



STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**NOTICE TO BIDDERS  
AND  
SPECIAL PROVISIONS**

**FOR CONSTRUCTION ON STATE HIGHWAY IN CONTRA COSTA COUNTY IN  
RICHMOND FROM ALAMEDA COUNTY LINE TO 0.6 MILE EAST OF  
RICHMOND-SAN RAFAEL BRIDGE TOLL PLAZA**

**In District 04 On Route 580**

**Under**

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*Bid book dated April 15, 2013*

*Standard Specifications dated 2010*

*Project plans approved February 25, 2013*

*Standard Plans dated 2010*

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Identified by

Contract No. 04-3E4404

04-CC-580-0.0/5.5

Project ID 0412000307

Federal-Aid Project

ACIM-580-1(057)E

**Electronic Advertising Contract**

AADD

Bids open Tuesday, May 7, 2013

Dated April 15, 2013



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# SPECIAL NOTICES

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- For federal-aid projects, the Department is modifying its DBE program.
- This project includes HMA and/or RHMA that must comply with Superpave requirements. Superpave stands for Superior Performing Asphalt Pavements. The Superpave system includes a performance-based asphalt binder specification, increased aggregate quality characteristics, a mix design analysis system, new test procedures, and new testing equipment. See Section 39, "Hot Mix Asphalt " of these special provisions.
- Funding for this project depends on passage of the 2013-2014 FY Budget Act. See section 8-1.04G for special requirements.

# CONTRACT NO. 04-3E4404

The special provisions contained herein have been prepared by or under the direction of the following Registered Persons.

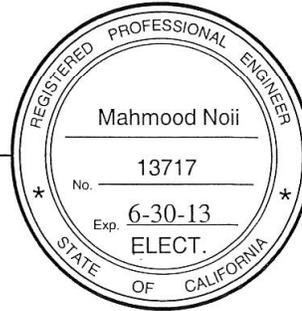
## HIGHWAYS

Md. Salahuddin 1/29/13  
REGISTERED CIVIL ENGINEER



## ELECTRICAL

M Noii 1/9/13  
REGISTERED ELECTRICAL ENGINEER



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# STANDARD PLANS LIST

The standard plan sheets applicable to this Contract include those listed below. The applicable revised standard plans (RSPs) listed below are included in the project plans.

|          |   |
|----------|---|
| A10A     | Abbreviations (Sheet 1 of 2)  |
| A10B     | Abbreviations (Sheet 2 of 2)  |
| A10C     | Lines and Symbols (Sheet 1 of 3)  |
| A10D     | Lines and Symbols (Sheet 2 of 3)  |
| A10E     | Lines and Symbols (Sheet 3 of 3)  |
| A20A     | Pavement Markers and Traffic Lines, Typical Details                             |
| A20B     | Pavement Markers and Traffic Lines, Typical Details                             |
| A20C     | Pavement Markers and Traffic Lines, Typical Details                             |
| A20D     | Pavement Markers and Traffic Lines, Typical Details                             |
| RSP A24A | Pavement Markings - Arrows  |
| A24B     | Pavement Markings - Arrows and Symbols  |
| A24D     | Pavement Markings - Words   |
| RSP A24E | Pavement Markings - Words, Limit and Yield Lines                                |
| RSP A24F | Pavement Markings - Crosswalks  |
| T1A      | Temporary Crash Cushion, Sand Filled (Unidirectional)                           |
| T1B      | Temporary Crash Cushion, Sand Filled (Bidirectional)                            |
| T2       | Temporary Crash Cushion, Sand Filled (Shoulder Installations)                   |
| T3A      | Temporary Railing (Type K)  |
| T3B      | Temporary Railing (Type K)  |
| T61      | Temporary Water Pollution Control Details (Temporary Drainage Inlet Protection) |
| T62      | Temporary Water Pollution Control Details (Temporary Drainage Inlet Protection) |
| T63      | Temporary Water Pollution Control Details (Temporary Drainage Inlet Protection) |
| T64      | Temporary Water Pollution Control Details (Temporary Drainage Inlet Protection) |
| RS1      | Roadside Signs, Typical Installation Details No. 1                              |
| RS2      | Roadside Signs - Wood Post, Typical Installation Details No. 2                  |
| RS4      | Roadside Signs, Typical Installation Details No. 4                              |
| S94      | Roadside Framed Single Sheet Aluminum Signs, Rectangular Shape                  |
| S95      | Roadside Single Sheet Aluminum Signs, Diamond Shape                             |
| ES-1A    | Electrical Systems (Legend, Notes and Abbreviations)                            |

