3/4 inch	19.0 mm	---	35-70	---	100	80-100
1/2 inch	12.5 mm	25-60	---	10-30	90-100	---
3/8 inch	9.5 mm	---	10-30	---	---	20-55
No. 4	4.75 mm	0-10	0-5	0-5	15-60	0-10
No. 8	2.36 mm	0-5	---	---	0-15	0-5
No. 16	1.18 mm	---	---	---	0-5	---
No. 200	75 µm	0-1	0-1	0-1	0-1	0-1

Delete the first sentence of Heading (b)(2) and substitute the following.

Crushed coarse aggregate for all portland cement concrete except Types B and D pavements shall comply with the uncrushed coarse aggregate gradations, except that when the material finer than the No. 200 (75 µm) sieve consists of the dust fraction from crushing, essentially free of clay or shell, this percentage shall be 0-2 percent.

Add the following.

(c) Aggregates for Types B and D Pavements:

For the combined aggregates for the proposed portland cement concrete pavement mix, the percent retained based on the dry weight (mass) of the total aggregates shall meet the requirements of Table 1003-1A for the type of pavement specified in the plans. Additionally, the sum of the percents retained on any two adjacent sieves so designated in the table shall be at least 13 percent of the total combined aggregates. The maximum amounts by weight (mass) of deleterious materials for the total aggregate shall be the same as shown in Subsection 1003.02(b).

Table 1003-1A
Aggregates for Types B and D Pavements

U.S. Sieve	Metric Sieve	Percent Retained of Total Combined Aggregates	
		Pavement Type	
		Type B	Type D
2 1/2 inch	63 mm	0	0
2 inch	50 mm	0	0-20
1 1/2 inch	37.5 mm	0-20	0-20
1 inch	25.0 mm	0-20	5-20
3/4 inch	19.0 mm	5-20	5-20
1/2 inch	12.5 mm	5-20	5-20
3/8 inch	9.5 mm	5-20	5-20
No. 4	4.75 mm	5-20	5-20
No. 8	2.36 mm	5-20	5-20
No. 16	1.18 mm	5-20	5-20
No. 30	600 µm	5-20	5-20
No. 50	300 µm	0-20	0-20
No. 100	150 µm	0-20	0-20
No. 200	75 µm	0-5	0-5
Note: For the sieves in the shaded areas, the sum of any two adjacent sieves shall be a minimum of 13 percent of the total combined aggregates.			

Each type of aggregate to be used in the proposed mixture shall be sampled and tested individually. The percent of total combined aggregates retained shall be determined mathematically based on the proportions of the combined aggregate blend. All gradation calculations shall be based on percent of dry weight (mass).

Subsection 1003.03 – Base Course Aggregates (05/01), Pages 749 – 751.

Delete the second paragraph of Heading (d) and substitute the following:

To facilitate meeting these gradation requirements, a calcium carbonate additive approved by the Materials and Testing Section may be added to the stone. The additive shall be thoroughly blended with the stone by approved methods prior to placement on the project. When tested according to DOTD TR 428, the fraction passing the No. 40 (425 µm) sieve, including any additive, shall have a liquid limit no greater than 25, and a plasticity index of no greater than 4.

Delete Heading (e) and substitute the following:

(e) Recycled Portland Cement Concrete: Recycled portland cement concrete shall be crushed portland cement concrete. After being crushed, recycled portland cement concrete may contain a minimal amount of other base course materials resulting from normal construction methods and shall conform with the following gradation.

U.S. Sieve	Metric Sieve	Percent Passing
1 1/2 inch	37.5 mm	100
1 inch	25.0 mm	90-100
3/4 inch	19.0 mm	70-100
No. 4	4.75 mm	35-65
No. 40	425 µm	12-32
No. 200	75 µm	0-8

The fraction of recycled portland cement concrete passing the No. 40 (425 µm) sieve shall be non-plastic.

Delete the last sentence of Heading (f)

Subsection 1003.06, Aggregates for Asphaltic Mixtures (02/02), Pages 754 – 757.

Delete the first word of the second sentence of Heading (a) and substitute "Coarse".

Delete the first sentence of Heading (a)(2) and substitute the following:

Fine aggregates shall comply with the requirements of Sections 501, 502, or 508 as applicable. Fine aggregates for Superpave mixtures shall also comply with the specification requirements for angularity and sand equivalent as shown in Section 502, Table 502-4.

Delete the first sentence of Heading (a)(2)b and substitute the following:

Sand equivalent shall be determined in accordance with DOTD TR120.

Add the following to Heading (a)(3):

For non-Superpave mixtures, the sand equivalent of the portion of the natural sand in the mixture passing the No. 4 (4.75mm) sieve shall not be less than 35 when tested in accordance with DOTD TR120. For Superpave mixtures, the sand equivalent of the portion of the natural sand in the mixture passing the No. 4 (4.75mm) sieve shall be as shown in Section 502, Table 502-4 when tested in accordance with DOTD TR120.

SECTION 1005 – JOINT MATERIALS FOR PAVEMENTS AND STRUCTURES:

Subsection 1005.02 – Poured and Extruded Joint Sealant (6/02), Pages 763 and 764.

Delete Heading (a) and substitute the following.

(a) Hot Poured Rubberized Asphaltic Type: This material shall comply with ASTM D6690, Type II. The sealant and backer materials shall be approved products listed in QPL 67. Backer materials of the appropriate size shall comply with ASTM D5249, Type I.

Subsection 1005.04 – Combination Joint Former/Sealer (11/05), Pages 765 and 766.

Delete Heading (a) and substitute the following.

(a) Description: This joint former/sealer is intended for use in simultaneously forming and sealing a weakened plane in portland cement concrete pavements.

The material shall consist of an elastomeric strip permanently bonded either mechanically or chemically at the top of each of two rigid plastic side frames and covered with a removable plastic top cap. Side frames shall be of such configuration that when the sealer is inserted into plastic concrete and vibrated, a permanent bond forms between side frames and concrete.

Delete Heading (b)(1) and substitute the following.

(1) Elastomer: The elastomer strip portion of the material shall be manufactured from vulcanized elastomeric compound using polymerized chloroprene or thermoplastic vulcanizate as the base polymer, and shall comply with the following requirements:

Property	ASTM Test Method	Requirements	
		Polymerized Chloroprene	Thermoplastic Vulcanizate
Tensile Strength, kPa, Min.	D 412	12,400	7,400
Elongation at Break, % Min.	D 412	200	400
Hardness, Shore A	D 2240	65 ± 10	65 ± 10
Properties after Aging, 70 h @ 100°C	D 573		
Tensile Strength, % Loss, Max.		20	20
Elongation, % loss, Max.		25	25
Hardness, pts. increase, Max.		10	10
Ozone Resistance, 20% strain or bentloop, 300 pphm in air, 70 h @ 40°C	D 1149	no cracks	no cracks
Oil Swell, IRM 903, 70 h @ 100°C, wt change, % Max.	D 471	45	75

Delete Headings (b)(2) and (b)(3) and substitute the following:

(2) Bond of Elastomer to Plastic: The force required to shear the elastomer from the plastic shall be a minimum of 5.0 pounds per linear inch (90 g/mm) of sealer when tested in accordance with DOTD TR 636.

(3) Bond of Plastic to Cement Mortar: This bond will be evaluated and shall meet the following requirements:

The force required to separate the cement mortar from the plastic shall be a minimum of 5.0 pounds per linear inch (90 g/mm) of sealer when tested in accordance with DOTD TR 636.

SECTION 1006 – CONCRETE AND PLASTIC PIPE:

Subsection 1006.01 – General (09/02), Page 768.

Delete Heading (a)(4) and substitute the following:

(4) Portland cement with ground granulated blast-furnace slag 1018.28.

Delete the second paragraph of Heading (a) and substitute the following:

The concrete pipe manufacturer may use up to 45 or 50 percent grade 120 ground iron blast-furnace slag as a substitution for portland cement on a pound-for-pound (kilogram for kilogram) basis in accordance with Subsection 901.08. Fly ash may be substituted up to 25 percent.

Delete Heading (h) and substitute the following.

Regardless of the ASTM specifications utilized, if concrete pipe is to be accepted based upon cored samples, all samples shall meet the minimum concrete strengths specified. No more than three (3) joints of pipe shall be tested per maximum of 300 joints or three (3) days

consecutive production, whichever is less, unless approved by the engineer. All coring shall be performed by the manufacturer as directed by the engineer.

Subsection 1006.03 – Reinforced Concrete Pipe (07/02), Page 769.

Delete the first sentence and substitute the following.

Reinforced concrete pipe shall be from an approved product source listed in QPL 77, and shall comply with ASTM C 76, amended as follows:

Subsection 1006.04 Reinforced Concrete Pipe Arch (07/02), Page 769.

Delete the first sentence and substitute the following.

Reinforced concrete pipe arch shall be from an approved product source listed in QPL 77, and shall comply with ASTM C 506, amended as follows:

Subsection 1006.06 Gasket Materials (07/02), Pages 770 – 772.

Delete Heading (b) and substitute the following.

(b) Flexible Plastic Gaskets: Flexible plastic gaskets for pipe joints shall comply with AASHTO M 198. The hydrostatic test shall be performed using AASHTO M 315. Flexible plastic gasket material and primer shall be approved products listed in QPL 4.

Subsection 1006.07 – Plastic Culvert Pipe (08/04), Pages 770 – 772.

Delete this subsection and substitute the following.

1006.07 Plastic Pipe: Plastic pipe and joint systems shall be approved products listed in QPL 66.

(a) Storm Drains: Plastic pipe for storm drains shall be Ribbed Polyvinyl Chloride Pipe (RPVCP). Ribbed Polyvinyl Chloride Pipe shall comply with ASTM F 794 or ASTM F 949, Series 46 with UV inhibitors. The resin shall have a minimum cell classification of 12454-C in accordance with ASTM D 1784.

(b) Cross Drains: Plastic pipe for cross drains shall be Ribbed Polyvinyl Chloride Pipe (RPVCP). Ribbed Polyvinyl Chloride Pipe shall comply with ASTM F 794 or ASTM F 949, Series 46 with UV inhibitors. The resin shall have a minimum cell classification of 12454-C in accordance with ASTM D 1784.

(c) Side Drains: Plastic pipe for side drains shall be one of the following:

(1) Ribbed Polyvinyl Chloride Pipe (RPVCP): Ribbed Polyvinyl Chloride Pipe shall comply with ASTM F 794 or ASTM F 949, Series 46 with UV inhibitors. The resin shall have a minimum cell classification of 12454-C in accordance with ASTM D 1784.

(2) Corrugated Polyethylene Pipe (Double Wall) (CPEPDW): Corrugated Polyethylene Pipe (Double Wall) shall comply with AASHTO M 294, Type S. The minimum cell classification shall be 335400C in accordance with ASTM D 3350.

(d) Joints for Plastic Pipe: Joints shall be approved by the DOTD Materials Engineer Administrator and listed on the QPL. Joint gasket materials shall comply with Subsection 1006.06. Joint requirements are as follows:

(1) Type 1 Joints (T1): These joints shall provide a soil tight joint.

(2) Type 2 Joints (T2): These joints shall pass a 5 psi (35 kPa) hydrostatic pressure test.

(3) Type 3 Joints (T3): These joints shall pass a 10 psi (70 kPa) hydrostatic pressure test.

(4) Joints With Split Coupling Bands: Split coupling bands shall be one piece and composed of the same material as the pipe. The bands shall be the same thickness as the base pipe. The width of the band shall be equal to one-half the diameter of the pipe but shall be a minimum of 12 inches (300 mm) wide. The band shall be secured to the pipe with a minimum of five stainless steel or other approved corrosion resistant circumferential bands.

Subsection 1006.08 – Plastic Underdrain Pipe (08/04), Page 772

Delete this subsection and substitute the following.

1006.08 Plastic Underdrain Pipe: Plastic pipe for underdrains shall be perforated or nonperforated, as specified, and shall be an approved product listed on QPL 73 and one of the following.

(a) Corrugated Polyethylene Pipe (Single Wall) (CPEPSW): Corrugated Polyethylene Pipe (Single Wall) shall be perforated and shall comply with AASHTO M 252, Type C. Perforations shall comply with AASHTO M 252. Corrugated Polyethylene Pipe (Single Wall) shall not be used as shoulder outlet underdrain pipe.

(b) Polyvinyl Chloride Pipe (PVCP): Polyvinyl Chloride Pipe shall comply with AASHTO M 278 or ASTM D 3034, SDR 35. Perforations, if specified, shall comply with AASHTO M 252.

(c) Corrugated Polyethylene Pipe (Double Wall) (CPEPDW): Corrugated Polyethylene Pipe shall comply with AASHTO M 252, Type S. Perforations, if specified, shall comply with AASHTO M 252.

Subsection 1006.09 – Plastic Yard Drain Pipe (08/04), Page 773.

Delete this subsection and substitute the following.

1006.09 Plastic Yard Drain Pipe:

(a) Pipe: Plastic pipe for yard drains shall be an approved product listed on QPL 73 and one of the following:

(1) Polyvinyl Chloride Pipe (PVCP): Polyvinyl Chloride Pipe shall comply with AASHTO M 278 or ASTM D 3034, SDR 35.

(2) Corrugated Polyethylene Pipe (Double Wall) (CPEPDW): Corrugated Polyethylene Pipe (Double Wall) shall comply with AASHTO M 252, Type S, with a resin of minimum cell classification of 324420C in accordance with ASTM D 3350 or AASHTO M 294, Type S, with a resin of minimum cell classification of 335400C in accordance with ASTM D 3350.

(3) Ribbed Polyvinyl Chloride Pipe (RPVCP): Ribbed Polyvinyl Chloride Pipe shall comply with ASTM F 794 or ASTM F 949.

(b) Joints: Gaskets for joining plastic yard drain pipe shall comply with the requirements of Subsection 1006.06.

SECTION 1007 – METAL PIPE:

Subsection 1007.07 – Polymer Coated Corrugated Steel or Aluminum Pipe and Pipe Arch (05/04), Page 776.

Delete this subsection.

SECTION 1008 – PAINTS:

Subsection 1008.02 – Three-Coat Waterborne Paint System (Two Primers And One Topcoat) (04/02), Pages 780 – 782.

Delete the text of this subsection and substitute the following:

The Three-Coat Waterborne Paint System (Two Primers and One Topcoat), shall be an approved system listed on QPL 68. Each system shall be tested for a minimum of 1500 hours in a salt spray (fog) apparatus and fluorescent UV-Condensation Exposure Apparatus in accordance with ASTM B 117 and G 53. The paint system shall show no rusting, checking, cracking, delamination or undercutting. There shall be only slight chalking or discoloration and there shall be no blisters larger than number 8 when rated in accordance with ASTM D 714.

Standard X-ray and infrared curves will be made of all approved coatings in accordance with ASTM D 5380 and DOTD TR 610. When the project sample deviates from these curves, the material represented by the sample will be rejected.

The following specification is not a formula. The manufacturer assumes all responsibility in formulating products which meet these specification requirements in laboratory testing, field application, and performance.

Each paint system shall comply with the following requirements.

(a) Primer:

(1) System A

a. Pigment: The pigment shall be composed of the following materials:

	Percent By Weight (mass)
Zinc Phosphate Dihydrate, Min.	22
Red Iron Oxide (ASTM D 3722), Min.	10
Barium Sulfate (ASTM D 602), Min.	50

The balance of the pigment shall include any application aids, thixotropes, tinting pigments, etc. which may enhance the performance of the material.

b. Vehicle: The vehicle shall be composed of a minimum of 80 percent resin solution with the balance being water, surfactants, antifoam additives, stabilizers, pH adjusters, etc. The resin shall be of vinyl acrylic copolymer latex having a pH between 1 and 2 and a chlorine content of 64 percent based on latex solids.

c. Mixed Paint: The mixed paint shall have the following properties:

PROPERTY	TEST METHOD	REQUIREMENT
Pigment, % by wt., Min.	ASTM D 3723	23
Weight/gallon, pounds, Min.	ASTM D 1475	12
Solids, % by wt. Min.	ASTM D 3723	60
Non-volatile in Vehicle, % by wt., Min.	ASTM D 3723	49
Viscosity, Ku	ASTM D 562	70 - 90
Fineness of Grind, Hegman Scale, Min.	ASTM D 1210	5
Dry to Touch, Minutes, Max.	ASTM D 1640	30
Dry Through, Hours, Max.	ASTM D 1640	1
PH	ASTM E 70	4.5 - 5.5
Sag, Lenetta, Mils, Min.	ASTM D 4400	12

(2) System B (Color Contrasting Primers)

a. First Coat Primer: See heading 1008.02(a)(1)a.

b. Second Coat Primer: The second coat primer shall meet the vehicle requirements of the first coat primer. The second coat primer pigmentation shall be changed to allow for color contrast between the first coat red primer, second coat primer and gray topcoat.

(b) Topcoat:

(1) Pigment: The pigment shall be composed of 95 percent by weight of Titanium Dioxide ($Ti0_2$) in accordance with ASTM D 476. The balance of the pigments shall include any application aids, thixotropes, tinting pigments, etc., which may enhance the performance of the material.

(2) Vehicle: The vehicle shall be composed of a minimum of 87 percent solution with the balance being water, dispersant, rheological modifiers, stabilizers, etc. The resin shall be a 41.5 percent solids small particle size aqueous dispersion copolymer consisting of acrylic, acrylonitrile and styrene monomers. The resin shall have a personal modulus between 38°C and 42°C and a pH between 7.2 and 7.8.

(3) The topcoat shall be tinted to match the standard "Louisiana Gray" topcoat available from the Materials and Testing Section. The paint shall have the following properties:

PROPERTY	TEST METHOD	REQUIREMENT
Pigment, % by wt., Min.	ASTM D 3723	13
Weight/gallon, pounds, Min.	ASTM D 1475	9.2
Solids, % by wt. Min.	ASTM D 3723	46
Non-volatile in Vehicle, % by wt., Min.	ASTM D 3723	39
Viscosity, Ku	ASTM D 562	90 - 110
Fineness of Grind, Hegman Scale, Min.	ASTM D 1210	5
Dry to Touch, Minutes, Max.	ASTM D 1640	30
Dry Through, Hours, Max.	ASTM D 1640	2
Sag, Resistance, Lenetta, Mils, Min.	ASTM D 4400	12

Subsection 1008.06 – Corrosion Inhibiting Alkyd Paint System (04/02), Page 783.

Add the following:

1008.06 CORROSION INHIBITING ALKYD PAINT SYSTEM. The Corrosion Inhibiting Alkyd Paint System shall be a three-coat paint system applied to properly prepared structural steel surfaces that are permanently exposed to weather. The paint shall be compatible with basic lead silico chromate paint. Either System A or System B can be used, however, whichever system is selected shall be used on the entire project. The corrosion inhibiting pigment in System A shall be zinc hydroxy phosphite and the corrosion inhibiting pigment in System B shall be calcium borosilicate. The primer and the intermediate coats shall be tinted for color contrast. An aluminum topcoat in accordance with AASHTO M69, Type I shall be applied in both systems.

SPECIFIC REQUIREMENTS: Test methods shall be the latest in effect. The manufacturer assumes all responsibility in formulating products which meet these specifications requirements.

Systems A and B shall comply with the following requirements.

PROPERTY	TEST METHOD	REQUIREMENT SYSTEM A MIN	MAX	SYSTEM B MIN	MAX
PRIMER					
Pigment, % by wt	ASTM D 2371	50	--	53	--
Vehicle, % by wt	ASTM D 2371	--	50	--	47
Weight/gallon, pounds @ 77°F	ASTM D 1475	12.3	--	11.4	--
Water, %		--	0.5	--	0.25
Coarse Particle and Skins (Total Residue Retained on No. 325 Sieve Based on Paint), %	ASTM D 185	--	1.0	--	1.0
Fineness of Grind (North Std)	ASTM D 1210	5	--	5	--
Viscosity (Stormer-Krebs Units) @ 77°F	ASTM D 562	70	80	75	85
Dry Through, Hours	ASTM D 1640	18	--	18	--
Non-volatile in Vehicle, % by wt	ASTM D 2369 & ASTM D 2372	66	--	57	--

PROPERTY	TEST METHOD	REQUIREMENT SYSTEM A MIN	SYSTEM A MAX	SYSTEM B MIN	SYSTEM B MAX
INTERMEDIATE COAT					
Pigment, % by wt	ASTM D 2371	50	--	44	--
Vehicle, % by wt	ASTM D 2371	--	50	--	56
Weight/gallon, pounds @ 77°F	ASTM D 1475	12.3	--	10.2	--
Water, %		--	0.25	--	0.25
Coarse Particle and Skins (Total Residue Retained on No. 325 Sieve Based on Paint), %	ASTM D 185	--	1.0	--	1.0
Fineness of Grind (North Std)	ASTM D 1210	5	--	5	--
Viscosity (Stormer-Krebs Units) @ 77°F	ASTM D 562	70	80	75	85
Dry Through, Hours	ASTM D 1640	--	18	--	10
Non-volatile in Vehicle, % by wt	ASTM D 2369 & ASTM D 2372	66	--	45	--

SYSTEM A

Vehicle: The vehicle shall consist of not less than 66.0 percent non-volatile vehicle. The balance shall be combined drier and thinner.

The non-volatile vehicle shall be composed of raw linseed oil and alkyd resin combined in the approximate proportions of 1:1 respectively by weight. The alkyd resin furnished as a solution shall meet the requirements of Federal Specifications TT-R-266C Type I, Class A. The raw linseed oil shall meet the requirements of ASTM D234.

The volatile vehicle shall be mineral spirits meeting the requirements of Rule 66.

PRIMER PIGMENT	PERCENT BY WEIGHT MIN	MAX
Zinc hydroxy phosphite, ASTM D 4462	73.0	75.0
Red Iron Oxide (98% Fe203)	24.0	26.0
Organo Montmorillonite	0.75	--

INTERMEDIATE PIGMENT	PERCENT BY WEIGHT MIN	MAX
Zinc hydroxy phosphite, ASTM D 4462	75.0	77.0
Titanium Dioxide, Rutile Non Chalking, ASTM D476	19.0	21.0
Organo Montmorillonite	0.75	--
Tinting Pigments*	--	--
Yellow Oxide	--	--
Red Oxide	3.0	3.5
Lampblack	--	--

*Tinting pigment may be added as predispersion pigment.

SYSTEM B

PRIMER

PIGMENT	MIN	MAX
Calcium Boro-Silicate, ASTM D 4288	80.0%	--
Synthetic Iron Oxide, ASTM D 84, Class I	16.0%	18.0%
Organo Montmorillonite	1.0%	2.0%
VEHICLE		
Alkyd Resin Solution, Fed. Spec TT-R-266, Type I, Class A	43.0%	50.0%
Linseed Oil, ASTM D 234	20.0%	27.0%
Mineral Spirits, Fed. Spec TT-T-291E, Type II*	--	28.0%
Driers	1.0%	2.0%

* Small quantities of alcohols or alcohol/water mixtures may replace some mineral spirits where such materials are used as polar additives for the suspending aid.

INTERMEDIATE COAT

PIGMENT	MIN	MAX
Calcium Boro-Silicate, ASTM D 4288	80.0%	--
Synthetic Iron Oxide, ASTM D 84, Class I	17.5%	18.5%
Organo Montmorillonite	1.5%	2.5%
Lampblack	--	2.0%
VEHICLE		
Alkyd Resin Solution, Fed. Spec TT-R-266, Type I, Class A	65.0%	--
Mineral Spirits, Fed. Spec TT-T-291E, Type II*	--	34.0%
Driers	1.0%	1.5%

*Small quantities of alcohols or alcohol/water mixtures may replace some mineral spirits where such materials are used as polar additives for the suspending aid.

Section 1008, Paints (09/05), Page 780.

Add the following subsection.

1008.07 ZINC PAINT SYSTEMS FOR NEW STEEL AND 100 PERCENT BARE EXISTING STEEL FOR BRIDGES. The zinc paint system shall be an approved system listed on QPL 78. Each system shall be tested in accordance with AASHTO R 31 and meet the following requirements.

Performance Requirements	Zinc Paint Systems Inorganic Zinc Primer	Zinc Paint Systems Organic Zinc Primer
Rust Criteria after 5000 hrs exposure to Salt Fog Resistance Test in accordance with ASTM B 117.		
Maximum Creep, mm - Evaluated in accordance with AASHTO R 31, Subsection 8.2.2.2.	4	4
Maximum Average Creep, mm - Evaluated in accordance with AASHTO R 31, Subsection 8.2.2.2.	2	2
Maximum length, mm - Evaluated in accordance with AASHTO R 31, Subsection 8.2.2.3.	3	15
Blister Criteria after 4000 hrs exposure to Salt Fog Resistance Test in accordance with ASTM B 117.		
Minimum Conversion # - Blistering evaluated in accordance with ASTM D 714. Blister size and frequency converted using blister value conversion table.	8	7
Rust Criteria after 5040 hrs exposure to Cyclic Weathering Resistance Test in accordance with ASTM D 5894.		
Maximum Creep, mm - Evaluated in accordance with AASHTO R-31, Subsection 8.2.2.2.	4	12
Maximum Average Creep, (mm) - Evaluated in accordance with AASHTO R 31, Subsection 8.2.2.2.	2	5
Blister Criteria after 4032 hrs exposure to Cyclic Weathering Resistance Test in accordance with ASTM D 5894.		
Minimum Conversion # - Blistering evaluated in accordance with ASTM D 714. Blister size and frequency converted using blister value conversion table.	9	8
Adhesion Criteria - Minimum pull-off strength shall be tested in accordance with ASTM D 4541.		
Minimum for both primer and PIT (Primer, Intermediate, Topcoat) panels.	(2.4 MPa) 350 psi	(4.1 MPa) 600 psi
Freeze Thaw Criteria – After 30 freeze/thaw cycles as defined in AASHTO R 31, Subsection 8.6.1 there shall be no loss of adhesion when compared with above adhesion results.		

Blister Value Conversion Table

Blister Size	Blister Frequency Few	Medium	Medium Dense	Dense
#8	9	8	7	6
#6	8	7	6	5
#4	7	6	5	4
#2	6	5	4	3
#1	5	4	3	2

Products to be used on projects will be sampled and tested and shall comply with the following requirements:

PROPERTY	TEST METHOD	Specification Acceptance[1]
Pigment Content.	ASTM D 2698	Target Value ±2.0%
Density	ASTM D 1475	Target Value ±0.25 lbs/gal (±0.03 kg/l)
Solids Content	ASTM D 2369	Target Value ±2.0%
Non-volatile in Vehicle Content	ASTM D 2698	Target Value ±2.0%
Viscosity, Ku	ASTM D 562	Target Value ±5KU
Dry to Touch	ASTM D 1640	Target Value ±10%
Dry Through	ASTM D 1640	Target Value ±10%
Sag, Lenetta	ASTM D 4400	Target Value ±10%
Infrared Spectrum	ASTM D 2621	[2]
X-Ray Diffraction	ASTM D 2321	[2]

[1]Target Values shall be established by the Materials Section upon qualification of the paint system.

[2] Standards for infrared spectrum and x-ray diffraction shall be kept on file and compared to project samples for acceptance purposes.

The topcoat shall be tinted to match the standard "Louisiana Gray" topcoat available from the Materials and Testing Section. When weathering steel is used for structural members, such as bridge girders, the ends of the members shall be painted with the zinc paint system for a distance of 1.5 times the member depth, not to exceed 10 feet (3m). The topcoat color shall match the color of the weathered steel.

SECTION 1009 – REINFORCING STEEL AND WIRE ROPE:

Subsection 1009.01 – Reinforcing Steel (07/05), Page 784.

Delete Headings (b) and substitute the following.

(b) Rail-Steel and Axle-Steel Deformed and Plain Bars shall comply with ASTM A 996 (A 996M).

Delete Heading (c).

SECTION 1010 – FENCE AND GUARD RAIL:

Subsection 1010.06 – Gates for Field and Line Type Fence (01/02), Page 792.

Delete Heading (a) and substitute the following.

(a) Gates: Steel used in fabricating gates shall be galvanized in accordance with ASTM A 653 Coating Designation G60 (A653M Coating Designation Z180).

SECTION 1013 – METALS

Subsection 1013.01 – Structural Steel (05/05), Page 800.

Delete the second and third paragraphs and substitute the following.

Structural steel shall comply with ASTM A709 (A709M) specifications.

Longitudinal Charpy V-Notch Testing: When specified, the main load-carrying structural member components that are subject to tensile stress shall meet the longitudinal Charpy V-Notch requirements contained in the ASTM A709 (A709M) Supplemental Requirements in Table S1.2 for Non-Fracture Critical Impact Test Requirements and Table S1.3 for Fracture Critical Impact Test Requirements. Sampling and testing procedures shall be in accordance with ASTM A 673 (ASTM A 673M) and ASTM A 370 and the following requirements: the (H) frequency of heat testing shall be used for all steels except that for ASTM A 709, Grade 100 (ASTM A 709M, Grade 690) steel the (P) frequency of piece testing shall be used.

Tables 1013-1 through 1013-4 are deleted.

SECTION 1014 – TIMBER AND TIMBER PRESERVATIVES

Subsection 1014.06 – Quality Assurance (08/03), Page 811.

Delete Table 1014-2 and substitute the following.

Table 1014-2
Minimum Retention of Preservative
(Pounds Per Cubic Foot (kg/cu m) of Wood)

Material and Usage	Creosote	Creosote-Solutions	Pentachloro-phenol	CCA[1]
Timber & Lumber				
Above Ground:				
Southern Pine or Douglas Fir	12.0 (192)	12.0 (192)	0.60 (9.6)	0.60 (9.6)
Land and Fresh Water:				
Southern Pine or Douglas Fir	16.0 (256)	16.0 (256)	N/A	0.80 (12.8)
Coastal Water:				
Southern Pine or Douglas Fir	20.0 (320)	20.0 (320)	N/A	2.50 (40.0)
Piles[3]				
Non-Foundation				
Land & Fresh Water:				
Southern Pine	16.0 (256)	16.0 (256)	N/A	0.80 (12.8)
Douglas Fir	17.0 (272)	17.0 (272)	N/A	1.00 (16.0)
Coastal Water:				
Southern Pine or Douglas Fir	20.0 (320)	20.0 (320)	N/A	2.50 (40.0)
Foundation				
Land & Fresh Water:				
Southern Pine	12.0 (192)	12.0 (192)	0.60 (9.6)	0.80 (12.8)
Douglas Fir	17.0 (272)	17.0 (272)	0.85 (13.6)	N/A
Coastal Water:				
Southern Pine or Douglas Fir	20.0 (320)	20.0 (320)	N/A	2.50 (40.0)
Poles				
Southern Pine	12.0 (192)	N/A	0.60 (9.6)	0.60 (9.6)
Douglas Fir	15.0 (240)	N/A	0.80 (12.8)	0.80 (12.8)
Fence				
Gate Posts/Braces	8.0 (128)	8.0 (128)	0.40 (6.4)	0.40 (6.4)
Guard Rail Posts/Spacer Blocks, Bridge Rails & Dead End Road Installations	12.0[2] (192)	N/A	0.60 (9.6)	0.60 (9.6)

[1] Material treated with Chromated Copper Arsenate (CCA) shall be conditioned by kiln drying prior to treatment.
[2] Timber guard rail posts, spacer blocks, bridge rails, poles and dead end road installations treated with creosote shall be steam flushed for a minimum of 1 hour at 240°F (116°C) after treatment.
[3] A foundation pile is one which is embedded in the ground and capped with concrete. Pile supported approach slab piles are classified as non-foundation.

SECTION 1015 – SIGNS AND PAVEMENT MARKINGS:

Subsection 1015.04 – Sign Panels, (05/02), Pages 813 and 814.

Delete the first sentence of Heading (b) and substitute the following.

Substrate for barricade panels shall be either wood or rigid thermoplastic. Substrate for portable signs shall be aluminum, wood or plastic. Substrate for post mounted signs shall be aluminum, wood, rigid thermoplastic or aluminum clad low density polyethylene plastic.

Delete Heading (b)(2).

Delete Heading (b)(4) and substitute the following.

(4) Plastic: Plastic substrate for barricade panels and signs shall be as follows.

a. Fiber Reinforced Vinyl (PVC): The substrate shall have a nominal composite thickness of 0.04 inches (1 mm) and be bonded to an approved retroreflective material by the manufacturer.

b. Rigid Thermoplastic: Rigid thermoplastic substrate shall consist of either High Density Polyethylene (HDPE) or High Density Polycarbonate (HDPC). The rigid thermoplastic for barricade panels shall be hollow core HDPE or HDPC with a minimum thickness of 0.625 inch (16 mm). The thermoplastic for sign panels shall be either 0.40 inch (10 mm) thick thin wall, fluted substrate or 0.625 inch (16 mm) thick blow molded substrate. Substrates shall be sufficiently rigid to maintain a flat face and shall be capable of attachment to the sign mounting in such a manner as not to crush or otherwise deform the substrate. Reflectorized sheeting applied to rigid thermoplastic shall have its manufacturer's approval for use on the substrate.

c. Aluminum Clad Low Density Polyethylene (AL/LDPE) Plastic: The aluminum clad low density polyethylene plastic substrate shall be 0.080 inch (2 mm) thick. The substrates shall be sufficiently rigid to maintain a flat face and shall be capable of attachment to the sign mounting in such a manner as not to crush or otherwise deform the substrate. Reflectorized sheeting applied to aluminum clad low density polyethylene shall have its manufacturer's approval for use on this substrate.

Subsection 1015.05 – Reflective Sheeting (01/06), Pages 814-819.

Delete this subsection and substitute the following.

1015.05 REFLECTIVE SHEETING. Reflective sheeting shall be one of the following types as specified on the plans and complying with ASTM D 4956 except as modified herein. The sheeting shall be an approved product listed in QPL 13.

Type I - A medium-intensity retroreflective sheeting referred to as "engineering grade" and typically enclosed lens glass-bead sheeting.

Type II - A medium-high-intensity retroreflective sheeting sometimes referred to as "super engineering grade" and typically enclosed lens glass-bead sheeting.

Type III A high-intensity retroreflective sheeting, that is typically encapsulated glass-bead retroreflective material.

Type VI - An elastomeric-high-intensity retroreflective sheeting without adhesive. This sheeting is typically a vinyl microprismatic retroreflective material.

Type IX - A very high-intensity retroreflective sheeting having highest retroreflectivity at short distances as determined by the R_A values at 1° observation angle. This sheeting is typically an unmetalized microprismatic retroreflective element material.

Delete DOTD Type VII (Fluorescent Orange).

Add the following.

Type-X (Fluorescent Orange) - A super high-intensity retroreflective sheeting having highest retroreflectivity characteristics at medium distances. This sheeting is typically an unmetalized microprismatic retroreflective element material.

(a) Adhesive Classes: The adhesive required for retroreflective sheeting shall be Class 1 (pressure sensitive) or Class 2 (heat activated) as specified in ASTM D 4956.

(b) Identification Marks: Type II sheeting shall be distinguished by integral identification marks that cannot be removed or affected by physical or chemical methods without causing damage to the sheeting. The markings shall be inconspicuously placed on 12-inch (300-mm) centers and shall be visible from a distance of not more than 3 feet (1.0 m).

Delete Heading (c), Alternate Sheeting Type.

Delete Tables 1015-1 and 1015-2.

(d) Accelerated Weathering: Reflective sheeting, when processed, applied and cleaned in accordance with the manufacturer's recommendations shall perform in accordance with the accelerated weathering standards in Table 1015-3.

Delete Table 1015-3 and substitute the following.

Table 1015-3
Accelerated Weathering Standards[2]

Type	Retroreflectivity[1]				Colorfastness[3]	
	Orange		All colors, except orange		Orange	All colors, except orange
I	Not used		2 years	50[4]	Not used	2 years
II	1 year	65[5]	Not used		1 year	3 years
III	1 year	80[6]	3 years	80[6]	1 year	3 years
III (for drums)	1 year	80[6]	1 year	80[6]	1 year	1 year
VI	1/2 year	50[7]	1/2 year	50[7]	1/2 year	1/2 year
IX	Not used		3 years	80[8]	Not used	3 years
X (Fluorescent Orange)	1 year	80[9]	Not used		1 year	Not used

[1]Percent retained retroreflectivity of referenced table after the outdoor test exposure time specified.
[2]At an angle of 45° from the horizontal and facing south in accordance with ASTM G7.
[3]Colors shall conform to the color specification limits of ASTM D 4956 after the outdoor test exposure time specified.
[4]ASTM D 4956, Table 5.
[5]ASTM D 4956, Table 7.
[6]ASTM D 4956, Table 8.
[7]ASTM D 4956, Table 13.
[8]ASTM D 4956, Table 3.
[9]ASTM D 4956, Table 4.

(e) Performance: Reflective sheeting for signs, when processed, applied and cleaned in accordance with the manufacturer's recommendations shall perform outdoors in accordance with the performance standards in Table 1015-4.

Delete Table 1015-4 and substitute the following.

Table 1015-4
Reflective Sheeting Performance Standards

Type	Retroreflectivity[1] -- Durability[2]				Colorfastness[3]
	Orange		All colors, except orange		
I	Not used		7 years	50[4]	3 years
II	3 years	65[5]	Not used		3 years
III	3 years	80[6]	10 years	80[6]	3 years
IX	Not used		7years	80[7]	3 years
X (Fluorescent Orange)	3 years	80[8]	Not used		3 years

[1]Percent retained retroreflectivity of referenced table after installation and the field exposure time specified.

[2]All sheeting shall maintain its structural integrity, adhesion and functionality after installation and the field exposure time specified.

[3]All colors shall conform to the color specification limits of ASTM D 4956 after installation and the field exposure time specified.

[4]ASTM D 4956, Table 5.

[5]ASTM D 4956, Table 7.

[6]ASTM D 4956, Table 8.

[7]ASTM D 4956, Table 3.

[8]ASTM D 4956, Table 4.

Delete Heading (f) and substitute the following.

(f) Temporary Signs, Barricades, Channelizing Devices, Drums and Cones: Reflective sheeting for temporary signs, barricades and channelizing devices, shall meet the requirements of ASTM D 4956, Type III except that the initial sequence of temporary advanced warning construction signs used on the mainline of freeways and expressways shall meet the requirements of ASTM D 4956 Type X (Fluorescent Orange).

Reflective sheeting for vertical panels shall meet the requirements of ASTM D 4956, Type III.

Reflective sheeting for drums shall be a minimum of 6 inches (150 mm) wide and shall meet the requirements of ASTM D 4956, Type III, and the Supplementary Requirement S2 for Reboundable Sheeting as specified in ASTM D 4956. Reflective sheeting for traffic cone collars shall meet the requirements of ASTM D 4956, Type VI.

(g) Sheeting Guaranty. The contractor shall provide the Department with a guaranty from the sheeting manufacturer stating that if the retroreflective sheeting fails to

comply with the performance requirements of this subsection, the sheeting manufacturer shall do the following:

Delete Table 1015-5 and substitute the following.

Table 1015-5
Manufacturer's Guaranty-Reflective Sheeting

Type	Manufacturer shall restore the sign face in its field location to its original effectiveness at no cost to the Department if failure occurs during the time period[1] as specified below		Manufacturer shall replace the sheeting required to restore the sign face to its original effectiveness at no cost to the Department if failure occurs during the time period[1] as specified below
	Orange	All colors, except orange	All colors, except orange
I	Not used	<5 years	5-7 years
II	<3 years	<5 years	5-10 years
III	<3 years	<7 years	7-10 years
IX	Not used	<5 years	5-10 years
X (Fluorescent Orange)	<3 years	Not used	Not used

[1]From the date of sign installation.

(1) Replacement sheeting for sign faces, material, and labor shall carry the unexpired guaranty of the sheeting for which it replaces.

(2) The sign fabricator shall be responsible for dating all signs with the month and year of fabrication at the time of sign fabrication. This date shall constitute the start of the guaranty obligation period.

Subsection 1015.09 - Raised Pavement Markers (10/03), Pages 821 and 822.

Delete Heading (b) and substitute the following.

(b) Reflectorized Markers: Reflectorized markers shall comply with ASTM D 4280, Designation H and Designation F. The type and color shall be in accordance with the plans and the MUTCD. The markers shall be either standard having approximate base dimensions of 4-by-4-inches (100-by-100-mm) and a maximum height of 0.80 inches (20 mm) or low profile having approximate base dimensions of 4-by-2-inches (100-by-50-mm) and a maximum height of 0.60 inches (15 mm).