|           |  |
|-----------|--|
| ES-1B     | Electrical Systems (Legend, Notes and Abbreviations)         |
| ES-1C     | Electrical Systems (Legend, Notes and Abbreviations)         |
| ES-5A     | Electrical Systems (Detectors)                               |
| ES-5B     | Electrical Systems (Detectors)                               |
| ES-5D     | Electrical Systems (Curb Termination and Handhole)           |
| RSP ES-8A | Electrical Systems (Pull Box)                                |
| RSP ES-8B | Electrical Systems (Traffic Rated Pull Box)                  |
| ES-13A    | Electrical Systems (Splicing Details)                        |
| ES-13B    | Electrical Systems (Fuse Rating, Kinking and Banding Detail) |

### **CANCELED STANDARD PLANS LIST**

The standard plan sheets listed below are canceled and not applicable to this contract.

|       |                              |
|-------|------------------------------|
| B3-1  | Canceled on April 20, 2012   |
| B3-2  | Canceled on April 20, 2012   |
| B3-3  | Canceled on April 20, 2012   |
| B3-4  | Canceled on April 20, 2012   |
| B3-7  | Canceled on April 20, 2012   |
| B3-8  | Canceled on April 20, 2012   |
| ES-8  | Canceled on January 20, 2012 |
| ES-10 | Canceled on July 20, 2012    |



# NOTICE TO BIDDERS

Bids open Tuesday, May 7, 2013

Dated April 15, 2013

General work description: Rubberized hot mix asphalt overlay.

The Department will receive sealed bids for CONSTRUCTION ON STATE HIGHWAY IN CONTRA COSTA COUNTY IN RICHMOND FROM ALAMEDA COUNTY LINE TO 0.6 MILE EAST OF RICHMOND-SAN RAFAEL BRIDGE TOLL PLAZA.

District-County-Route-Post Mile: 04-CC-580-0.0/5.5

Contract No. 04-3E4404

The Contractor must have either a Class A license or one of the following Class C licenses: C-12.

The DBE Contract goal is 4 percent.

Federal-aid project no.:

ACIM-580-1(057)E

Bids must be on a unit price basis.

Complete the work within 120 working days.

The estimated cost of the project is \$7,700,000.

No prebid meeting is scheduled for this project.

The Department will receive bids until 2:00 p.m. on the bid open date at 1727 30th Street, Bidders' Exchange, MS 26, Sacramento, CA 95816. Bids received after this time will not be accepted. Department staff will direct the bidders to the bid opening.

The Department will open and publicly read the bids at the above location immediately after the specified closing time.

District office addresses are provided in the *Standard Specifications*.

Present bidders' inquiries to the Department and view the Department's responses at:

[http://www.dot.ca.gov/hq/esc/oe/project\\_status/bid\\_inq.html](http://www.dot.ca.gov/hq/esc/oe/project_status/bid_inq.html)

Questions about alleged patent ambiguity of the plans, specifications, or estimate must be asked before bid opening. After bid opening, the Department does not consider these questions as bid protests.

Submit your bid with bidder's security equal to at least 10 percent of the bid.

Prevailing wages are required on this Contract. The Director of the California Department of Industrial Relations determines the general prevailing wage rates. Obtain the wage rates at the DIR Web site, <http://www.dir.ca.gov>, or from the Department's Labor Compliance Office of the district in which the work is located.

The federal minimum wage rates for this Contract as determined by the United States Secretary of Labor are available at <http://www.dot.ca.gov/hq/esc/oe/federal-wages>.

If the minimum wage rates as determined by the United States Secretary of Labor differs from the general prevailing wage rates determined by the Director of the California Department of Industrial Relations for similar classifications of labor, the Contractor and subcontractors must not pay less than the higher wage rate. The Department does not accept lower State wage rates not specifically included in the federal minimum wage determinations. This includes helper, or other classifications based on hours of experience, or any other classification not appearing in the federal wage determinations. Where federal wage determinations do not contain the State wage rate determination otherwise available for use by the Contractor and subcontractors, the Contractor and subcontractors must not pay less than the federal minimum wage rate that most closely approximates the duties of the employees in question.

The Department has made available Notices of Suspension and Proposed Debarment from the Federal Highway Administration. For a copy of the notices, go to [http://www.dot.ca.gov/hq/esc/oe/contractor\\_info](http://www.dot.ca.gov/hq/esc/oe/contractor_info). Additional information is provided in the Excluded Parties List System at <https://www.epls.gov>.

Department of Transportation

D04

**COPY OF BID ITEM LIST**

| Item No. | Item Code | Item Description                        | Unit of Measure | Estimated Quantity |
|----------|-----------|---|-----------------|--------------------|
| 1        | 120090    | CONSTRUCTION AREA SIGNS                 | LS              | LUMP SUM           |
| 2        | 120100    | TRAFFIC CONTROL SYSTEM                  | LS              | LUMP SUM           |
| 3        | 128652    | PORTABLE CHANGEABLE MESSAGE SIGN (LS)   | LS              | LUMP SUM           |
| 4        | 130100    | JOB SITE MANAGEMENT                     | LS              | LUMP SUM           |
| 5        | 130200    | PREPARE WATER POLLUTION CONTROL PROGRAM | LS              | LUMP SUM           |
| 6        | 130620    | TEMPORARY DRAINAGE INLET PROTECTION     | EA              | 75                 |
| 7        | 130730    | STREET SWEEPING                         | LS              | LUMP SUM           |
| 8        | 150771    | REMOVE ASPHALT CONCRETE DIKE            | LF              | 32,900             |
| 9        | 153103    | COLD PLANE ASPHALT CONCRETE PAVEMENT    | SQYD            | 400,000            |
| 10       | 190185    | SHOULDER BACKING                        | TON             | 140                |
| 11       | 374207    | CRACK TREATMENT                         | LNMI            | 30                 |
| 12       | 025593    | HOT MIX ASPHALT (TYPE A) SUPERPAVE      | TON             | 920                |
| 13       | 025594    | RUBBERIZED HOT MIX ASPHALT-G-SUPERPAVE  | TON             | 48,900             |
| 14       | 394060    | DATA CORE                               | LS              | LUMP SUM           |
| 15       | 394076    | PLACE HOT MIX ASPHALT DIKE (TYPE E)     | LF              | 27,000             |
| 16       | 394077    | PLACE HOT MIX ASPHALT DIKE (TYPE F)     | LF              | 6,000              |
| 17       | 397005    | TACK COAT                               | TON             | 190                |
| 18       | 840504    | 4" THERMOPLASTIC TRAFFIC STRIPE         | LF              | 159,000            |
| 19       | 840506    | 8" THERMOPLASTIC TRAFFIC STRIPE         | LF              | 35,000             |
| 20       | 840515    | THERMOPLASTIC PAVEMENT MARKING          | SQFT            | 3,940              |

| Item No. | Item Code | Item Description  | Unit of Measure | Estimated Quantity |
|----------|-----------|---|-----------------|--------------------|
| 21       | 840525    | 4" THERMOPLASTIC TRAFFIC STRIPE (BROKEN 36-12)                              | LF              | 3,470              |
| 22       | 840526    | 4" THERMOPLASTIC TRAFFIC STRIPE (BROKEN 17-7)                               | LF              | 2,640              |
| 23       | 025595    | 4" THERMOPLASTIC TRAFFIC STRIPE (BROKEN 34-14)                              | LF              | 106,000            |
| 24       | 850101    | PAVEMENT MARKER (NON-REFLECTIVE)  | EA              | 8,450              |
| 25       | 850111    | PAVEMENT MARKER (RETROREFLECTIVE)   | EA              | 5,060              |
| 26       | 860090    | MAINTAINING EXISTING TRAFFIC MANAGEMENT SYSTEM ELEMENTS DURING CONSTRUCTION | LS              | LUMP SUM           |
| 27       | 025596    | LOOP DETECTOR REPLACEMENT (TRAFFIC MONITORING STATION)                      | LS              | LUMP SUM           |
| 28       | 025597    | LOOP DETECTOR REPLACEMENT (TRAFFIC SIGNAL)                                  | LS              | LUMP SUM           |
| 29       | 999990    | MOBILIZATION  | LS              | LUMP SUM           |