Subsection 1015.13 – Glass Beads for Drop-on Application (05/02), Pages 829 and 830.

Delete this subsection and substitute the following.

1015.13 Large Embedment Coated Glass Beads for Pavement Markings. Large embedment coated glass beads for use with painted traffic striping and flat thermoplastic striping 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. The beads shall be non-flotation, embedment coated and conform to the following specific requirements.

(a) Gradation: The testing for gradation of the beads shall be in accordance with ASTM D 1214 and shall meet the gradation requirements specified below.

(1) Painted Traffic Striping: Glass beads for painted traffic striping shall meet the gradation requirements of Table 1015-14.

TABLE 1015-14
Gradation of Large Embedment Coated Glass Beads for
Painted Traffic Striping

U.S. SIEVE (METRIC SIEVE)	PERCENT RETAINED
No. 12 (1.7 mm)	0
No. 14 (1.4 mm)	0-5
No. 16 (1.18 mm)	5-20
No. 18 (1.00 mm)	40-80
No. 20 (850 μm)	10-40
No. 25 (710 μm)	0-5
PAN	0-2

(2) Flat Profile Thermoplastic Striping: Drop-on beads for flat profile thermoplastic striping shall meet the gradation requirements of Table 1015-15 as determined by the thickness of the striping.

TABLE 1015-15
Gradation of Embedment Coated Glass Beads for
Flat Profile Thermoplastic Striping

THICKNESS	NUMBER OF BEAD DROPS	APPLICATION #1	APPLICATION #2
40 mils	Single Drop	See Table 1015-14	N/A
90 mils or greater	Double Drop	See Table 1015-16	AASHTO M 247 Type I

TABLE 1015-16
Gradation of Large Embedment Coated Glass Beads for
First Drop on Flat Thermoplastic Striping

U.S. SIEVE (METRIC SIEVE)	PERCENT RETAINED
No. 10 (2.0 mm)	0
No. 12 (1.7 mm)	0-5
No. 14 (1.4 mm)	5-20
No. 16 (1.18 mm)	40-80
No. 18 (1.00 mm)	10-40
No. 20 (850 μm)	0-5
PAN	0-2

(b) 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 have no less than 75 percent rounds as determined by microscopic examination.

(c) Angular Particles: The beads shall have no more than three (3) percent angular particles per screen.

(d) Refractive Index: The beads shall have a refractive index of 1.50 to 1.52 when tested by the liquid immersion method.

(e) Embedment Coating: The large beads for thermoplastic striping shall be coated with an adhesion assuring coating. The smaller AASHTO M247 Type I beads shall be coated to provide free flowing characteristics when tested in accordance with AASHTO M247 Section 4.4.1. and assure adhesion. Glass beads shall be properly coated and conform to the requirements when tested as described in DOTD TR 530 Determination of Embedment Coating on Large Embedment Coated Glass Beads for Pavement Markings.

(f) Packaging and Marking: The beads shall be packaged in moisture proofed containers. Each container shall be stamped with the following information: Name and address of manufacturer, shipping point, trademark or name, the wording "Large Embedment Coated Glass Beads", class, weight, lot number and the month and year of manufacture. The container for the AASHTO M 247 Type I beads shall be similarly stamped except that the wording shall be "Glass Beads".

SECTION 1016 – PRECAST REINFORCED CONCRETE DRAINAGE UNITS:

Subsection 1016.01 – General (09/05), Page 831.

Delete Heading (a) and substitute the following.

(a) Portland Cement and Portland-Pozzolan Cement: Portland cement shall comply with Subsection 1001.01. Portland-pozzolan cement shall comply with Subsection 1001.02.

Delete Heading (e) and substitute the following.

The name or trademark of the manufacturer, the date of casting, the structure number or the station number as shown on the plans, and the lot number shall be indented into the concrete

or painted thereon with waterproof paint on each unit on the inside and outside of the unit in such a manner as to be legible at time of delivery.

Subsection 1016.02 – Precast Reinforced Concrete Box Culverts (09/05), Pages 831 and 832.

Delete the first sentence and substitute the following.

Precast reinforced concrete box culverts shall be approved products listed on QPL 77. The compressive strengths of the box culverts shall comply with ASTM C 76 (ASTM C 76M). Precast reinforced concrete box culverts shall comply with ASTM C 1433 (ASTM C 1433M) amended as follows:

Delete the first sentence of Heading (f) and substitute the following.

Culvert units shall be cured by one of the methods listed in ASTM C 1433.

Subsection 1016.03 – Precast Reinforced Concrete Manhole Sections (06/02), Page 832.

Delete the text of this subsection and substitute the following.

See Subsection 1016.04.

Subsection 1016.04 Precast Reinforced Concrete Catch Basins and Junction Boxes (06/02), Pages 832 and 833.

Delete this subsection and heading and substitute the following.

Precast Reinforced Concrete Manholes, Catch Basins, Junction Boxes, and Safety Ends. Precast reinforced concrete manholes, catch basins, junction boxes, and safety ends shall comply with the dimensions shown on the plans, and shall meet the following requirements:

(a) Materials:

(1) Precast reinforced concrete manholes, catch basins and junction boxes shall comply with the following Sections and Subsections:

Portland Cement Concrete, Class M	901
Reinforcing Steel	1009
Frames, Grates and Covers	1018.04

Portland cement concrete shall attain a minimum compressive strength of 4000 psi (27.5 MPa) before shipping of the units.

(2) Precast safety ends shall comply with Subsection 702.04(c).

(b) Casting Concrete: When multiple castings are to be made using the same forms, the engineer may require the use of metal forms. Concrete in each sectional unit shall be placed without interruption and shall be consolidated by the use of an approved vibrator, supplemented by hand-tamping as necessary, to force the concrete into the corners of forms and prevent formation of stone pockets or cleavage planes.

(c) Reinforcement: Reinforcement shall be as shown on the plans, and shall not vary more than 1/4 inch (6 mm) from the positions shown, except at pipe connections. At pipe connections no variance from the positions shown is allowed. Cover on reinforcement shall not be less than that shown on the plans.

(d) Curing: Units shall be cured in accordance with Subsection 805.10 or Subsection 805.14(e).

(e) Form Removal: Forms shall remain in place for 1 curing day in accordance with Subsection 805.11, Method 2.

(f) Joints and gasket material shall comply with Subsection 1006.06(b).

(g) Workmanship: Units shall be true to shape, and surfaces shall be smooth, dense and uniform in appearance. Units will be rejected for defeats in workmanship for any of the following:

(1) Fractures or cracks passing through the wall, except for a single end crack that does not exceed the depth of the joint.

(2) Surface defects indicating honeycombed or open texture that would adversely affect the function of the unit.

(3) Damaged or cracked ends, where such damage would prevent making a satisfactory joint.

(4) Any continuous crack having a surface width of 0.01 inch (0.25 mm) or more and extending for a length of 12 inches (300 mm) or more, regardless of position.

When approved, minor surface cavities or irregularities which do not impair the service value of the unit and which can be corrected without marring its appearance shall be pointed with approved patching material listed in QPL 49 as soon as forms are removed.

(h) Quality Assurance: Acceptability of units will be determined by results of compression tests on concrete cylinders and by inspection during manufacture to determine their compliance with the design and workmanship prescribed in these specifications and on the plans. Units will be rejected for defects in workmanship in accordance with Subsection 1016.04(g).

A minimum of four cylinders for source approval and verification shall be made and cured in accordance with DOTD TR 226 or DOTD TR 227 and tested in accordance with DOTD TR 230 for each pour. Additional cylinders shall be made in pairs and used to determine the strength for moving within the plant.

SECTION 1018 – MISCELLANEOUS MATERIALS:

Subsection 1018.04 – Manhole Frames, Grates and Covers (09/02), Page 838.

Delete the Heading name and substitute the following.

Frames, Grates and Covers for Manholes, Catch Basins, and Junction Boxes.

Subsection 1018.13 – Roofing Pitch (05/01), Page 843.

Delete the first sentence and substitute the following:

Roofing pitch shall comply with ASTM D 4586.

Subsection 1018.20 – Fiber Glass Roving (05/01), Pages 847 and 848.

Delete this subsection.

Subsection 1018.22 – Hardware Cloth (06/02), Page 848.

Delete the text of this subsection and substitute the following.

Hardware cloth shall comply with the requirements of ASTM A 740, have a minimum wire diameter of 0.041 inch (1.04 mm), and be constructed of 1/2 inch x 1/2 inch (12.5 mm x 12.5 mm) mesh galvanized in accordance with ASTM A 153.

Subsection 1018.28 – Grade 120 Ground Iron Blast-Furnace Slag (09/02), Page 850.

Delete this subsection and substitute the following.

Ground Granulated Blast-Furnace Slag: Grade 100 and grade 120 ground granulated blast-furnace slag shall be from an approved source listed on QPL 70 and shall comply with AASHTO M 302, except alkali content calculated as sodium oxide equivalent shall not exceed 0.60 percent by weight.

SECTION 1019 – GEOTEXTILE FABRIC AND GEOCOMPOSITE SYSTEMS:

Subsection 1019.01 – Geotextile Fabric (09/02), Pages 851 and 852.

Add the following the Heading (b)(2).

Use	Classes
Base Course	D
Subgrade Layer	D

SECTION 1020 – TRAFFIC SIGNALS:

Subsection 1020.01 – Traffic Signal Heads (04/04), Pages 854 – 861.

Delete sub-heading (c)(1).

Delete sub-heading (c)(3) and substitute the following.

(3) 12-Inch (300 mm) LED Traffic Signal Lamp Unit (Mast Arm and Span Wire Mount):

a. General: The 12–inch (300 mm) LED traffic signal lamp unit shall be used in new traffic signal heads or as a retrofited replacement for existing incandescent signal lamps. No special tools will be required for installation. When used as a retrofitted replacement for existing incandescent signal lamps, the 12-inch (300 mm) LED traffic signal lamp unit shall fit into existing traffic signal housings without modifications.

If proper orientation of the LED traffic signal lamp unit is required for optimum performance, prominent and permanent directional marking(s), such as an "UP arrow", for correct indexing and orientation shall exist on the unit.

The manufacturer's name, individual serial number, manufactured date, model number, and batch number shall be permanently marked on the backside of the LED traffic signal lamp unit. A label shall be placed on the unit certifying compliance to ITE standards.

b. Physical and Mechanical Requirements: The LED traffic signal lamp unit shall be a single, self-contained device, not requiring on-site assembly for installation into a new or existing traffic signal housing.

The assembly and manufacturing process for the LED traffic signal lamp unit assembly shall be such as to assure all internal LED and electronic components are adequately supported to withstand mechanical shock and vibration from high winds and other sources.

Each LED traffic signal lamp unit shall be comprised of a UV stabilized polymeric outer shell, multiple LED light source, and a regulated power supply. LEDs are to be mounted on a polycarbonate positioning plate or conformally coated printed circuit (PC) board.

The external lens shall be smooth on the outside to prevent excessive dirt/dust buildup. The optical lens/appearance of the lamp shall reflect a light distribution look similar to that of an incandescent lamp.

c. Optical and Light Output Requirements: The LEDs shall be manufactured using AlInGaP (Aluminum-Indium-Gallium-Phosphide) technology or other LEDs with lower susceptibility to temperature degradation than AlGaAs (Aluminum-Gallium-Arsenide). AlGaAs LEDs will not be allowed.

Each LED traffic signal lamp shall meet minimum laboratory light intensity values, color (chromaticity), and light output distribution as described in ITE VTCSH (Vehicle Traffic Control Signal Head Standard) part 2 of the specifications 6.4.2.1, 6.4.4.1, 6.4.4.2, 6.4.4.3, 6.4.5 and 6.4.6 as a minimum. The LED traffic signal lamp units shall be certified by the laboratory to meet initial luminous values that are at least 115 percent of the required minimum values in the tables below. The tables below replace the values in Table 1 of Section 4.1.1 of the ITE VTCSH. The 6.4.2.1 test shall include an expanded view with the following minimums:

Grid Specification for 12–Inch (300 mm) Red
(Minimum Luminous Intensity Values (candelas))
(Shaded area is ITE requirements for light intensity)

Degrees	27.5	22.5	17.5	12.5	7.5	2.5	-2.5	-7.5	-12.5	-17.5	-22.5	-27.5
22.5U												
17.5U			3			10	10			3		
12.5U			14			20	20			14		
7.5U			20			54	54			20		
2.5U			58			220	220			58		
2.5D			77	141	251	339	339	251	141	77		
7.5D	16	38	89	145	202	226	226	202	145	89	38	16
12.5D	16	22	34	44	48	50	50	48	44	34	22	16
17.5D	16	20	22	22	22	22	22	22	22	22	20	16
22.5D			7			10	10			7		
27.5D												

Grid Specification for 12–Inch (300 mm) Green and Yellow
(Minimum Luminous Intensity Values (candelas))
(Shaded area is ITE requirements for light intensity)

Degrees	27.5	22.5	17.5	12.5	7.5	2.5	-2.5	-7.5	-12.5	-17.5	-22.5	-27.5
22.5U												
17.5U			7			20	20			7		
12.5U			27			41	41			27		
7.5U			41			108	108			41		
2.5U			115			441	441			115		
2.5D			154	283	501	678	678	501	283	154		
7.5D	32	77	178	291	404	452	452	404	291	178	77	32
12.5D	32	44	69	89	97	101	101	97	89	69	44	32
17.5D	32	41	44	44	44	44	44	44	44	44	41	32
22.5D			14			20	20			14		
27.5D												

Arrow Indications (candelas/m²)

	Red	Yellow	Green
Arrow Indication	5 500	11 000	11 000

LEDs for arrow indications shall be spread evenly across the illuminated portion of the arrow area. Arrow LED traffic signal lamp units shall be tested in conformance with California Test 3001.

Measured chromaticity coordinates of LED traffic signal lamp units shall conform to the chromaticity requirements of the following table, for a minimum period of 60 months, over an operating temperature range of -40°F (-40°C) to 165°F (74°C). Each LED traffic signal lamp unit shall meet the minimum requirements for light output for the entire range from 80 to 135 volts.

Chromaticity Standards

Red	Y: not greater than 0.308, or less than 0.998x
Yellow	Y: not less than 0.411, nor less than 0.995 – x, nor greater than 0.452
Green	Y: not less than 0.506 – 0.519x, nor less than 0.150 + 1.068x, nor greater than 0.730 – x

LED traffic signal lamp units tested shall be representative of typical production units. Optical testing shall be performed with LED traffic signal lamp units mounted in standard traffic signal section without visors or hood attached to the signal sections.

After burn-in, LED traffic signal lamp units shall be tested for rated initial luminous intensity in conformance with the provisions contained herein above. Before measurement, LED traffic signal lamp units shall be energized at rated voltage, with 100 percent on-time duty cycle,

for a time period of 30 minutes. Test results for this testing shall record the current, voltage, total harmonic distortion (THD) and power factor (PF) associated with each measurement.

Photometric, luminous intensity and color measurements for yellow LED traffic signal lamp units shall be taken immediately after the units are energized. The ambient temperature for these measurements shall be 77°F (25°C). Test results for this testing shall record the current, voltage, total harmonic distortion (THD) and power factor (PF) associated with each measurement.

d. Electrical: Each LED traffic signal lamp unit shall incorporate a regulated power supply designed to electrically protect the LEDs and maintain a safe and reliable operation. The power supply shall provide capacitor filtered DC regulated current to the LEDs in accordance with the LED manufacturer's specification. Design of the power supply shall be such that the failure of an individual component or any combination of components cannot cause the LED traffic signal lamp unit to be illuminated after AC power is removed. The power supply must be current regulated.

The LED traffic signal lamp unit shall operate on a 60Hz AC line voltage ranging from 80 volts RMS to 135 volts RMS. The circuitry shall prevent flickering over this voltage range. Nominal rated voltage for all measurements shall be 117 volts RMS.

The LED traffic signal lamp unit shall be operationally compatible with all TS1, TS2, and 2070 controllers, conflict monitors with plus features, and malfunction management units. In the case of conflicts between specifications, the latest LADOTD specifications will control.

A circuitry shall be provided that will shutdown the LED traffic signal lamp unit and power supply when 85 percent ITE light intensity specifications as amended herein are not satisfied. The manufacturer may be required to effectively demonstrate this feature.

Each shipment shall be accompanied with a certified test report from an independent testing lab. Random testing of average production units shall be conducted to ensure compliance with specifications.

Two, color coded, 36 in. long, 600 V, 18 AWG minimum jacketed wires, properly terminated to the LED traffic signal lamp unit to prevent moisture, dust, and other environmental substances from entering the unit, conforming to the National Electric Code, and rated for service at 221°F (105°C), shall be provided for an electrical connection.

Individual LED's shall be wired so that a catastrophic failure of one LED light source will result in the loss of only one LED light source.

The LED traffic signal lamp unit shall operate with a minimum 0.90 power factor.

Total harmonic distortion (current and voltage) induced into an AC power line by an LED traffic signal lamp unit shall not exceed 20 percent.

LED traffic signal lamp units and associated on-board circuitry shall conform to the requirements in Federal Communications Commission (FCC) Title 47, SubPart B, Section 15 regulations concerning the emission of electronic noise.

e. Environmental Requirements: The LED traffic signal lamp unit shall be rated for use in the ambient operating temperature range of -40°F (-40°C) to 165°F (74°C). The unit shall consist of a housing that is a sealed watertight enclosure that eliminates dirt contamination and allows for safe handling in all weather conditions. Moisture resistance testing shall be

performed on LED traffic signal lamp units in conformance with the requirements in NEMA Standard 250-1991 for Type 4 enclosures. Evidence of internal moisture after testing shall be cause for rejection.

f. Production Testing Requirements: Each new LED traffic signal lamp unit shall be energized for a minimum of 24 hours at an operating temperature of 140°F (60°C) in order to cause any electronic infant mortality to occur, and to ensure electronic component reliability prior to shipment. After the burn-in procedure is completed, each LED traffic signal lamp unit shall be tested by the manufacturer for rated initial intensity at rated operating voltage.

g. Certifications: The contractor shall submit a test report certified by an independent laboratory that is certified to test in accordance with ITE standards that the LED traffic signal lamp unit model to be furnished meets ITE Standards for light distribution as amended herein, chromaticity, and power (consumption, power factor and harmonic distortion).

h. Warranty: The manufacturer shall provide a written warranty against defects in material, workmanship, or intensity for LED traffic signal lamp units for a period of 60 months after their installation. The traffic signal lamp units shall be warranted to maintain, throughout the warranty period, minimum luminous intensity values that are shown in the tables in paragraph c above. During the warranty period the manufacturer may be required to test any LED traffic signal lamp unit that is suspected to not meet the minimum intensity requirements at no cost to the Department. Any LED traffic signal lamp unit that fails during the warranty period shall be replaced. Replacement LED traffic signal lamp units shall be provided within 5 days after receipt of failed LED traffic signal lamp units at no cost to the Department.

The measured chromaticity coordinates of light emitting diode traffic signal lamp units shall conform to the requirements for chromaticity in Section 8.04 and Figure 1 of the ITE VTCSH over the temperature range of -40°F (-40°C) to 165°F (74°C).

LOUISIANA
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
SUPPLEMENTAL SPECIFICATIONS

SECTION 502
SUPERPAVE ASPHALTIC CONCRETE MIXTURES

Section 502 of the 2000 Standard Specifications is deleted and substituted with the following.

502.01 DESCRIPTION. These specifications are applicable to Superpave asphaltic concrete wearing, binder and base course mixtures of the plant mix type.

This work consists of furnishing and constructing one or more courses of asphaltic concrete mixture applied hot in conformance with these specifications and in conformity with the lines, grades, thicknesses and typical sections shown on the plans or established. The mixture shall consist of aggregates and asphalt with additives combined in proportions which meet the requirements of this section including Tables 502-2, 502-3 and 502-4. Equipment and processes shall conform to Section 503.

Changes in design level will not be allowed, however, substitutions will be allowed for mixes within the same design level without requiring a plan change as follows. Wearing course [0.75 inch (19 mm)] may be substituted for binder course. Binder course [1 inch (25 mm)] may be substituted for base course. Wearing course shall not be substituted for base course.

When any substitution is made, all specification requirements for the mixture used shall apply with the following exceptions. When wearing course is substituted for binder course, RAP will be allowed in accordance with binder course requirements in Table 502-4. The lift thickness placed shall be as specified in Subsection 502.07 and Table 502-4 for the mix type used.

Quality assurance requirements and design procedures shall be as specified herein elsewhere and in the latest edition of the Department's publication entitled "Application of Quality Assurance Specifications for Asphaltic Concrete Mixtures" which is hereby made a part of this contract by reference.

502.02 MATERIALS. The contractor shall keep accurate records, including proof of deliveries of materials for use in asphaltic concrete mixtures. Copies of these records shall be furnished to the engineer upon request. Materials shall comply with the following Subsections:

Asphalt	1002.01
Silicone and Anti-Strip Additives	1002.02
Aggregates	1003.01 & 1003.06
Reclaimed Asphaltic Pavement (RAP)	1003.01 & 1003.06
Hydrated Lime	1018.03(a)
Mix Release Agent	1018.26

(a) Asphalt: The asphalt cement grades used shall be as specified in Table 502-1 using the design traffic load levels shown on the plans.

Asphalt cement shall be sampled in accordance with the Materials Sampling Manual and shall meet the requirements of Section 1002. If the asphalt cement does not comply with the requirements of Section 1002, mix production shall cease until proper asphalt material is supplied.

Table 502-1
Superpave Asphalt Cement Usage

Current Traffic Load Level	Mixture Type	Grade of Asphalt Cement
Level 1	Wearing Course	PG 70-22m
	Binder Course	PG 70-22m
	Base Course	PG 64-22
Level 2 and 3	Wearing Course	PG 76-22m
	Binder Course	PG 76-22m
	Base Course	PG 64-22
Level A	Incidental Paving	PG 70-22m

Base course mixtures containing 20 to 30 percent RAP shall use PG 58-28 asphalt cement.

When mixtures are specified for pavement patching, pavement widening, pavement joint repair, driveways, curbs, guardrail widening, islands, bike paths, parking lots, or temporary detour roads, PG 64-22 asphalt cement may be used in lieu of the modified asphalts.

Leveling courses shall use the same grade of asphalt cement as in the layer immediately above except when blade leveling is directed by the engineer, a PG 64-22 will be allowed.

PG 76-22m asphalt cement may be substituted for PG 70-22m or PG 64-22 asphalt cements at no increase in price. PG 70-22m asphalt cement may be substituted for PG 64-22 at no increase in price. When average daily traffic (ADT) is less than 2500, PG 70-22m Alternate asphalt cement may be substituted for PG 70-22m asphalt cement for Level 1 and Level A mixes at no increase in price.

If a wearing course is substituted for a binder course, or if a binder course is substituted for a base, the grade of asphalt cement required will be in accordance with the original mixture type shown in the plans and as specified in Table 502-1.

(b) Additives:

(1) Silicone: Silicone additives, when needed, shall be dispersed into the asphalt by methods and in concentrations given in QPL 22.

(2) Anti-Strip (AS): An anti-strip additive shall be added at the minimum rate of 0.5 percent by weight (mass) of asphalt and thoroughly mixed in-line with the asphalt cement at the plant. Additional anti-strip shall be added up to 1.2 percent by weight (mass) of asphalt in accordance with Subsection 502.03(b).

When the amount of anti-strip additive is not in accordance with the approved job mix formula, production shall be discontinued until satisfactory adjustments are made.

(3) Hydrated Lime: Hydrated lime additive may be incorporated into all asphaltic concrete mixtures at the rate specified in the approved job mix formula. The minimum rate shall not be less than 1.5 percent by weight (mass) of the total mixture. Hydrated lime additive shall be added to and thoroughly mixed with aggregates in conformance with Subsection 503.02(e). Hydrated lime may be added as a mineral filler in accordance with Heading (c)(3).

(c) Aggregates: Aggregates shall meet the requirements of Table 502-4 and Section 1003.

(1) Friction Ratings: Friction ratings for coarse aggregates shall be determined in accordance with Subsection 1003.06. The friction ratings and allowable usage of aggregates shall be as shown in Table 502-2. Friction rating requirements shall apply only to the final lift of the travel lane wearing course.

Table 502-2
Aggregate Friction Rating

Friction Rating	Allowable Usage
I	All mixtures
II	All mixtures
III	All mixtures, except travel lane wearing courses with plan ADT greater than 7000[1]
IV	All mixtures, except travel lane wearing courses[2]

[1] When plan current average daily traffic (ADT) is greater than 7000, blending of Friction Rating III aggregates and Friction Rating I and/or II aggregates will be allowed for travel lane wearing courses at the following percentages. At least 30 percent by weight (mass) of the total aggregates shall have a Friction Rating of I, or at least 50 percent by weight (mass) of the total aggregate shall have a Friction Rating of II. The frictional aggregates used to obtain the required percentages shall not have more than 10 percent passing the No. 8 (2.36 mm) sieve.

[2] When the average daily traffic (ADT) is less than 2500, blending of Friction Rating IV aggregates with Friction Rating I and/or II aggregates will be allowed for travel lane wearing courses at the following percentages. At least 50 percent by weight (mass) of the total aggregate in the mixture shall have a Friction Rating of I or II. The frictional aggregates used to obtain the required percentages shall not have more than 10 percent passing the No. 8 (2.36 mm) sieve.

(2) Reclaimed Asphaltic Pavement (RAP): Reclaimed asphaltic pavement shall be stockpiled separate from other materials at the plant and will be subject to approval prior to use. Such stockpiles shall be uniform and free of soil, debris, foreign matter and other contaminants. Reclaimed materials that cannot be broken down during mixing or that adversely affect paving operations shall be screened or crushed to pass a 2 inch (50 mm) sieve prior to use.

(3) Mineral Filler: Mineral filler complying with the requirements of Subsection 1003.06(a)(6) may be used in all mixtures.

(4) Natural Sand: Natural sand shall meet the requirements of Table 502-4 and Subsection 1003.06(a)(3).

502.03 DESIGN AND VALIDATION OF MIXTURES.

(a) General: It is the intent of these specifications that the mixtures produced and placed meet the requirements for 100 percent payment. The contractor shall be responsible for design, production, transportation and laydown of mixtures. Work shall meet the requirements of this section and be subject to acceptance by the Department.

The contractor shall exercise quality control over materials and their assembly, design, processing, production, hauling, laydown and associated equipment. Quality control is defined as the constant monitoring of equipment, materials and processes to ensure that mixtures produced and placed are uniform, within control limits, and meet specification requirements. When these specifications are not being met and satisfactory control adjustments are not being made, operations shall be discontinued until proper adjustments and uniform operations are established. Control shall be accomplished by a program independent of the Department's testing and shall ensure that the requirements of the job mix are being achieved and that necessary adjustments provide the specified results.

The contractor shall conduct such tests as necessary, in addition to the required tests, to design, control and place mixtures within specifications.

The quality of mixtures will be evaluated during two phases, mixture produced at the plant, and mixture hauled, placed and compacted. Quality of both phases will be evaluated continuously as stated herein elsewhere. A lot is a segment of continuous production of asphaltic concrete mixture from the same job mix formula produced for the Department at an individual plant. Plant quality control testing shall be conducted continuously throughout production independent of delivery points. Project site quality control testing shall be conducted on each project for the mix placed on that project.

When the plant is in operation, the contractor shall have a Certified Asphaltic Concrete Plant Technician at the plant or jobsite who is capable of designing asphaltic concrete mixes, conducting any test or analysis necessary to put the plant into operation and producing a mixture meeting specifications. Daily plant operations shall not begin unless the Certified Asphaltic Concrete Plant Technician is at the plant. The Asphaltic Concrete Technician certification will be awarded by the Department upon satisfactory completion of the Department's requirements.

(b) Job Mix Formula: The contractor shall design the mixtures for optimum asphalt content and comply with requirements of the Superpave Mix Design for the level of mixture in Table 502-4 in accordance with AASHTO PP 28. The job mix formula shall include the recommended formula, extracted gradation, and supporting design data. The recommended formula shall be submitted for approval to the District Laboratory Engineer on a properly completed Superpave Asphaltic Concrete Job Formula form with all supporting design data. No mixture shall be produced until the proposed job mix formula has been approved.

The contractor's proposed job mix formula shall indicate a single anti-strip additive rate which is 0.1 percent greater than the percentage which will yield a minimum Tensile Strength

Ratio (TSR) of 80 percent up to a maximum of 1.2 percent anti-strip additive when tested in accordance with DOTD TR 322.

Permeability shall be tested by the contractor and reported on the job mix formula. Permeability tests shall be performed on 6 inch diameter by 4 inch tall (150 mm by 100 mm) specimens compacted to 93% ±1% of theoretical maximum specific gravity (G_{mm}). The maximum coefficient of permeability shall be 3.5 ft./day (125 x 10-5 cm/second) as measured in accordance with ASTM PS 129. These same specimens may be used in moisture sensitivity testing.

The job mix formula shall indicate a single rate of hydrated lime additive when used. The job mix formula rate of hydrated lime additive shall not be less than 1.5 percent by weight (mass) of total mixture.

The job mix formula shall indicate the optimum mixing temperature. The job mix formula limits for mix temperature will be ±25°F (±14°C) from the optimum mixing temperature.

The job mix formula is to be inside the control points as detailed in Table 502-3. Blending of aggregates, i.e., gravel and stone, will be allowed provided the final composite mixture and final product meets or exceeds all specifications requirements.

The plant shall be operated to produce, on a continuing basis, a mixture uniformly conforming to the approved job mix formula. When this is not the case, the contractor shall make satisfactory adjustments or cease operations. The District Laboratory Engineer may permit the contractor to submit a new Asphaltic Concrete Job Mix Formula form for approval. The contractor shall submit a new job mix formula whenever a plant begins initial operations for the Department in a specific location or whenever a plant experiences a change in materials or source of materials. A new job mix formula will also be required whenever there are significant changes in equipment, such as the introduction of a new crusher, drum mixer, burner, etc.

When reclaimed asphaltic pavement (RAP) is used in a roadway mix, the quantity of RAP shall be designated in the job mix formula and meet the requirements of Table 502-4. The engineer may require the contractor to reduce the percentage of RAP to meet acceptance requirements.

When the contractor changes a source of RAP, the new mix design shall be submitted, validated and approved if the type of aggregate changes (e.g. gravel to limestone) or the source change causes a change in acceptance tolerances. If the contractor determines that the source change will not cause a change in acceptance tolerances, the contractor may elect to integrate the new RAP source into the existing approved mix design provided the contractor submits a revised job mix formula cover sheet which shows the new source of RAP and other changes. A new validation will not be required. If subsequent acceptance tests indicate that the mix is out of tolerance, a new design will be required and appropriate payment adjustments will apply.

(c) Job Mix Formula (JMF) Validation: The first day's production or a maximum of 2000 tons (2000 Mg) of mix shall be used to validate a new JMF. The contractor and the Department, using the stratified random sampling approach, shall jointly take five (5) samples, one per sublot, during the first day's production or a maximum of 2000 tons (2000 Mg) of mix. The contractor may elect to exclude test results representing the first 250 tons (250 Mg) from the

validation analysis in order to make slight adjustments to the mix. The remaining validation lot, up to 1750 tons (1750 Mg), shall be divided into five (5) equal sublots and tested for validation analysis. If excluded from validation, the 250 tons (250 Mg) will be paid in accordance with Table 502-8. Minimum testing shall include one theoretical maximum specific gravity (G_{mm}), one gyratory specimen compacted to N_{design}, one gyratory specimen compacted to N_{max}, and one oven extraction. As approved by the district laboratory engineer, the contractor and the Department shall jointly analyze the test results for the following parameters:

(1) Extracted Gradation
(2) Percent Extracted Asphalt Cement
(3) Percent Crushed Aggregate, (from cold feed blends)
(4) Theoretical Maximum Specific Gravity (Gmm) (aged for one hour)

The following parameters apply to samples aged for one hour in an oven at gyratory compaction temperature and compacted to N_{design}.

(5) Bulk Specific Gravity (G_{mb}) at N_{design}
(6) Percent G_{mm} at $N_{initial}$
(7) Percent Air Voids, VMA and VFA

The following parameters apply to samples aged for one hour in an oven at gyratory compaction temperature and compacted to N_{max}

(8) Bulk Specific Gravity (G_{mb}) at N_{max} measured and estimated
(9) Percent G_{mm} at N_{max} and Corrected percent G_{mm} at N_{design}
(10) Slope of the Gyratory Compaction Curve

The mean, standard deviation, Quality Index and percent within limits (PWL) of the test results shall be calculated in accordance with Subsection 502.12(g), Quality Level Analysis. The test data will be used to validate the JMF.

A JMF is considered validated if the following parameters are 90 percent within limits of the JMF and meet the specifications requirements.

(1) Extracted Gradations for the No. 8 and No. 200 (2.36 mm and 75 μm) sieves
(2) Theoretical Maximum Specific Gravity (G_{mm})
(3) Percent G_{mm} at $N_{initial}$ and N_{max}
(4) Percent Air Voids at N_{design}

Also for validation, all other parameters shall be within the specifications limits.

Should the JMF validate on all but one parameter, the contractor may make adjustments to the production and repeat the validation testing using the next day's production or a maximum of 2000 tons (2000 Mg). Should the JMF fail to validate on more than one parameter, the JMF will be considered non-valid, and the contractor will be required to submit a new JMF for approval. A previously approved JMF may be produced in lieu of the disapproved JMF. Upon validation of the JMF, the validation averages will be used for JMF target values. Payment for

validation lots will be in accordance with acceptance pay parameters, except that five cores shall be obtained to determine density pay. After validating the JMF for mix properties, the contractor, witnessed by the Department, shall sample the next day's production and perform validation testing at the plant for DOTD TR 322 and AASHTO TP 4 specimens. When the validation results are less than 80 percent, no further production for that job mix formula or any proposed job mix formula substituted for that mix type will be accepted on any DOTD project having DOTD TR 322 requirements until a passing plant-produced Tensile Strength Ratio (TSR) value is verified by the Department. A previously validated and approved JMF may be produced in lieu of the disapproved JMF.

Validation is not required for mixture designs used solely for curbs, driveways, turnouts, crossovers, joint repair, leveling, guardrail widening, islands, bike paths, patching, widening, shoulders less than 10 feet (3.0 m) wide, and miscellaneous handwork, but the mixture must meet specifications requirements.

502.04 WEATHER LIMITATIONS. Asphaltic concrete mixtures shall not be applied on a wet surface or when the ambient temperature is below 50°F (10°C) for wearing courses and 40°F (5°C) for base and binder courses, except that material in transit, or a maximum of 50 tons (45 Mg) in a surge bin or silo used as a surge bin at the time plant operation is discontinued may be placed; however, mixture placed shall perform satisfactorily and meet specification requirements. Inclement weather will be sufficient reason to terminate or not begin production.

When base course materials are placed in plan thicknesses of 2 3/4 inches (70 mm) or greater, these temperature limitations shall not apply provided all other specification requirements are met. When a wearing course is substituted for a binder course mixture the temperature limitation for binder course shall apply.

502.05 SURFACE PREPARATION. The surface to be covered shall be approved prior to placing mixtures. The contractor shall maintain the surface until it is covered.

(a) Cleaning: The surface to be covered shall be swept clean of dust, dirt, caked clay, caked material and loose material by revolving brooms or other mechanical sweepers supplemented with hand equipment as directed. When mixtures are to be placed on portland cement concrete pavement or overlaid portland cement concrete, the contractor shall remove excess joint filler from the surface by an approved burning method. The contractor shall remove any existing raised pavement markers prior to asphaltic concrete overlay operations.

When brooming does not adequately clean the surface, the contractor shall wash the surface with water in addition to brooming to clean the surface.

When liquid asphalt is exposed to traffic for more than 2 calendar days, becomes contaminated, or degrades due to inclement weather, the liquid asphalt shall be reapplied at the initial recommended rate at no direct pay.

(b) Applying Liquid Asphalt Materials:

(1) Existing Pavement Surfaces: Before constructing each course, an approved asphalt tack coat shall be applied in accordance with Section 504. The contractor shall protect the tack coat and spot patch as required.

(2) Raw Aggregate Base Course and Raw Embankment Surfaces: The contractor shall apply an approved asphalt prime coat to unprimed surfaces, or protect in place prime coat and spot patch as required with asphalt prime coat, in accordance with Section 505.

(3) Cement and Lime Stabilized or Treated Embankment and Base Course Surfaces: The contractor shall apply an approved asphalt curing membrane when none is in place, or protect the in place curing membrane and spot patch, as required, with asphalt material in accordance with Section 506.

(4) Other Surfaces: Contact surfaces of curbs, gutters, manholes, edges of longitudinal and transverse joints, and other structures shall be covered with a uniform coating of an approved asphalt tack coat complying with Section 504 before placing asphaltic mixtures.

502.06 JOINT CONSTRUCTION.

(a) Longitudinal Joints: Longitudinal joints shall be constructed by setting the screed to allow approximately 25 percent fluff and also overlapping the paver approximately 2 inches (50 mm) onto the adjacent pass. Prior to rolling, the overlapped mix shall be pushed back to the uncompacted side, without scattering loose material over the uncompacted mat, to form a vertical edge above the joint. The vertical edge shall then be compacted by rolling to form a smooth, sealed joint. Longitudinal joints in one layer shall offset those in the layer below by a minimum of 3 inches (75 mm); however, the joint in the top layer shall be offset 3 inches (75 mm) to 6 inches (150 mm) from the centerline of pavement when the roadway comprises two lanes of width, or offset 3 inches (75 mm) to 6 inches (150 mm) from lane lines when the roadway is more than two lanes. The narrow strip shall be constructed first.

Where adjacent paving strips are to be placed, the longitudinal edge joint of the existing strip shall be tacked.

(b) Transverse Joints: Transverse joints shall be butt joints formed by cutting back on the previously placed mixture to expose the full depth of the lift. An approved 10 foot (3.0 m) static straightedge shall be used to identify the location at which the previously placed mixture is to be cut back to maintain no greater than a 1/8 inch (3 mm) deviation in grade. The cut face of the previously placed mat shall be lightly tacked before fresh material is placed. The screed shall rest on shims that are approximately 25 percent of plan thickness placed on the compacted mat. Transverse joints shall be formed by an adequate crew. Transverse joints shall be checked by the engineer for surface tolerance using a stringline extended from a point 10 feet (3 m) before the joint to a point approximately 40 feet (12 m) beyond the joint. Any deviation in grade from the stringline in excess of 3/16 inch (5 mm) for roadway wearing courses and 1/4 inch (6 mm) for other courses shall be immediately corrected prior to the paving operation continuing beyond 100 feet (30 m) of the transverse joint. Additionally, the transverse joint shall meet the surface tolerance requirements of Table 502-3. The contractor shall make necessary corrections to the joint before continuing placement operations.

Transverse joints in succeeding lifts shall be offset at least 3 feet (1.0 m).

502.07 HAULING, PAVING AND FINISHING. Mixtures shall be transported from the plant and delivered to the paver at a temperature no cooler than 25°F (14°C) below the lower limit of

the approved job mix formula. The temperature of the mix going through the paver shall not be cooler than 250°F (120°C).

No loads shall be sent out so late in the day that completion of spreading and compaction of the mixture cannot be completed during daylight, unless artificial lighting has been approved.

When segregation occurs, haul trucks shall be loaded with a minimum of three drops of mix, the last of which shall be in the middle.

Each course of asphaltic mixture shall be placed in accordance with the specified lift thickness. When no lift thickness is specified, or when substitute mixtures are utilized as specified in Subsection 502.01, mixtures shall be placed in accordance with Table 502-4.

With the engineer's approval, motor patrols may be used to fill isolated depressions in the initial layer, provided this construction does not result in unsatisfactory subsequent lifts.

(a) Coordination of Production: The contractor shall coordinate and manage plant production, transportation of mix and placement operations to achieve a high quality pavement and shall have sufficient hauling vehicles to ensure continuous plant and roadway operations. The engineer will order a halt to operations when sufficient hauling vehicles are not available.

On final wearing course construction under traffic with pavement layers of 2 inches (50 mm) compacted thickness or less, the contractor will be permitted to pave one travel lane for a full day. The contractor shall pave the adjacent travel lane the next work day. When the adjacent travel lane is not paved the next calendar day and the longitudinal joint is exposed to traffic for more than 3 calendar days, and it has been determined that the subsequent roadway edge is not true to line and grade as previously constructed, the entire length of exposed longitudinal joint shall be cut back to plan thickness to a vertical edge and heavily tacked. When pavement layers are greater than 2 inches (50 mm) compacted thickness, the contractor shall place approximately 1/2 of each day's production in one lane and the remainder in the adjacent lane.

Pavement shall be protected from traffic until it has sufficiently hardened to the extent the surface is not damaged.

(b) Paving Operations: When placing the final two lifts of asphaltic concrete on the roadway travel lanes, a material transfer vehicle (MTV), as described in Subsection 503.10, will be required to deliver mixtures from the hauling equipment to the paving equipment, and to prevent segregation of the asphaltic concrete hot mix. The MTV is required regardless of ADT. All mixtures shall flow through the paver hopper. Mixtures dropped in front of the paver shall be either lifted into the hopper or rejected and cast aside. Delivery of material to the paver shall be at a uniform rate and in an amount within the capacity of paving and compacting equipment. The paver speed and number of trucks shall be adjusted to have one truck waiting in addition to the one at the paver in order to maintain continuous paving operations. The height of material in front of the screed shall remain uniform.

During mixture transfer, the paver shall not be jarred or moved out of alignment. The level of mix in the paver hopper shall not drop so low as to expose the hopper feed slats.

Pavers shall be designed and operated to place mixtures to required line, grade and surface tolerance without resorting to hand finishing.

Longitudinal joints and edges shall be constructed along lines established. Stringlines or other forms of longitudinal control shall be placed by the contractor for the paver to follow. The paver shall be positioned and operated to closely follow the established line. Irregularities in alignment shall be corrected by trimming or filling directly behind the paver.

After each load of material has been placed, the texture of the unrolled surface shall be checked to determine its uniformity. The adjustment of screed, tamping bars, feed screws, hopper feed, etc., shall be checked frequently and adjusted as required to assure uniform spreading of the mix to proper line and grade and adequate compaction. When segregation of materials or other deficiencies occur, paving operations shall be suspended until the cause is determined and corrected.

Surface irregularities shall be corrected directly behind the paver. Excess material forming high spots shall be removed. Indented areas shall be filled and finished smooth. Hand placement in accordance with Heading (c) for surface repair will be permitted. Material shall not be cast over the surface.

When paving and finishing operations are interrupted so that the mixture remaining in trucks, paver, paver hopper or on the pavement cools to such extent that it cannot be placed, finished or compacted to the same degree of smoothness and with the same texture and density as the uncooled mixture, the cooled mixture shall be removed and replaced at no direct pay.

When additional mix is required to increase superelevation in curves, the use of automatic slope control will be optional with the contractor.

The traveling reference plane method of construction will be required for airport runways unless designated otherwise on the plans. Pavers for roadway travel lanes shall be equipped with automatic screed and slope control devices used with an erected stringline, unless the contractor elects to use an approved automated base course grading machine. If the automated base course grading machine is used with an erected stringline, an approved traveling reference plane shall be used with the paver.

The following requirements shall apply for mechanical pavers:

(1) Traveling Reference Plane: An approved traveling reference plane shall be used. After the initial paving strip of each lift is finished and compacted, adjacent paving strips shall be placed to the grade of the initial paving strip using the traveling reference plane or shoe device to control grade and a slope control device to control cross slope.

On multilane pavements, the initial paving strip and the sequence of lane construction will be subject to approval.

When both outside edges of the paving strip being placed are flush with previously placed material, the slope control device shall not be used. A grade sensor is required for each side of the paver.

In superelevated curves, the cross slope shall be changed from that specified for tangents to that specified for superelevation in gradual increments while the paver is in motion so a smooth transition in grade is obtained. This change in cross slope shall be accomplished within the transition distance specified.

This is the minimum acceptable method and the contractor must meet or exceed current surface tolerance specifications.

(2) Erected Stringline: An erected stringline shall consist of a piano wire or approved equal stretched between stakes set at no greater than 25 foot (7.5 m) intervals tensioned between supports so that there is less than 1/8 inch (3 mm) variance between supports when the sensor is in place. The stringline elevation will be verified by the Department using standard surveying practices.

The initial paving strip of the first lift shall be constructed using an erected stringline referenced to established grade. When permitted, mixtures required to level isolated depressions may be placed without automatic screed control. Subsequent lifts may be constructed by use of the traveling reference plane, provided surface and grade tolerances are met on the previous lift.

Only one grade sensor and the slope control device are necessary for roadways with a normal crown on tangent alignment. Superelevated curves will require the use of two grade sensors and two erected stringlines to obtain proper grade and slope; however, when the automatic screed control device is equipped with a dial or other device which can be conveniently used to change the cross slope in small increments, superelevated curves may be constructed using this device and one erected stringline.

After the initial paving strip of the first lift is finished and compacted, adjacent paving strips shall be laid using an approved traveling reference plane.

(3) Without Automatic Screed Control: When permitted, pavers without automatic screed control may be used for pavement patching, pavement widening, paved drives and turnouts.

(c) Hand Placement: When the use of mechanical finishing equipment is not practical, the mix may be placed and finished by hand to the satisfaction of the engineer. No casting will be allowed including casting the mixture from the truck to the grade. During paving operations material shall be thoroughly loosened and uniformly distributed. Material that has formed into lumps and does not break down readily will be rejected. The surface shall be checked before rolling and irregularities corrected.

502.08 COMPACTION.

(a) General: After placement, mixtures shall be uniformly compacted, by rolling while still hot, to at least the density specified in Table 502-3. If continuous roller operation is discontinued, rollers shall be removed to cooler areas of the mat, where they will not leave surface indentations. The use of steel wheel rollers which result in excessive crushing of aggregate will not be permitted.

The rolling pattern established by the contractor shall be conducted by experienced operators in consistent sequences and by uniform methods that will obtain specified density and smoothness. Individual roller passes shall uniformly overlap preceding passes to ensure complete coverage of the paving area. The speed and operation of rollers shall not displace, tear or crack the mat. Nonvibrating steel wheel rollers shall be operated with drive wheels toward the paver. Any operations causing displacement, tearing or cracking of the mat shall be immediately corrected.

Equipment which leaves tracks or indented areas which cannot be corrected in normal operations or fails to produce a satisfactory surface shall not be used. Operation of equipment

resulting in accumulation of material and subsequent shedding of accumulated material into the mixture or onto the mat will not be permitted.

To prevent adhesion of mixture, wheels of steel wheel rollers shall be kept properly moistened, but excess water will not be permitted.

Pneumatic tire rollers shall be operated so that tires will retain adequate heat to prevent mix from adhering to tires. The pneumatic tire roller shall be operated at a contact pressure which will result in a uniform, tightly knit surface. The pneumatic tire roller shall be kept approximately 6 inches (150 mm) from unsupported edges of the paving strip; however, when an adjacent paving strip is down, the roller shall overlap the adjacent paving strip approximately 6 inches (150 mm).

Vibratory rollers may be used provided they do not impair the stability of the pavement structure or underlying layers. Vibratory rollers shall not be used on the first lift of asphaltic concrete placed over the asphalt treated drainage blanket. When mix is placed on newly constructed cement or lime stabilized or treated layers, vibratory rollers shall not be used for at least 7 days after such stabilization or treatment.

It is the responsibility of the contractor to determine the number, size, and type of rollers to sufficiently compact the mixture to the specified density and surface smoothness. The rolling equipment shall be capable of maintaining the pace of the paver and shall conform to Subsection 503.06.

The surface of mixtures after compaction shall be smooth and true to cross slope and grade within the tolerances specified. Mixtures that become loose, broken, contaminated or otherwise defective shall be removed and replaced with fresh hot mixture compacted to conform with the surrounding mixture.

Excessive rippling of the mat surface will not be accepted. Ripples are small bumps in the pavement surface which usually appear in groups in a frequent and regular manner. There shall be no more than 12 ripples or peaks in any 100-foot (30 m) section. Rippling indicates a problem with the paving operation or mix that requires immediate corrective action by the contractor; otherwise operations shall cease. Unacceptable areas shall be corrected at no direct pay.

(b) Rolling: After rolling, newly finished pavements shall have a uniform, tightly knit surface free of cracks, tears, roller marks or other deficiencies. Deficiencies shall be corrected at no direct pay and the contractor shall adjust operations to correct the problem. This may require the contractor to adjust the mix or furnish additional or different equipment.

(c) Hand Compaction: Along forms, curbs, headers, walls and at other places inaccessible to rollers, mixture shall be uniformly compacted to the satisfaction of the engineer with approved hand tampers or mechanical tampers, conforming to Subsection 503.07.

502.09 PAVEMENT SAMPLES. Samples shall be cores approximately 4 inches (100 mm) or 6 inches (150 mm) in diameter taken by an approved core drill. The contractor shall furnish samples cut from the completed work. The removed pavement shall be replaced with hot or cold mixture and refinished during the work day coring is performed. No additional compensation will be allowed for furnishing test samples and replacing the areas with new pavement. Samples shall be taken by the contractor in the presence of the engineer's representative from areas

selected by the Department in accordance with Subsection 502.12(c)(3). When the design thickness is greater than 1.75 inches (45 mm), cores less than 1 3/8 inches (35 mm) thick shall not be used as pavement samples for payment determination.

Cores shall be transported to the plant in approved styrofoam transport containers or one gallon (4 L) friction top cans. Regardless of transport container used, the container will be sealed, signed, and dated by the inspector using an approved method. The individually wrapped core will also be sealed, signed, and dated by the inspector using an approved method. Any evidence of tampering with the core wrappings, sticker, or of opening the container or friction top can will result in the cores being rejected. Additional pavement samples will be required.

502.10 SURFACE TOLERANCE REQUIREMENTS.

(a) General: This subsection outlines the method of measuring surface tolerance and the acceptance limits for quality control and assurance, including corrective actions and/or payment adjustments for asphaltic concrete surface tolerance. Longitudinal surface profile shall be measured in inches per mile (mm per km) in accordance with DOTD TR 644 and reported as the International Roughness Index (IRI), as defined in the National Cooperative Highway Research Program (NCHRP) Report No. 228 and World Bank Technical Paper No. 46.

Control of transverse, cross slope and grade shall be measured in inches (millimeters) using an approved 10-foot (3.0 m) metal static straightedge. For shoulders, turnouts, crossovers, detour roads, parking areas and roadway sections less than 500 feet (150 mm) in length, the wearing course shall be tested and the surface deviations shall not exceed 1/2 inch (15 mm). Areas with surface deviations in excess of 1/2 inch (15 mm) shall be isolated and corrected by the contractor in accordance with Heading (e).

The contractor shall furnish an inertial profiler to measure both wheelpaths simultaneously with laser or infrared height sensing equipment. The contractor shall also furnish an approved 10 foot (3.0 m) metal static straightedge for transverse acceptance testing.

Surface tolerance testing will be required on wearing and binder courses for roadway travel lanes. It will be required on the wearing course only for shoulders, parking areas and airport runways and taxiways. For surface tolerance purposes, the wearing course is defined as the final lift placed. The binder course is defined as the last lift placed prior to the final lift.

Other lifts on which additional asphaltic concrete is to be placed shall be finished so that succeeding courses will meet the requirements of this subsection. Base courses on which portland cement concrete pavement is to be placed shall be finished so that the portland cement concrete pavement will meet the requirements of Section 601.

(b) Equipment: Inertial profilers shall be capable of testing the finished surface in the longitudinal direction for conformance to the surface tolerance requirements listed in this subsection.

The Department will evaluate and verify the accuracy of the inertial profiler annually using static and dynamic tests in accordance with DOTD TR 644. Approved profilers will have a DOTD decal indicating the date of profiler verification and profiler system parameter settings. These settings shall be verified by the inspector before the first day of binder course paving and randomly thereafter.

For each project, a Department representative will observe the daily set up procedure and pre-operation tests which are performed by the contractor in accordance with the manufacturer's procedures and DOTD TR 644. A copy of the manufacturer's setup procedure, pre-operation procedures, and operating procedure for measuring surface tolerance shall be available at all times during measurement.

(c) Transverse, Cross Slope and Grade:

(1) Transverse Surface Tolerance: The contractor shall control the transverse surface finish. The Department will test the surface of the binder and wearing courses at selected locations in the transverse direction for conformance to the surface tolerance requirements of Table 502-3, which shall not be exceeded. The contractor shall make corrections as directed in accordance with Heading (e) "Correction of Deficient Areas."

(2) Cross Slope: When the plans require the section to be constructed to a specified cross slope, the contractor shall take measurements at selected locations, using a stringline, slope board or other comparable method. The contractor shall control the cross slope so that the values shown in Table 502-3 are not exceeded. Cross slope variations allowed in Table 502-3 shall apply to each lane constructed.

(3) Grade: When the plans require the pavement to be constructed to a grade, the contractor shall perform tests for conformance at selected locations, using a stringline or other comparable method. The contractor shall control grade variations so that the tolerances shown in Table 502-3 are not exceeded. Grade tolerances shall apply to only one longitudinal line, such as the centerline or outside edge of pavement. The contractor shall make corrections in accordance with Heading (e) of this subsection.

(d) Longitudinal Surface Tolerance:

(1) Quality Assurance:

a. Contractor Responsibilities: The contractor shall report an average IRI number in inches per mile (mm per km) and shall measure and report the average IRI value for each wheelpath on every 0.05-mile (0.08 km) segment of highway. The IRI values for the inside and outside wheelpaths shall be averaged and reported as the segment average and the mean of each segment average shall be reported as the sublot average. The contractor shall measure the top two lifts of the roadway travel lanes. Final acceptance will be based on the last measurement taken on the final wearing course of the travel lanes (the top or last lift placed). Measurement of the center two lanes will be required for airports.

b. Reporting: The average sublot values and individual IRI values shall conform to the requirements listed in Tables 502-7A and 502-7B. The contractor shall provide the engineer a copy of the IRI report. The contractor shall test the pavement during the first work day following placement, but in no case any later than 7 calendar days. The measurement of "short"segments, less than 264 feet (80 m) in length, shall be included in adjacent sublots. Isolated rough areas will not be allowed. Any 0.05-mile (0.08 km) segment and all individual wheelpath measurements of the binder and wearing courses shall meet the requirements of Table 502-7B. The contractor shall make corrections in accordance with Subsection 502.10(e). A DOTD inspector will be present for the final test run and will immediately receive a copy of the results.

(2) Acceptance: The Department will review each sublot report provided by the contractor. Acceptance of each sublot will be in accordance with Tables 502-7A and 502-7B, based on the IRI profile report provided by the contractor. The Department may elect to perform and utilize independent ride quality test results for acceptance at any time.

(e) Correction of Deficient Areas: The contractor shall correct areas not meeting Table 502-7B requirements for individual wheelpath measurements in a 0.05-mile (0.08 km) segment.

(1) Deficiencies in Wearing Course: The contractor shall correct deficiencies in the final wearing course by diamond grinding and applying a light tack coat, removing and replacing, or furnishing and placing a supplemental layer of wearing course mixture at least 1 1/2 inches (40 mm) compacted thickness for the full width of the roadway meeting specification requirements at no direct pay. If the supplemental layer does not meet specification requirements to the satisfaction of the engineer, the contractor shall remove and replace or correct it by other methods approved by the engineer.

(2) Deficiencies in Binder Courses: The contractor shall correct deficiencies in binder course, transverse, cross slope, and grade measurements to meet specification requirements at no direct pay. Corrections shall be made before subsequent courses are constructed.

(3) Deficiencies in Shoulder Transverse, Cross Slope and Grade: The contractor shall correct deficiencies in these areas by grinding at the project engineer's direction.

(f) Exceptions and Exclusions:

(1) Excluded Areas: The Department will review the profile report obtained for each binder and wearing course on a sublot basis. In special cases or extenuating circumstances, the engineer may isolate or exclude sections of the profile. These special cases or extenuating circumstances may be curb and gutter sections that require the adjustment of cross-slope in order to maintain adequate drainage, manholes, catch basins, valve and junction boxes, street intersections, or other structures located in the roadway which cause abrupt deviations in the profile. This specification exclusion will not be used to simply isolate sections of road that are in poor condition when the project is let.

(2) Areas Outside Travel Lanes: Ramps less than 1500 feet (460 m), tapers, shoulders and medians, or sections of pavement surfaces as directed by the engineer such as 300 feet (90 m) from bridge ends, will not be included in the ride quality index for payment purposes, but shall have a maximum IRI average of 110 or less in a sublot.

502.11 DIMENSIONAL REQUIREMENTS. Mixtures that are specified for payment on a cubic yard (cu m) or square yard (sq m) basis shall conform to the following dimensional requirements. Overthickness and overwidth will be waived at no direct pay.

(a) Thickness: Thickness of mixtures will be determined in accordance with DOTD TR 602. Underthickness shall not exceed 1/4 inch (6 mm).

When grade adjustments are permitted for all mixtures except the final wearing course, areas with underthickness in excess of 1/4 inch (6 mm) shall be corrected to plan thickness at no direct pay by furnishing and placing additional mixture in accordance with Subsection 502.10(e). For the final wearing course, areas with underthickness in excess of the 1/4 inch (6 mm) shall be

corrected to plan thickness at no direct pay by furnishing and placing a supplemental layer of wearing course mixture meeting specification requirements in accordance with Subsection 502.10(e) over the entire area for the full width of the roadway when grade adjustments are permitted.

When grade adjustments do not permit, the deficient underthickness area shall be removed and replaced at no direct pay.

(b) Width: The width of completed courses will be determined in accordance with DOTD TR 602. Underwidths shall be corrected by furnishing and placing additional mixture to a minimum width of 1 foot (0.3 m) and plan thickness at no direct pay.

502.12 QUALITY CONTROL AND ACCEPTANCE.

(a) Quality Control Requirements: For quality control purposes, the contractor shall obtain a minimum of two (2) samples of mixture from each sublot using a stratified random sampling approach. Test results for theoretical maximum specific gravity (G_{mm}) and measured bulk specific gravity (G_{mb}) at N_{max} and percent G_{mm} at $N_{initial}$, on samples of each sublot shall be reported. Control charts may be requested by the engineer if mixture problems develop. Quality control gyratory samples may be aged or unaged at the contractor's option, but the method chosen shall be used consistently throughout the project. If aged samples are used, report the measured G_{mb} @ N_{max}. If unaged samples are used, report the estimated G_{mb} @ N_{max}. One loose mix sample shall be taken from each sublot after placement of the mix in the truck. The mix shall be tested by the contractor at the plant for aggregate gradation, asphalt content and percent crushed aggregate. The mix shall be tested in accordance with DOTD TR 309, TR 323 and TR 306. The lot average and standard deviation shall be determined for aggregate gradation and asphalt content. The percent within limits (PWL) shall be determined on the Nos. 8 and 200 (2.36 mm and 75 μm) sieves and for G_{mm}. Corrective action shall be taken if these parameters fall below 90 PWL. For each lot, the contractor shall report all quality control data to the DOTD Certified Plant Technician. The full range of gradation mix tolerances will be allowed even if they fall outside the control points. The percent moisture in loose mix shall be reported once per lot. The District Laboratory Engineer may require re-validation of the mix when the average of the Quality Control data indicates non-compliance with the specified limits or tolerances.

(b) Acceptance Requirements: All Department inspection procedures, including sampling and testing, form the basis for acceptance of the asphaltic concrete. Any section of pavement that is obviously deficient shall be satisfactorily corrected or replaced. Sampling and testing shall be accomplished following a stratified sampling plan in accordance with the Materials Sampling Manual and specified test procedures. Times and locations shall be established by the engineer.

Acceptance testing for air voids will be conducted on the total lot quantity. Acceptance testing for pavement density, surface tolerance and dimensional tolerances will be conducted on that portion of the lot placed on each contract.

Pavement density and surface tolerance requirements will not be applied for short irregular sections, such as drives, aprons and turnouts; however, hot mix shall be placed to provide a neat, uniform appearance and shall be compacted by satisfactory methods. If placed in a separate lot, mixtures used for shoulders which are less than 10 feet (3.0 m) wide, curbs,

driveways, turnouts, crossovers, joint repair, leveling, guardrail widening, islands, bike paths, patching, widening, and miscellaneous handwork will be paid in accordance with Section 502.12(c) and Table 502-8 as a small quantity lot. If placed at the same time and in the same lot as roadway travel lanes, then these items will be considered incidental to the roadway work and will be included in the roadway pay.

Shoulders that are 10 feet (3.0 m) wide or greater shall be placed in a lot separate from the roadway travel lanes and will be paid in accordance with Tables 502-4 and 502-6.

A standard lot is 5,000 tons (5000 Mg), of consecutive production of asphaltic concrete mix from the same job mix formula produced for the Department at an individual plant. A standard sublot is 1,000 tons (1000 Mg). Additional adjustments may be made to the standard lot size as specified in this subsection. The final sublot, at the end of a project lot, may be increased up to 150 percent to accommodate hauling unit capacity.

With good historical performance, and when agreed upon by the engineer and contractor, the sublot size may be increased to 2000 tons (2000 Mg). Twenty-four hour per day plant production usually necessitates such an increase.

(c) Small Quantity Lots: The engineer or contractor may decrease the size of an individual lot for any of the following conditions:

(1) The interval between continuous production exceeds 2 days.
(2) A new job mix formula is accepted.
(3) The final lot is less than 5,000 tons (5000 Mg).
(4) The total project quantity is less than 5000 tons (5000 Mg).

Only standard 1000 ton (1000 Mg) sublots will be allowed when determining pay for small quantity lots. For lots with less than 3000 tons (3000 Mg) of mix, each sublot will be paid individually in accordance with Table 502-8. For lots with 3 or 4 sublots, PWL calculations will be required in accordance with Table 502-6.

For projects, or separate locations within a project, requiring less than 250 tons (250 Mg), the job mix formula, materials, and plant and paving operations shall be satisfactory to the engineer. Sampling and testing requirements may be modified by the engineer and the payment adjustment for deviations waived.

(d) Inspection: Hot mix exhibiting deficiencies before placement such as segregation, contamination, lumps, nonuniform coating, excessive temperature variations or other deficiencies, apparent on visual inspection, shall not be placed.

Hot mix exhibiting deficiencies during placement, such as segregation, contamination, alignment deviations, variations in surface texture and appearance or other deficiencies, apparent on visual inspection, will not be accepted. Poor construction practices such as handwork, improper truck exchanges, improper joint construction, or other deficiencies, apparent on visual inspection, will not be accepted.

Deficiencies revealed by visual inspection after placement and before final acceptance shall be corrected at no direct pay.

(e) Sampling and Testing for Acceptance: The Department will take samples or perform tests as outlined in these specifications, to ensure that the asphaltic concrete conforms to Department standards, which include job mix limits, typical sections, material properties, and

surface deviations. Plant acceptance tests will be performed for VFA and air voids in the specimen compacted to N_{design} to determine the acceptability of the asphaltic concrete at the plant unless directed otherwise by the engineer. If the average VFA for 5 samples is outside the specifications limits, satisfactory adjustments must be made or production shall be discontinued. The plant acceptance tests for air voids shall be subject to payment adjustments and sampling and testing in accordance with the requirements of Heading (f) below.

(f) Payment Adjustments: When the mix does not meet requirements in the areas listed in this section, the Payment Adjustment Schedule shown in Tables 502-6, 502-7 or 502-8 will be applied. Production of mix that is not eligible for 100 percent payment will not be allowed on a continuous basis. When test results demonstrate that payment adjustments are necessary, satisfactory adjustments shall be made, or production shall be discontinued.

The Department will pay the contractor at an adjusted rate as specified in Tables 502-6 or 502-8 for tests conducted by the Department on samples obtained from each lot of material, in accordance with the following Headings.

(1) Volumetric Properties: Testing for percent air voids will be conducted by the Department. Test results of mixture specimens compacted to N_{design} shall comply with Table 502-4 when tested in accordance with AASHTO TP 4 and DOTD TR 304. One sample will be taken from each of five (5) sublots. The data will be used to determine if the lot is outside acceptance limits shown in Table 502-4. If the lot is outside the acceptance limits, an adjustment in unit price for the lot will be made in accordance with Tables 502-6 or 502-8.

(2) Pavement Density: Acceptance testing for pavement density will be conducted by the Department. Three pavement samples for each mix use shall be obtained from each sublot within 24 hours after placement. Sampling shall be performed using the random number tables shown in DOTD S605. When this falls on a day the contractor is not working, sampling shall be done within 3 calendar days. The density requirement for each lot will be as shown in Table 502-3 determined in accordance with DOTD TR 304. Payment will be made in accordance with Table 502-6 using the total number of cores for the lot in accordance with Subsection 502.12(g). Payment for small quantity lots will be made in accordance with Table 502-8.

When the sampling location determined by random sampling falls within areas that are to be replaced or within 1 foot (0.3 m) of the unsupported pavement edge, another random sampling location will be used.

(g) Quality Level Analysis: The Quality Level Analysis is a statistical quality control/quality acceptance (QC/QA) method for validating Job Mix Formulas (JMF), contractors quality control, project acceptance and payment for all Superpave asphaltic concrete.

The mean $(\overline{X})$ is the average of a set of numbers. To determine the mean add the numbers (X_i) in the set and divide by the number of numbers (n) in the set.

$$\text{Mean} = \overline{X} = \frac{X_1 + X_2 + X_3 + \ldots + X_n}{n} = \frac{\sum_{i=1}^{n} X_i}{n}$$

The standard deviation of a set of numbers measures the spread of the numbers in the set or the deviation from the mean. Calculate the standard deviation according to the following formula:

$$\text{Standard Deviation} = s = \sqrt{\frac{(X_1 - \overline{X})^2 + (X_2 - \overline{X})^2 + \ldots + (X_i - \overline{X})^2}{n-1}}$$

$$= \sqrt{\frac{\sum_{i=1}^{n} (X_i - \overline{X})^2}{n-1}}$$

A Quality Index is calculated using both the upper and lower specification limits (if applicable). The Quality Index calculated using the upper or higher specification limit is called the Upper Quality Index (Q_U). The Quality Index calculated using the lower specification limit is called the Lower Quality Index (Q_L).

To determine each Quality Index, the specification limits are added or subtracted from the mean of the test results and the result is divided by the standard deviation as shown below.

$$\text{Upper Quality Index} = Q_U = \frac{USL - \overline{X}}{s} \qquad \text{Lower Quality Index} = Q_L = \frac{\overline{X} - LSL}{s}$$

Where: USL = upper specification limit
LSL = lower specification limit

Table 502-5 is used to convert the Quality Index into the PWL value. A PWL is calculated for each Quality Index (upper and lower) and combined for a total PWL calculated in accordance with the formula:

$$PWL = PWL_L + PWL_U - 100$$

where: PWL_L = lower percent within limits
PWL_U = upper percent within limits

In using Table 502-5, the appropriate columns corresponding to the number of test results must be used.

If a specification requirement does not have both an upper and lower limit only one Quality Index and PWL, upper or lower as appropriate, is calculated and the other PWL is equal to 100 in the total PWL calculation.

502.13 MEASUREMENT. Asphalt tack coat, prime coat or curing membrane will not be measured for payment.

(a) Weight Measurement: Asphaltic concrete will be measured by the ton of 2,000 pounds (Mg (1000 kg)) from printed weights as provided in Section 503. Stamped printer tickets will be issued for each truckload of material delivered. Material lost, wasted, rejected or applied contrary to specifications will not be measured for payment.

Estimated quantities of asphaltic concrete shown on the plans are based on 115 lb/sq yd/inch (2.46 kg/sq m/mm) thickness. The measured quantity of asphaltic mixtures will be multiplied by the following adjustment factor to obtain the pay quantity.

Theoretical Maximum Specific Gravity, (G_{mm}) (DOTD TR 327)	Adjustment Factor
2.340 - 2.360	1.02
2.361 - 2.399	1.01
2.400 - 2.540	1.00
2.541 - 2.570	0.99
2.571 - 2.590	0.98

The adjustment factor for mixtures with theoretical maximum specific gravities less than 2.340 or more than 2.590 will be determined by the following formulas:

Theoretical maximum specific gravity less than 2.340:

$$F = \frac{2.400}{S}$$

Theoretical maximum specific gravity more than 2.590:

$$F = \frac{2.540}{S}$$

where,

F = quantity adjustment factor

S = theoretical maximum specific gravity of mixture from approved job mix formula

(b) Volume or Area Measurement: The quantities for payment will be the design quantities specified in the plans and adjustments thereto. Design quantities will be adjusted when the engineer makes changes to adjust to field conditions or when design changes are

necessary. Design quantities are based on the horizontal dimensions and compacted thickness of the completed course shown on the plans.

(c) Surface Tolerance Incentive Measurement: At the completion of construction of the wearing course travel lanes, the contractor, in the presence of a DOTD representative, shall measure a continuous profile from the start station to the end station of the construction project for the purpose of determining qualification for incentive pay under Subsection 502.14(e). Bridges and 300 feet (90 m) on each end of the bridge will be excluded from measurements for surface tolerance incentive pay.

502.14 PAYMENT. Payment for asphaltic concrete will be made at the contract unit price on a lot basis. When the mix does not conform to acceptance requirements, payment will be made at an adjusted price per unit of measurement in accordance with Subsection 502.12(f) and Tables 502-6 and 502-8 for both plant and roadway acceptance.

(a) General: Payment for asphaltic concrete will include furnishing all required materials, producing the mixtures, preparing the surfaces on which the mixtures are placed, hauling the mixtures to the work site, and placing and compacting the mixtures.

(b) Wearing Course Mixes: For wearing course travel lanes, adjustments in contract price for plant and roadway deficiencies or incentives will be based on the average of the percent payments for plant air voids, roadway density, and surface tolerance. For all other wearing course applications, payment adjustment will be based on the average of the percent payments for plant air voids and roadway density.

(c) Base, Binder and Shoulder Mixes: For base and binder courses for travel lanes and all shoulder mixes, adjustments in contract price for plant and roadway deficiencies or incentives will be based on the average of the percent payments for plant air voids and roadway density.

Final adjustments in unit price will be as described in Tables 502-6 and 502-8.

(d) Erected Stringline: When the use of an erected stringline is not specified, but directed by the engineer, an additional payment of $500 per contract plus $0.25 per linear foot ($0.75 per lin m) will be made for mixtures placed by the erected stringline method. When the use of an erected stringline is specified, no additional payment will be made.

(e) Incentive Pay: A surface tolerance incentive payment equal to 5 percent of the contract unit price for the theoretical travel lane quantity of the wearing course item will be paid if the contractor achieves a project average IRI of 45 or less as measured at the completion of the project. No lot of wearing course on the project shall be less than 100 percent for surface tolerance. Only projects that have no areas of grinding are eligible for incentive pay.

Payment will be made under:

Item No.	Pay Item	Pay Unit
502-01	Superpave Asphaltic Concrete	Ton (Mg)
502-02	Superpave Asphaltic Concrete	Cubic Yard (Cu m)
502-03	Superpave Asphaltic Concrete, (in (mm) Thick)	Square Yard (Sq m)

Table 502-3
Superpave Requirements

A. REQUIREMENTS FOR EXTRACTED ASPHALT CEMENT AND AGGREGATE GRADATION					
U.S. (Metric) Sieve % Passing	1/2 inch (12.5 mm) Nominal	3/4 inch (19 mm) Nominal	1 inch (25 mm) Nominal	1.5 inch (37.5 mm) Nominal	Mix Tolerance[1]
2 inch (50 mm)	---	---	---	100	±4
1 1/2 inch (37.5 mm)	---	---	100	90-100	±4
1 inch (25 mm)	---	100	90-100	89 Max.	±4
3/4 inch (19 mm)	100	90-100	89 Max	---	±4
1/2 inch (12.5 mm)	90-100	89 Max	---	---	±4
3/8 inch (9.5 mm)	89 Max.	---	---	---	±4
No. 4 (4.75 mm)	---	---	---	---	±4
No. 8 (2.36 mm)	34-58	29-49	23-45	19-41	±3
No. 16 (1.18 mm)	---	---	---	---	±2
No. 30 (600 µm)	---	---	---	---	±2
No. 50 (300 µm)	---	---	---	---	±2
No 100 (150 µm)	---	---	---	---	±2
No. 200 (75 µm)	4.0-10.0	3.0-8.0	2.0-7.0	1.0-6.0	±0.7
Extracted Asphalt, %	---	---	---	---	±0.2
Mix Temperature	---	---	---	---	±25°F (±14°C)
B. PAVEMENT REQUIREMENTS					
Density, Min. 92.0 (% of Theoretical Maximum Specific Gravity, DOTD TR 327) Travel Lane Wearing, Binder and Base Courses					
Density, Min. 89.0 (% of Theoretical Maximum Specific Gravity, DOTD TR 327) Shoulders					
Surface Tolerance Variation, inches (mm)[2]			Transverse[3]	Cross Slope[3]	Grade[4]
Roadway Travel Lane Wearing Courses			1/8 (3)	3/8 (10)	1/2 (15)
Binder Courses			1/4 (6)	1/2 (15)	1/2 (15)
Shoulder Wearing Course			3/16 (5)	3/4 (20)	3/4 (20)

[1] Job Mix Formula based on validated mix design.
[2] For longitudinal surface tolerance requirements, see Subsection 502.10(d).
[3] Based on 10 feet (3.0 mm).
[4] Applicable only when grade is specified.

Table 502-4
Superpave Design, Control and Acceptance Limits

Nominal Max., Size Agg.	0.5 inch[1] (12.5 mm)	0.5 inch (12.5 mm)			0.75 inch (19 mm)			1.0 inch (25 mm)			1.5 inch (37.5 mm)		
Type of Mix	Incidental Paving	Wearing Course			Wearing or Binder Course			Binder or Base Course			Base Course		
Level[2,3] (10^6 ESAL)	A <0.3	1[4] <3	2 3-30	3 >30	1[4] <3	2 3-30	3 >30	1 <3	2 3-30	3 >30	1 <3	2 3-30	3 >30
Asphalt Binder	Table 502-1												
Coarse Agg. Friction Rating[2]	I,II,III	I,II,III			I,II,III			I,II,III,IV			I,II,III,IV		
Coarse Agg. Angularity, % Crushed, (Double Faced) + No. 4 (4.75 mm)	55	75	95	98	75	95	98	75	95	98	60	75	98
Fine Agg. Angularity, Min. % - No. 8 (2.36 mm)	40	40	45	45	40	45	45	40	45	45	40	40	45
Flat and Elongated Particles, % Max. (5:1)	10	10			10			10			10		
Sand Equivalent, Min. % (Fine Agg.) - No. 4 (4.75 mm)	40	40	45	50	40	45	50	40	45	50	40	45	50
Natural Sand - Max. %	NA	15			15			15			25		
RAP, Max. %[5, 9]	15	15			15			20,30			30		
Compacted Mix Design													
VMA, Min. %[6]	13	13			12			11			10		
Air Voids, %[6, 10]	2.5-4.5	2.5-4.5			2.5-4.5			2.5-4.5			2.5-4.5		
VFA, %[6]	68-78	68-78			68-78			68-78			68-78		
$N_{initial}$ 89 % max.[7] (Gyrations)	7	7	8[8]	9	7	8[8]	9	7	8[8]	9	7	8[8]	9
N_{design} 96±1 % (Gyrations)	75	75	100[8]	125	75	100[8]	125	75	100[8]	125	75	100[8]	125
N_{max} 98 % max. (Gyrations)	115	115	160[8]	205	115	160[8]	205	115	160[8]	205	115	160[8]	205
Moisture Sensitivity, TSR Min.	80	80			80			80			80		
Dust/Effective Asphalt Ratio, %	0.6 - 1.6	0.6 - 1.6			0.6 - 1.6			0.6 - 1.6			0.6 - 1.6		
Lift Thickness, inch (mm)	1.0-2.0 (25-50)	1.5-2.0 (40-50)			1.5-2.0 (40-50)			2.0-4.0[11] (50-100)			4.0+ (100+)		

[1]May be used for airports, joint repair, leveling, driveways, shoulders, curbs, guardrail widening, islands, bike paths, parking lots, turnouts, crossovers, detour roads, and other incidental items approved by the engineer.
[2]Mixtures designated as Level 1F, 2F, and 3F must meet the requirements for Level 1, 2, and 3 respectively. Additionally, Level 1F, 2F, and 3F must meet the friction rating requirements in Table 502-2 for travel lane wearing courses with ADT > 7000.
[3]Design ESALs are the anticipated project traffic level expected on the design lane over a 20 year design period. Regardless of the actual design life of the roadway, determine the design ESALs for 20 years and choose the appropriate N_{design} level.
[4]When Level 1 wearing course is specified, 1/2 inch (12.5 mm) nominal maximum size aggregate shall be used.
[5]Maximum 20 % Rap shall be allowed in all shoulder wearing coursemixtures. RAP shall not be allowed for airports.
[6]Air voids, VMA and VFA are determined on samples compacted to N_{design}.
[7]For Level 1 mixtures, $N_{initial}$ will be 90.5 % max. For Level A mixes, $N_{initial}$ will be 91.5 % max.
[8]For 20 year ESAL counts from 3 to 10 million use 7, 75 and 115 gyrations for $N_{initial}$, N_{design} and $N_{maximum}$ respectively.
[9]For 1.0 inch (25 mm) nominal maximum size aggregate the maximum percent RAP for binder course is 20 percent and the maximum percent RAP for base course is 30 percent.
[10]Air voids design target is 3.5%.
[11] For 1.0 inch (25 mm) nominal maximum size aggregate the maximum lift thickness for base course is 4+ inches (100+ mm).

Table 502-5
Quality Index Values for Estimating Percent Within Limits

PWL	n = 3	n = 4	n = 5 - 6	n = 7 - 9	n = 10 - 12	n = 13 - 15
99	1.16	1.47	1.68	1.89	2.04	2.14
98	1.15	1.44	1.61	1.77	1.86	1.93
97	1.15	1.41	1.55	1.67	1.74	1.80
96	1.15	1.38	1.49	1.59	1.64	1.69
95	1.14	1.35	1.45	1.52	1.56	1.59
94	1.13	1.32	1.40	1.46	1.49	1.51
93	1.12	1.29	1.36	1.40	1.43	1.44
92	1.11	1.26	1.31	1.35	1.37	1.38
91	1.10	1.23	1.27	1.30	1.32	1.32
90	1.09	1.20	1.23	1.25	1.26	1.27
89	1.08	1.17	1.20	1.21	1.21	1.22
88	1.07	1.14	1.16	1.17	1.17	1.17
87	1.06	1.11	1.12	1.12	1.13	1.13
86	1.05	1.08	1.08	1.08	1.08	1.08
85	1.03	1.05	1.05	1.05	1.04	1.04
84	1.02	1.02	1.02	1.01	1.00	1.00
83	1.00	0.99	0.98	0.97	0.96	0.96
82	0.98	0.96	0.95	0.94	0.93	0.92
81	0.96	0.93	0.92	0.90	0.89	0.89
80	0.94	0.90	0.88	0.87	0.85	0.85
79	0.92	0.87	0.85	0.83	0.82	0.82
78	0.89	0.84	0.82	0.80	0.79	0.78
77	0.87	0.81	0.79	0.77	0.76	0.75
76	0.84	0.78	0.76	0.74	0.72	0.72
75	0.82	0.75	0.73	0.71	0.69	0.69
74	0.79	0.72	0.70	0.67	0.66	0.66
73	0.77	0.69	0.67	0.64	0.63	0.62
72	0.74	0.66	0.64	0.61	0.60	0.59
71	0.71	0.63	0.60	0.58	0.57	0.56
70	0.68	0.60	0.58	0.55	0.54	0.54
69	0.65	0.57	0.55	0.53	0.51	0.51
68	0.62	0.54	0.52	0.50	0.48	0.48
67	0.59	0.51	0.49	0.47	0.46	0.45
66	0.56	0.48	0.46	0.44	0.43	0.42
65	0.53	0.45	0.43	0.41	0.40	0.40
64	0.49	0.42	0.40	0.38	0.37	0.37
63	0.46	0.39	0.37	0.35	0.35	0.34
62	0.43	0.36	0.34	0.33	0.32	0.31
61	0.39	0.33	0.31	0.30	0.30	0.29
60	0.36	0.30	0.28	0.27	0.26	0.26
59	0.32	0.27	0.25	0.24	0.24	0.23
58	0.29	0.24	0.23	0.21	0.21	0.21
57	0.25	0.21	0.20	0.19	0.18	0.18
56	0.22	0.18	0.17	0.16	0.16	0.15
55	0.18	0.15	0.14	0.13	0.13	0.13
54	0.14	0.12	0.11	0.11	0.10	0.10
53	0.11	0.09	0.08	0.08	0.08	0.08
52	0.07	0.06	0.06	0.05	0.05	0.05
51	0.03	0.03	0.03	0.03	0.03	0.03
50	0.00	0.00	0.00	0.00	0.00	0.00

Note 1: For negative values of Q_u or Q_L. PWL_U or PWL_L is equal to 100 minus the tabular PWL_U or PWL_L.
Note 2: If the value of Q_U or Q_L does not correspond exactly to a value in the table, use the next higher value.