# SPECIAL PROVISIONS

## DIVISION I GENERAL PROVISIONS

### 1 GENERAL

**Add to section 1-1.01:**

#### Bid Items and Applicable Sections

| Item code | Item description                                       | Applicable section |
|-----------|--|--------------------|
| 025593    | HOT MIX ASPHALT (TYPE A) SUPERPAVE                     | 39                 |
| 025594    | RUBBERIZED HOT MIX ASPHALT-G- SUPERPAVE                | 39                 |
| 025595    | 4" THERMOPLASTIC TRAFFIC STRIPE (BROKEN 34-14)         | 85                 |
| 025596    | LOOP DETECTOR REPLACEMENT (TRAFFIC MONITORING STATION) | 86                 |
| 025597    | LOOP DETECTOR REPLACEMENT (TRAFFIC SIGNAL)             | 86                 |

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### 5 CONTROL OF WORK

**Add to section 5-1.20A:**

During the progress of the work under this Contract, work under the following contracts may be in progress at or near the job site of this Contract:

#### Coincident or Adjacent Contracts

| Contract no. | County–Route–Post Mile | City     | Type of work                        |
|--------------|------------------------|----------|-------------------------------------|
| 04-1A3204    | CC-580-5.5/6.1         | Richmond | Replace Bridge Deck and Resurfacing |

**Add to section 5-1.20C:**

This project does not include work on the railroad property, but a railroad is shown on the general plan sheet within the project limits. Do not trespass on the railroad property at PM 4.85 Garrard Boulevard Underpass on Interstate 580 in Richmond, Contra Costa County.

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### 8 PROSECUTION AND PROGRESS

**Replace section 8-1.04G with:**

#### **8-1.04G Potential Budget Impasse Start**

The 1st paragraph of section 8-1.04B does not apply.

Except as specified below for the case of funds becoming available in the 2012-2013 FY Budget Act, start job site activities by the later of the following dates:

1. 15th day after Contract approval
2. 5th business day after the 2013-2014 FY Budget Act becomes law
3. July 1, 2013



**Replace section 12-3.13 with:**

**12-3.13 IMPACT ATTENUATOR VEHICLE**

**12-3.13A General**

**12-3.13A(1) Summary**

Section 12-3.13 includes specifications for protecting traffic and workers with an impact attenuator vehicle during moving lane closures and when placing and removing components of stationary lane closures, ramp closures, shoulder closures, or a combination.

Impact attenuator vehicles must comply with the following test levels under National Cooperative Highway Research Program 350:

1. Test level 3 if the preconstruction posted speed limit is 50 mph or more
2. Test levels 2 or 3 if the preconstruction posted speed limit is 45 mph or less

Comply with the attenuator manufacturer's instructions for:

1. Support truck
2. Trailer-mounted operation
3. Truck-mounted operation

Flashing arrow signs must comply with section 12-3.03. You may use a portable changeable message sign instead of a flashing arrow sign. If a portable changeable message sign is used as a flashing arrow sign, it must comply with section 6F.56 "Arrow Panels" of the *California MUTCD*.

**12-3.13A(2) Definitions**

**impact attenuator vehicle:** A support truck that is towing a deployed attenuator mounted to a trailer or a support truck with a deployed attenuator that is mounted to the support truck.

**12-3.13A(3) Submittals**

Upon request, submit a certificate of compliance for each attenuator used on the project.

**12-3.13A(4) Quality Control and Assurance**

Do not start impact attenuator vehicle activities until authorized.

Before starting impact attenuator vehicle activities, conduct a preinstallation meeting with the Engineer, subcontractors, and other parties involved with traffic control to discuss the operation of the impact attenuator vehicle during moving lane closures and when placing and removing components of stationary traffic control systems.