Table 502-6
Payment Adjustments for Superpave

Payment adjustments will be based on specification limits.

A) PLANT ACCEPTANCE

Air Voids: The percent within limits (PWL) will be calculated for air voids for each lot and reported to the nearest whole number. Payment for plant acceptance will be in accordance with Table 502-6A.

Table 502-6A
Payment Adjustment Schedule for Plant Acceptance

Air Voids PWL	Percent Payment
100	103
88-99	100
71-87	98
51-70	90
21-50	80
≤20	50 or Remove[1]

[1]At the option of the Department after investigation.

B) ROADWAY DENSITY

The percent within limits (PWL) will be calculated for pavement density for each lot and reported to the nearest whole number. Payment for roadway density will be in accordance with Table 502-6B.

Table 502-6B
Payment Adjustment Schedule for Roadway Density

Roadway Density PWL	Percent Payment
98-100	105
89-97	100
79-88	98
61-78	90
31-60	80
≤30	50 or Remove[1]

[1]At the option of the Department after investigation.

C) SURFACE TOLERANCE (Final Wearing Course Travel Lanes Only)

Payment adjustments for surface tolerance for the final wearing course travel lanes will be based on the International Roughness Index (IRI) in accordance with Table 502-7 and Subsections 502.13 and 502.14. Percent payments will be determined for each sublot and averaged to determine payment for the lot.

D) TOTAL PAYMENT

The percent payment for the wearing course travel lanes will be the average of the percent payments for plant acceptance, roadway density, and surface tolerance for each lot. Incentive payment for surface tolerance will be in accordance with Subsection 502.14(e) and paid separately.

The percent payment for all other mix types will be the average percent payments for plant acceptance and roadway density for each lot.

All calculations for percent payment will be rounded to the nearest 1 percent.

Table 502-7A
Payment Adjustment Schedules for Longitudinal
Surface Tolerance, Maximum International Roughness Index,
inches per mile (mm per km)

Percent of Contract Unit Price (by Sublot)[1]	103%[2]	100%	90%	80%	50% or Remove[3]
Category A Multi-Lift New Construction and Overlays of More than two Lifts and all Interstates	<55 (<870)	<65 (<1030)	65-75 (1030-1180)	NA	>75 (>1180)
Category B One or Two Lift Overlays Over Cold Planed Surfaces, and Two-Lift Overlays Over Existing Surfaces[4]	<65 (1030)	<75 (<1180)	75-89 (1180-1400)	NA	>89 (>1400)
Category C Single-Lift Overlays Over Existing Surfaces	<75 (<1180)	<85 (<1340)	85-95 (1340-1500)	>95-110 (>1500-1740)	>110 (>1740)
Incentive Pay, Final Completion, Average of All Travel Lanes[5]	≤45 (≤710)				

[1]or portion of sublot placed on the project.
[2]Maximum payment for sublots with exception areas, exclusions or grinding is 100 percent.
[3]At the option of the engineer.
[4]Also applies to two-lift overlays on reconstructed bases without profile grade control.
[5]Only Category A projects with no grinding are eligible for incentive.

Table 502-7B
Individual Wheelpath Deficient Area Limits
Maximum International Roughness Index, inches per mile (mm per km)

Any 0.05 Mile (0.08 km) Segment	Wearing Course	Binder Course
Category A	89 (1400)	105 (1660)
Category B	99 (1560)	110 (1740)
Category C	110 (1740)	N/A

Table 502-8
Payment Adjustment Schedule for Small Quantities of Superpave[1]

Parameter[2]	Percent of Contract Unit Price/Sublot		
	100	95	50 or Remove[3]
% Air Voids	2.5-4.5	1.5-2.4 or 4.6-5.5	<1.5 or >5.5
Average Roadway Density, % G_{mm}	≥ Lower limit	-0.1 to -0.9 below lower limit	-1.0 below Lower limit

[1]See Subsection 502.12(c), Small Quantity Lots.
[2]For plant acceptance, use one sample for percent air voids to determine pay. For roadway acceptance, use the average of three cores to determine density and pay. Determine surface tolerance in accordance with Table 502-7. The total percent payment for small quantities of Superpave mixtures will be the average of the percent payments for plant acceptance (air voids), roadway acceptance (density) and surface tolerance.
[3]At the option of the engineer.

LOUISIANA
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
SUPPLEMENTAL SPECIFICATIONS

SECTION 744
TRAFFIC CONTROL MANAGEMENT

The 2000 Standard Specifications are amended to include this Section 744.

744.01 DESCRIPTION: This work consists of providing traffic control management in compliance with the contract documents and the Manual on Uniform Traffic Control Devices (MUTCD), including the installation, inspection, maintenance, and removal of all traffic control devices on the project.

744.02 REQUIREMENTS: The contractor shall assign one or more authorized Traffic Control Supervisors (TCS) to provide traffic control management for the project. If the contractor assigns more than one TCS to provide traffic control management, then a weekly schedule identifying who will be in charge of providing traffic control management on a daily basis shall be submitted to the engineer by the contractor. The TCS shall have a set of all contract documents relating to traffic control or traffic staging and a current copy of the MUTCD and a current copy of Louisiana Work Zone Traffic Control Details readily available at all times.

Should the contractor utilize a subcontractor to provide traffic control management, the subcontractor's TCS shall meet all the requirements set forth herein.

The contractor may assign one or more Traffic Control Technicians (TCT) to assist the TCS in inspection and maintenance of Traffic Control Devices.

744.03 AUTHORIZATION: Prior to commencing work requiring traffic control management, the contractor shall submit to the engineer a copy of the TCS's and TCT's current authorization.

The Department will accept the TCS authorization of other approved agencies or firms only if all of the following minimum TCS requirements are met:

(a) Successful completion of a work zone traffic control supervisor course approved by the Department.

(b) Passing a written examination on the work zone traffic control supervisor course.

(c) After October 1, 2004, a minimum of one year full-time field experience, verified by the agency or firm, in work zone traffic control. This experience may be verified by the Department, at its discretion.

The Department will accept the TCT authorization of other approved agencies or firms only if all or the following minimum requirements are met.

(a) Successful completion of a work zone traffic control technician course approved by the Department.

(b) Passing a written examination on the work zone traffic control technician course.

744.04 DUTIES: The TCS's responsibility shall be traffic control management, and the TCS shall be available to the engineer to address traffic control management issues as needed. The following is a listing of the TCS's primary duties:

(a) The TCS shall personally provide traffic control management and supervision services at the project site. The TCS may have other assigned duties, but must be readily available at all times to perform TCS duties as required in the contract. A minimum of one TCT shall be required on site during working hours.

(b) The TCS shall be responsible for observing and evaluating both the day and night time performance of all traffic control devices installed on the project, in accordance with the Traffic Control Plan (TCP), to ensure that the devices are performing effectively as planned for both safety and traffic operations. This shall be done at the initial installation of the devices and when any modifications and/or changes are made, in addition to the inspection of traffic control required in Subsection 744.06.

(c) The TCS shall be responsible for revisions requested by the contractor to the traffic control plan established in the contract and shall submit the new traffic control plan as follows:

Requests for revision in the traffic control plan must be made in writing to the engineer a minimum of 14 calendar days in advance of the needed revision. If in the opinion of the engineer, the requested revision falls within the scope of the existing contract drawings, the engineer may approve the revision. If the engineer determines that the requested revision is outside the scope of the existing contract drawings, the contractor will be required to submit plan change drawings to incorporate into the contract drawings. The plan change drawings must conform to the DOTD standards described below.

(1) Letter size original contract drawings --The plan change drawings must be submitted on high quality white 8 1/2 x 11 inch letter size paper. The drawings may be hand drafted or computer drafted and arranged in landscape format on the page. The text and drawings must be legible after reproduction on standard reproduction equipment. Left, bottom and right hand margins shall be at least 1/2 inch and the top margin shall be 1 inch.

(2) Full size original contract drawings -- The plan change drawings must be submitted on high-quality, 4-mil, double-matte film using a plotting or reproduction process that fuses the graphics to ensure durability. Repeated handling and friction due to stacking of plans shall not smear, flake or rub off the graphics. Improper plotter settings and plotter wear may cause inconsistent durability of the drawings. The contractor shall test samples of the submitted drawings for durability. Advance samples of matte films may be submitted for approval; however, the contract plans will be tested separately. Failures will result in rejection of the submittal. Drawing sizes shall be in accordance with Subsection 801.03(a).

Lettering on plan change drawings shall be of adequate size to facilitate a 50 percent reduction of plans. Additions or changes shall be made with a permanent type of waterproof ink made for this purpose. If revised cross sections are required, the cross-sections shall be plotted on standard plate cross-section sheets. The ground line, centerline elevation, and station numbers, as a minimum, shall be drawn in ink; the remaining information may be in pencil.

Regardless of size, all plan change drawings and documents required shall be identified with the DOTD project title and project number. All plans and calculations shall be signed and sealed by a professional civil engineer currently registered to practice in Louisiana.

All plans submitted by the contractor shall conform to the quality standards adopted by DOTD, and the DOTD Chief Engineer may reject any plans not conforming to these standards.

Revisions to the TCP that are determined to be outside the scope of the original contract drawings must be approved by the DOTD District Traffic Engineering Division prior to implementation of the requested revision. In some cases on high traffic routes or high priority projects, the revisions must be approved by the HQ Traffic Operations Engineer.

(d) The TCS shall be responsible for the training of flagging personnel. This training will ensure that all flagging done on the project is in compliance with the MUTCD Part VI and Louisiana Work Zone Traffic Control Details.

(e) The TCS shall coordinate all traffic control operations for the duration of the contract, including those of subcontractors, utility companies, and suppliers, to ensure that all traffic control is in place and fully operational prior to the commencement of any work. The Department recognizes that the contractor does not have direct control over the traffic control operations of the utility companies. The coordination provided by the TCS when dealing with utility companies is specifically for the purpose of coordinating concurrent utility traffic control with any other construction traffic control to avoid conflicts.

(f)The TCS shall coordinate, in writing, all project activities with the appropriate law enforcement, fire control agencies, and other appropriate public agencies as determined at the pre-construction conference by the engineer. The TCS shall also invite the above agencies to the pre-construction conference.

(g) The TCS shall prepare and submit statements concerning road closures, delays, and other project activities to the news media on a weekly basis or more often as needed. News releases shall be submitted to the engineer for review and approval prior to the contractor's submittal to the news media.

(h) The TCS shall be responsible for notifying the engineer, or designee, immediately of all vehicular accidents and/or incidents related to the project traffic control. The time and date of notification shall be documented in the traffic control diary. The TCS shall also monitor and document queues that occur as necessary.

(i) The TCS assigned to the project shall attend the pre-construction conference and all project meetings.

(j) The TCS shall be responsible for the maintenance, cleanliness, replacement and removal of traffic control devices of the existing traffic control plan during working and non-working hours.

744.05 TRAFFIC CONTROL DIARY: The TCS shall maintain a project traffic control diary in a bound book. The contractor shall obtain a sufficient number of the diaries from the Louisiana Associated General Contractors (LAGC). The TCS shall keep the traffic control diary current on a daily basis, and shall sign each daily entry. Entries shall be made in ink in a standard format furnished by the engineer, and there shall be no erasures or white-outs. Incorrect entries shall be struck out and then replaced with the correct entry. Photographs and videotapes may be used to supplement the written text.

The traffic control diary shall be available at all times for inspection by the engineer; and the diary shall be reviewed with the engineer on a weekly basis and a copy submitted to the engineer on a monthly basis. Failure to submit the monthly copy of the diary to the engineer shall result in the withholding of the next partial payment until the past due copies of the diary are submitted. The traffic control diary shall become the property of the Department at the completion of the project.

744.06 INSPECTION OF TRAFFIC CONTROL: The TCS shall be responsible for the inspection of all traffic control devices every calendar day that traffic control devices are in use. This inspection may be delegated to the TCT. The "Quality Guidelines for Work Zone Traffic Control Devices" standard by the American Traffic Safety Services Association (ATSSA) shall be used to evaluate the condition of the traffic control devices to determine if acceptable for use. The TCS shall provide for the immediate repair, cleaning, or replacement of any traffic control devices not functioning as required to ensure the safety of the motorist and construction personnel and/or not meeting the ATSSA standard.

Inspection of the traffic control devices shall be conducted by the TCS at the beginning and end of each workday, and as scheduled or directed by the engineer during the workday. The traffic control devices shall be inspected by the TCS on weekends, holidays, or other non-work days at least once per day. Traffic control devices shall be inspected by the TCS at least once a week during nighttime periods and the same night after any modifications or changes have been made in the traffic control devices.

744.07 FAILURE TO COMPLY: The engineer may suspend all or part of the contractor's operation(s) for failure to comply with the approved "Traffic Control Plan" or failure to correct unsafe traffic conditions within a reasonable period of time after such notification is given to the contractor in writing.

In the event that the contractor does not take appropriate action to bring the deficient traffic control into compliance with the approved traffic control plan or to correct the unsafe traffic conditions, the Department may proceed with the corrective action using its own forces, and such costs will be deducted from payments owed to the contractor.

If the contractor's operations are suspended, the normal assessment of contract time will not cease for the period required to correct these unsafe conditions and traffic control deficiencies. The contractor shall not be relieved of the responsibility to provide traffic control safety to the traveling public when a project is under full or partial project suspension. When a project is under suspension due to the contractor's failure to comply with this section, or when the contract is under stipulated damages, the contractor shall continue to provide traffic control management and no additional measurement or payment will be made. If suspensions or partial suspensions are requested by the contractor, the additional traffic control management costs will be at the contractor's expense.

744.08 ENGINEER MODIFICATIONS: The provisions included in the plans and specifications for handling and controlling traffic during construction may be changed by the

engineer, with the approval of the DOTD District Traffic Operations Engineer, due to actual field conditions encountered. Such changes will be made by written instruction to the contractor and shall be considered an amendment to the plans and specifications as of the date of change.

744.09 MEASUREMENT: Traffic control management will be measured by the lump sum.

744.10 PAYMENT: Payment for traffic control management will be made at the lump sum contract price in accordance with the payment schedule of Table 744-1.

Table 744-1
Payment Schedule for Traffic Control Management

Percent of Total Contract Amount Earned	Allowable Percent of Lump Sum Price for Traffic Control Management
Initial Installation	20
25	40
50	60
75	80
100	100

Traffic control diaries will be incidental to traffic control management, and no separate measurement or payment will be made therefore.

Payment will be made under:

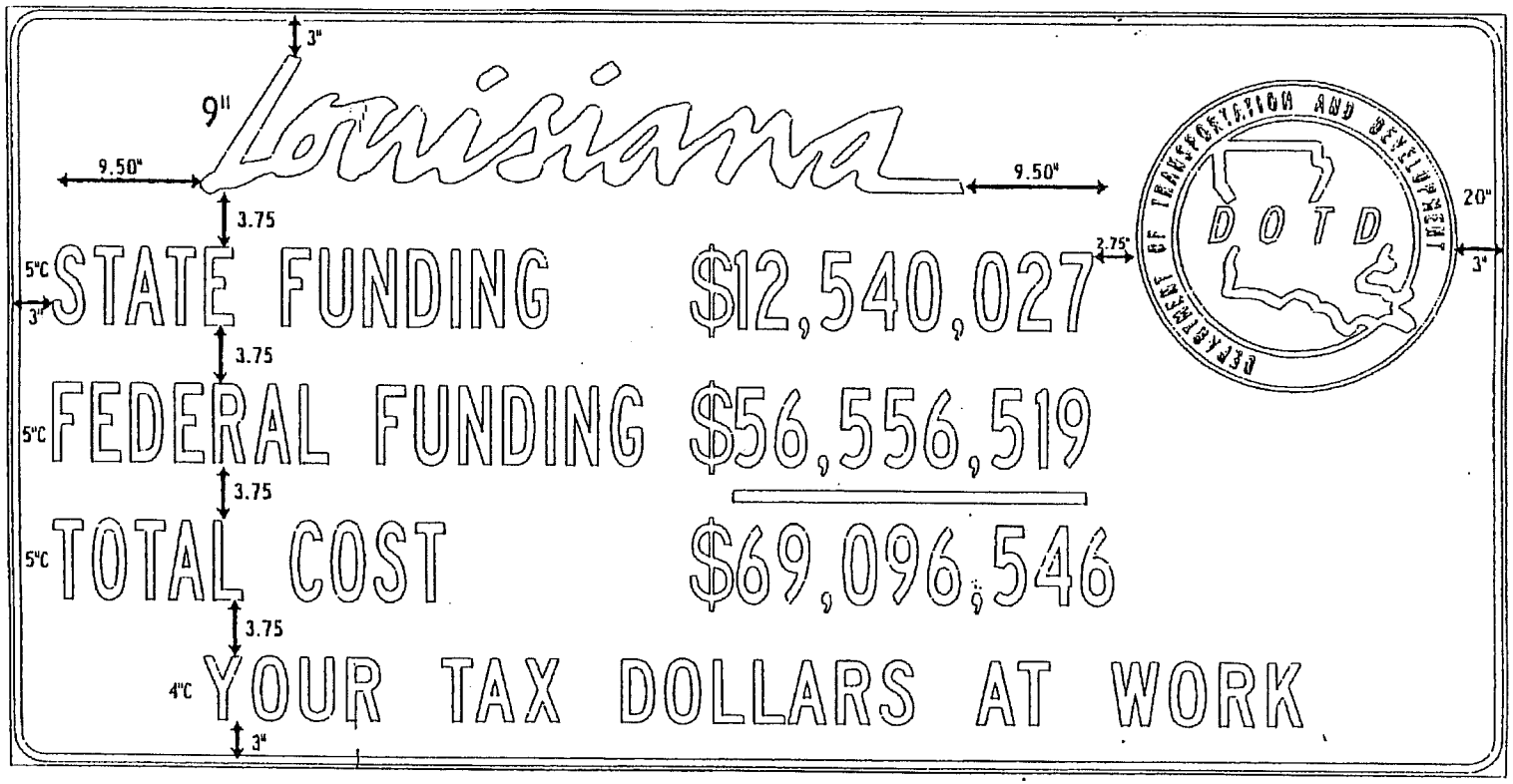
Item No.	Pay Item	Pay Unit
744-01	Traffic Control Management	Lump Sum

THE FOLLOWING SIGN IS TO BE USED ON TWO-LANE ROADS

Sign Size: 4' x 8' Sheeting: Type I Colors: Background – Blue, Border & Copy – White, "Louisiana" & DOTD Logo – Yellow

Border Size: 1 "

PROJECT SIGN DETAIL



*Computerized Artwork can be furnished upon request.

29-NOV-2006 08:03

G-1

R:\Overlay Projects\263-01-0013\plans\01-title.dgn

STANDARD PLANS TO
BE USED ON THIS PROJECT

STANDARD	REV. DATE
DW-04	09-16-82
DW-05	03-25-82
EC-01	01-14-94
PM-01	01-21-98

STATE OF LOUISIANA
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED

STATE HIGHWAY

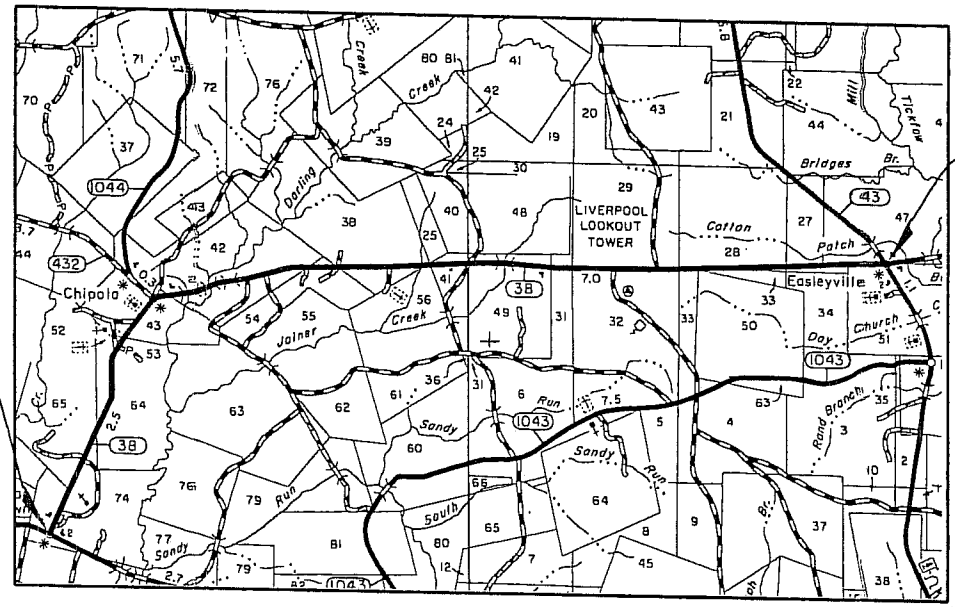
STATE PROJECT NO. 263-01-0013
JCT. LA 10 - JCT. LA 43
ST. HELENA PARISH
LA 38

BRIDGES IN PLACE

CSLM	SIZE
2.780	59' x 25'
2.850	59' x 25'
2.990	116' x 25'
3.220	97' x 25'
6.010	77' x 25'

C.S. LOG MILE 0.000
BEG. S.P. 263-01-0013

C.S. LOG MILE 9.510
END. S.P. 263-01-0013



TRAFFIC DATA
2006 A.D.T. = 1,462
2016 A.D.T. = 1,687
D = 55%
K = 10%
T = 8%

TYPE OF CONSTRUCTION: COLD PLANE, OVERLAY & STRIPING

DATE	REVISIONS	DATE	RECOMMENDED	DATE	APPROVED

THE 2000 LOUISIANA DOTD STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES, AS AMENDED BY THE PROJECT SPECIFICATIONS, SHALL GOVERN ON THIS PROJECT.

STATE OF LOUISIANA
JESSE BRYAN McCLENDON
License. No. 24935
PROFESSIONAL ENGINEER
ENGINEERING
11-30-06

RECOMMENDED FOR APPROVAL

DISTRICT DESIGN, WATER RESOURCES AND DEVELOPMENT ENGINEER

DISTRICT ADMINISTRATOR

CHIEF ENGINEER

2-27-07
DATE

SHEET NUMBER 1
PARISH ST. HELENA
FEDERAL PROJECT
STATE PROJECT 263-01-0013
DESIGNED BET CPR
CHECKED
DETAILED BET CPR
CHECKED
DATE
SHEET
TITLE SHEET
NO. DATE REVISION DESCRIPTION BY

29-NOV-2006 09:52

SHEET NO.	DESCRIPTION
1	TITLE SHEET
1a	INDEX TO SHEETS
2-2a	TYPICAL SECTIONS
2b-2d	CURVE SHEETS
2e-2o	SURVEY OF EXISTING CROSS SLOPES
2p	TURNOUT DETAIL
2q-2r	CONSTRUCTION NOTES
3	SURFACING TABLE
3a	DASHED EDGELINE TABLE
3b-3c	SUMMARY OF ESTIMATED QUANTITIES
4-9	TRAFFIC CONTROL DETAILS
10-11	SIGN INSTALLATION DETAILS

G-2

R:\Overlay Projects\263-01-0013\plans\01a-index.dgn

SHEET NUMBER 1a

PARISH: ST. HELENA PARISH

FEDERAL PROJECT

STATE PROJECT 263-01-0013

DESIGNED BET
CHECKED CPR

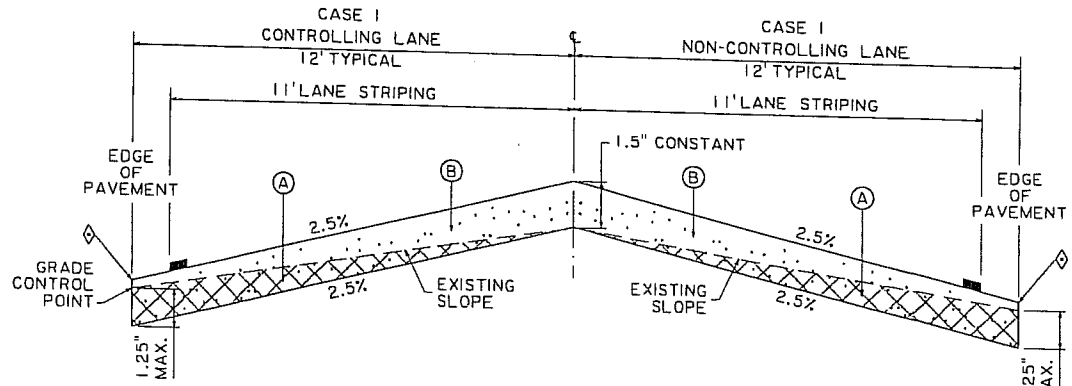
DETAILED BET
CHECKED CPR

DATE

SHEET

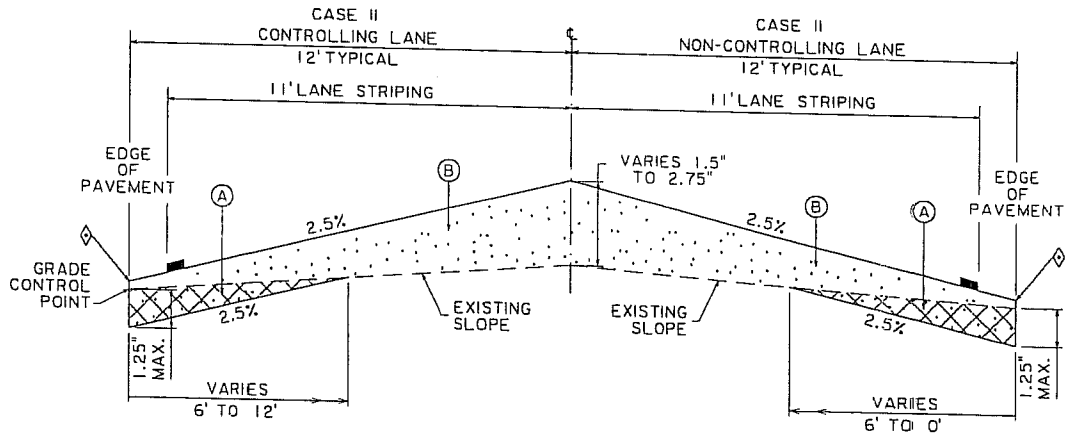
INDEX TO SHEETS

NO. | DATE | REVISION DESCRIPTION | BY



(NO LEVELING COURSE REQUIRED)
SLOPES ≥ 1.63%

(NO LEVELING COURSE REQUIRED)
SLOPES > 1.63%



(NO LEVELING COURSE REQUIRED)
0.76% ≤ SLOPES < 1.62%

(NO LEVELING COURSE REQUIRED)
0.76% < SLOPES ≤ 2.5%

CONTROLLING LANE DEFINITION: IN TANGENT SECTIONS, THE CONTROLLING LANE FOR VERTICAL GRADE CONTROL IS THE FLATTEST LANE FOR PURPOSES OF ROADWAY CONSTRUCTION UNLESS DIRECTED OTHERWISE BY THE PROJECT ENGINEER. IN CURVE SECTIONS, THE CONTROLLING LANE FOR VERTICAL GRADE CONTROL IS THE INSIDE LANE UNLESS DIRECTED OTHERWISE BY THE PROJECT ENGINEER.

Ⓐ EXISTING SURFACE TO BE COLD PLANED

Ⓑ 1.5" - 2.75" SUPERPAVE ASPHALTIC CONCRETE (LEVEL 1) (WEARING COURSE)

◊ PULL UP EXISTING SLOPE TO MATCH OVERLAY (NOT STEEPER THAN 3:1 SLOPE) COST INCLUDED IN ASPHALT ITEM 502-01

TYPICAL SECTION

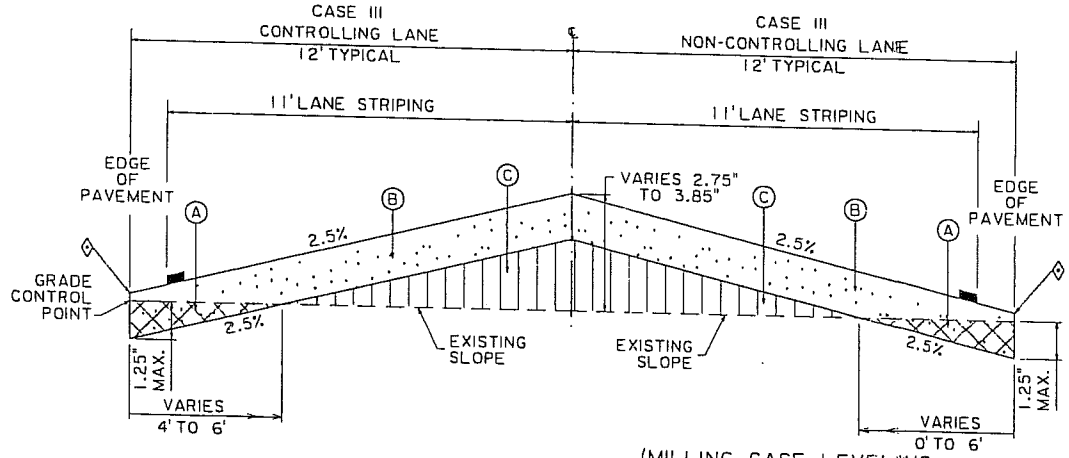
PARISH: ST. HELENA
FED/FAI PROJECT:
STATE PROJECT: 263-01-0013
DESIGNED BET
CHECKED CPR
DETAILED BET
CHECKED CPR
DATE
SHEET
SHEET NUMBER 2

REVISION DESCRIPTION | DATE | BY

28-NOV-2006 08:15

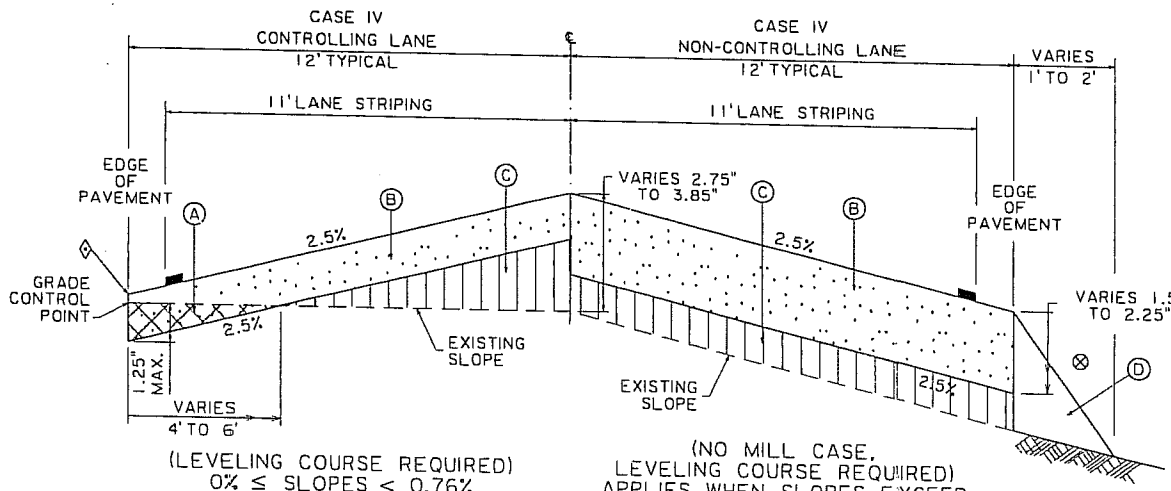
R:\Overlay Projects\263-01-0013\plans\02-02a-typicals.dgn

G-3



(LEVELING COURSE REQUIRED)
0% ≤ SLOPES < 0.76%

(MILLING CASE, LEVELING COURSE REQUIRED)
APPLIES WHEN SLOPES DO NOT EXCEED CONTROLLING LANE BY 0.867%



(LEVELING COURSE REQUIRED)
0% ≤ SLOPES < 0.76%

(NO MILL CASE, LEVELING COURSE REQUIRED)
APPLIES WHEN SLOPES EXCEED CONTROLLING LANE BY 0.867%

CONTROLLING LANE DEFINITION: IN TANGENT SECTIONS, THE CONTROLLING LANE FOR VERTICAL GRADE CONTROL IS THE FLATTEST LANE FOR PURPOSES OF ROADWAY CONSTRUCTION UNLESS DIRECTED OTHERWISE BY THE PROJECT ENGINEER. IN CURVE SECTIONS, THE CONTROLLING LANE FOR VERTICAL GRADE CONTROL IS THE INSIDE LANE UNLESS DIRECTED OTHERWISE BY THE PROJECT ENGINEER.

Ⓐ EXISTING SURFACE TO BE COLD PLANED

Ⓑ 1.5" - 2.75" SUPERPAVE ASPHALTIC CONCRETE (LEVEL 1) (WEARING COURSE)

Ⓒ SUPERPAVE ASPHALTIC CONCRETE (LEVEL 1) (BINDER COURSE) FOR LEVELING

Ⓓ BORROW (VEHICULAR MEASUREMENT)

⊗ SLOPE NOT STEEPER THAN 3:1

◊ PULL UP EXISTING SLOPE TO MATCH OVERLAY (NOT STEEPER THAN 3:1 SLOPE) COST INCLUDED IN ASPHALT ITEM 502-01

SEE SUPERELEVATION TYPICAL SHEET 2b FOR CASE V

SHEET NUMBER 2a

PARISH: ST. HELENA

FEDERAL PROJECT

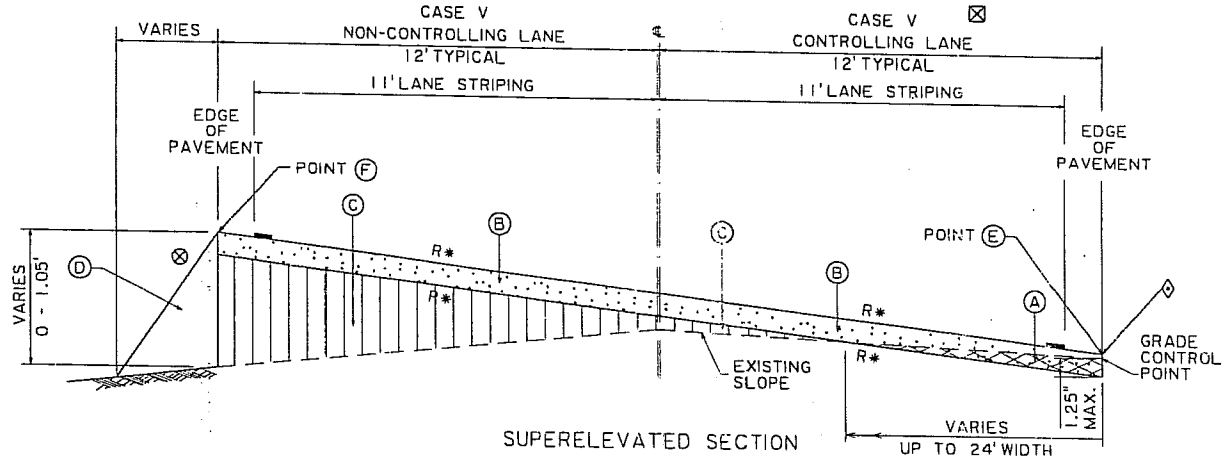
STATE PROJECT: 263-01-0013

DESIGNED BET
CHECKED CPR
DETAILED BET
CHECKED CPR
DATE
SHEET

TYPICAL SECTION

NO. DATE REVISION DESCRIPTION BY

G-4



SUPERELEVATED SECTION

(A) EXISTING SURFACE TO BE COLD PLANED

(B) 1.5" ASPHALTIC CONCRETE (LEVEL 1) (WEARING COURSE)

(C) SUPERPAVE ASPHALTIC CONCRETE (LEVEL 1) (BINDER COURSE) REQUIRED LEVELING TO ACHIEVE SUPERELEVATION. MULTIPLE LIFTS WILL BE REQUIRED.

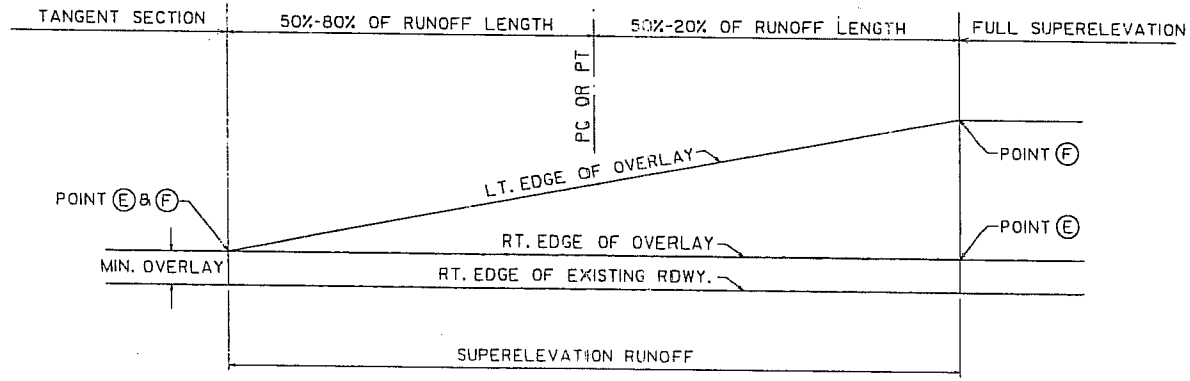
(D) BORROW (VEHICULAR MEASUREMENT)

⊗ SLOPE NOT STEEPER THAN 3:1

◊ PULL UP EXISTING SLOPE TO MATCH OVERLAY (NOT STEEPER THAN 3:1 SLOPE) COST INCLUDED IN ASPHALT ITEM 502-01

⊠ CONTROLLING LANE WILL BE THE INSIDE OF CURVE FOR ALL CURVES UNLESS DIRECTED OTHERWISE BY THE PROJECT ENGINEER.

R* RATE OF SUPERELEVATION (FT. PER FT.) OR EXISTING RATE IF SUFFICIENT



SUPERELEVATION DIAGRAM
(FOR RIGHT CURVATURE)

SHEET NUMBER 2b

PARISH: ST. HELENA

FEDERAL PROJECT

STATE PROJECT: 263-01-0013

DESIGNED BET
CHECKED CPR
DETAILED SGT
CHECKED CPR
DATE
SHEET

SUPERELEVATION
TYPICAL SECTION

Sheet 1 of 2

NO. DATE REVISION DESCRIPTION BY

G-5

CURVE INFORMATION

For Informational Purposes Only

Curve Number	Approx. Log Mile		Direction of Curve	Approx. Degree of Curve	Roadway Posted Speed	Existing Superelevation Rate		Conflicts	Comments
	PC	PT				Lt.Lane	Rt.Lane		
1	1.32	1.49	Left	3	55	0.059	0.061	1 Driveway	Mill & overlay.
2	1.73	1.93	Right	3	55	0.038	0.048	2 Turnouts	Mostly mill & overlay minor correction east & west ends.
3	2.42	2.64	Right	4	55	0.043	0.063	3 Driveways & 1 Turnout	JCT LA 432, Majority of curve is mill & overlay, but approx. L.M. 2.63 to L.M. 2.65 may need some correction along outside edge of roadway.
4	2.88	2.99	Left	4	55	0.043	0.057	2 Bridge Conflicts	In between 2 bridges adjust/correct to reverse crown. Section including bridge adjustments if necessary.
5	3.10	3.19	Right	2	55	0.000	0.022		Mill & overlay.
6	3.86	4.00	Right	2	55	0.015	0.019		Mill & overlay.
7	5.89	6.00	Right	2	55	0.005	0.043	Bridge Conflict & 2 Driveways	Mill & overlay.
8	6.11	6.23	Left	3	55	0.005	0.025	4 Driveways	Rework curve.
9	9.38	9.49	Left	3	55	0.019	0.008	2 Driveways	Outside edge of curve needs correction.