Schedule the location, time, and date for the preinstallation meeting with all participants. Furnish the facility for the preinstallation meeting within 5 miles of the job site or at another location if authorized.

**12-3.13B Materials**

Attenuators must be a brand on the Authorized Material List for highway safety features.

The combined weight of the support truck and the attenuator must be at least 19,800 pounds, except the weight of the support truck must not be less than 16,100 or greater than 26,400 pounds.

For the Trinity MPS-350 truck-mounted attenuator, the support truck must not have a fuel tank mounted underneath within 10'-6" of the rear of the support truck.

Each impact attenuator vehicle must have:

1. Legal brake lights, taillights, sidelights, and turn signals
2. Inverted "V" chevron pattern placed across the entire rear of the attenuator composed of alternating 4-inch wide nonreflective black stripes and 4-inch wide yellow retroreflective stripes sloping at 45 degrees
3. Type II flashing arrow sign
4. Flashing or rotating amber light
5. Operable 2-way communication system for maintaining contact with workers

**12-3.13C Construction**

Except where prohibited, use an impact attenuator vehicle:

- 1. To follow behind equipment and workers who are placing and removing components of a stationary lane closure, ramp closure, shoulder closure, or any combination. Operate the flashing arrow sign in the arrow or caution mode during this activity, whichever applies. Follow at a distance that prevents intrusion into the workspace from passing traffic.

After placing components of a stationary traffic control system you may place the impact attenuator vehicle in advance of the work area or at another authorized location to protect traffic and workers.

Secure objects, including equipment, tools, and ballast on impact attenuator vehicles to prevent loosening upon impact by an errant vehicle.

Do not use a damaged attenuator in the work. Replace any attenuator damaged from an impact during work activities at your expense.

**12-3.13D Payment**

Not Used

**Add to section 12-4.02A:**

If work including installing, maintaining, and removing Type K temporary railing is to be performed within 6 feet of the adjacent traffic lane, close the adjacent traffic lane.

Except as listed above, closure of the adjacent traffic lane is not required for installing, maintaining, and removing traffic control devices.

For grinding and grooving operations, sawcutting concrete slabs, and installing loop detectors with an impact attenuator vehicle as a shadow vehicle, closure of the adjacent traffic lane is not required.

Designated holidays are as shown in the following table:

| <b>Designated Holidays</b> |                          |
|----------------------------|--------------------------|
| Holiday                    | Date observed            |
| New Year's Day             | January 1st              |
| Washington's Birthday      | 3rd Monday in February   |
| Memorial Day               | Last Monday in May       |
| Independence Day           | July 4th                 |
| Labor Day                  | 1st Monday in September  |
| Veterans Day               | November 11th            |
| Thanksgiving Day           | 4th Thursday in November |
| Christmas Day              | December 25th            |

If a designated holiday falls on a Sunday, the following Monday is a designated holiday. If November 11th falls on a Saturday, the preceding Friday is a designated holiday.

Special days are: The third Monday in January.

Not more than 1 stationary lane closures will be allowed in each direction of travel at one time.

Personal vehicles of your employees must not be parked on the traveled way or shoulders, including sections closed to traffic.

If work vehicles or equipment are parked within 6 feet of a traffic lane, close the shoulder area as shown.

If a connector closure is required within the limits of a freeway lane closure, complete the work on the connector first. Then, complete the work on the freeway traveled way necessary to ensure safe passage of traffic between the connector and open freeway lanes. Complete the remaining work only after reopening the connector.

**Add between the 3rd and 4th paragraphs of the RSS for section 12-4.03:**

For the following operations, submit the contingency plan and discuss with the Engineer at least 5 business days before starting that operation:

1. Cold planing AC pavement
2. RHMA and HMA paving
3. Removing and placing pavement delineation

**Add to section 12-4.03:**

For each 10-minute interval or fraction thereof past the time specified to reopen the closure, the Department deducts the amount for damages per interval shown below. Damages are limited to 5 percent of the total bid per occurrence. Damages are not assessed if the Engineer orders the closure to remain in place beyond the scheduled pickup time.

| Type of facility | Route or segment | Period              | Damages/interval (\$) |
|------------------|------------------|---------------------|-----------------------|
| Mainline         | 580 EB           | 1st half hour       | \$1,600/10 minutes    |
|                  |                  | 2nd half hour       | \$ 2,400/10 minutes   |
|                  |                  | 2nd hour and beyond | \$ 3,200/10 minutes   |
| Ramp             | 580 EB           | 1st half hour       | \$1,000/10 minutes    |
|                  |                  | 2nd half hour       | \$1,000/10 minutes    |
|                  |                  | 2nd hour and beyond | \$1,000/10 minutes    |

Replace "Reserved" in section 12-4.04 with:

| Lane Closure Restriction for Designated Holidays and Special Days |                 |                 |                 |                 |                 |                 |                 |     |     |     |
|---|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----|-----|-----|
| Thu   | Fri             | Sat             | Sun             | Mon             | Tues            | Wed             | Thu             | Fri | Sat | Sun |
| x   | <b>H</b><br>xx  | xx              | xx              |                 |                 |                 |                 |     |     |     |
|   | <b>SD</b><br>xx |                 |                 |                 |                 |                 |                 |     |     |     |
| x   | xx              | <b>H</b><br>xx  | xx              |                 |                 |                 |                 |     |     |     |
|   |                 | <b>SD</b><br>xx |                 |                 |                 |                 |                 |     |     |     |
|   | x               | xx              | <b>H</b><br>xx  | xx              |                 |                 |                 |     |     |     |
|   |                 |                 | <b>SD</b><br>xx |                 |                 |                 |                 |     |     |     |
|   | x               | xx              | xx              | <b>H</b><br>xx  | xxx             |                 |                 |     |     |     |
|   | x               | xx              | xx              | <b>SD</b><br>xx | xxx             |                 |                 |     |     |     |
|   |                 |                 |                 | x               | <b>H</b><br>xx  |                 |                 |     |     |     |
|   |                 |                 |                 | x               | <b>SD</b><br>xx |                 |                 |     |     |     |
|   |                 |                 |                 |                 | x               | <b>H</b><br>xx  |                 |     |     |     |
|   |                 |                 |                 |                 |                 | <b>SD</b><br>xx |                 |     |     |     |
|   |                 |                 |                 |                 |                 | x               | <b>H</b><br>xx  | xx  | xx  | xx  |
|   |                 |                 |                 |                 |                 |                 | <b>SD</b><br>xx |     |     |     |

Legend:

|           |  |
|-----------|--|
|           | Refer to lane requirement charts   |
| x         | The full width of the traveled way must be open for use by traffic after 6:00 a.m. |
| xx        | The full width of the traveled way must be open for use by traffic.                |
| xxx       | The full width of the traveled way must be open for use by traffic until 9:00 p.m. |
| <b>H</b>  | Designated holiday   |
| <b>SD</b> | Special day  |

Replace "Reserved" in section 12-4.05B with:

| Chart no. CC580E1<br>Freeway Lane Requirements                                    |  |  |   |   |                           |   |   |   |   |   |   |    |    |    |             |    |    |    |    |    |    |    |    |    |    |    |   |
|---|--|--|---|---|---------------------------|---|---|---|---|---|---|----|----|----|-------------|----|----|----|----|----|----|----|----|----|----|----|---|
| County: Contra Costa  |  |  |   |   | Route/Direction: 580 / EB |   |   |   |   |   |   |    |    |    | PM: 0.0/5.5 |    |    |    |    |    |    |    |    |    |    |    |   |
| Closure limits: EB Route 580 from Western Dr. on-ramp to Contra Costa County line |  |  |   |   |                           |   |   |   |   |   |   |    |    |    |             |    |    |    |    |    |    |    |    |    |    |    |   |
| From hour to hour   |  | 24   | 1 | 2 | 3                         | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13          | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |   |
| Mondays through Thursdays   |  | 1  | 1 | 1 | 1                         | 1 | 1 |   |   |   |   |    |    |    |             |    |    |    |    |    |    |    |    |    | 1  | 1  | 1 |
| Fridays   |  | 1  | 1 | 1 | 1                         | 1 | 1 |   |   |   |   |    |    |    |             |    |    |    |    |    |    |    |    |    | 1  | 1  | 1 |
| Saturdays   |  | 1  | 1 | 1 | 1                         | 1 | 1 | 1 | 1 |   |   |    |    |    |             |    |    |    |    |    |    |    |    |    | 1  | 1  | 1 |
| Sundays   |  | 1  | 1 | 1 | 1                         | 1 | 1 | 1 | 1 | 1 |   |    |    |    |             |    |    |    |    |    |    |    |    |    | 1  | 1  | 1 |
| Legend:   |  |  |   |   |                           |   |   |   |   |   |   |    |    |    |             |    |    |    |    |    |    |    |    |    |    |    |   |
| <input type="checkbox"/> 1  |  | Provide at least 1 through freeway lane open in direction of travel            |   |   |                           |   |   |   |   |   |   |    |    |    |             |    |    |    |    |    |    |    |    |    |    |    |   |
| <input type="checkbox"/>  |  | Work allowed within the highway where shoulder or lane closure is not required |   |   |                           |   |   |   |   |   |   |    |    |    |             |    |    |    |    |    |    |    |    |    |    |    |   |
| REMARKS:  |  |  |   |   |                           |   |   |   |   |   |   |    |    |    |             |    |    |    |    |    |    |    |    |    |    |    |   |