Notes: Contractor shall verify all curve data.
Superelevation table rates shall be applied as directed by the Project Engineer.

SHEET NUMBER 2c
PARISH ST. HELENA
FEDERAL PROJECT
STATE PROJECT 263-01-0013
DESIGNED BET CPR
CHECKED
DETAILED EEF CPR
CHECKED
DATE
SHEET
CURVE INFORMATION
NO. DATE REVISION DESCRIPTION BY

G-6

R:\Overlay Projects\263-01-0013\plans\02c-curve info.dgn

SUPERELEVATION VALUES FOR RURAL OVERLAY

D	30 MPH				35 MPH				40 MPH				45 MPH				50 MPH				55 MPH				60 MPH			
	R		L		R		L		R		L		R		L		R		L		R		L		R		L	
	MIN.	DES.	MIN.	DES.	MIN.	DES.	MIN.	DES.	MIN.	DES.	MIN.	DES.	MIN.	DES.	MIN.	DES.	MIN.	DES.	MIN.	DES.	MIN.	DES.	MIN.	DES.	MIN.	DES.	MIN.	DES.
0°15'	N.C.	N.C.			N.C.	N.C.			N.C.	N.C.			N.C.	N.C.			N.C.	N.C.			N.C.	N.C.			N.C.	N.C.		
0°30'	N.C.	N.C.			N.C.	N.C.			N.C.	N.C.			N.C.	N.C.			N.C.	N.C.			N.C.	R.C.		160	N.C.	R.C.		175
0°45'	N.C.	N.C.			N.C.	N.C.			N.C.	N.C.			N.C.	N.C.			N.C.	R.C.		150	N.C.	R.C.		160	N.C.	R.C.		175
1°00'	N.C.	N.C.			N.C.	N.C.			N.C.	R.C.		125	N.C.	R.C.		140	N.C.	R.C.		150	N.C.	.028		160	N.C.	.030		175
2°00'	N.C.	R.C.		100	N.C.	R.C.		110	N.C.	.028		125	N.C.	.035		140	N.C.	.040		150	N.C.	.050		160	N.C.	.055		175
3°00'	N.C.	R.C.		100	N.C.	.033		110	N.C.	.040		125	N.C.	.050		140	N.C.	.057		150	R.C.	.069	165	180	R.C.	.077	175	210
4°00'	N.C.	.033		100	N.C.	.042		110	N.C.	.051		125	N.C.	.062		155	R.C.	.072	150	180	R.C.	.083	165	215	.040	.093	175	250
5°00'	N.C.	.040		100	N.C.	.051		115	N.C.	.061		130	R.C.	.073	140	165	R.C.	.083	150	200	.042	.092	165	235	.078	.098	210	270
6°00'	N.C.	.046		100	N.C.	.058		125	N.C.	.070		150	R.C.	.081	140	185	.036	.092	150	220	.077	.096	185	245	.080	.100	215	270
7°00'	N.C.	.053		100	N.C.	.065		130	R.C.	.078	125	160	R.C.	.088	140	200	.062	.098	150	240	.080	.100	205	255				
8°00'	N.C.	.058		110	R.C.	.072	115	145	R.C.	.084	125	180	.040	.092	140	210	.080	.100	190	240								
9°00'	N.C.	.063		120	R.C.	.077	115	155	R.C.	.089	125	190	.068	.095	155	215												
10°00'	N.C.	.068		120	R.C.	.081	115	160	.036	.094	125	200	.080	.100	180	220												
11°00'	N.C.	.072		130	R.C.	.085	115	165	.058	.097	125	200																
12°00'	R.C.	.078	100	140	R.C.	.088	115	175	.077	.099	170	210																
13°00'	R.C.	.080	100	140	.033	.090	115	175	.080	.100	170	210																
14°00'	R.C.	.083	100	150	.050	.092	115	180																				
16°00'	R.C.	.089	100	160	.075	.095	120	185																				
18°00'	.028	.093	100	170	.080	.100	160	190																				
20°&UP	.050	.100	100	180																								

R = RATE OF SUPERELEVATION (FT. PER FT.)
L = LENGTH OF SUPERELEVATION RUNOFF
D = DEGREE OF CURVE
MPH = MILES PER HOUR (DESIGN SPEED)
MIN. = MINIMUM DESIGN
DES. = DESIRABLE DESIGN
N.C. = NORMAL CROWN SECTION
R.C. = REMOVE ADVERSE CROWN, SUPERELEVATE AT NORMAL CROWN SLOPE

NOTES: LENGTHS OF SUPERELEVATION RUNOFFS ARE SHOWN FOR TWO-LANE ROADWAYS. FOR FOUR-LANE ROADWAYS, RUNOFF LENGTH SHOULD BE INCREASED AS DIRECTED BY THE PROJECT ENGINEER.

EXCEPTIONS TO THE MINIMUM SUPERELEVATION VALUES SHOWN MAY BE MADE WITH PROPER JUSTIFICATION BY THE PROJECT ENGINEER.

AS DIRECTED BY THE PROJECT ENGINEER, THE CONTRACTOR WILL BE RESPONSIBLE FOR VERIFYING DEGREE OF CURVE, AND SHALL BE PAID FOR UNDER CONSTRUCTION LAYOUT, ITEM 740-01.

SHEET NUMBER 2d
PARISH ST. HELENA
FEDERAL PROJECT
STATE PROJECT 263-01-0013
DESIGNED CHECKED DETAILED CHECKED DATE SHEET
SUPERELEVATION VALUES TABLE
Sheet 2 of 2
NO. DATE BY REVISION DESCRIPTION

R:\Overlay Projects\263-01-0013\plans\02d-super elevation chart.dgn

SURVEY OF EXISTING CROSS SLOPES*

Station Surveyed	Station Corrected	Log mile	Case	Offset			Elevation			Slope	
				Left	Ctr	Right	Left	Center	Right	Left Slope	Right Slope
10100	100	0.02	T	-12	0	12	100.73	101.08	101.11	0.02917	-0.00250
10200	200	0.04	T	-12	0	12	103.65	103.89	103.75	0.02000	0.01167
10300	300	0.06	II	-12	0	12	105.60	105.78	105.55	0.01500	0.01917
10400	400	0.08	II	-12	0	12	106.04	106.20	106.00	0.01333	0.01667
10500	500	0.09	II	-11.7	0	12	105.60	105.72	105.51	0.01026	0.01750
10600	600	0.11	II	-11.6	0	12	104.64	104.79	104.61	0.01293	0.01500
10700	700	0.13	II	-11.5	0	12	103.99	104.16	103.94	0.01478	0.01833
10800	800	0.15	II	-11.6	0	12	103.36	103.51	103.31	0.01293	0.01667
10900	900	0.17	II	-11.8	0	12	103.10	103.28	103.10	0.01525	0.01500
11000	1000	0.19	I	-12	0	12	103.43	103.63	103.43	0.01667	0.01667
11100	1100	0.21	II	-12	0	12	104.05	104.22	104.02	0.01417	0.01667
11200	1200	0.23	I	-11.6	0	12	105.22	105.42	105.17	0.01724	0.02083
11300	1300	0.25	II	-12	0	12	106.51	106.69	106.46	0.01500	0.01917
11400	1400	0.27	I	-12	0	12	107.42	107.62	107.39	0.01667	0.01917
11500	1500	0.28	I	-12	0	12	108.62	108.82	108.60	0.01667	0.01833
11600	1600	0.30	I	-12	0	12	109.09	109.29	109.08	0.01667	0.01750
11700	1700	0.32	II	-12	0	12	109.35	109.56	109.37	0.01750	0.01583
11800	1800	0.34	I	-12	0	12	109.75	109.96	109.74	0.01750	0.01833
11900	1900	0.36	I	-12	0	12	109.99	110.21	109.98	0.01833	0.01917
12000	2000	0.38	I	-11.8	0	12	110.24	110.44	110.24	0.01695	0.01667
12100	2100	0.40	II	-11.8	0	12	110.41	110.58	110.39	0.01441	0.01583
12200	2200	0.42	I	-11.7	0	12	110.25	110.46	110.26	0.01795	0.01667
12300	2300	0.44	II	-11.8	0	12	110.31	110.49	110.29	0.01525	0.01667
12400	2400	0.45	II	-11.8	0	11.8	110.43	110.61	110.41	0.01525	0.01695
12500	2500	0.47	I	-11.6	0	11.8	110.81	111.01	110.79	0.01724	0.01864
12600	2600	0.49	I	-11.9	0	11.6	111.42	111.62	111.42	0.01681	0.01724
12700	2700	0.51	I	-11.8	0	11.8	112.28	112.48	112.26	0.01695	0.01864
12800	2800	0.53	II	-11.7	0	11.9	113.32	113.51	113.32	0.01624	0.01597
12900	2900	0.55	II	-12	0	11.7	114.44	114.62	114.42	0.01500	0.01709
13000	3000	0.57	I	-11.9	0	11.7	115.33	115.54	115.34	0.01765	0.01709
13100	3100	0.59	II	-11.5	0	12	116.25	116.46	116.28	0.01826	0.01500
13200	3200	0.61	IV	-11.8	0	11.8	117.41	117.58	117.58	0.01441	0.00000
13300	3300	0.63	II	-11.9	0	11.7	118.73	118.90	118.73	0.01429	0.01453
13400	3400	0.64	III	-12	0	11.5	119.93	120.10	119.26	0.01417	0.07304
13500	3500	0.66	II	-12	0	11.8	120.98	121.15	120.98	0.01417	0.01441
13600	3600	0.68	II	-11.8	0	12	121.98	122.16	121.99	0.01525	0.01417
13700	3700	0.70	II	-11.8	0	11.8	122.80	122.98	122.84	0.01525	0.01186
13800	3800	0.72	II	-12	0	11.5	123.46	123.65	123.48	0.01583	0.01478
13900	3900	0.74	II	-11.8	0	11.9	123.93	124.14	123.98	0.01780	0.01345
14000	4000	0.76	II	-11.8	0	11.9	124.23	124.41	124.27	0.01525	0.01176
14100	4100	0.78	II	-11.9	0	11.7	124.53	124.74	124.58	0.01765	0.01368
14200	4200	0.80	II	-12	0	12	124.28	124.48	124.30	0.01667	0.01500
14300	4300	0.81	II	-12	0	12	123.89	124.08	123.92	0.01583	0.01333
14400	4400	0.83	II	-12.1	0	11.8	122.93	123.16	122.98	0.01901	0.01525
14500	4500	0.85	II	-11.9	0	11.9	120.95	121.17	121.00	0.01849	0.01429
14600	4600	0.87	II	-12	0	11.9	118.11	118.31	118.14	0.01667	0.01429
14700	4700	0.89	II	-12.1	0	11.8	115.99	116.25	116.07	0.02149	0.01525
14800	4800	0.91	II	-12.2	0	11.9	115.26	115.53	115.35	0.02213	0.01513
14900	4900	0.93	II	-12	0	11.7	115.34	115.60	115.44	0.02167	0.01368
15000	5000	0.95	II	-12.1	0	11.6	115.67	115.97	115.81	0.02479	0.01379
15100	5100	0.97	II	-11.9	0	11.9	115.77	116.07	115.92	0.02521	0.01261
15200	5200	0.98	II	-12	0	11.7	116.45	116.74	116.58	0.02417	0.01368
15300	5300	1.00	II	-12.2	0	11.7	117.52	117.86	117.69	0.02787	0.01453

LEGEND: T = TRANSITION
I-V = CASE NUMBERS
+ SLOPE IS DOWN FROM CENTERLINE
- SLOPE IS UP FROM CENTERLINE

*FOR INFORMATIONAL PURPOSES ONLY

ELEVATIONS ARE BASED OFF OF AN ASSUMED ELEVATION

NO.	DATE	REVISION DESCRIPTION	BY

SURVEY OF EXISTING CROSS SLOPES

DESIGNED BET
CHECKED CPR
DETAILED BET
CHECKED CPR
DATE
SHEET

PARISH ST. HELENA
FEDERAL PROJECT
STATE PROJECT 263-01-0013

SHEET NUMBER 2a

SURVEY OF EXISTING CROSS SLOPES*

Station Surveyed	Station Corrected	Log mile	Case	Offset			Elevation			Slope	
				Left	Ctr	Right	Left	Center	Right	Left Slope	Right Slope
15400	5400	1.02	II	-12	0	12	119.58	119.88	119.69	0.02500	0.01583
15500	5500	1.04	II	-12	0	11.9	122.30	122.60	122.42	0.02500	0.01513
15600	5600	1.06	II	-11.7	0	12	124.68	124.97	124.80	0.02479	0.01417
15700	5700	1.08	II	-11.8	0	11.8	124.81	125.10	124.93	0.02458	0.01441
15800	5800	1.10	II	-12	0	12	123.30	123.60	123.43	0.02500	0.01417
15900	5900	1.12	II	-12	0	12	121.64	121.96	121.80	0.02667	0.01333
16000	6000	1.14	II	-12	0	12	121.02	121.33	121.18	0.02583	0.01250
16100	6100	1.16	II	-12	0	12	121.44	121.73	121.58	0.02417	0.01250
16200	6200	1.17	II	-11.9	0	12	122.92	123.22	123.04	0.02521	0.01500
16300	6300	1.19	II	-12	0	12	123.94	124.23	124.07	0.02417	0.01333
16400	6400	1.21	II	-12	0	11.9	123.81	124.08	123.93	0.02250	0.01261
16500	6500	1.23	II	-12	0	11.9	123.24	123.53	123.34	0.02417	0.01597
16600	6600	1.25	I	-12	0	12	123.19	123.42	123.22	0.01917	0.01667
16700	6700	1.27	II	-12	0	12	123.87	124.13	123.95	0.02167	0.01500
16800	6800	1.29	IV	-12.3	0	11.5	124.15	124.43	124.36	0.02276	0.00609
	6834	1.29	V	-12	0	12	124.45	124.73	124.73	0.02333	0.00000
16900	6900	1.31	V	-11.5	0	12	125.02	125.34	125.46	0.02783	-0.01000
	6978	1.32	V	-12	0	12	126.00	126.38	126.72	0.03167	-0.02833
17000	7000	1.33	V	-11.8	0	12	126.27	126.67	127.07	0.03390	-0.03333
	7014	1.33	V	-12	0	12	126.40	126.83	127.28	0.03583	-0.03750
17100	7100	1.34	V	-12.4	0	11.5	127.17	127.83	128.56	0.05323	-0.06348
17200	7200	1.36	V	-12.2	0	11.9	126.92	127.82	128.63	0.07377	-0.06807
17300	7300	1.38	V	-12.7	0	11.3	126.97	127.73	128.34	0.05984	-0.05398
17400	7400	1.40	V	-11.9	0	11.7	126.44	127.33	128.14	0.07479	-0.06923
17500	7500	1.42	V	-12	0	12	126.50	127.21	127.94	0.05917	-0.06083
17600	7600	1.44	V	-12	0	11.8	126.47	127.22	127.82	0.06250	-0.05085
17700	7700	1.46	V	-11.9	0	11.9	126.42	126.98	127.44	0.04706	-0.03866
17800	7800	1.48	V	-11.6	0	12.2	126.32	126.62	126.89	0.02586	-0.02213
	7829	1.48	V	-12	0	12	126.18	126.48	126.67	0.02500	-0.01583
	7865	1.49	V	-12	0	12	126.00	126.30	126.39	0.02500	-0.00750
17900	7900	1.50	V	-11.5	0	12.3	125.82	126.12	126.12	0.02609	0.00000
18000	8000	1.52	V	-12	0	11.8	125.49	125.81	125.60	0.02667	0.01780
	8009	1.52	V	-12	0	12	125.50	125.82	125.61	0.02667	0.01750
18100	8100	1.53	II	-11.6	0	12.4	125.60	125.91	125.71	0.02672	0.01613
18200	8200	1.55	II	-11.8	0	12.2	126.37	126.60	126.42	0.01949	0.01475
18300	8300	1.57	II	-11.9	0	12	127.59	127.81	127.62	0.01849	0.01583
18400	8400	1.59	II	-11.4	0	12.5	128.62	128.84	128.64	0.01930	0.01600
18500	8500	1.61	I	-12.1	0	11.7	129.77	129.97	129.77	0.01653	0.01709
18600	8600	1.63	II	-12	0	12	130.48	130.69	130.52	0.01750	0.01417
18700	8700	1.65	I	-12	0	11.7	131.09	131.32	131.11	0.01917	0.01795
18800	8800	1.67	II	-12	0	11.7	131.31	131.47	131.30	0.01333	0.01453
18900	8900	1.69	II	-11.8	0	11.7	131.62	131.80	131.62	0.01525	0.01538
	8981	1.70	V	-12	0	12	132.31	132.46	132.28	0.01250	0.01500
19000	9000	1.70	V	-12	0	11.8	132.47	132.62	132.44	0.01250	0.01525
19100	9100	1.72	V	-12	0	11.8	133.15	133.19	132.92	0.00333	0.02288
	9125	1.73	V	-12	0	12	133.27	133.31	133.05	0.00333	0.02167
	9161	1.74	V	-12	0	12	133.44	133.48	133.23	0.00333	0.02083
19200	9200	1.74	V	-11.7	0	11.8	133.63	133.67	133.42	0.00342	0.02119
19300	9300	1.76	V	-11.8	0	11.8	134.22	134.08	133.69	-0.01186	0.03305
19400	9400	1.78	V	-11.5	0	12	134.82	134.52	133.96	-0.02609	0.04667
19500	9500	1.80	V	-12	0	11.7	135.50	135.11	134.64	-0.03250	0.04017
19600	9600	1.82	V	-12	0	11.8	136.57	136.17	135.62	-0.03333	0.04661
19700	9700	1.84	V	-12	0	11.8	138.65	138.20	137.63	-0.03750	0.04914

LEGEND: T = TRANSITION
I-V = CASE NUMBERS
+ SLOPE IS DOWN FROM CENTERLINE
- SLOPE IS UP FROM CENTERLINE

***FOR INFORMATIONAL PURPOSES ONLY**

ELEVATIONS ARE BASED OFF OF AN ASSUMED ELEVATION

NO.	DATE	REVISION DESCRIPTION	BY

SURVEY OF EXISTING CROSS SLOPES

DESIGNED / CHECKED	BET / CPR	PARISH	ST. HELENA
DETAILED / CHECKED	BET / CPR	FEDERAL PROJECT	
DATE		STATE PROJECT	263-01-0013
SHEET			

SHEET NUMBER 2f

SURVEY OF EXISTING CROSS SLOPES*

Station Surveyed	Station Corrected	Log mile	Case	Offset			Elevation			Slope	
				Left	Ctr	Right	Left	Center	Right	Left Slope	Right Slope
19800	9800	1.86	V	-12	0	11.6	141.51	140.92	140.34	-0.04917	0.05000
19900	9900	1.88	V	-11.8	0	11.8	143.68	143.23	142.74	-0.03814	0.04153
20000	10000	1.89	V	-11.6	0	11.7	145.49	145.11	144.55	-0.03276	0.04786
20100	10100	1.91	V	-11.6	0	11.9	145.91	145.88	145.54	-0.00259	0.02857
	10159	1.92	V	-12	0	12	145.44	145.48	145.25	0.00333	0.01917
	10195	1.93	V	-12	0	12	145.15	145.24	145.07	0.00750	0.01417
20200	10200	1.93	V	-12	0	11.8	145.11	145.21	145.04	0.00833	0.01441
20300	10300	1.95	V	-11.9	0	11.7	142.36	142.51	142.34	0.01261	0.01453
	10339	1.96	V	-12	0	12	140.63	140.79	140.60	0.01333	0.01583
20400	10400	1.97	II	-12	0	11.8	137.93	138.10	137.89	0.01417	0.01780
20500	10500	1.99	II	-12	0	11.8	133.18	133.33	133.12	0.01250	0.01780
20600	10600	2.01	II	-12	0	11.9	129.23	129.42	129.23	0.01583	0.01597
20700	10700	2.03	II	-12	0	11.7	126.65	126.84	126.64	0.01583	0.01709
20800	10800	2.05	II	-12	0	11.7	125.22	125.40	125.18	0.01500	0.01880
20900	10900	2.06	II	-11.9	0	11.7	125.66	125.85	125.64	0.01597	0.01795
21000	11000	2.08	II	-11.8	0	11.8	127.93	128.10	127.87	0.01441	0.01949
21100	11100	2.10	II	-12	0	11.5	130.11	130.23	129.99	0.01000	0.02087
21200	11200	2.12	II	-12	0	11.5	131.50	131.63	131.39	0.01083	0.02087
21300	11300	2.14	II	-12	0	11.5	131.94	132.10	131.84	0.01333	0.02261
21400	11400	2.16	II	-12	0	11.6	131.45	131.61	131.34	0.01333	0.02328
21500	11500	2.18	II	-12	0	11.5	131.31	131.47	131.19	0.01333	0.02435
21600	11600	2.20	II	-12	0	11.7	131.26	131.40	131.15	0.01167	0.02137
21700	11700	2.22	II	-12	0	11.8	130.51	130.67	130.41	0.01333	0.02203
21800	11800	2.23	II	-12	0	11.7	128.88	129.05	128.80	0.01417	0.02137
21900	11900	2.25	II	-12	0	11.8	125.21	125.39	125.16	0.01500	0.01949
22000	12000	2.27	I	-12	0	11.6	120.92	121.14	120.92	0.01833	0.01897
22100	12100	2.29	I	-12	0	11.8	116.76	116.97	116.75	0.01750	0.01864
22200	12200	2.31	I	-12	0	11.6	112.86	113.08	112.86	0.01833	0.01897
22300	12300	2.33	I	-12	0	11.9	111.34	111.59	111.35	0.02083	0.02017
22400	12400	2.35	I	-12	0	11.7	112.77	113.01	112.76	0.02000	0.02137
22500	12500	2.37	I	-11.9	0	11.7	115.59	115.81	115.57	0.01849	0.02051
22600	12600	2.39	II	-11.8	0	11.7	118.95	119.09	118.87	0.01186	0.01880
	12624	2.39	V	-12	0	12	119.57	119.71	119.48	0.01167	0.01917
22700	12700	2.41	V	-11.8	0	11.8	121.55	121.66	121.40	0.00932	0.02203
22800	12800	2.42	V	-11.5	0	11.8	124.63	124.57	124.36	-0.00522	0.01780
	12844	2.43	V	-12	0	12	126.13	125.95	125.61	-0.01500	0.02833
22900	12900	2.44	V	-11.6	0	12	128.04	127.70	127.21	-0.02931	0.04083
23000	13000	2.46	V	-11.3	0	12	130.13	129.75	129.14	-0.03363	0.05083
23100	13100	2.48	V	-11.9	0	11.8	129.77	129.26	128.65	-0.04286	0.05169
23200	13200	2.50	V	-12	0	12	128.01	127.43	126.54	-0.04833	0.07417
23300	13300	2.52	V	-12	0	12	124.69	124.35	123.70	-0.02833	0.05417
23400	13400	2.54	V	-12	0	12	122.15	121.64	120.88	-0.04250	0.06333
23500	13500	2.56	V	-12	0	11.5	119.99	119.42	118.73	-0.04750	0.06000
23600	13600	2.58	V	-12	0	11.5	116.98	116.15	115.44	-0.06917	0.06174
23700	13700	2.59	V	-12	0	12	113.06	112.60	111.90	-0.03833	0.05833
23800	13800	2.61	V	-12	0	11.7	109.28	109.11	108.56	-0.01417	0.04701
	13883	2.63	V	-12	0	12	106.39	106.51	106.14	0.01000	0.03083
23900	13900	2.63	V	-11.8	0	11.8	105.80	105.98	105.64	0.01525	0.02881
	13927	2.64	V	-12	0	12	104.94	105.11	104.78	0.01417	0.02750
24000	14000	2.65	V	-11.7	0	11.7	102.60	102.76	102.46	0.01368	0.02564
24100	14100	2.67	V	-11.5	0	12	99.53	99.69	99.37	0.01391	0.02667
	14103	2.67	V	-12	0	12	99.46	99.63	99.31	0.01417	0.02667
24200	14200	2.69	I	-11.8	0	12	97.34	97.56	97.33	0.01864	0.01917

LEGEND:T = TRANSITION
I-V = CASE NUMBERS
+ SLOPE IS DOWN FROM CENTERLINE
- SLOPE IS UP FROM CENTERLINE

***FOR INFORMATIONAL PURPOSES ONLY**

ELEVATIONS ARE BASED OFF OF AN ASSUMED ELEVATION

NO.	DATE	REVISION DESCRIPTION	BY

SURVEY OF EXISTING CROSS SLOPES

DESIGNED BET
CHECKED CPR
DETAILED BET
CHECKED CPR
DATE
SHEET

PARISH ST. HELENA
FEDERAL PROJECT
STATE PROJECT 263-01-0013

SHEET NUMBER 26

SURVEY OF EXISTING CROSS SLOPES*

Station Surveyed	Station Corrected	Log mile	Case	Offset			Elevation			Slope	
				Left	Ctr	Right	Left	Center	Right	Left Slope	Right Slope
24300	14300	2.71	I	-11.7	0	12	95.66	95.88	95.63	0.01880	0.02083
24400	14400	2.73	I	-12	0	11.8	94.66	94.88	94.54	0.01833	0.02881
24500	14500	2.75	I	-12	0	12	94.08	94.34	94.02	0.02167	0.02667
24600	14600	2.77	II	-12	0	11.6	93.76	93.90	93.60	0.01167	0.02586
24700	14700	2.78	I	-12	0	12	93.52	93.73	93.46	0.01750	0.02250
a 40000	14700	2.78	II	-12	0	12	104.32	104.54	104.37	0.01833	0.01417
a 40100	14800	2.80	IV	-12	0	12	104.10	104.44	104.45	0.02833	-0.00083
a 40200	14900	2.82	I	-12	0	12	104.04	104.46	104.21	0.03500	0.02083
a 40280	14980	2.84	I	-12	0	12	104.30	104.56	104.33	0.02167	0.01917
a 40300	15000	2.84	II	-12	0	12	104.33	104.55	104.39	0.01833	0.01333
	15024	2.85	V	-12	0	12	104.29	104.51	104.35	0.01833	0.01333
a 40346	15046	2.85	V	-12	0	12	104.30	104.45	104.27	0.01250	0.01500
a 40400	15100	2.86	V	-12	0	12	104.17	104.37	104.24	0.01667	0.01083
a 40500	15200	2.88	V	-12	0	12	104.09	104.28	104.20	0.01583	0.00667
	15244	2.89	V	-12	0	12	103.94	104.24	104.30	0.02500	-0.00500
a 40600	15300	2.90	V	-11.7	0	12.2	103.74	104.19	104.42	0.03846	-0.01885
a 40700	15400	2.92	V	-11.5	0	12	103.95	104.46	104.87	0.04435	-0.03417
a 40800	15500	2.94	V	-12	0	12	104.10	104.62	103.94	0.04333	0.05667
a 40900	15600	2.95	V	-11.8	0	12	104.07	104.51	104.54	0.03729	-0.00250
a 41000	15700	2.97	V	-12	0	12	104.29	104.51	104.33	0.01833	0.01500
	15746	2.98	V	-12	0	12	104.32	104.49	104.35	0.01417	0.01167
	15790	2.99	V	-12	0	12	104.34	104.47	104.37	0.01083	0.00833
a 41100	15800	2.99	V	-12	0	12	104.35	104.46	104.37	0.00917	0.00750
a 41200	15900	3.01	V	-12	0	12	104.07	104.31	104.13	0.02000	0.01500
	15966	3.02	V	-12	0	12	104.13	104.36	104.14	0.01917	0.01833
a 41300	16000	3.03	I	-11.8	0	12	104.16	104.39	104.14	0.01949	0.02083
a 41400	16100	3.05	I	-12	0	12	104.21	104.43	104.10	0.01833	0.02750
a 41500	16200	3.07	IV	-11.7	0	12	104.40	104.28	104.08	-0.01026	0.01667
	16222	3.07	V	-12	0	12	104.38	104.30	104.07	-0.00667	0.01917
a 41600	16300	3.09	V	-12	0	12	104.30	104.39	104.05	0.00750	0.02833
	16350	3.10	V	-12	0	12	104.53	104.51	104.14	-0.00167	0.03083
	16382	3.10	V	-12	0	12	104.69	104.58	104.19	-0.00917	0.03250
a 41700	16400	3.11	V	-11.4	0	12	104.77	104.62	104.22	-0.01316	0.03333
a 41800	16500	3.13	V	-12	0	12	105.30	105.18	104.80	-0.01000	0.03167
a 41900	16600	3.14	V	-11.6	0	12	105.30	105.30	105.04	0.00000	0.02167
a 42000	16700	3.16	V	-12	0	12	105.13	104.11	104.71	-0.08500	-0.05000
a 42100	16800	3.18	V	-12	0	12	104.92	105.06	104.85	0.01167	0.01750
	16817	3.19	V	-12	0	12	104.87	105.03	104.80	0.01333	0.01917
	16849	3.19	V	-12	0	12	104.76	104.97	104.72	0.01750	0.02083
a 42200	16900	3.20	V	-12	0	12	104.60	104.87	104.58	0.02250	0.02417
	16977	3.22	V	-12	0	12	104.54	104.77	104.58	0.01917	0.01583
a 42300	17000	3.22	II	-12	0	12	104.52	104.74	104.58	0.01833	0.01333
a 42400	17100	3.24	IV	-11.3	0	12	104.55	105.00	104.91	0.03982	0.00750
a 42500	17200	3.26	II	-11.2	0	12	104.86	105.14	104.99	0.02500	0.01250
a 42600	17300	3.28	II	-11.7	0	11.8	104.95	105.24	105.11	0.02479	0.01102
a 42700	17400	3.30	II	-11.7	0	12	105.09	105.38	105.23	0.02479	0.01250
a 42800	17500	3.31	II	-12	0	11.8	105.12	105.42	105.28	0.02500	0.01186
a 42900	17600	3.33	II	-11.7	0	12	105.42	105.74	105.58	0.02735	0.01333
a 43000	17700	3.35	II	-11.6	0	12	105.65	105.91	105.73	0.02241	0.01500
a 43100	17800	3.37	II	-11.7	0	12	105.88	106.13	105.96	0.02137	0.01417
a 43200	17900	3.39	II	-12	0	11.9	106.13	106.39	106.22	0.02167	0.01429
a 43300	18000	3.41	II	-11.7	0	12	106.50	106.74	106.56	0.02051	0.01500
a 43400	18100	3.43	II	-11.6	0	12	106.69	106.91	106.76	0.01897	0.01250

LEGEND: T = TRANSITION
I-V = CASE NUMBERS
+ SLOPE IS DOWN FROM CENTERLINE
- SLOPE IS UP FROM CENTERLINE

***FOR INFORMATIONAL PURPOSES ONLY**

ELEVATIONS ARE BASED OFF OF AN ASSUMED ELEVATION

NO.	DATE	REVISION DESCRIPTION	BY

SURVEY OF EXISTING CROSS SLOPES

DESIGNED BET
CHECKED CPR
DETAILED BET
CHECKED CPR
DATE
SHEET

PARISH ST. HELENA
FEDERAL PROJECT
STATE PROJECT 263-01-0013

SHEET NUMBER 24

SURVEY OF EXISTING CROSS SLOPES*

Station Surveyed	Station Corrected	Log mile	Case	Offset			Elevation			Slope	
				Left	Ctr	Right	Left	Center	Right	Left Slope	Right Slope
a 43500	18200	3.45	II	-12	0	12	107.17	107.40	107.22	0.01917	0.01500
a 43600	18300	3.47	II	-11.9	0	11.9	108.26	108.48	108.30	0.01849	0.01513
a 43700	18400	3.48	II	-11.7	0	12	109.66	109.89	109.70	0.01966	0.01583
a 43800	18500	3.50	II	-11.4	0	12	110.86	111.10	110.93	0.02105	0.01417
a 43900	18600	3.52	II	-11.9	0	12	112.86	113.11	112.94	0.02101	0.01417
a 44000	18700	3.54	II	-11.8	0	11.9	110.46	110.71	110.54	0.02119	0.01429
a 44100	18800	3.56	II	-12	0	11.7	115.81	116.03	115.86	0.01833	0.01453
a 44200	18900	3.58	II	-12	0	12	121.05	121.36	121.18	0.02583	0.01500
a 44300	19000	3.60	II	-11.9	0	11.8	125.15	125.49	125.33	0.02857	0.01356
a 44400	19100	3.62	II	-12	0	11.7	128.19	128.40	128.25	0.01750	0.01282
a 44500	19200	3.64	II	-12	0	11.7	129.80	130.01	129.83	0.01750	0.01538
a 44600	19300	3.66	I	-11.7	0	11.9	130.40	130.62	130.41	0.01880	0.01765
a 44700	19400	3.67	II	-11.7	0	11.9	130.00	130.22	130.03	0.01880	0.01597
a 44800	19500	3.69	II	-11.7	0	12	130.15	130.35	130.16	0.01709	0.01583
a 44900	19600	3.71	II	-12	0	12	132.33	132.43	132.21	0.00833	0.01833
a 45000	19700	3.73	IV	-12	0	11.7	135.57	135.64	135.47	0.00583	0.01453
a 45100	19800	3.75	II	-12	0	11.7	138.13	138.28	138.08	0.01250	0.01709
a 45200	19900	3.77	II	-11.8	0	12	139.35	139.49	139.29	0.01186	0.01667
a 45300	20000	3.79	II	-11.7	0	12	138.39	138.54	138.33	0.01282	0.01750
a 45400	20100	3.81	II	-12	0	12	135.06	135.20	134.93	0.01167	0.02250
a 45500	20200	3.83	IV	-11.9	0	12	131.83	131.91	131.58	0.00672	0.02750
	20272	3.84	V	-12	0	12	130.38	130.35	130.00	-0.00250	0.02917
a 45600	20300	3.84	V	-11.9	0	11.8	129.81	129.75	129.37	-0.00504	0.03220
a 45700	20400	3.86	V	-11.8	0	12	128.99	128.86	128.43	-0.01102	0.03583
	20432	3.87	V	-12	0	12	129.00	128.90	128.51	-0.00833	0.03250
a 45800	20500	3.88	V	-12	0	11.7	129.02	128.98	128.69	-0.00333	0.02479
a 45900	20600	3.90	V	-11.6	0	12	129.01	128.75	128.61	-0.02241	0.01167
a 46000	20700	3.92	V	-11.5	0	12	129.28	129.21	128.94	-0.00609	0.02250
a 46100	20800	3.94	V	-11.9	0	11.6	129.98	130.16	129.93	0.01513	0.01983
a 46200	20900	3.96	V	-11.8	0	11.6	132.16	132.35	132.19	0.01610	0.01379
a 46300	21000	3.98	V	-11.8	0	11.6	134.67	134.88	134.80	0.01780	0.00690
	21065	3.99	V	-12	0	12	136.05	136.26	136.17	0.01750	0.00750
	21097	4.00	V	-12	0	12	136.74	136.95	136.85	0.01750	0.00833
a 46400	21100	4.00	V	-11.8	0	11.8	136.80	137.01	136.91	0.01780	0.00847
a 46500	21200	4.02	V	-11.8	0	12	137.49	137.76	137.73	0.02288	0.00250
	21225	4.02	V	-12	0	12	137.34	137.61	137.57	0.02250	0.00333
a 46600	21300	4.03	IV	-11.4	0	12	136.88	137.14	137.08	0.02281	0.00500
a 46700	21400	4.05	II	-11.6	0	12	136.86	137.09	136.96	0.01983	0.01083
a 46800	21500	4.07	II	-12	0	11.7	136.84	137.10	136.99	0.02167	0.00940
a 46900	21600	4.09	II	-12	0	11.6	136.79	137.06	136.91	0.02250	0.01293
a 47000	21700	4.11	II	-12	0	11.6	136.60	136.85	136.72	0.02083	0.01121
a 47100	21800	4.13	II	-11.8	0	11.9	136.35	136.61	136.47	0.02203	0.01176
a 47200	21900	4.15	II	-11.6	0	11.9	136.45	136.71	136.58	0.02241	0.01092
a 47300	22000	4.17	II	-11.8	0	11.8	137.05	137.29	137.17	0.02034	0.01017
a 47400	22100	4.19	II	-11.4	0	12	137.47	137.75	137.61	0.02456	0.01167
a 47500	22200	4.20	II	-11.8	0	12	138.94	139.22	139.07	0.02373	0.01250
a 47600	22300	4.22	II	-12	0	11.6	141.31	141.61	141.47	0.02500	0.01207
a 47700	22400	4.24	II	-12	0	11.5	143.98	144.27	144.17	0.02417	0.00870
a 47800	22500	4.26	II	-12	0	11.8	147.30	147.63	147.54	0.02750	0.00763
a 47900	22600	4.28	II	-12	0	11.7	150.49	150.79	150.70	0.02500	0.00769
a 48000	22700	4.30	IV	-12	0	12	151.41	151.75	151.67	0.02833	0.00667
a 48100	22800	4.32	IV	-11.9	0	12	150.76	151.13	151.04	0.03109	0.00750
a 48200	22900	4.34	II	-12	0	11.9	150.73	151.07	150.97	0.02833	0.00840

LEGEND:T = TRANSITION
I-V = CASE NUMBERS
+ SLOPE IS DOWN FROM CENTERLINE
- SLOPE IS UP FROM CENTERLINE

*FOR INFORMATIONAL PURPOSES ONLY

ELEVATIONS ARE BASED OFF OF AN ASSUMED ELEVATION

NO.	DATE	REVISION DESCRIPTION	BY

SURVEY OF EXISTING CROSS SLOPES

DESIGNED	BET	PARISH	ST. HELENA
CHECKED	CPR		
DETAILED	BET	FEDERAL PROJECT	
CHECKED	CPR		
DATE SHEET		STATE PROJECT	263-01-0013

SHEET NUMBER 21

SURVEY OF EXISTING CROSS SLOPES*

Station Surveyed	Station Corrected	Log mile	Case	Offset			Elevation			Slope	
				Left	Ctr	Right	Left	Center	Right	Left Slope	Right Slope
a 48300	23000	4.36	II	-11.9	0	11.7	150.98	151.27	151.15	0.02437	0.01026
a 48400	23100	4.38	I	-12	0	11.6	151.83	152.11	151.92	0.02333	0.01638
a 48500	23200	4.39	II	-12	0	11.3	153.45	153.74	153.60	0.02417	0.01239
a 48600	23300	4.41	II	-12	0	11.7	156.48	156.76	156.64	0.02333	0.01026
a 48700	23400	4.43	II	-12	0	11.6	160.56	160.81	160.68	0.02083	0.01121
a 48800	23500	4.45	II	-11.9	0	11.8	164.76	165.00	164.88	0.02017	0.01017
a 48900	23600	4.47	II	-12	0	11.6	168.55	168.79	168.68	0.02000	0.00948
a 49000	23700	4.49	II	-11.9	0	11.7	172.76	173.02	172.89	0.02185	0.01111
a 49100	23800	4.51	II	-12	0	11.6	177.58	177.82	177.70	0.02000	0.01034
a 49200	23900	4.53	II	-11.8	0	11.8	182.50	182.70	182.57	0.01695	0.01102
a 49300	24000	4.55	II	-12	0	11.7	187.05	187.22	187.08	0.01417	0.01197
a 49400	24100	4.56	II	-12	0	12	190.18	190.37	190.20	0.01583	0.01417
a 49500	24200	4.58	II	-11.8	0	11.9	191.05	191.23	191.07	0.01525	0.01345
a 49600	24300	4.60	II	-12	0	11.8	190.20	190.40	190.24	0.01667	0.01356
a 49700	24400	4.62	II	-12	0	11.8	187.45	187.64	187.48	0.01583	0.01356
a 49800	24500	4.64	II	-12	0	11.8	182.99	183.15	182.97	0.01333	0.01525
a 49900	24600	4.66	II	-12	0	11.6	178.89	179.08	178.88	0.01583	0.01724
a 50000	24700	4.68	II	-12	0	11.9	176.26	176.44	176.24	0.01500	0.01681
a 50100	24800	4.70	I	-12	0	11.5	174.99	175.20	175.01	0.01750	0.01652
a 50200	24900	4.72	II	-12	0	11.9	175.62	175.80	175.64	0.01500	0.01345
a 50300	25000	4.73	II	-12	0	11.8	177.58	177.76	177.57	0.01500	0.01610
a 50400	25100	4.75	II	-12	0	11.8	180.16	180.33	180.10	0.01417	0.01949
a 50500	25200	4.77	II	-12	0	11.7	182.30	182.49	182.32	0.01583	0.01453
a 50600	25300	4.79	II	-12	0	11.8	184.27	184.44	184.24	0.01417	0.01695
a 50700	25400	4.81	II	-11.9	0	12	185.66	185.84	185.66	0.01513	0.01500
a 50800	25500	4.83	II	-12	0	12	185.52	185.69	185.55	0.01417	0.01167
a 50900	25600	4.85	II	-11.8	0	12	182.79	182.97	182.76	0.01525	0.01750
a 51000	25700	4.87	II	-12	0	11.6	178.76	178.93	178.76	0.01417	0.01466
a 51100	25800	4.89	II	-11.9	0	11.8	174.61	174.78	174.57	0.01429	0.01780
a 51200	25900	4.91	II	-12	0	11.9	170.14	170.29	170.07	0.01250	0.01849
a 51300	26000	4.92	II	-12	0	12	165.60	165.75	165.52	0.01250	0.01917
a 51400	26100	4.94	II	-11.9	0	12	161.48	161.61	161.39	0.01092	0.01833
a 51500	26200	4.96	II	-11.6	0	12	157.18	157.35	157.12	0.01466	0.01917
a 51600	26300	4.98	I	-11.9	0	12	153.11	153.31	153.11	0.01681	0.01667
a 51700	26400	5.00	II	-11.4	0	12	149.57	149.72	149.52	0.01316	0.01667
a 51800	26500	5.02	II	-11.7	0	12	147.11	147.29	147.09	0.01538	0.01667
a 51900	26600	5.04	I	-12	0	12	145.75	145.96	145.76	0.01750	0.01667
a 52000	26700	5.06	II	-11.8	0	12	145.29	145.50	145.31	0.01780	0.01583
a 52100	26800	5.08	II	-11.9	0	12	144.98	145.19	145.01	0.01765	0.01500
a 52200	26900	5.09	I	-11.9	0	12	145.38	145.58	145.37	0.01681	0.01750
a 52300	27000	5.11	I	-12	0	11.8	146.51	146.71	146.51	0.01667	0.01695
a 52400	27100	5.13	II	-12	0	11.4	149.29	149.48	149.28	0.01583	0.01754
a 52500	27200	5.15	II	-12	0	11.4	153.79	153.94	153.73	0.01250	0.01842
a 52600	27300	5.17	II	-12	0	11.4	158.74	158.87	158.67	0.01083	0.01754
a 52700	27400	5.19	II	-12	0	11.4	163.38	163.58	163.41	0.01667	0.01491
a 52800	27500	5.21	II	-12	0	11.6	168.54	168.70	168.50	0.01333	0.01724
a 52900	27600	5.23	II	-12	0	11.3	173.10	173.26	173.06	0.01333	0.01770
a 53000	27700	5.25	II	-12	0	11.6	175.84	176.00	175.85	0.01333	0.01293
a 53100	27800	5.27	II	-12	0	11.6	176.52	176.68	176.51	0.01333	0.01466
a 53200	27900	5.28	II	-12	0	12	175.36	175.50	175.29	0.01167	0.01750
a 53300	28000	5.30	II	-11.9	0	11.8	172.32	172.46	172.23	0.01176	0.01949
a 53400	28100	5.32	III	-12	0	12	169.03	169.02	169.00	-0.00083	0.00167
a 53500	28200	5.34	II	-12	0	11.6	167.09	167.27	167.06	0.01500	0.01810

LEGEND:T = TRANSITION
I-V = CASE NUMBERS
+ SLOPE IS DOWN FROM CENTERLINE
- SLOPE IS UP FROM CENTERLINE

***FOR INFORMATIONAL PURPOSES ONLY**

ELEVATIONS ARE BASED OFF OF AN ASSUMED ELEVATION

NO.	DATE	REVISION DESCRIPTION	BY

SURVEY OF EXISTING CROSS SLOPES

DESIGNED	BET	PARISH	ST. HELENA
CHECKED	CPR		
DETAILED	BET	FEDERAL PROJECT	
CHECKED	CPR		
DATE		STATE PROJECT	~~263-01-0013~~
SHEET			

SHEET NUMBER 2

SURVEY OF EXISTING CROSS SLOPES*

Station Surveyed	Station Corrected	Log mile	Case	Offset			Elevation			Slope	
				Left	Ctr	Right	Left	Center	Right	Left Slope	Right Slope
a 53600	28300	5.36	I	-12	0	11.4	166.65	166.85	166.64	0.01667	0.01842
a 53700	28400	5.38	I	-11.8	0	12	167.17	167.38	167.18	0.01780	0.01667
a 53800	28500	5.40	I	-12	0	12	169.32	169.53	169.32	0.01750	0.01750
a 53900	28600	5.42	II	-12	0	11.9	172.51	172.79	172.66	0.02333	0.01092
a 54000	28700	5.44	II	-12	0	11.7	176.72	176.97	176.86	0.02083	0.00940
a 54100	28800	5.45	II	-12	0	11.7	180.73	180.95	180.78	0.01833	0.01453
a 54200	28900	5.47	II	-12	0	11.8	184.89	185.11	184.94	0.01833	0.01441
a 54300	29000	5.49	II	-12	0	11.5	188.57	188.76	188.58	0.01583	0.01565
a 54400	29100	5.51	I	-12	0	11.9	190.93	191.14	190.92	0.01750	0.01849
a 54500	29200	5.53	I	-11.8	0	12	191.49	191.69	191.46	0.01695	0.01917
a 54600	29300	5.55	IV	-12	0	11.6	189.52	189.59	189.36	0.00583	0.01983
a 54700	29400	5.57	IV	-11.9	0	11.5	187.11	187.19	186.94	0.00672	0.02174
a 54800	29500	5.59	IV	-12	0	11.5	185.37	185.46	185.22	0.00750	0.02087
a 54900	29600	5.61	IV	-12	0	11.7	183.88	183.97	183.71	0.00750	0.02222
a 55000	29700	5.63	II	-12	0	12	183.36	183.46	183.20	0.00833	0.02167
a 55100	29800	5.64	I	-12	0	11.7	183.97	184.19	183.84	0.01833	0.02991
a 55200	29900	5.66	II	-12	0	11.7	185.09	185.24	185.01	0.01250	0.01966
a 55300	30000	5.68	II	-12	0	11.8	186.97	187.14	186.92	0.01417	0.01864
a 55400	30100	5.70	II	-12	0	11.7	190.07	190.26	190.07	0.01583	0.01624
a 55500	30200	5.72	II	-12	0	11.8	193.81	193.97	193.76	0.01333	0.01780
a 55600	30300	5.74	II	-11.8	0	12	197.17	197.33	197.20	0.01356	0.01083
a 55700	30400	5.76	III	-11.8	0	11.9	199.17	199.25	199.07	0.00678	0.01513
a 55800	30500	5.78	IV	-12	0	11.6	198.72	198.74	198.55	0.00167	0.01638
a 55900	30600	5.80	IV	-12	0	11.8	195.15	195.22	195.01	0.00583	0.01780
a 56000	30700	5.81	IV	-12	0	12	195.55	195.80	195.74	0.02083	0.00500
a 56100	30800	5.83	II	-12	0	11.8	190.61	190.72	190.47	0.00917	0.02119
a 56200	30900	5.85	II	-12	0	11.9	185.03	185.14	184.50	0.00917	0.05378
	30972	5.87	V	-12	0	12	181.06	181.09	180.62	0.00250	0.03917
a 56300	31000	5.87	V	-12	0	11.8	179.51	179.52	179.11	0.00083	0.03475
a 56400	31100	5.89	V	-12	0	11.5	174.67	174.35	173.72	-0.02667	0.05478
	31132	5.90	V	-12	0	12	173.35	173.03	172.35	-0.02667	0.05667
a 56500	31200	5.91	V	-12	0	11.7	170.54	170.21	169.45	-0.02750	0.06496
a 56600	31300	5.93	V	-12	0	11.8	167.33	167.23	166.83	-0.00833	0.03390
a 56700	31400	5.95	V	-12	0	12	165.71	165.65	165.14	-0.00500	0.04250
a 56800	31500	5.97	V	-12	0	12	164.86	165.01	164.68	0.01250	0.02750
a 56900	31600	5.98	V	-12	0	12	163.97	164.36	164.02	0.03250	0.02833
a 56903	31603	5.99	V	-12	0	12	163.96	164.33	164.01	0.03083	0.02667
b 80000	31603	5.99	V	-12	0	12	99.26	99.55	99.28	0.02417	0.02250
	31665	6.00	V	-12	0	12	99.56	99.88	99.65	0.02667	0.01917
	31697	6.00	V	-12	0	12	99.71	100.06	99.83	0.02917	0.01917
b 80100	31703	6.00	V	-12	0	12	99.74	100.09	99.87	0.02917	0.01833
b 80200	31803	6.02	V	-12	0	12	100.39	100.62	100.31	0.01917	0.02583
	31825	6.03	V	-12	0	12	100.61	100.84	100.55	0.01917	0.02417
b 80300	31903	6.04	I	-12	0	12	101.40	101.64	101.41	0.02000	0.01917
b 80400	32003	6.06	I	-12	0	12	103.72	103.92	103.69	0.01667	0.01917
b 80500	32103	6.08	II	-12	0	12	107.04	107.20	106.95	0.01333	0.02083
	32131	6.09	V	-12	0	12	107.85	107.98	107.71	0.01083	0.02250
b 80600	32203	6.10	V	-12	0	12	109.93	109.97	109.65	0.00333	0.02667
	32275	6.11	V	-12	0	12	111.04	111.09	110.76	0.00417	0.02750
b 80700	32303	6.12	V	-12	0	12	111.47	111.53	111.19	0.00500	0.02833
	32311	6.12	V	-12	0	12	111.58	111.64	111.29	0.00500	0.02917
b 80800	32403	6.14	V	-12	0	12	112.86	112.91	112.43	0.00417	0.04000
b 80900	32503	6.16	V	-12	0	12	114.49	114.55	114.25	0.00500	0.02500

LEGEND:T = TRANSITION
I-V = CASE NUMBERS
+ SLOPE IS DOWN FROM CENTERLINE
- SLOPE IS UP FROM CENTERLINE

***FOR INFORMATIONAL PURPOSES ONLY**

ELEVATIONS ARE BASED OFF OF AN ASSUMED ELEVATION

NO.	DATE	REVISION DESCRIPTION	BY

SURVEY OF EXISTING CROSS SLOPES

DESIGNED BET
CHECKED CPR
DETAILED BET
CHECKED CPR
DATE SHEET

PARISH ST. HELENA
FEDERAL PROJECT
STATE PROJECT 263-01-0013

SHEET NUMBER 2K

SURVEY OF EXISTING CROSS SLOPES*

Station Surveyed	Station Corrected	Log mile	Case	Offset			Elevation			Slope	
				Left	Ctr	Right	Left	Center	Right	Left Slope	Right Slope
b 81000	32603	6.17	V	-12	0	12	116.02	116.14	115.90	0.01000	0.02000
b 81100	32703	6.19	V	-12	0	12	118.22	118.37	118.16	0.01250	0.01750
b 81200	32803	6.21	V	-12	0	12	120.60	120.82	120.63	0.01833	0.01583
	32834	6.22	V	-12	0	12	121.60	121.80	121.62	0.01667	0.01500
	32870	6.23	V	-12	0	12	122.75	122.94	122.77	0.01583	0.01417
b 81300	32903	6.23	V	-12	0	12	123.81	123.99	123.82	0.01500	0.01417
b 81400	33003	6.25	V	-12	0	12	127.83	128.23	128.01	0.03333	0.01833
	33014	6.25	V	-12	0	12	128.33	128.71	128.50	0.03167	0.01750
b 81500	33103	6.27	II	-12	0	12	132.37	132.55	132.42	0.01500	0.01083
b 81600	33203	6.29	II	-12	0	12	137.08	137.27	137.13	0.01583	0.01167
b 81700	33303	6.31	II	-12	0	12	141.07	141.31	141.16	0.02000	0.01250
b 81800	33403	6.33	II	-12	0	12	145.21	145.48	145.34	0.02250	0.01167
b 81900	33503	6.35	II	-12	0	12	149.17	149.42	149.30	0.02083	0.01000
b 82000	33603	6.36	II	-12	0	12	152.48	152.71	152.55	0.01917	0.01333
b 82100	33703	6.38	II	-12	0	12	155.41	155.64	155.47	0.01917	0.01417
b 82200	33803	6.40	II	-12	0	12	157.59	157.83	157.66	0.02000	0.01417
b 82300	33903	6.42	II	-12	0	12	159.96	160.20	160.01	0.02000	0.01583
b 82400	34003	6.44	II	-12	0	12	161.71	161.96	161.81	0.02083	0.01250
b 82500	34103	6.46	II	-12	0	12	162.11	162.35	162.21	0.02000	0.01167
b 82600	34203	6.48	II	-12	0	12	160.84	161.07	160.90	0.01917	0.01417
b 82700	34303	6.50	II	-12	0	12	158.46	158.69	158.51	0.01917	0.01500
b 82800	34403	6.52	II	-12	0	12	154.88	155.11	154.94	0.01917	0.01417
b 82900	34503	6.53	II	-12	0	12	150.43	150.64	150.45	0.01750	0.01583
b 83000	34603	6.55	I	-12	0	12	146.18	146.40	146.18	0.01833	0.01833
b 83100	34703	6.57	I	-12	0	12	143.32	143.52	143.31	0.01667	0.01750
b 83200	34803	6.59	I	-12	0	12	142.16	142.37	142.14	0.01750	0.01917
b 83300	34903	6.61	II	-12	0	12	141.72	141.91	141.66	0.01583	0.02083
b 83400	35003	6.63	I	-12	0	12	142.63	142.83	142.58	0.01667	0.02083
b 83500	35103	6.65	II	-12	0	12	144.98	145.17	144.94	0.01583	0.01917
b 83600	35203	6.67	I	-12	0	12	148.08	148.28	148.07	0.01667	0.01750
b 83700	35303	6.69	II	-12	0	12	151.51	151.69	151.45	0.01500	0.02000
b 83800	35403	6.71	I	-12	0	12	155.36	155.57	155.34	0.01750	0.01917
b 83900	35503	6.72	II	-11.8	0	12	158.89	159.07	158.87	0.01525	0.01667
b 84000	35603	6.74	I	-11.8	0	12	161.80	162.01	161.81	0.01780	0.01667
b 84100	35703	6.76	II	-12	0	11.9	163.01	163.23	163.09	0.01833	0.01176
b 84200	35803	6.78	II	-11.9	0	12	161.45	161.65	161.53	0.01681	0.01000
b 84300	35903	6.80	II	-11.9	0	12	158.97	159.20	159.07	0.01933	0.01083
b 84400	36003	6.82	II	-11.7	0	12	157.55	157.79	157.67	0.02051	0.01000
b 84500	36103	6.84	II	-11.7	0	12	158.00	158.22	158.10	0.01880	0.01000
b 84600	36203	6.86	II	-11.8	0	12	159.28	159.50	159.38	0.01864	0.01000
b 84700	36303	6.88	II	-12	0	12	161.44	161.69	161.56	0.02083	0.01083
b 84800	36403	6.89	II	-11.8	0	12	164.56	164.79	164.63	0.01949	0.01333
b 84900	36503	6.91	II	-11.8	0	12	167.85	168.09	167.95	0.02034	0.01167
b 85000	36603	6.93	IV	-11.8	0	12	170.95	171.17	171.11	0.01864	0.00500
b 85100	36703	6.95	II	-11.8	0	11.8	172.52	172.74	172.64	0.01864	0.00847
b 85200	36803	6.97	II	-12	0	11.8	172.99	173.23	173.10	0.02000	0.01102
b 85300	36903	6.99	II	-12	0	12	171.93	172.19	172.04	0.02167	0.01250
b 85400	37003	7.01	II	-11.8	0	12	169.71	169.97	169.78	0.02203	0.01583
b 85500	37103	7.03	II	-11.8	0	12	166.81	167.06	166.92	0.02119	0.01167
b 85600	37203	7.05	II	-11.8	0	11.8	163.20	163.45	163.31	0.02119	0.01186
b 85700	37303	7.06	I	-12	0	11.9	160.51	160.75	160.55	0.02000	0.01681
b 85800	37403	7.08	I	-12	0	11.8	159.19	159.43	159.23	0.02000	0.01695
b 85900	37503	7.10	II	-11.7	0	12	158.52	158.75	158.57	0.01966	0.01500

LEGEND:T = TRANSITION
I-V = CASE NUMBERS
+ SLOPE IS DOWN FROM CENTERLINE
- SLOPE IS UP FROM CENTERLINE

***FOR INFORMATIONAL PURPOSES ONLY**

ELEVATIONS ARE BASED OFF OF AN ASSUMED ELEVATION

NO.	DATE	REVISION DESCRIPTION	BY

SURVEY OF EXISTING CROSS SLOPES

DESIGNED BET
CHECKED CPR
DETAILED BET
CHECKED CPR
DATE
SHEET

PARISH ST. HELENA
FEDERAL PROJECT
STATE PROJECT 263-01-0013

SHEET NUMBER 21

SURVEY OF EXISTING CROSS SLOPES*

Station Surveyed	Station Corrected	Log mile	Case	Offset			Elevation			Slope	
				Left	Ctr	Right	Left	Center	Right	Left Slope	Right Slope
b 86000	37603	7.12	II	-11.8	0	12	158.68	158.91	158.76	0.01949	0.01250
b 86100	37703	7.14	II	-11.9	0	12	159.54	159.78	159.61	0.02017	0.01417
b 86200	37803	7.16	I	-11.6	0	12	161.07	161.37	161.16	0.02586	0.01750
b 86300	37903	7.18	II	-11.8	0	12	162.14	162.36	162.19	0.01864	0.01417
b 86400	38003	7.20	II	-12	0	12	163.40	163.64	163.50	0.02000	0.01167
b 86500	38103	7.22	II	-12	0	12	164.23	164.47	164.34	0.02000	0.01083
b 86600	38203	7.24	II	-11.8	0	12	164.85	165.07	164.94	0.01864	0.01083
b 86700	38303	7.25	II	-11.9	0	12	165.07	165.29	165.16	0.01849	0.01083
b 86800	38403	7.27	II	-11.9	0	12	165.65	165.87	165.73	0.01849	0.01167
b 86900	38503	7.29	II	-11.8	0	12	166.33	166.55	166.42	0.01864	0.01083
b 87000	38603	7.31	II	-11.8	0	12	166.80	167.01	166.89	0.01780	0.01000
b 87100	38703	7.33	II	-12	0	11.7	166.99	167.27	167.13	0.02333	0.01197
b 87200	38803	7.35	II	-11.9	0	12	166.36	166.59	166.44	0.01933	0.01250
b 87300	38903	7.37	II	-12	0	12	166.73	167.00	166.83	0.02250	0.01417
b 87400	39003	7.39	II	-11.9	0	12	167.21	167.46	167.29	0.02101	0.01417
b 87500	39103	7.41	II	-11.9	0	12	167.60	167.84	167.66	0.02017	0.01500
b 87600	39203	7.42	II	-12	0	12	165.76	165.99	165.83	0.01917	0.01333
b 87700	39303	7.44	II	-11.8	0	11.8	162.68	162.91	162.76	0.01949	0.01271
b 87800	39403	7.46	II	-12	0	11.7	158.45	158.69	158.52	0.02000	0.01453
b 87900	39503	7.48	II	-12	0	11.8	154.80	155.05	154.87	0.02083	0.01525
b 88000	39603	7.50	II	-12	0	12	152.69	152.92	152.73	0.01917	0.01583
b 88100	39703	7.52	II	-12	0	11.9	152.07	152.31	152.12	0.02000	0.01597
b 88200	39803	7.54	I	-12	0	12	153.63	153.84	153.63	0.01750	0.01750
b 88300	39903	7.56	I	-12	0	12	156.10	156.33	156.12	0.01917	0.01750
b 88400	40003	7.58	I	-12	0	11.9	158.52	158.73	158.53	0.01750	0.01681
b 88500	40103	7.60	I	-12	0	12	159.10	159.33	159.12	0.01917	0.01750
b 88600	40203	7.61	I	-12	0	12	156.95	157.16	156.93	0.01750	0.01917
b 88700	40303	7.63	II	-12	0	12	153.44	153.61	153.41	0.01417	0.01667
b 88800	40403	7.65	I	-12	0	12	148.62	148.83	148.60	0.01750	0.01917
b 88900	40503	7.67	II	-12	0	12	144.43	144.62	144.43	0.01583	0.01583
b 89000	40603	7.69	II	-11.9	0	11.9	141.36	141.53	141.35	0.01429	0.01513
b 89100	40703	7.71	II	-11.9	0	11.8	139.35	139.53	139.35	0.01513	0.01525
b 89200	40803	7.73	I	-12	0	12	138.28	138.49	138.29	0.01750	0.01667
b 89300	40903	7.75	II	-11.8	0	12	138.03	138.21	138.06	0.01525	0.01250
b 89400	41003	7.77	II	-11.9	0	12	138.21	138.40	138.23	0.01597	0.01417
b 89500	41103	7.78	II	-11.8	0	12	139.68	139.86	139.69	0.01525	0.01417
b 89600	41203	7.80	II	-11.9	0	12	141.87	142.06	141.90	0.01597	0.01333
b 89700	41303	7.82	II	-12	0	12	144.27	144.48	144.30	0.01750	0.01500
b 89800	41403	7.84	II	-12	0	11.8	146.23	146.42	146.31	0.01583	0.00932
b 89900	41503	7.86	II	-12	0	12	147.65	147.89	147.76	0.02000	0.01083
b 90000	41603	7.88	II	-12	0	11.9	149.35	149.56	149.42	0.01750	0.01176
b 90100	41703	7.90	II	-11.9	0	12	151.27	151.47	151.32	0.01681	0.01250
b 90200	41803	7.92	II	-11.9	0	12	153.01	153.22	153.08	0.01765	0.01167
b 90300	41903	7.94	II	-11.8	0	12	154.73	154.97	154.80	0.02034	0.01417
b 90400	42003	7.96	II	-12	0	12	156.17	156.41	156.27	0.02000	0.01167
b 90500	42103	7.97	II	-11.7	0	12	156.07	156.27	156.13	0.01709	0.01167
b 90600	42203	7.99	II	-11.8	0	12	154.64	154.85	154.73	0.01780	0.01000
b 90700	42303	8.01	II	-12	0	12	152.54	152.78	152.65	0.02000	0.01083
b 90800	42403	8.03	II	-11.3	0	12	150.95	151.18	151.04	0.02035	0.01167
b 90900	42503	8.05	II	-11.8	0	12	149.40	149.63	149.48	0.01949	0.01250
b 91000	42603	8.07	II	-11.8	0	12	148.27	148.50	148.33	0.01949	0.01417
b 91100	42703	8.09	II	-11.8	0	12	147.39	147.60	147.45	0.01780	0.01250
b 91200	42803	8.11	II	-12	0	12	146.88	147.11	146.98	0.01917	0.01083

LEGEND:T = TRANSITION
I-V = CASE NUMBERS
+ SLOPE IS DOWN FROM CENTERLINE
- SLOPE IS UP FROM CENTERLINE

***FOR INFORMATIONAL PURPOSES ONLY**

ELEVATIONS ARE BASED OFF OF AN ASSUMED ELEVATION

NO.	DATE	REVISION DESCRIPTION	BY

SURVEY OF EXISTING CROSS SLOPES

DESIGNED BET
CHECKED CPR
DETAILED BET
CHECKED CPR
DATE
SHEET

PARISH ST. HELENA
FEDERAL PROJECT
STATE PROJECT 263-01-0013

SHEET NUMBER 2m

SURVEY OF EXISTING CROSS SLOPES*

Station Surveyed	Station Corrected	Log mile	Case	Offset			Elevation			Slope	
				Left	Ctr	Right	Left	Center	Right	Left Slope	Right Slope
b 91300	42903	8.13	II	-11.7	0	12	147.29	147.51	147.38	0.01880	0.01083
b 91400	43003	8.14	II	-11.9	0	12	147.28	147.54	147.41	0.02185	0.01083
b 91500	43103	8.16	II	-12	0	11.8	147.71	147.94	147.82	0.01917	0.01017
b 91600	43203	8.18	I	-12	0	11.9	149.47	149.68	149.48	0.01750	0.01681
b 91700	43303	8.20	II	-11.5	0	12	151.35	151.57	151.45	0.01913	0.01000
b 91800	43403	8.22	II	-11.8	0	12	151.56	151.85	151.73	0.02458	0.01000
b 91900	43503	8.24	II	-11.8	0	12	148.56	148.77	148.64	0.01780	0.01083
b 92000	43603	8.26	II	-11.9	0	11.7	143.75	143.96	143.83	0.01765	0.01111
b 92100	43703	8.28	II	-12	0	12	138.65	138.87	138.74	0.01833	0.01083
b 92200	43803	8.30	II	-11.9	0	12	133.95	134.17	134.02	0.01849	0.01250
b 92300	43903	8.31	II	-12	0	12	130.08	130.31	130.17	0.01917	0.01167
b 92400	44003	8.33	II	-11.7	0	12	126.90	127.10	126.94	0.01709	0.01333
b 92500	44103	8.35	II	-12	0	12	124.05	124.27	124.10	0.01833	0.01417
b 92600	44203	8.37	II	-12	0	12	121.77	121.99	121.82	0.01833	0.01417
b 92700	44303	8.39	II	-11.9	0	12	120.41	120.59	120.41	0.01513	0.01500
b 92800	44403	8.41	II	-11.9	0	12	120.39	120.57	120.43	0.01513	0.01167
b 92900	44503	8.43	II	-11.8	0	12	122.59	122.78	122.62	0.01610	0.01333
b 93000	44603	8.45	II	-11.9	0	12	125.75	125.95	125.80	0.01681	0.01250
b 93100	44703	8.47	II	-12	0	12	127.13	127.35	127.20	0.01833	0.01250
b 93200	44803	8.49	II	-12	0	12	126.89	127.11	126.96	0.01833	0.01250
b 93300	44903	8.50	II	-12	0	12	125.59	125.79	125.64	0.01667	0.01250
b 93400	45003	8.52	II	-11.8	0	12	123.03	123.26	123.10	0.01949	0.01333
b 93500	45103	8.54	II	-12	0	11.7	119.52	119.71	119.57	0.01583	0.01197
b 93600	45203	8.56	II	-11.6	0	12	116.31	116.52	116.36	0.01810	0.01333
b 93700	45303	8.58	II	-11.9	0	12	113.44	113.64	113.48	0.01681	0.01333
b 93800	45403	8.60	II	-12	0	12	111.01	111.25	111.09	0.02000	0.01333
b 93900	45503	8.62	II	-11.8	0	12	108.86	108.96	108.81	0.00847	0.01250
b 94000	45603	8.64	II	-11.9	0	12	106.03	106.24	106.05	0.01765	0.01583
b 94100	45703	8.66	II	-12	0	12	102.38	102.59	102.42	0.01750	0.01417
b 94200	45803	8.67	II	-12	0	12	98.89	99.08	98.90	0.01583	0.01500
b 94300	45903	8.69	II	-12	0	12	95.77	96.00	95.84	0.01917	0.01333
b 94400	46003	8.71	II	-12	0	12	93.66	93.92	93.75	0.02167	0.01417
b 94500	46103	8.73	II	-12	0	12	92.25	92.49	92.31	0.02000	0.01500
b 94600	46203	8.75	II	-12	0	12	91.68	91.91	91.74	0.01917	0.01417
b 94700	46303	8.77	II	-12	0	12	91.45	91.68	91.53	0.01917	0.01250
b 94800	46403	8.79	II	-12	0	12	90.52	90.76	90.61	0.02000	0.01250
b 94900	46503	8.81	II	-11.9	0	12	90.20	90.41	90.25	0.01765	0.01333
b 95000	46603	8.83	II	-12	0	12	90.20	90.45	90.29	0.02083	0.01333
b 95100	46703	8.85	II	-12	0	11.9	90.65	90.87	90.70	0.01833	0.01429
b 95200	46803	8.86	II	-12	0	12	91.86	92.08	91.91	0.01833	0.01417
b 95300	46903	8.88	II	-12	0	12	93.89	94.14	93.97	0.02083	0.01417
b 95400	47003	8.90	II	-12	0	11.9	96.01	96.23	96.06	0.01833	0.01429
b 95500	47103	8.92	II	-12	0	11.9	98.40	98.62	98.43	0.01833	0.01597
b 95600	47203	8.94	II	-12	0	12	101.99	102.20	102.01	0.01750	0.01583
b 95700	47303	8.96	II	-11.9	0	12	104.77	105.00	104.83	0.01933	0.01417
b 95800	47403	8.98	II	-11.8	0	12	105.24	105.45	105.29	0.01780	0.01333
b 95900	47503	9.00	II	-11.7	0	12	103.37	103.58	103.41	0.01795	0.01417
b 96000	47603	9.02	II	-12	0	12	100.06	100.31	100.14	0.02083	0.01417
b 96100	47703	9.03	II	-12	0	12	98.09	98.33	98.17	0.02000	0.01333
b 96200	47803	9.05	II	-12	0	12	97.39	97.64	97.46	0.02083	0.01500
b 96300	47903	9.07	II	-12	0	12	97.65	97.90	97.74	0.02083	0.01333
b 96400	48003	9.09	II	-12	0	12	98.46	98.73	98.55	0.02250	0.01500
b 96500	48103	9.11	II	-12	0	12	100.38	100.67	100.50	0.02417	0.01417

LEGEND:T = TRANSITION
I-V = CASE NUMBERS
+ SLOPE IS DOWN FROM CENTERLINE
- SLOPE IS UP FROM CENTERLINE

***FOR INFORMATIONAL PURPOSES ONLY**

ELEVATIONS ARE BASED OFF OF AN ASSUMED ELEVATION

NO.	DATE	REVISION DESCRIPTION	BY

SURVEY OF EXISTING CROSS SLOPES

DESIGNED BET
CHECKED CPR
DETAILED BET
CHECKED CPR
DATE SHEET

PARISH ST. HELENA
FEDERAL PROJECT
STATE PROJECT 263-01-0013

SHEET NUMBER 2n

SURVEY OF EXISTING CROSS SLOPES*

Station Surveyed	Station Corrected	Log mile	Case	Offset			Elevation			Slope	
				Left	Ctr	Right	Left	Center	Right	Left Slope	Right Slope
b 96600	48203	9.13	II	-11.9	0	12	102.84	103.12	103.02	0.02353	0.00833
b 96700	48303	9.15	II	-11.9	0	12	104.68	104.89	104.79	0.01765	0.00833
b 96800	48403	9.17	IV	-11.7	0	12	103.40	103.63	103.54	0.01966	0.00750
b 96900	48503	9.19	II	-12	0	12	100.63	100.90	100.79	0.02250	0.00917
b 97000	48603	9.21	II	-11.7	0	12	97.87	98.10	97.99	0.01966	0.00917
b 97100	48703	9.22	II	-11.8	0	12	95.29	95.52	95.42	0.01949	0.00833
b 97200	48803	9.24	II	-12	0	12	92.73	92.99	92.88	0.02167	0.00917
b 97300	48903	9.26	II	-12	0	12	90.73	90.96	90.83	0.01917	0.01083
b 97400	49003	9.28	II	-11.8	0	12	89.12	89.34	89.21	0.01864	0.01083
b 97500	49103	9.30	IV	-12	0	12	87.88	88.16	88.07	0.02333	0.00750
b 97600	49203	9.32	IV	-12	0	12	87.02	87.35	87.30	0.02750	0.00417
b 97700	49303	9.34	IV	-12	0	11.8	86.52	86.82	86.80	0.02500	0.00169
	49356	9.35	V	-12	0	12	86.29	86.59	86.57	0.02500	0.00167
b 97800	49403	9.36	V	-11.8	0	12	86.09	86.39	86.36	0.02542	0.00250
	49500	9.38	V	-12	0	12	85.65	85.98	85.94	0.02750	0.00333
b 97900	49503	9.38	V	-11.9	0	12	85.64	85.97	85.93	0.02773	0.00333
	49536	9.38	V	-12	0	12	85.38	85.73	85.72	0.02917	0.00083
b 98000	49603	9.39	T	-12	0	11.9	84.86	85.24	85.28	0.03167	-0.00336
b 98100	49703	9.41	T	-12	0	12	84.22	84.55	84.50	0.02750	0.00417
b 98200	49803	9.43	T	-12	0	12	83.41	83.64	83.54	0.01917	0.00833
b 98248	49851	9.44	T	-12	0	12	82.95	83.12	83.21	0.01417	-0.00750

LEGEND:T = TRANSITION
I-V = CASE NUMBERS
+ SLOPE IS DOWN FROM CENTERLINE
- SLOPE IS UP FROM CENTERLINE

***FOR INFORMATIONAL PURPOSES ONLY**

ELEVATIONS ARE BASED OFF
OF AN ASSUMED ELEVATION

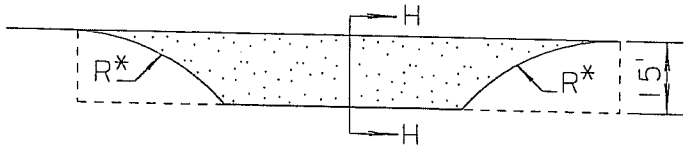
NO.	DATE	REVISION DESCRIPTION	BY

SURVEY OF EXISTING CROSS SLOPES

DESIGNED BET
CHECKED CPR
DETAILED BET
CHECKED CPR
DATE
SHEET

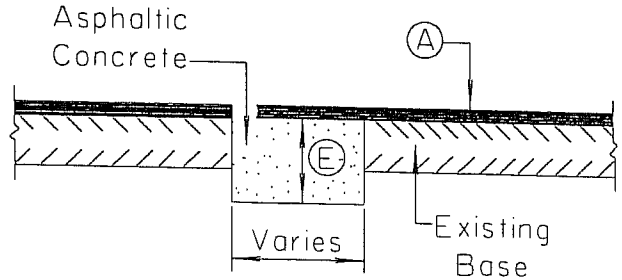
PARISH ST. HELENA
FEDERAL PROJECT
STATE PROJECT 263-01-0013

SHEET NUMBER 20

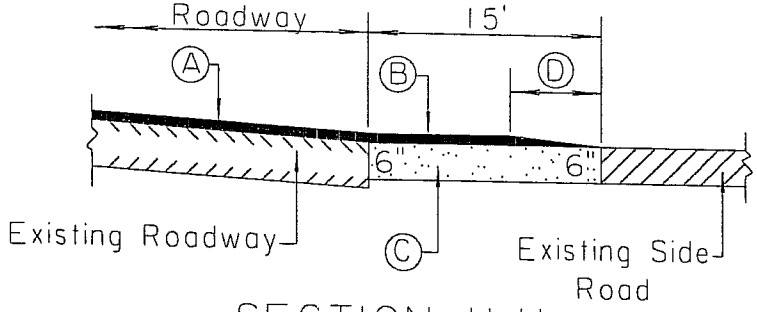


DETAIL OF APRON AT TURNOUT (TYPICAL)

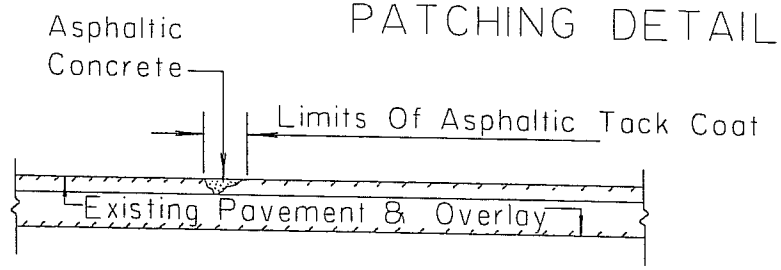
* Match Existing Radius



PATCHING DETAIL



SECTION H-H



JOINT REPAIR DETAIL

Ⓐ Superpave Asphaltic Concrete (Courses And Types As Shown On Roadway Typical Section)

Ⓑ Superpave Asphaltic Concrete (Wearing Course)(Type and Depth To Match Roadway Overlay)(To Apply To Existing And New Paved Turnouts) Quantity Included In Item No. 502-01-A

Ⓒ Superpave Asphaltic Concrete , Incidental Paving (Level A). Also, When Paved Aprons Are Placed In Two Lifts, Binder Course May Be Used In The First Lift. (To Apply To New Paved Turnouts) Quantity Included In Item No 502-01-A

Ⓓ As Determined By The Project Engineer.

Ⓔ 12" Min. (Patching Shall Extend To Bottom Of Existing Base)(Roadway)
6" Min. (Patching Shall Extend To Bottom Of Existing Base)(Shoulders)

NOTE : USE DETAILS APPLICABLE TO THIS PROJECT

SHEET NUMBER 2p
PARISH ST. HELENA
FEDERAL PROJECT
STATE PROJECT 263-01-0013
DESIGNED BET
CHECKED CPR
DETAILED BET
CHECKED CPR
DATE
SHEET
TURNOUT, PATCHING & JOINT REPAIR DETAIL
NO. DATE REVISION DESCRIPTION BY

CONSTRUCTION NOTES

1.) "LOW SHOULDER" SIGNS SHALL TO BE ERECTED AT A FREQUENCY OF EVERY 5000' ALONG ROADWAY IN BOTH DIRECTIONS. "DO NOT PASS" SIGNS SHALL TO BE ERECTED AT THE BEGINNING OF EACH NO PASSING ZONE AND EVERY 1,500' WITHIN THE ZONE ALONG WITH A "PASS WITH CARE" SIGN AT THE END. SHALL BE PAID FOR UNDER ITEM 713-01.

2.) ALL STRIPING AND SIGNING SHALL CONFORM TO THE MUTCD, PM-01, AND E.D.S.M. VI.4.1.1.

3.) THE CONTRACTOR SHALL CONSTRUCT A FULL DEPTH, STRAIGHT CROSS CUT, PERPENDICULAR TO THE CENTER LINE AT THE BEGINNING AND END OF THE COLD PLANED AREAS AND SHALL BE PAID FOR UNDER ITEM S-001.

4.) THE CONTRACTOR SHALL PROVIDE A 10' LONG PAPER JOINT TO BE CONSTRUCTED WITH HOT OR COLD MIX AND SHALL BE PAID FOR IN ITEM 502-01.

5.) DOTD SHALL RETAIN 100 PERCENT (APPROXIMATELY 4,620 CUBIC YARDS IN-PLACE) OF THE RAP MATERIAL GENERATED FROM COLD PLANING RAP MATERIAL SHALL BE HAULED AND STOCKPILED AT THE ST. HELENA MAINTENANCE STORAGE SITE LOCATED AT 108 HIGHWAY 1042, GREENSBURG, LA 70441.

6.) ANY EXISTING GUARD RAIL TO REMAIN SHALL MAINTAIN AN OVERALL HEIGHT OF 24" OR GREATER. (THE OVERALL GUARD RAIL HEIGHT SHALL BE MEASURED FROM THE TOP SURFACE ELEVATION OF FINISHED SECTION TO THE TOP OF THE RAIL.) BRIDGE RAILS TO REMAIN SHALL MAINTAIN EXISTING HEIGHTS WHICH SHOULD BE IN THE RANGE OF 30" - 31".