| Chart no. CC580W1<br>Freeway Lane Requirements                                     |  |  |   |   |                           |   |   |   |   |   |   |    |    |    |             |    |    |    |    |    |    |    |    |    |    |    |   |
|--|--|--|---|---|---------------------------|---|---|---|---|---|---|----|----|----|-------------|----|----|----|----|----|----|----|----|----|----|----|---|
| County: Contra Costa   |  |  |   |   | Route/Direction: 580 / WB |   |   |   |   |   |   |    |    |    | PM: 0.0/5.5 |    |    |    |    |    |    |    |    |    |    |    |   |
| Closure limits: WB Route 580 from Contra Costa County line to Western Dr. off-ramp |  |  |   |   |                           |   |   |   |   |   |   |    |    |    |             |    |    |    |    |    |    |    |    |    |    |    |   |
| From hour to hour  |  | 24   | 1 | 2 | 3                         | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13          | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |   |
| Mondays through Thursdays  |  | 1  | 1 | 1 | 1                         | 1 | 1 |   |   |   |   |    |    |    |             |    |    |    |    |    |    |    |    |    | 1  | 1  | 1 |
| Fridays  |  | 1  | 1 | 1 | 1                         | 1 | 1 |   |   |   |   |    |    |    |             |    |    |    |    |    |    |    |    |    | 1  | 1  | 1 |
| Saturdays  |  | 1  | 1 | 1 | 1                         | 1 | 1 | 1 | 1 |   |   |    |    |    |             |    |    |    |    |    |    |    |    |    | 1  | 1  | 1 |
| Sundays  |  | 1  | 1 | 1 | 1                         | 1 | 1 | 1 | 1 | 1 |   |    |    |    |             |    |    |    |    |    |    |    |    |    | 1  | 1  | 1 |
| Legend:  |  |  |   |   |                           |   |   |   |   |   |   |    |    |    |             |    |    |    |    |    |    |    |    |    |    |    |   |
| <input type="checkbox"/> 1   |  | Provide at least 1 through freeway lane open in direction of travel            |   |   |                           |   |   |   |   |   |   |    |    |    |             |    |    |    |    |    |    |    |    |    |    |    |   |
| <input type="checkbox"/>   |  | Work allowed within the highway where shoulder or lane closure is not required |   |   |                           |   |   |   |   |   |   |    |    |    |             |    |    |    |    |    |    |    |    |    |    |    |   |
| REMARKS:   |  |  |   |   |                           |   |   |   |   |   |   |    |    |    |             |    |    |    |    |    |    |    |    |    |    |    |   |