7.) THE CONTRACTOR SHALL CONSTRUCT ALL DRIVEWAY CONNECTIONS USING DESIRABLE FLARE RATES AS SHOWN ON STANDARD PLAN DW-04 UNLESS A DETERMINATION IS MADE BY THE PROJECT ENGINEER ON A PER DRIVEWAY BASIS WHEN EXISTING CONDITIONS PREVENT DESIRABLE RATES. GUIDANCE ON DRIVEWAY CONNECTION GRADES MAY BE OBTAINED FROM STANDARD PLAN DW-05.

8.) AFTER OVERLAY OPERATIONS ARE COMPLETE, THE CONTRACTOR SHALL PROVIDE TO THE PROJECT ENGINEER PLOTTED CROSS SECTIONS OF THE COMPLETED SURFACE (INCLUDING SURFACED SHOULDERS) WITHIN EACH CURVE AREA TO VERIFY THAT APPROPRIATE SUPER-ELEVATION RATES HAVE BEEN CONSTRUCTED WITHIN THE FINISHED SECTION. CROSS SECTIONS SHALL BE TAKEN AT THE BEGINNING OF THE TRANSITION, THE PC, THE BEGINNING OF FULL SUPER, THE VICINITY OF THE PI, THE END OF SUPER, THE PT AND THE END OF THE TRANSITION. ALL COSTS ASSOCIATED WITH THE CROSS SECTION WORK TO BE PAID FOR UNDER BID ITEM 740-01.

9.) EXISTING TURNOUTS SHALL BE LEFT IN PLACE OR COLD PLANED AND OVERLAYED, ALL AS DIRECTED BY THE PROJECT ENGINEER.

10.) ALL REQUIRED TRANSITIONS SHALL BE AS DIRECTED BY THE PROJECT ENGINEER. (BRIDGE APPROACHES, ETC.)

11.) ROADWAY CROSS SLOPES ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE WHERE EACH TYPICAL SECTION APPLIES. ALL WORK FOR VERIFICATION PURPOSES SHALL BE PAID FOR UNDER ITEM 740-01.

12.) DASHED EXTENSION EDGELINES SHALL BE STRIPED THROUGH INTERSECTING PAVED ROADS LOCATED ON THE INSIDE OR OUTSIDE OF HORIZONTAL CURVES. SEE SHEET 3a.

13.) ISLANDS AT THE INTERSECTIONS OF LA 38 & LA 43 WILL BE REMOVED AND REBUILT TO MATCH EXISTING. LAYOUT FOR ISLANDS TO MATCH EXISTING. COST FOR LAYOUT TO BE INCLUDED IN CONSTRUCTION LAYOUT ITEM 740-01. REMOVAL WILL BE PAID FOR UNDER ITEM 202-02-J REMOVAL OF ASPHALT CONCRETE ISLANDS. 9.9 TONS OF ASPHALT IS INCLUDED IN ITEM 502-01-A SUPERPAVE ASPHALTIC CONCRETE DRIVES, TURNOUTS AND MISC. ON THE SE QUADRANT OF THE INTERSECTION, 95' OF 4" PLASTIC PAVEMENT STRIPING IS TO BE PAID FOR UNDER ITEM 732-01-A. ON THE SE AND NW QUADRANTS 104' OF 24" PAINTED TRAFFIC STRIPING TO BE PAID FOR UNDER ITEM 737-03-E.

SHEET NUMBER 2q

PARISH: ST. HELENA

FEDERAL PROJECT:

STATE PROJECT: 263-01-0013

DESIGNED BET
CHECKED CPR
DETAILED BET
CHECKED CPR
DATE
SHEET

CONSTRUCTION NOTES

NO. DATE REVISION DESCRIPTION BY

CONSTRUCTION NOTES

14.) CENTERLINE ELEVATIONS FOR THE LEFT AND RIGHT TRAVEL LANE MUST MATCH AT THE END OF EACH WORK DAY AS DIRECTED BY THE PROJECT ENGINEER.

15.) COLD PLANING GRADE CONTROL SHALL BE ESTABLISHED ALONG THE OUTSIDE EDGE OF ROADWAY AND BASED ON THE GRADE CONTROL POINT AS SHOWN ON THE TYPICAL SECTIONS.

16.) PAY ITEM 502-01-A SUPERPAVE ASPHALTIC CONCRETE DRIVES, TURNOUTS AND MISCELLANEOUS INCLUDES AN ADDITIONAL 916.9 TONS OF ASPHALTIC CONCRETE FOR SPOT LEVELING OF ROADWAY.

17.) THE CONTRACTOR SHALL BE REQUIRED TO REMOVE AND DISASSEMBLE AN ESTIMATED 2 EXISTING SIGN INSTALLATIONS AT THE LA 38 & LA 43 INTERSECTION AND DELIVER THE SIGNS AND POSTS TO THE DISTRICT 62 HEADQUARTERS SIGN SHOP LOCATED AT 685 N. MORRISON BLVD. IN HAMMOND, LA. COST OF REMOVAL, DISASSEMBLY, AND DELIVERY OF EXISTING SIGN INSTALLATIONS TO DISTRICT 62 HEADQUARTERS SIGN SHOP SHALL BE INCLUDED IN ITEM S-002, U-CHANNEL POST INSTALLATION. THE CONTRACTOR SHALL BE REQUIRED TO NOTIFY MR. PHILIP GIARATANO OF THE DISTRICT SIGN SHOP AT (985) 375-0119 FIVE DAYS IN ADVANCE OF DELIVERY OF THE EXISTING SIGN INSTALLATIONS. BEFORE REMOVAL OF EXISTING SIGNS THE CONTRACTOR SHALL CONTACT MR. PHILIP GIARATANO, TO SCHEDULE AN INSPECTION OF SIGNS TO DETERMINE IF REMOVAL AND REPLACEMENT IS NECESSARY.

18.) ALL SIGNS AND HARDWARE (INCLUDING POSTS) FOR ITEM S-002, U-CHANNEL POST INSTALLATION, WILL BE PROVIDED BY DOTD AND PICKED UP BY THE CONTRACTOR AT THE DISTRICT 62 HEADQUARTERS SIGN SHOP LOCATED AT 685 N. MORRISON BLVD., HAMMOND, LA. THE CONTRACTOR SHALL BE REQUIRED TO NOTIFY AND MAKE A REQUEST FOR ALL ITEMS NEEDED FOR S-002 TO MR. PHILIP GIARATANO OF THE DISTRICT SIGN SHOP AT (985) 375-0119 FIVE WORKING DAYS IN ADVANCE OF PICKING UP THE SIGNS, HARDWARE AND POSTS.

19.) ITEM S-002, U-CHANNEL POST INSTALLATION, SHALL BE INSTALLED AFTER COMPLETION OF ROADWAY CONSTRUCTION. ALL SIGN INSTALLATIONS SHALL CONFORM TO THE MUTCD.

20.) EXISTING SIGN INSTALLATIONS SHALL NOT BE REMOVED UNTIL NEW SIGNS HAVE BEEN INSTALLED.

21.) ITEM 401-02 AGGREGATE SURFACE COURSE (ADJUSTED VEHICULAR MEASUREMENT) TO BE USED AS SHOULDER DRESSING AT SCATTERED LOCATIONS AS DIRECTED BY THE PROJECT ENGINEER.

SHEET NUMBER 2r
PARISH ST. HELENA
FEDERAL PROJECT
STATE PROJECT 263-01-0013
DESIGNED BET
CHECKED CPR
DETAILED BET
CHECKED CPR
DATE
SHEET
CONSTRUCTION NOTES
NO. DATE REVISION DESCRIPTION BY

08-JAN-2007 10:17

R:\Overlay Projects\263-01-0013\plans\03-surfacing table.dgn

SURFACING TABLE

C.S.L.M.	C.S.L.M.	DESCRIPTION	LENGTH (Feet)	ASPHALTIC CONCRETE			
				WIDTH (Feet)	Sq. Yard	1.5" WEARING COURSE (LEVEL 1) (Ton)	502-01-A (LEVEL 1) (Ton)
0.000	9.510	ROADWAY & BRIDGES	50,212.80	24	133900.8	11,046.8	
---	---	ROADWAY LEVELING COURSE	---	---	---	---	916.9
		(CASE III, IV, & V TYPICALS OR					
		AS DIRECTED BY PROJECT					
		ENGINEER)					
---	---	DRIVES AND TURNOUTS	---	---	---	---	196.20
---	---	ASPHALT ISLANDS	---	---	---	---	9.90
		TOTAL :				11,046.8	1,123.0

G-22

SHEET NUMBER 3

PARISH ST. HELENA

FEDERAL PROJECT

STATE PROJECT 263-01-0013

DESIGNED BET CHECKED CPR

DETAILED BET CHECKED CPR

DATE SHEET

SURFACING TABLE

NO. DATE REVISION-DESCRIPTION BY

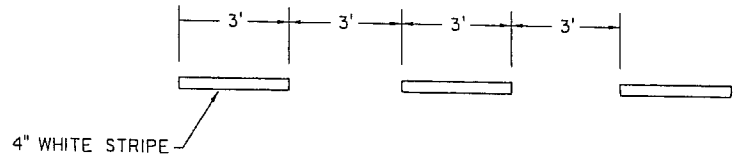
28-NOV-2006 08:15

NOTE:
DASHED EXTENSION LINES SHALL BE USED FOR THE STRIPING OF LA 38 EDGELINES ACROSS ALL PAVED PARISH AND STATE ROUTE INTERSECTIONS IN CURVES. SEE DASHED EDGELINE LAYOUT BELOW.

LOCATIONS OF DASHED EXTENSIONS

LOG MILE	NAME OF ROAD	LENGTH (FEET)
1.89	CHAPEL ROAD	150
2.61	LA 432	60
	TOTAL	210

TO BE PAID FOR UNDER BID ITEM 732-01-A



DASHED EDGELINE LAYOUT

G-23

R:\Overlay Projects\263-01-0013\plans\03a-dashed ext.dgn

SHEET NUMBER	3a		
PARISH	ST. HELENA		
FEDERAL PROJECT			
STATE PROJECT	263-01-0013		
DESIGNED	BET CPR		
CHECKED			
DETAILED	BET CPR		
CHECKED			
DATE			
SHEET			

DASHED EDGELINES TABLE

NO.	DATE	REVISION DESCRIPTION	BY

STATE PROJECT	PARISH	SHEET NO.
263-01-0013	ST HELENA	3b

SUMMARY OF ESTIMATED QUANTITIES

ITEM NO.	ITEM	UNIT	QUANTITY S.P. NO. 263-01-0013	TOTAL QUANTITY
202-02-I	REMOVAL OF REFLECTORIZED RAISED PAVEMENT MARKERS	EACH	1,256	
202-02-J	REMOVAL OF ASPHALTIC CONCRETE ISLANDS	SQYD	30.0	
203-08	BORROW (VEHICULAR MEASUREMENT)	CUYD	100	
204-05-A	TEMPORARY SEDIMENT CHECK DAMS (HAY)	EACH	4	
204-06	TEMPORARY SILT FENCING	LNFT	1,000	
401-02	AGGREGATE SURFACE COURSE (ADJUSTED VEHICULAR MEASUREMENT)	CUYD	200	
502-01	SUPERPAVE ASPHALTIC CONCRETE	TON	11,046.8	
502-01-A	SUPERPAVE ASPHALTIC CONCRETE, DRIVES, TURNOUTS AND MISCELLANEOUS	TON	1,123.0	
713-01	TEMPORARY SIGNS & BARRICADES	LUMP	LUMP	
713-03-E	TEMPORARY PAVEMENT MARKINGS (24" WIDTH)	LNFT	48	
713-04-A	TEMPORARY PAVEMENT MARKINGS (BROKEN LINE)(4" WIDTH)(4' LENGTH)	MILE	8.214	
713-04-B	TEMPORARY PAVEMENT MARKINGS (BROKEN LINE)(4" WIDTH)(10' LENGTH)	MILE	8.214	
713-05-A	TEMPORARY PAVEMENT MARKINGS (SOLID LINE)(4" WIDTH)	MILE	66.020	
717-01	SEEDING	LB	86	
718-01	FERTILIZER	LB	2,880	
727-01	MOBILIZATION	LUMP	LUMP	
731-02	REFLECTORIZED RAISED PAVEMENT MARKERS	EACH	1,256	
732-01-A	PLASTIC PAVEMENT STRIPING (4" WIDTH)	LNFT	305	
732-01-E	PLASTIC PAVEMENT STRIPING (24" WIDTH)	LNFT	24	
732-02-A	PLASTIC PAVEMENT STRIPING (SOLID LINE) (4" WIDTH)	MILE	33.010	
732-03-A	PLASTIC PAVEMENT STRIPING (BROKEN LINE)(4" WIDTH)	MILE	4.107	
737-03-E	PAINTED TRAFFIC STRIPING (SOLID LINE)(24" WIDTH)	LNFT	104	
740-01	CONSTRUCTION LAYOUT	LUMP	LUMP	
744-01	TRAFFIC CONTROL MANAGEMENT	LUMP	LUMP	
S-001	COLD PLANING ASPHALTIC PAVEMENT	LUMP	LUMP	
S-002	U-CHANNEL POST INSTALLATION	EACH	2	

SEE LAST PAGE FOR FOOTNOTES

*

DATED 11/29/06 09:40:47

STATE PROJECT	PARISH	SHEET NO.
263-01-0013	ST HELENA	3c

SUMMARY OF ESTIMATED QUANTITIES

FOOTNOTES

SYMBOL	DESCRIPTION
*	FOR INFORMATION ONLY - ESTIMATED 86,143 SQ. YDS. IN-PLACE TO BE REMOVED.

GENERAL PROVISIONS

- All Temporary Traffic Control Devices used shall be in accordance with the LaDOTD Standard Specifications for Roads and Bridges, the Manual on Uniform Traffic Control Devices (MUTCD), and shall meet the National Cooperative Highway Research Program (NCHRP) 350 for Test Level 3 requirements.
- Materials used for Temporary Traffic Controls shall be in accordance with the LaDOTD Standard Specifications for Roads and Bridges and when applicable the LaDOTD Qualified Products List (QPL).
- No temporary traffic controls shall be erected without the approval of the Project Engineer and until work is about to begin, unless they are covered.
- No lane closures, lane shifts, diversions, or detours shall occur without the authorization of the Project Engineer.
- Responsibility is hereby placed upon the contractor for the installation, maintenance, and operation of all temporary traffic control devices called for in these plans or required by the Project Engineer for the protection of the traveling public as well as all Department and construction personnel.
- The contractor shall also be responsible for the maintenance of all permanent signs and pavement markings left in place as essential to the safe movement and guidance of traffic within the project limits.
- The District Traffic Operations Engineer (DTOE) shall serve as a technical advisor to the Project Engineer for all Traffic Control matters.
- "Road Work XX Miles" sign shall be required on all projects and located at begining of the project unless otherwise noted. The sign shall be a minimum 36"X60" unless otherwise noted.
- Warning signs used for lane closures or lane shifts in which the roadway shall be returned to full public use within 14 hours or less may be placed on NCHRP350 approved portable sign frames.

SPEED LIMITS

- Speed limits shall be lowered by 10 mph for any construction, maintenance, or utility operation that requires one or more of the following: (A) the condition of the original highway is degraded due to milled surfaces or uneven pavements; (B) work is in progress in the immediate vicinity of the travel way requiring lane closures, lane width reductions, or low speed diversions; (C) workers present on the shoulder within 2' of the edge of traveled way without barrier protection.
- The reduced speed zone shall only apply to those portions of the project limits affected. The Project Engineer may allow SPEED LIMIT WHEN FLASHING signs to supplement reduced speed zones.
- At the end of the reduced speed zone, a speed limit sign displaying the original speed limit before construction shall be installed.
- If conditions warrant, the District Traffic Operations Engineer may authorize the reduction of the speed limit by more than 10 mph.

PAVEMENT MARKINGS (see QPL)

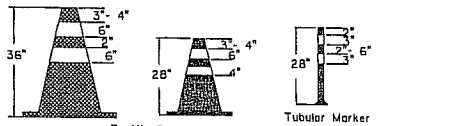
- All pavement markings within the limits of the project that are in conflict with the project signing or the required traffic movements shall be removed from the pavement by blast cleaning or grinding (Existing striping shall not be painted over with black paint or covered with tape).
- If special pavement markings are needed, they shall be reflectorized, removable, and accompanied by the proper signage.
- Temporary Raised Pavement Markers (RPMs) may be added to supplement temporary striping in areas of transition, in tapers, in detours, and in other areas of need as directed by the Project Engineer.
- Materials and placement of temporary pavement markings shall conform to section 713 of the Standard Specifications. If no pay item exists, temporary markings will be considered incidental to traffic control.

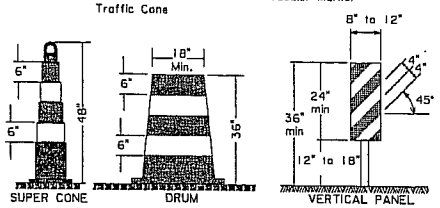
SIGNS

- All signs used for temporary traffic controls shall follow the Department's Traffic Control (TC) details and the MUTCD. Signs shown in the TC illustrations are typical and may vary with each specific condition.
- More appropriate signing for a specific condition may be required or substituted with the approval of the Project Engineer and reviewed by the District Traffic Operations Engineer.
- When projects are separated by less than one mile, they shall be signed as one project.
- At no time shall signs warning against a particular operation be left in place once the operation has been completed or where the obstacle has been removed.
- Signs over 10 sq ft shall be mounted on two post and signs over 20 sq ft shall be mounted on at least three post.
- Signs shall have a minimum of two bolts per post.
- Permanent signs no longer applicable or in conflict shall be removed or covered with a strong, lightweight, opaque material.
- Warning signs used for temporary traffic controls shall meet the following guidelines unless otherwise noted in the plans: (A) size shall be 48" x 48", (B) see the Departments Standard Specifications and the QPL for sheeting information, (C) a minimum of a 2 lb U-Channel post may be used driven to a minimum depth of 3', (D) sign height shall be a minimum of 5' above the roadway surface unless there is a concern for pedestrians or bicycle traffic in which it shall be a minimum of 7', (E) lateral distance of signs shall be a minimum of 6' from the edge of shoulder or edge of pavement if no shoulder exist and 2' from the back of curb in urban areas.
- Vinyl Roll Up signs will be allowed for short term (less than 12 hours) daytime work provided that they meet all size, color, retroreflectivity requirements, and NCHRP 350.
- Mesh rollup signs shall not be allowed on any project.
- All signs shall be removed or covered when no longer applicable.
- Contractor shall use caution not to damage existing signs which remain in place. Any DOTD signs damaged by work operations shall be replaced.

CHANNELIZING DEVICES

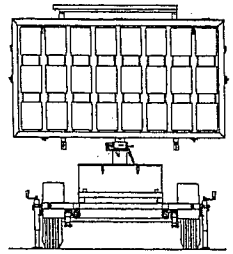
- The following devices may be used: Tubular Markers, Vertical Panels, Cones, Drums, and Super Cones. Drums (at standard spacing) and Super Cones (at 1/2 standard spacing) are the only devices allowed to be used in taper areas on the interstate system during daylight hours. Only drums can be used in tapers during night operations.
- The spacing of channelizing devices in a taper should not exceed a distance in feet equal to 1.0 times the posted speed limit in mph (with a maximum of 50 feet).
- The spacing of channelizing devices in a tangent should not exceed a distance in feet equal to 2.0 times the posted speed limit in mph (with a maximum of 100 feet) unless otherwise noted.
- Retroreflective material pattern used on super cones shall match that used on drums.
- 28" traffic cones are not allowed on: 1) Interstates, 2) Highways with speeds greater than 40 mph. During night time operations: 1) 28" and 36" cones are not allowed, 2) drums are the only device allowed in the taper.





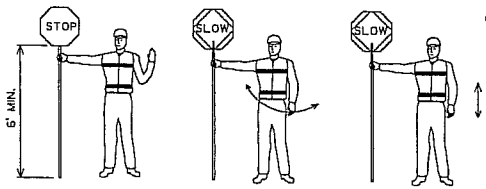
PORTABLE CHANGEABLE MESSAGE SIGNS

- When working within the traveled way, including shoulders and auxiliary lanes, Changeable Message Signs (CMS) shall be used on all Interstate Highways and on all other roadways (where space is available) with an ADT greater than 20,000 and should be delineated with retroreflective TTC devices. CMS will be paid for by each.
- When used in advance of a lane closure or a lane shift, the CMS should be placed on the right hand side of the road a minimum distance of 2 miles in advance of the taper for interstates and to be determined by the Engineer on other highways.
- If vehicles are queing beyond the 2 mile CMS, an additional CMS should be placed on the right hand side of the road approximately 5 miles in advance of the taper for interstates.
- CMS messages shall be approved by the District Traffic Operations Engineer (DTOE).
- When Portable Changeable Message signs are not being used, they should be removed; if not removed, they should be shielded by guardrail or barriers; or if the previous two options are not feasible, they should be delineated with retroreflective TTC devices.



FLAGGERS

- All flaggers must be qualified. The contractor shall be responsible for training or assuring that all flaggers are qualified to perform flagging duties. A certificate indicating completion of a flagger training course shall be available to the engineer if requested. A Qualified Flagger is one that has attended courses such as those offered by the American Traffic Safety Services Association (ATSSA) or other courses approved by the Louisiana DOTD's Work Zone Task Force.
- When utilized, a flagger shall use a minimum 18 inch sign on a minimum 6' stop/slow paddle and wear ANSI Class 2 vest during day time operations and ANSI Class 3 ensemble during night operations. In all flagging operations, the flagger must be visible from flagger advance warning sign. Flaggers shall be properly trained.



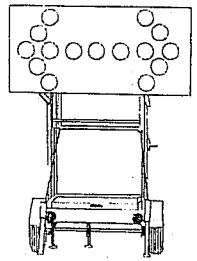
TYPE III BARRICADES

- All barricades shall use Type 3 High Intensity Sheeting on both sides of the barricade.
- All Type III Barricades shall be a minimum of 8 feet in length and must meet NCHRP 350 requirements.
- When signs and lights are to be mounted to a barricade, they must meet NCHRP 350 requirements.

MUTCD Website:
http://mutcd.fhwa.dot.gov/

FLASHING ARROW PANELS

- Flashing Arrow Panels shall be used for lane closures on all facilities with 2 or more lanes in a single direction and a speed limit greater than 35 mph.
- When used, flashing arrow panels should be located on the shoulder at the beginning of the taper.
- Where the shoulder width is limited, the flashing arrow panel should be placed within the closed lane as close to the beginning of the taper as practical.
- All Flashing Arrow Panels used on high speed roadways (45 mph and greater) shall be 4' x 8' Type C.
- When Flashing Arrow Panels signs are not being used, they should be removed; if not removed, they should be shielded by guardrail or barriers; or if the previous two options are not feasible, they should be delineated with retroreflective TTC devices.

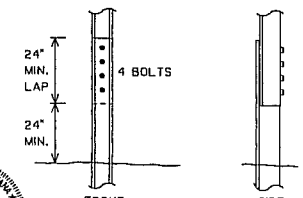


LIGHTING (see QPL)

- When used for overnight closures, lighting shall supplement all barricades that are placed in a closed lane or that extend across a highway. Two Type B High Intensity lights shall be used per lane closed in rural areas. In urban areas two Type A Low Intensity Lights may be used where adequate ambient lighting is available.
- One Type B High Intensity light shall be used to supplement the first sign (or pair of signs) that gives warning about a lane closure during night time operations.
- Type C steady burn lights shall be used on all channelizing devices in the taper as well as the first two devices in the tangent, for night use.

ALLOWABLE LAP SPLICE FOR U-CHANNEL POST

- U-Channel posts may be spliced where long lengths are required. The upper section shall overlap the lower section by at least 24 inches. The bottom edge of the upper section of the splice shall be a minimum of 24 inches above the ground. The spliced sections shall be secured with at least four 5/16 inch diameter hex bolts spaced equally along the splice.



STATE OF LOUISIANA
PETER A. ALLAN
REG. No. 20966
REGISTERED PROFESSIONAL ENGINEER
CIVIL ENGINEERING
11/2/06

SHEET NUMBER 4

PARISH: ST. HELENA
FEDERAL PROJECT:
STATE PROJECT: 263-01-0013

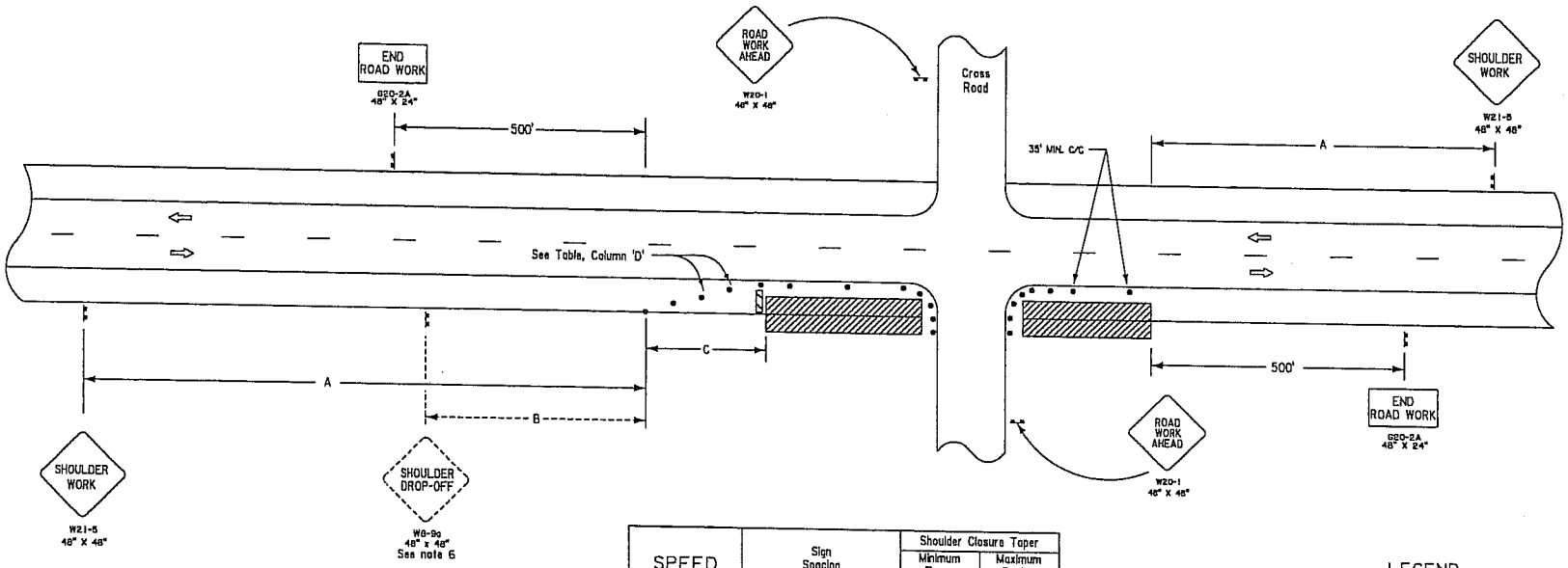
DESIGNED C. ADAMS
CHECKED P. ALLAIN
DETAILED D. SOWARDS
CHECKED J. COLVIN
DATE 10/16/06
SHEET 1 OF 1

NO.	DATE	REVISION DESCRIPTION	BY

TEMPORARY TRAFFIC CONTROL GENERAL NOTES SHEET

SPECIAL DETAIL: TC-00

TRAFFIC ENGINEERING



SPEED LIMIT	Sign Spacing		Shoulder Closure Taper	
			Minimum Taper Length	Maximum Device Spacing
	'A'	'B'	'C'	'D'
35 mph	500'	250'	100'	25'
45 mph	1000'	350'	200'	45'
≥55 mph	1500'	500'	250'	50'

If horizontal curve radius is less than 300', devices spacing shall be 25'.

LEGEND

- Traffic Sign
- Channelizing Devices
- Work Area
- Type III Barricades

NOTES

THIS SHEET SHALL BE USED WITH THE "TEMPORARY TRAFFIC CONTROL GENERAL NOTES SHEET (TC-00)".

1. THIS LAYOUT REPRESENTS TRAFFIC CONTROLS REQUIRED FOR WORKERS AND EQUIPMENT OPERATING WITHIN THE CLEAR ZONE FOR MORE THAN 1 HOUR. LESS THAN 1 HOUR, SEE FIG. TA-4 OF THE MUTCD. PORTABLE SIGNS MAY BE USED FOR WORK LASTING LESS THAN 3 DAYS.

2. NO SIGNS OR BARRICADES ARE REQUIRED FOR EQUIPMENT OPERATING OR WORK IN PROGRESS OUTSIDE THE CLEAR ZONE.

3. SIGNS AND BARRICADES SHALL BE COVERED OR REMOVED DURING NONWORKING HOURS UNLESS A DROP-OFF OR PHYSICAL OBSTRUCTION REMAINS WITHIN THE CLEAR ZONE.

4. TRAFFIC CONES MAY BE USED AS CHANNELIZING DEVICES ALONG THE WORK AREA DURING DAYLIGHT HOURS ONLY.

5. WORK OR EQUIPMENT CONFINED TO A SPOT LOCATION (LESS THAN 200 FEET) SHALL BE MARKED BY CHANNELIZING DEVICES SPACED AT 25 FEET OR BY A VEHICLE WITH A YELLOW REVOLVING LIGHT OR YELLOW STROBE LIGHT VISIBLE TO ONCOMING TRAFFIC. WORK EXTENDING MORE THAN 200 FEET OF ROADWAY LENGTH SHALL BE MARKED WITH APPROPRIATE DEVICES SPACED AS NOTED IN THE TABLE.

6. SHOULDER DROP-OFFS

   A. WHEN A SHOULDER DROP-OFF GREATER THAN 2" BUT LESS THAN 6" EXISTS, A "SHOULDER DROP-OFF" SIGN WILL FOLLOW THE "SHOULDER WORK" SIGN. WHEN THE DROP-OFF EXCEEDS 6", THE "SHOULDER DROP-OFF" SIGN SHALL BE REPLACED BY A "NO SHOULDER" SIGN.

   B. IF THE SPEED LIMIT IS GREATER THAN 45 MPH AND THE DROPOFF IS 10" OR GREATER WITHIN 2' OF THE TRAVEL LANE DURING NONWORKING HOURS, A PORTABLE BARRIER SHALL BE USED.

7. SPEED LIMIT IN THE ABOVE TABLE REFERS TO THE LEGALLY ESTABLISHED SPEED LIMIT BEFORE CONSTRUCTION. IF WORKERS ARE PRESENT WITHIN 2' OF TRAVEL LANE, SPEED LIMIT MAY NEED TO BE REDUCED.

8. WHEN A WORK AREA HAS BEEN ESTABLISHED ON ONE SIDE OF THE ROADWAY ONLY, THERE SHALL BE NO CONFLICTING OPERATIONS OR PARKING ON THE OPPOSITE SHOULDER WITHIN 500 FEET OF THE WORK AREA.

9. A TEMPORARY EDGELINE OR CHANNELIZING DEVICE SHALL BE PLACED AT THE PAVEMENT EDGE ADJACENT TO THE DROP-OFF DURING NONWORKING HOURS WHEN THE DROPOFF IS GREATER THAN 2".

10. ANY SIGNS IN CONFLICT WITH CONSTRUCTION SIGNING SHALL BE REMOVED OR COVERED.

11. MINIMUM CONSTRUCTION SIGNING: ANY ADDITIONAL SIGNS SHOWN IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" AND REQUIRED BY THE PROJECT ENGINEER SHALL BE INSTALLED UNDER ITEM 713-01.

12. TYPE III BARRICADES SHALL BE PLACED IN THE CLOSED LANE AT A 1000' INTERVAL WHERE NO ACTIVE WORK IS ON GOING AND THE LANE MUST REMAIN CLOSED. TYPE III BARRICADES ARE ALSO REQUIRED BEFORE EACH OR GROUP OF UNFILLED HOLES OR HOLES FILLED WITH TEMPORARY MATERIAL, OR WHERE UNCURED CONCRETE EXISTS.

STATE OF LOUISIANA
PETER A. ALLAIN
REG. No. 20968
REGISTERED PROFESSIONAL ENGINEER
CIVIL
11/2/06

SHEET NUMBER 5

PARISH ST. HELENA
FEDERAL PROJECT
STATE PROJECT 263-01-0013

DESIGNED C. ADAMS
CHECKED P. ALLAIN
DETAILED D. EDWARDS
CHECKED J. COLVIN
DATE 10/16/06
SHEET

NO. | DATE | BY | REVISION DESCRIPTION

TRAFFIC CONTROL LAYOUT FOR WORK LESS THAN 15' FROM THE TRAVELLED LANE

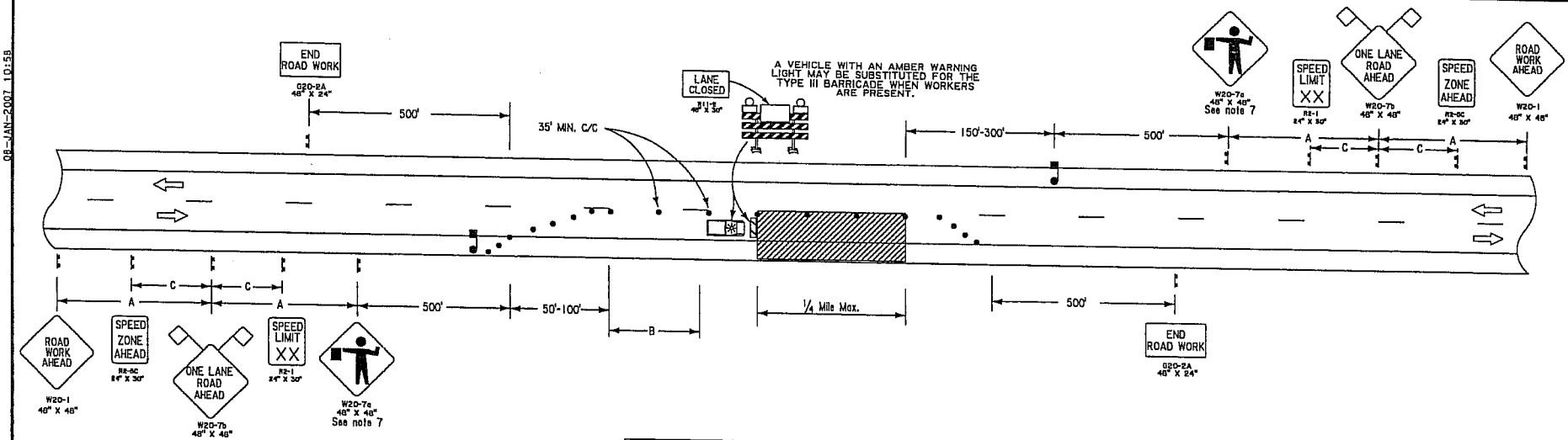
SPECIAL DETAIL TC-01

DOTD
TRAFFIC ENGINEERING

08-JAN-2007 10:58

R:\Overlay Projects\263-01-0013\plans\05-TC-01.dgn

07



SPEED LIMIT (See note 5)	Approximate Sign Spacing		
	"A"	"B"	"C"
35 mph	500'	100'-200'	N/A
45 mph	1000'	100'-200'	500'
55 mph	1500'	200'-300'	800'

SIGN SPACING TO BE ADJUSTED FOR HORIZONTAL & VERTICAL CURVES.

FLAGGERS

WHEN UTILIZED, A FLAGGER SHALL USE A MINIMUM 18 INCH SIGN ON A MINIMUM 6' STOP/SLOW PADDLE AND WEAR ANSI CLASS 2 VEST DURING DAY OPERATIONS AND ANSI CLASS 3 ENSEMBLE DURING NIGHT OPERATIONS. IN ALL FLAGGING OPERATIONS, THE FLAGGER MUST BE VISIBLE FROM FLAGGER ADVANCE WARNING SIGN. FLAGGERS SHALL BE PROPERLY TRAINED.

Use of Hand Sign

NOTES

THIS SHEET SHALL BE USED WITH THE "TEMPORARY TRAFFIC CONTROL GENERAL NOTES SHEET (TC-00)".

1. CONDITIONS REPRESENTED ARE FOR WORK WHICH REQUIRES CLOSING TRAFFIC LANES DURING DAYLIGHT HOURS ONLY. PORTABLE SIGNS MAY BE USED FOR WORK LASTING LESS THAN 3 DAYS.
2. WHEN A WORK AREA HAS BEEN ESTABLISHED ON ONE SIDE OF THE ROADWAY ONLY, THERE SHALL BE NO PARKING ON THE OPPOSITE SHOULDER WITHIN 500 FEET OF THE WORK AREA.
3. CHANNELIZING DEVICES MAY BE PLACED UP TO 2' BEYOND CENTER-LINE ONLY AT SPECIFIC LOCATIONS WHERE ACTUAL WORK ACTIVITY IS TAKING PLACE. A 10' MINIMUM TRAVELED LANE SHOULD BE MAINTAINED WHERE PRACTICAL. CHANNELIZING DEVICES SHALL BE RETURNED TO THE CENTERLINE WHEN THE WORK ACTIVITY HAS PASSED.
4. SPACING OF CHANNELIZING DEVICES IN THE TAPER SHOULD BE NO MORE THAN 20'. A MINIMUM OF 5 CHANNELIZING DEVICES ARE TO BE USED IN THE TAPER.
5. SPEED LIMIT REFERS TO THE LEGALLY ESTABLISHED SPEED LIMIT BEFORE CONSTRUCTION.
6. TO PREVENT VEHICLES FROM ENTERING THE WORK AREA AGAINST THE FLOW OF TRAFFIC, AN ADDITIONAL FLAGGER SHALL BE STATIONED AT EACH INTERSECTION, MAJOR DRIVEWAY, RAILROAD CROSSING OR CROSSING WITHIN THE WORK AREA.
7. VISUAL OR RADIO CONTACT SHALL BE REQUIRED BETWEEN FLAGGERS AT ALL TIMES. THE FLAGGER SHALL BE VISIBLE FROM FLAGGER SIGN.
8. ANY SIGNS IN CONFLICT WITH CONSTRUCTION SIGNING SHALL BE REMOVED OR COVERED BY THE CONTRACTOR.
9. MINIMUM CONSTRUCTION SIGNING: ANY ADDITIONAL SIGNS SHOWN IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" AND REQUIRED BY THE PROJECT ENGINEER SHALL BE INSTALLED UNDER ITEM 713-01.
10. TYPE III BARRICADES SHALL BE PLACED IN THE CLOSED LANE AT A 1000' INTERVAL WHERE NO ACTIVE WORK IS ON GOING AND THE LANE MUST REMAIN CLOSED. TYPE III BARRICADES ARE ALSO REQUIRED BEFORE EACH OR GROUP OF UNFILLED HOLES OR HOLES FILLED WITH TEMPORARY MATERIAL, OR WHERE UNCURED CONCRETE EXISTS.

LEGEND

- Traffic Sign
- Flagger
- Channelizing Devices
- Type III Barricades
- Work Area
- Type B Light

STATE OF LOUISIANA
PETER A. ALLAIN
REG. No. 20964
REGISTERED PROFESSIONAL ENGINEER IN LOUISIANA
11/2/06

SHEET NUMBER 6

PARISH ST. HELENA | FEDERAL PROJECT | STATE PROJECT 263-01-0013

DESIGNED C. ADAMS | DETAILED D. SOWARDS | CHECKED J. COLVIN | DATE 10/16/06 | SHEET

CHECKED P. ALLAIN

REVISION DESCRIPTION | NO. | DATE | BY

TRAFFIC CONTROL LAYOUT FOR LANE CLOSURE LESS THAN 1/4 MILE IN LENGTH

SPECIAL DETAIL | TC-02

TRAFFIC ENGINEERING

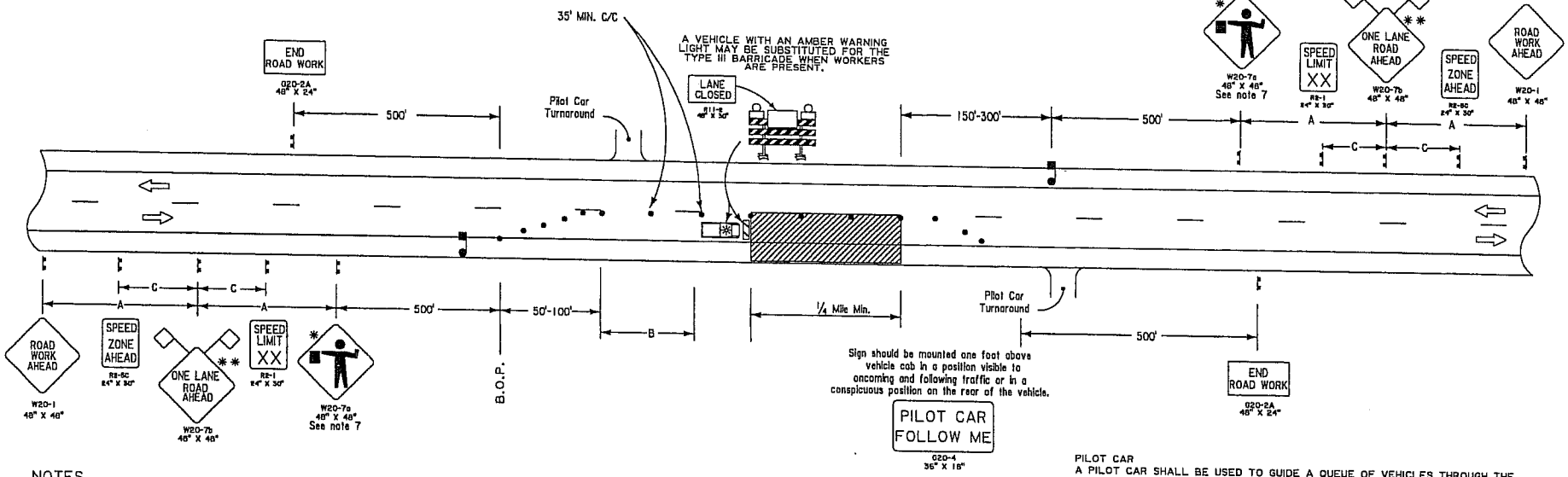
08-JAN-2007 10:58

R:\Overlay Projects\263-01-0013\plans\06-TC-02.dgn

C-28

* REMOVE OR COVER WHEN NO LONGER APPLICABLE.

** REPLACE WITH "ROAD WORK ½ MILE" WHEN NO LONGER APPLICABLE.



NOTES

THIS SHEET SHALL BE USED WITH THE "TEMPORARY TRAFFIC CONTROL GENERAL NOTES SHEET (TC-00)".

1. WHEN A WORK AREA HAS BEEN ESTABLISHED ON ONE SIDE OF THE ROADWAY ONLY, THERE SHALL BE NO PARKING ON THE OPPOSITE SHOULDER WITHIN 500 FEET OF THE WORK AREA.

2. CHANNELIZING DEVICES MAY BE PLACED UP TO 2' BEYOND CENTERLINE ONLY AT SPECIFIC LOCATIONS WHERE ACTUAL WORK ACTIVITY IS TAKING PLACE. A 10' MINIMUM TRAVELED LANE SHOULD BE MAINTAINED WHERE PRACTICAL. CHANNELIZING DEVICES SHALL BE RETURNED TO THE CENTERLINE WHEN THE WORK ACTIVITY HAS PASSED.

3. SPACING OF CHANNELIZING DEVICES IN THE TAPER SHOULD BE NO MORE THAN 20'. A MINIMUM OF 5 CHANNELIZING DEVICES ARE TO BE USED IN THE TAPER.

4. SPEED LIMIT REFERS TO THE LEGALLY ESTABLISHED SPEED LIMIT BEFORE CONSTRUCTION.

5. TO PREVENT VEHICLES FROM ENTERING THE WORK AREA AGAINST THE FLOW OF TRAFFIC, AN ADDITIONAL FLAGGER SHALL BE STATIONED AT EACH INTERSECTION, MAJOR DRIVEWAY, RAILROAD CROSSING OR CROSSING WITHIN THE WORK AREA.

6. WITH THE APPROVAL OF THE ENGINEER, THE LENGTH OF THE WORK AREA MAY, FOR A SHORT DURATION, BE CHANGED TO AS MUCH AS ONE-HALF MILE MAXIMUM TO IMPROVE THE SIGHT DISTANCE TO THE FLAGGER. VISUAL OR RADIO CONTACT SHALL BE REQUIRED BETWEEN THE FLAGGERS AT ALL TIMES.

7. FOR PROJECTS IN RURAL AREAS THE DISTANCE BETWEEN FLAGGERS SHALL NOT EXCEED 2.5 MILES FOR A.D.T. (AVERAGE DAILY TRAFFIC) OF LESS THAN 2,500 AND 2.0 MILES FOR A.D.T. FROM 2,500 TO 5,000. DISTANCE BETWEEN FLAGGERS SHALL NOT EXCEED 1.5 MILES FOR A.D.T. GREATER THAN 5,000 VEHICLES.

8. THE CONTRACTOR MAY EXTEND THE LANE CLOSURE AN ADDITIONAL 1.0 MILE UNDER THE FOLLOWING PROVISIONS:

   (A) THE LANE CLOSURE EXTENSION IS PERMITTED ONLY DURING NON-PEAK HOURS.

   (B) ONCE THE TRAFFIC CONTROL DEVICES HAVE BEEN PLACED TO EXTEND THE LANE CLOSURE, THE TRAFFIC CONTROL DEVICES AT THE BEGINNING OF THE TRAFFIC CONTROL SHALL BE MOVED DOWNSTREAM TO LIMIT THE WORK AREA TO THE DISTANCE DEFINED IN NOTE 7.

9. ANY SIGNS IN CONFLICT WITH CONSTRUCTION SIGNING SHALL BE REMOVED OR COVERED.

10. MINIMUM CONSTRUCTION SIGNING: ANY ADDITIONAL SIGNS SHOWN IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" AND REQUIRED BY THE PROJECT ENGINEER SHALL BE INSTALLED UNDER ITEM 713-01.

11. VISUAL OR RADIO CONTACT SHALL BE REQUIRED BETWEEN FLAGGERS AT ALL TIMES. THE FLAGGER SHALL BE VISIBLE FROM FLAGGER SIGN.

12. TYPE III BARRICADES SHALL BE PLACED IN THE CLOSED LANE AT A 1000' INTERVAL WHERE NO ACTIVE WORK IS ON GOING AND THE LANE MUST REMAIN CLOSED. TYPE III BARRICADES ARE ALSO REQUIRED BEFORE EACH OR GROUP OF UNFILLED HOLES OR HOLES FILLED WITH TEMPORARY MATERIAL, OR WHERE UNCURED CONCRETE EXISTS.

13. IF THE CONTRACTOR IS REQUIRED TO USE A PILOT CAR, HE IS NOT REQUIRED TO HAVE CHANNELIZING DEVICES IN THE TANGENT SECTION. IF NOT REQUIRED, THE CONTRACTOR CAN USE EITHER A PILOT CAR OR CHANNELIZING DEVICES.

SPEED LIMIT (See note 4)	Approximate Sign Spacing		
	"A"	"B"	"C"
35 mph	500'	100'-200'	N/A
45 mph	1000'	100'-200'	500'
55 mph	1500'	200'-300'	800'

LEGEND

- Traffic Sign
- Flagger
- Channelizing Devices
- Type III Barricades
- Work Area
- Type B Light

PILOT CAR

A PILOT CAR SHALL BE USED TO GUIDE A QUEUE OF VEHICLES THROUGH THE TEMPORARY TRAFFIC CONTROL ZONE OR DETOUR. IT SHALL BE USED IN RESTRICTED VISIBILITY OPERATIONS SUCH AS LIME OR CEMENT STABILIZATION, CHIP SEALS, OR OPERATIONS IN HILLY OR CURVY TERRAINS WHERE FLAGGERS CAN'T SEE EACH OTHER (REQUIRE A CLEAR LINE-OF-SIGHT). PILOT CARS ARE NOT REQUIRED IN CONFINED OPERATIONS SUCH AS STRIPING OR OTHER LIMITED LANE CLOSURE OPERATIONS LESS THAN 250' (i.e. CROSS DRAIN INSTALLATIONS UNLESS THERE ARE MULTIPLE CROSS DRAINS WITH A CONTINUOUS LANE CLOSURE). THE OPERATION OF THE PILOT VEHICLE SHALL BE COORDINATED WITH FLAGGING OPERATIONS OR OTHER CONTROLS AT EACH END OF THE ONE-LANE SECTION.

FLAGGERS

WHEN UTILIZED, A FLAGGER SHALL USE A MINIMUM 18 INCH SIGN ON A MINIMUM 6' STOP/SLOW PADDLE AND WEAR ANSI CLASS 2 VEST DURING DAY OPERATIONS AND ANSI CLASS 3 ENSEMBLE DURING NIGHT OPERATIONS. IN ALL FLAGGING OPERATIONS, THE FLAGGER MUST BE VISIBLE FROM FLAGGER ADVANCE WARNING SIGN. FLAGGERS SHALL BE PROPERLY TRAINED.

Use of Hand Sign

PETER A. ALLAIN REG. No. E0966 REGISTERED PROFESSIONAL ENGINEER STATE OF LOUISIANA

11/2/06

TRAFFIC CONTROL FOR LANE CLOSURE GREATER THAN ½ MILE IN LENGTH (SUITABLE FOR MOVING OPERATIONS)

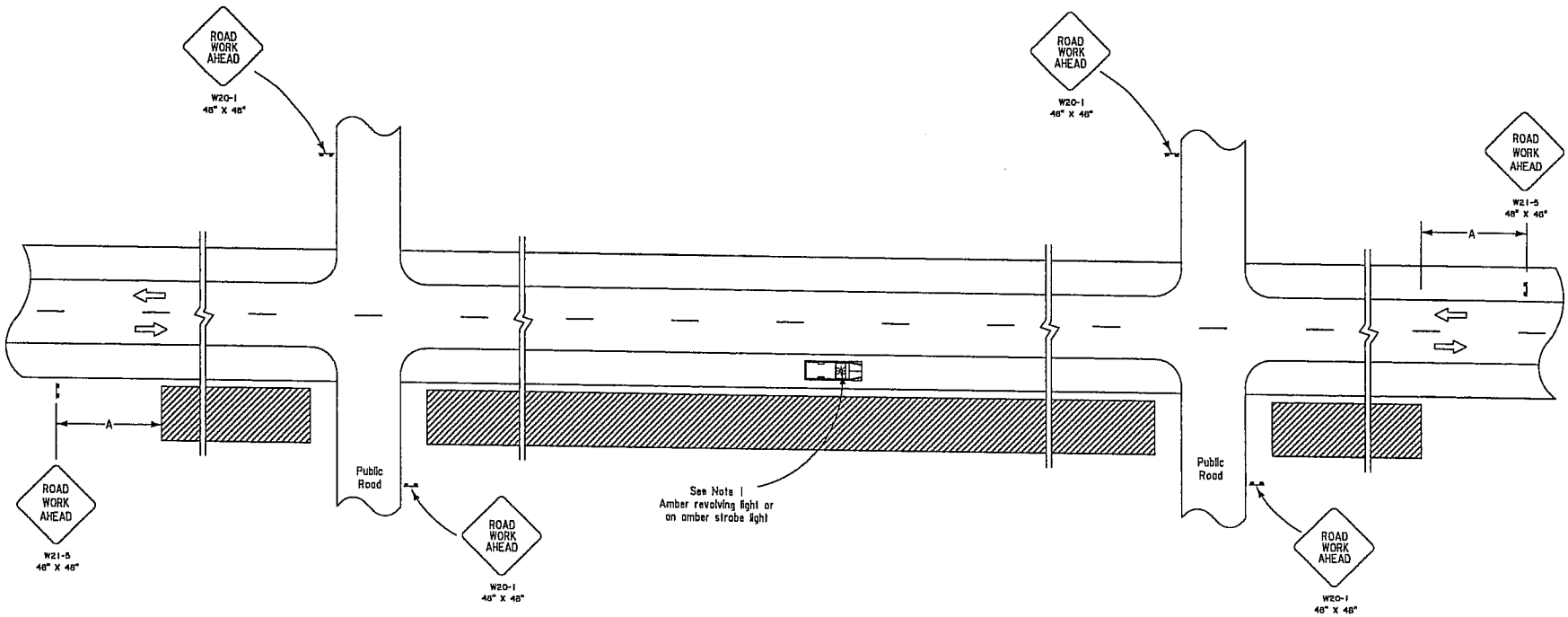
TRAFFIC ENGINEERING

SHEET NUMBER	7
PARISH	ST. HELENA
FEDERAL PROJECT	
STATE PROJECT	263-01-0013
DESIGNED	C. ADAMS
CHECKED	P. ALLAIN
DETAILED	D. SOWARDS
CHECKED	J. COLVIN
DATE	10/15/06
SHEET	
BY	
NO.	DATE	REVISION DESCRIPTION
PERSONNEL DETAIL	TC-03

C-29

08-JAN-2007 10:58

R:\Overlay Projects\263-01-0013\plans\07-TC-03.dgn



LEGEND

Traffic Sign

Work Area

SPEED LIMIT	Approximate Sign Spacing
	'A'
35 mph	500'
45 mph	1000'
55 mph	1500'

NOTES

THIS SHEET SHALL BE USED WITH THE "TEMPORARY TRAFFIC CONTROL GENERAL NOTES SHEET (TC-00)".

1. THIS LAYOUT REPRESENTS TRAFFIC CONTROLS REQUIRED FOR WORKERS AND EQUIPMENT OPERATING OUTSIDE OF CLEAR ZONE. IF THE OPERATION RESULTS IN EQUIPMENT OR OTHER VEHICLES BEING PARKED WITHIN THE CLEAR ZONE, BUT NOT WITHIN THE ROADWAY EACH VEHICLE SHALL HAVE AN AMBER LIGHT.
2. WHEN A WORK AREA HAS BEEN ESTABLISHED ON ONE SIDE OF THE ROADWAY ONLY, THERE SHALL BE NO PARKING ON THE OPPOSITE SHOULDER WITHIN 500 FEET OF THE WORK AREA.
3. SPEED LIMIT REFERS TO THE LEGALLY ESTABLISHED SPEED LIMIT BEFORE CONSTRUCTION.
4. AN ADDITIONAL "ROAD WORK AHEAD" SIGN SHALL BE PLACED AT EACH PUBLIC ROAD INTERSECTING THE PROJECT WITHIN THE WORK AREA.
5. ANY SIGNS IN CONFLICT WITH CONSTRUCTION SIGNING SHALL BE REMOVED OR COVERED.
6. MINIMUM CONSTRUCTION SIGNING: ANY ADDITIONAL SIGNS SHOWN IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" AND REQUIRED BY THE PROJECT ENGINEER SHALL BE INSTALLED UNDER ITEM 713-01.

STATE OF LOUISIANA
PETER A. ALLAIN
REG. No. 20996
REGISTERED PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
1/2/06

SHEET NUMBER 8

PARISH: ST. HELENA
FEDERAL PROJECT:
STATE PROJECT: 263-01-0013

DESIGNED C. ADAMS
CHECKED P. ALLAIN
DETAILED D. SOWARDS
CHECKED J. COLVIN
DATE 10/15/06
SHEET

REVISION DESCRIPTION
NO. DATE

TRAFFIC CONTROL FOR WORK GREATER THAN 15' FROM THE TRAVELED LANE

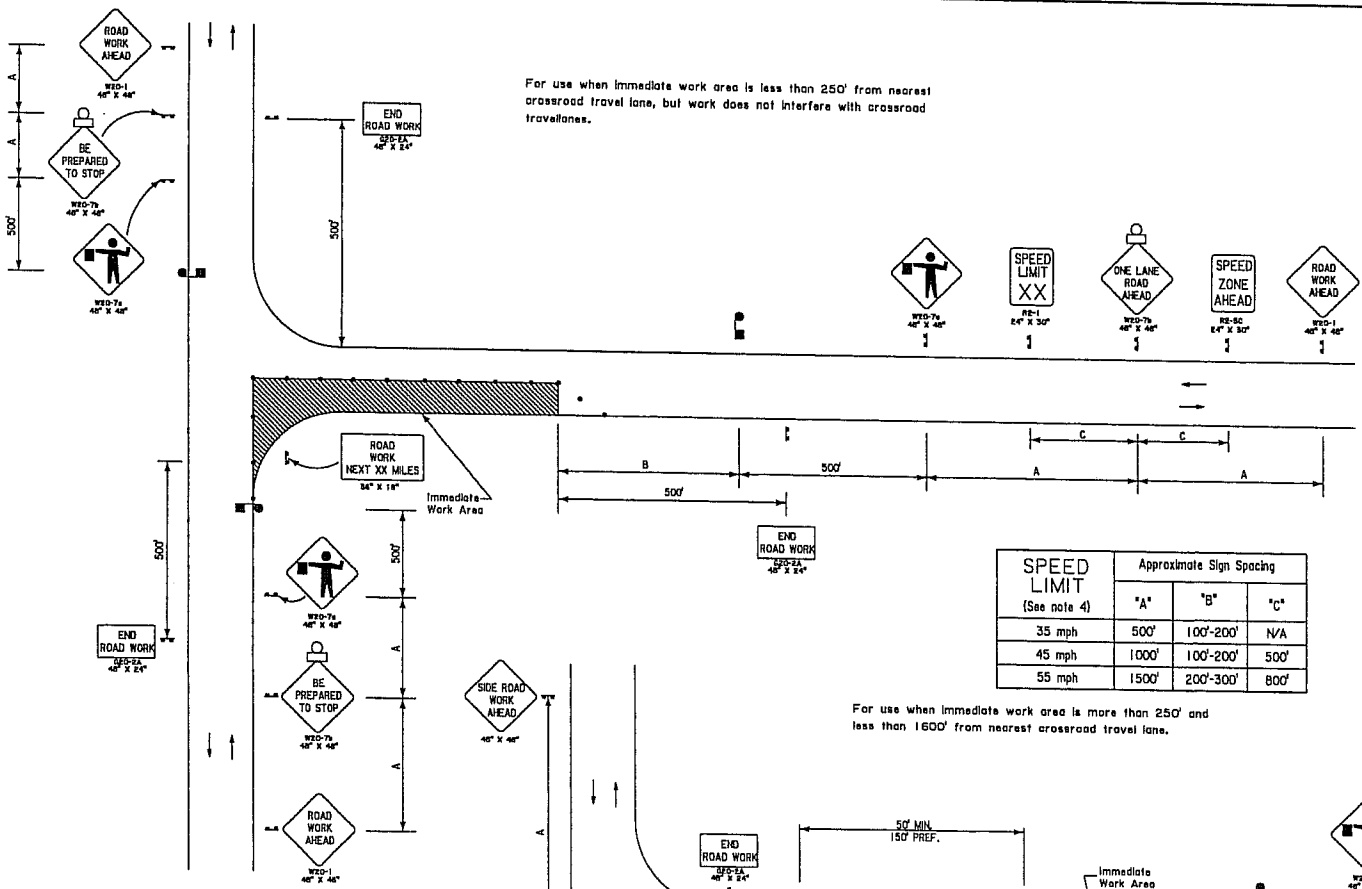
SPECIAL DETAIL TC-05

TRAFFIC ENGINEERING

C-30

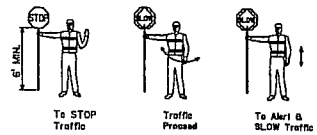
08-JAN-2007 10:58

R:\Overlay Projects\263-01-0013\plans\08-TC-05.dgn



FLAGGERS

WHEN UTILIZED, A FLAGGER SHALL USE A MINIMUM 18 INCH SIGN ON A MINIMUM 6' STOP/SLOW PADDLE AND WEAR ANSI CLASS 2 VEST DURING DAY OPERATIONS AND ANSI CLASS 3 ENSEMBLE DURING NIGHT OPERATIONS. IN ALL FLAGGING OPERATIONS, THE FLAGGER MUST BE VISIBLE FROM FLAGGER ADVANCE WARNING SIGN. FLAGGERS SHALL BE PROPERLY TRAINED.



To STOP Traffic — Traffic Proceed — To Alert & SLOW Traffic

Use of Hand Sign

LEGEND

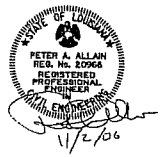
- Traffic Sign
- Channelizing Devices
- Type III Barricades
- Work Area
- Flagger
- Type B Light

SPEED LIMIT (See note 4)	Approximate Sign Spacing		
	"A"	"B"	"C"
35 mph	500'	100'-200'	N/A
45 mph	1000'	100'-200'	500'
55 mph	1500'	200'-300'	800'

NOTES

THIS SHEET SHALL BE USED WITH THE "TEMPORARY TRAFFIC CONTROL GENERAL NOTES SHEET (TC-001)".

1. IF REDUCED SPEED LIMIT IS REQUIRED, APPLICABLE SPEED LIMIT TO BE DETERMINED IN THE FIELD, TO BE AS HIGH AS PRACTICABLE AND NEVER LOWER THAN 20 MPH.
2. VISUAL OR RADIO CONTACT SHALL BE REQUIRED BETWEEN THE FLAGGERS AT ALL TIMES.
3. ANY SIGNS IN CONFLICT WITH CONSTRUCTION SIGNING SHALL BE REMOVED OR COVERED.
4. MINIMUM CONSTRUCTION SIGNING; ANY ADDITIONAL SIGNS SHOWN IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" AND REQUIRED BY THE PROJECT ENGINEER SHALL BE INSTALLED UNDER ITEM 713-01.
5. ANY SIGN NOT APPLICABLE FOR NIGHT TIME USE SHALL BE EITHER REMOVED OR COVERED AT THE END OF EACH DAY.



TRAFFIC CONTROL LAYOUT FOR LANE CLOSURES ON TWO LANE UNDIVIDED HIGHWAYS DURING OVERLAYS AND MOVING OPERATIONS

TC-15

TRAFFIC ENGINEERING

ST. HELENA — 263-01-0013

C. ADAMS / P. ALLAIN / D. SOWARDS / J. COLVIN — 10/16/06

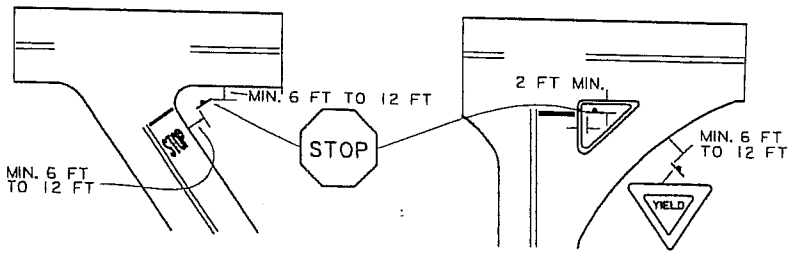
9

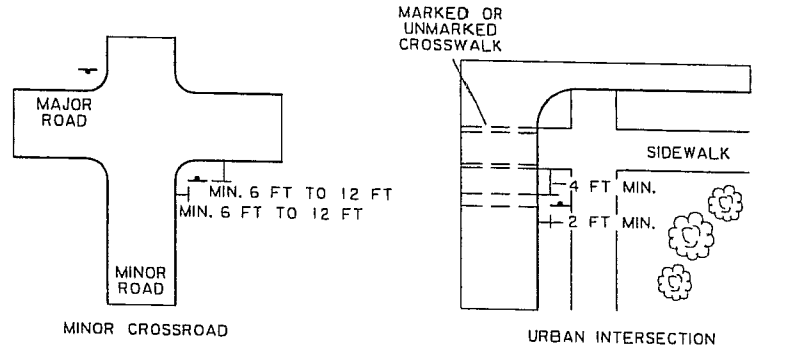
08-JAN-2007 10:59

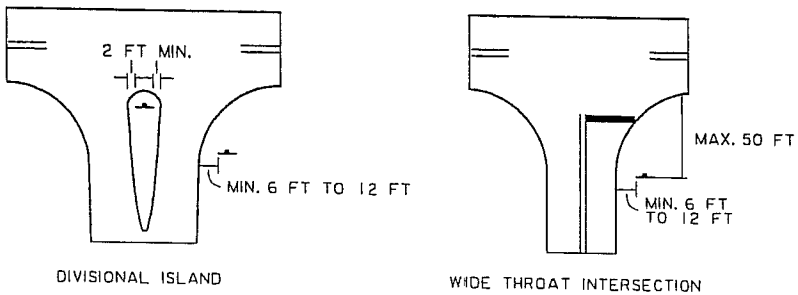
R:\Overlay Projects\263-01-0013\plans\09-TC-15.dgn

C-31

EXAMPLES OF LOCATIONS FOR SOME TYPICAL SIGNS AT INTERSECTIONS

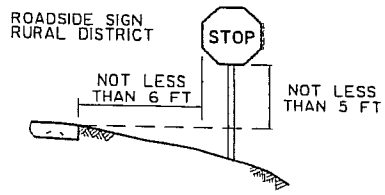


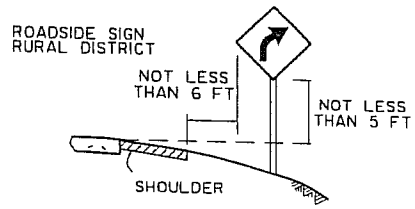


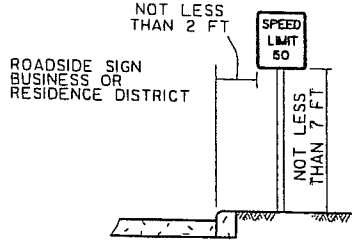


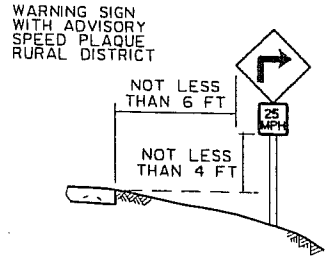
NOTE:
LATERAL OFFSET IS A MINIMUM OF 6 FT MEASURED FROM THE EDGE OF THE SHOULDER, OR 12 FT. MEASURED FROM THE EDGE OF THE TRAVELED WAY. SEE LATERAL OFFEST ON SHEET 2 OF 2 FOR LOWER MINIMUMS THAT MAY BE USED IN URBAN AREAS, OR WHERE LATERAL OFFSET SPACE IS LIMITED.

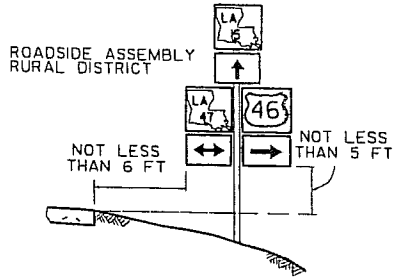
EXAMPLES OF HEIGHTS AND LATERAL LOCATIONS OF SIGNS FOR TYPICAL INTERSECTIONS

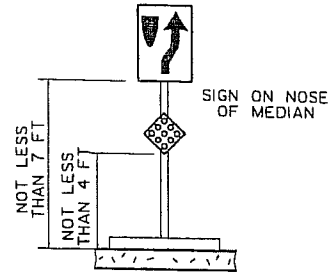


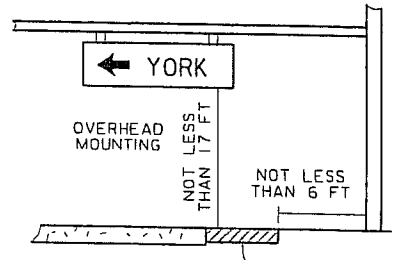












NOTE:
SEE LATERAL OFFSET ON SHEE 2 OF 2 FOR REDUCED LATERAL OFFSET DISTANCES THAT MAY BE USED IN AREAS WHERE LATERAL OFFSETS ARE LIMITED, AND IN URBAN AREAS WHERE SIDEWALK WIDTH IS LIMITED OR WHERE EXISTING POLES ARE CLOSE TO THE CURB.

SHEET NUMBER 10
PARISH ST. HELENA
FEDERAL PROJECT
STATE PROJECT 263-01-0013
DESIGNED BET
CHECKED CPR
DETAILED BET
CHECKED CPR
DATE
SHEET
MUTCD SIGN POST (U-CHANNEL POST) PLACEMENT GUIDELINES
SHEET 1 OF 2
NO. DATE REVISION DESCRIPTION BY

Guidelines for Advance Placement of Warning Signs
(English Units)

Posted or 85th Percentile Speed	Advance Placement Distance[1]							
	Condition A: Speed reduction and lane changing in heavy traffic[2]	Condition B: Deceleration to the listed advisory speed (mph) for the condition[4]						
		0[3]	10	20	30	40	50	60	70
20 mph	225 ft	N/A[5]	N/A[5]	—	—	—	—	—	—
25 mph	325 ft	N/A[5]	N/A[5]	N/A[5]	—	—	—	—	—
30 mph	450 ft	N/A[5]	N/A[5]	N/A[5]	—	—	—	—	—
35 mph	550 ft	N/A[5]	N/A[5]	N/A[5]	N/A[5]	—	—	—	—
40 mph	650 ft	125 ft	N/A[5]	N/A[5]	N/A[5]	—	—	—	—
45 mph	750 ft	175 ft	125 ft	N/A[5]	N/A[5]	N/A[5]	—	—	—
50 mph	850 ft	250 ft	200 ft	150 ft	100 ft	N/A[5]	—	—	—
55 mph	950 ft	325 ft	275 ft	225 ft	175 ft	100 ft	N/A[5]	—	—
60 mph	1100 ft	400 ft	350 ft	300 ft	250 ft	175 ft	N/A[5]	—	—
65 mph	1200 ft	475 ft	425 ft	400 ft	350 ft	275 ft	175 ft	N/A[5]	—
70 mph	1250 ft	550 ft	525 ft	500 ft	425 ft	350 ft	250 ft	150 ft	—
75 mph	1350 ft	650 ft	625 ft	600 ft	525 ft	450 ft	350 ft	250 ft	100 ft

Notes:

[1] The distances are adjusted for a sign legibility distance of 175 ft for Condition A. The distances for Condition B have been adjusted for a sign legibility distance of 250 ft, which is appropriate for an alignment warning symbol sign.

[2] Typical conditions are locations where the road user must use extra time to adjust speed and change lanes in heavy traffic because of a complex driving situation. Typical signs are Merge and Right Land Ends. The distances are determined by providing the driver a PIEV time of 14.0 to 14.5 seconds for vehicle maneuvers (2001 AASHTO Policy, Exhibit 3-3, Decision Sight Distance, Avoidance Maneuver E) minus the legibility distance of 175 ft for the appropriate sign.

[3] Typical condition is the warning of a potential stop situation. Typical signs are Stop Ahead, Yield Ahead, Signal Ahead, and Intersection Warning signs. The distances are based on the 2001 AASHTO Policy, Stopping Sight Distance, Exhibit 3-1, providing a PIEV time of 2.5 seconds, a deceleration rate of 11.2 ft/second^2, minus the sign legibility distance of 175 ft.

[4] Typical conditions are locations where the road user must decrease speed to maneuver through the warned condition. Typical signs are Turn, Curve, Reverse Turn, or Reverse Curve. The distance is determined by providing a 2.5 second PIEV time, a vehicle deceleration rate of 10ft/second^2, minus the sign legibility distance of 250 ft.

[5] No suggested distances are provided for these speeds, as the placement location is dependent on site conditions and other signing to provide an adequate advance warning for the driver.

Lateral Offset

Standard:

For overhead sign supports, the minimum lateral offset from the edge of the shoulder (or if no shoulder exists, from the edge of the pavement) to the near edge of overhead sign supports (cantilever or sign bridges) shall be 6 ft. Overhead sign supports shall have a barrier or crash cushion to shield them if they are within the clear zone.

Ground-mounted sign supports shall be breakaway, yielding, or shielded with a longitudinal barrier or crash cushion if within the clear zone.

Guidance:

For ground-mounted signs, the minimum lateral offset should be 12 ft. from the edge of the traveled way. If a shoulder wider that 6 ft exists, the minimum lateral offset for ground-mounted signs should be 6 ft from the edge of the shoulder.

Support:

The minimum lateral offset is intended to keep trucks and cars that use the shoulders from striking the signs of supports.

Guidance:

All supports should be located as far as practical from the edge of the shoulder. Advantage should be taken to place signs behind existing roadside barriers, on over-crossing structures, or other locations that minimize the exposure of the traffic to sign supports.

Option:

Where permitted, signs may be placed on existing supports used for other purposes, such as highway traffic signal supports, highway lighting supports, and utility poles.

Standard:

If signs are placed on existing supports, they shall meet other placement criteria contained in the MUTCD.

Option:

Lesser lateral offsets may be used on connecting roadways or ramps at interchanges, but not less that 6 ft from the edge of the traveled way.

In areas where lateral offsets are limited, a minimum lateral offset of 2 ft may be used.

A minimum offset of 1 ft from the face of the curb may be used in urban areas where sidewalk width is limited or where existing poles are close to the curb.

Support:

Sheet 1 of 2 illustrates some examples of the lateral offset requirements contained in the MUTCD.

STATE OF LOUISIANA
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

CONSTRUCTION PROPOSAL RETURNABLES FOR

STATE PROJECT NO. 263-01-0013
JCT. LA 10 – JCT. LA 43
ROUTE LA 38
ST. HELENA PARISH

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

SCHEDULE OF ITEMS

LEAD PROJECT: 263-01-0013
OTHER PROJECTS:

ITEM NUMBER	APPROXIMATE QUANTITY	UNIT OF MEASURE	PAY ITEM UNIT PRICE (IN WORDS, INK OR TYPED)	AMOUNT
202-02-I	1,256	EACH	REMOVAL OF REFLECTORIZED RAISED PAVEMENT MARKERS ONE DOLLARS NO CENTS	1,256.00
202-02-J	30.0	SQUARE YARD	REMOVAL OF ASPHALTIC CONCRETE ISLANDS ONE HUNDRED DOLLARS NO CENTS	3,000.00
203-08	100	CUBIC YARD	BORROW (VEHICULAR MEASUREMENT) TWENTY-FIVE DOLLARS NO CENTS	2,500.00
204-05-A	4	EACH	TEMPORARY SEDIMENT CHECK DAMS (HAY) THREE HUNDRED DOLLARS NO CENTS	1,200.00
204-06	1,000	LINEAR FOOT	TEMPORARY SILT FENCING ONE DOLLARS EIGHTY CENTS	1,800.00
401-02	200	CUBIC YARD	AGGREGATE SURFACE COURSE (ADJUSTED VEHICULAR MEASUREMENT) THIRTY-SEVEN DOLLARS SEVENTY-FIVE CENTS	7,550.00

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

SCHEDULE OF ITEMS

LEAD PROJECT: 263-01-0013
OTHER PROJECTS:

ITEM NUMBER	APPROXIMATE QUANTITY	UNIT OF MEASURE	PAY ITEM UNIT PRICE (IN WORDS, INK OR TYPED)	AMOUNT
502-01	11,046.8	TON	SUPERPAVE ASPHALTIC CONCRETE SIXTY-TWO DOLLARS NO CENTS	684,901.60
502-01-A	1,123.0	TON	SUPERPAVE ASPHALTIC CONCRETE, DRIVES, TURNOUTS AND MISCELLANEOUS ONE HUNDRED TWENTY-FIVE DOLLARS NO CENTS	140,375.00
713-01	LUMP	LUMP SUM	TEMPORARY SIGNS & BARRICADES FIFTEEN THOUSAND DOLLARS NO CENTS	15,000.00
713-03-E	48	LINEAR FOOT	TEMPORARY PAVEMENT MARKINGS (24" WIDTH) NO DOLLARS NINETY CENTS	43.20
713-04-A	8.214	MILE	TEMPORARY PAVEMENT MARKINGS (BROKEN LINE)(4" WIDTH)(4' LENGTH) ONE HUNDRED FORTY-FIVE DOLLARS NO CENTS	1,191.03
713-04-B	8.214	MILE	TEMPORARY PAVEMENT MARKINGS (BROKEN LINE)(4" WIDTH)(10' LENGTH) THREE HUNDRED THIRTY DOLLARS NO CENTS	2,710.62

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

SCHEDULE OF ITEMS

LEAD PROJECT: 263-01-0013
OTHER PROJECTS:

ITEM NUMBER	APPROXIMATE QUANTITY	UNIT OF MEASURE	PAY ITEM UNIT PRICE (IN WORDS, INK OR TYPED)	AMOUNT
713-05-A	66.020	MILE	TEMPORARY PAVEMENT MARKINGS (SOLID LINE)(4" WIDTH) FIVE HUNDRED TWENTY-FIVE DOLLARS NO CENTS	34,660.50
717-01	86	POUND	SEEDING TWELVE DOLLARS NO CENTS	1,032.00
718-01	2,880	POUND	FERTILIZER NO DOLLARS FIFTY-SIX CENTS	1,612.80
727-01	LUMP	LUMP SUM	MOBILIZATION FIFTY-FIVE THOUSAND DOLLARS NO CENTS	55,000.00
731-02	1,256	EACH	REFLECTORIZED RAISED PAVEMENT MARKERS SIX DOLLARS NO CENTS	7,536.00
732-01-A	305	LINEAR FOOT	PLASTIC PAVEMENT STRIPING (4" WIDTH) NO DOLLARS FORTY-FIVE CENTS	137.25

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

SCHEDULE OF ITEMS

LEAD PROJECT: 263-01-0013
OTHER PROJECTS:

ITEM NUMBER	APPROXIMATE QUANTITY	UNIT OF MEASURE	PAY ITEM UNIT PRICE (IN WORDS, INK OR TYPED)	AMOUNT
732-01-E	24	LINEAR FOOT	PLASTIC PAVEMENT STRIPING (24" WIDTH) THREE DOLLARS SIXTY CENTS	86.40
732-02-A	33.010	MILE	PLASTIC PAVEMENT STRIPING (SOLID LINE) (4" WIDTH) TWO THOUSAND FIVE HUNDRED DOLLARS NO CENTS	82,525.00
732-03-A	4.107	MILE	PLASTIC PAVEMENT STRIPING (BROKEN LINE)(4" WIDTH) EIGHT HUNDRED NINETY DOLLARS NO CENTS	3,655.23
737-03-E	104	LINEAR FOOT	PAINTED TRAFFIC STRIPING (SOLID LINE)(24" WIDTH) FIVE DOLLARS FIFTY CENTS	572.00
740-01	LUMP	LUMP SUM	CONSTRUCTION LAYOUT THIRTY-FIVE THOUSAND DOLLARS NO CENTS	35,000.00
744-01	LUMP	LUMP SUM	TRAFFIC CONTROL MANAGEMENT SEVEN THOUSAND DOLLARS NO CENTS	7,000.00

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

SCHEDULE OF ITEMS

LEAD PROJECT: 263-01-0013
OTHER PROJECTS:

ITEM NUMBER	APPROXIMATE QUANTITY	UNIT OF MEASURE	PAY ITEM UNIT PRICE (IN WORDS, INK OR TYPED)	AMOUNT
S-001	LUMP	LUMP SUM	COLD PLANING ASPHALTIC PAVEMENT ONE HUNDRED THIRTY-EIGHT THOUSAND DOLLARS NO CENTS	138,000.00
S-002	2	EACH	U-CHANNEL POST INSTALLATION TWO HUNDRED SEVENTY-FIVE DOLLARS NO CENTS	550.00
			DOLLARS CENTS	
			DOLLARS CENTS	
			DOLLARS CENTS	
			DOLLARS CENTS	

LADOTD/berc **Vendor 12487000's Bid Information for Call 008, Letting 20070425, 2007-04-25**

Diamond B Construction Co., LLC (12487000).
Vendor 2 of 2 Vendors for Call Order 008 (Proposal ID 263-01-0013).

County:	St Helena
Address:	5796 Gene Ball Drive
	Alexandria, LA 71302
Phone Number:	318.443.5686
Signature Check:	This bid has been properly signed by Bryan_L_Bossier_Sr_12487000.
Time Bid Received:	Wed Apr 25 08:58:04 2007
Bid Checksum:	3975895E
Amendment Count:	0
Bidding Errors:	No bidding errors.
Bid Total:	$1,228,894.63
Bond ID:	SLA07249397
Bond was Verified:	Yes.
Bond Required Percent:	5.00%
Minimum Check Amount:	$61,444.73
Bid Security Maximum:	$
Bond Agency Name:	
Agency Execution Date:	
Surety Name:	
Surety State of Incorporation:	
Bond Company:	
Bond Type:	
Bond Appr Flag:	
Bond Affirm:	
Bond was Paid by Check:	No.