Replace "Reserved" in section 12-4.05E with:

| Chart no. CC580E2<br>Complete Ramp Closure Hours |  |    |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |
|--|--|----|---|---|--------------------------|---|---|---|---|---|---|----|----|----|---------|----|----|----|----|----|----|----|----|----|----|----|---|---|
| County: Contra Costa                             |  |    |   |   | Route/Direction:580 / EB |   |   |   |   |   |   |    |    |    | PM: 5.4 |    |    |    |    |    |    |    |    |    |    |    |   |   |
| Closure limits: Marine St. off-ramp              |  |    |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |
| From hour to hour                                |  | 24 | 1 | 2 | 3                        | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13      | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |   |   |
| Mondays through Thursdays                        |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    | C  | C | C |
| Fridays  |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    | C  | C | C |
| Saturdays  |  | C  | C | C | C                        | C | C | C | C |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    | C  | C | C |
| Sundays  |  | C  | C | C | C                        | C | C | C | C | C |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    | C  | C | C |

Legend:

C Ramp may be closed completely

Work allowed within the highway where shoulder or lane closure is not required

REMARKS:

| Chart no. CC580E3<br>Complete Ramp Closure Hours  |  |    |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |
|---|--|----|---|---|--------------------------|---|---|---|---|---|---|----|----|----|---------|----|----|----|----|----|----|----|----|----|----|----|---|---|
| County: Contra Costa                              |  |    |   |   | Route/Direction:580 / EB |   |   |   |   |   |   |    |    |    | PM: 5.4 |    |    |    |    |    |    |    |    |    |    |    |   |   |
| Closure limits: Castro St. and Marine St. on-ramp |  |    |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |
| From hour to hour                                 |  | 24 | 1 | 2 | 3                        | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13      | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |   |   |
| Mondays through Thursdays                         |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    | C  | C | C |
| Fridays   |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    | C  | C | C |
| Saturdays   |  | C  | C | C | C                        | C | C | C | C |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    | C  | C | C |
| Sundays   |  | C  | C | C | C                        | C | C | C | C | C |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    | C  | C | C |

Legend:

C Ramp may be closed completely

Work allowed within the highway where shoulder or lane closure is not required

REMARKS: Use with Detour Plan No. 16.

| Chart no. CC580E4<br>Complete Ramp Closure Hours |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
|--|--|--|---|---|--------------------------|---|---|---|---|---|---|----|----|----|---------|----|----|----|----|----|----|----|----|----|----|----|---|
| County: Contra Costa                             |  |  |   |   | Route/Direction:580 / EB |   |   |   |   |   |   |    |    |    | PM: 4.6 |    |    |    |    |    |    |    |    |    |    |    |   |
| Closure limits:Canal Blvd. off-ramp              |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| From hour to hour                                |  | 24   | 1 | 2 | 3                        | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13      | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |   |
| Mondays through Thursdays                        |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Fridays  |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Saturdays  |  | C  | C | C | C                        | C | C | C | C |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Sundays  |  | C  | C | C | C                        | C | C | C | C | C |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Legend:  |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| <input type="checkbox"/> C                       |  | Ramp may be closed completely  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| <input type="checkbox"/>                         |  | Work allowed within the highway where shoulder or lane closure is not required |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| REMARKS:   |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |

| Chart no. CC580E5<br>Complete Ramp Closure Hours |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
|--|--|--|---|---|--------------------------|---|---|---|---|---|---|----|----|----|---------|----|----|----|----|----|----|----|----|----|----|----|---|
| County: Contra Costa                             |  |  |   |   | Route/Direction:580 / EB |   |   |   |   |   |   |    |    |    | PM: 4.6 |    |    |    |    |    |    |    |    |    |    |    |   |
| Closure limits: Canal Blvd. on-ramp              |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| From hour to hour                                |  | 24   | 1 | 2 | 3                        | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13      | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |   |
| Mondays through Thursdays                        |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Fridays  |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Saturdays  |  | C  | C | C | C                        | C | C | C | C |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Sundays  |  | C  | C | C | C                        | C | C | C | C | C |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Legend:  |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| <input type="checkbox"/> C                       |  | Ramp may be closed completely  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| <input type="checkbox"/>                         |  | Work allowed within the highway where shoulder or lane closure is not required |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| REMARKS: Use with Detour Plan No. 15.            |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |

| Chart no. CC580E6<br>Complete Ramp Closure Hours |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
|--|--|--|---|---|--------------------------|---|---|---|---|---|---|----|----|----|---------|----|----|----|----|----|----|----|----|----|----|----|---|
| County: Contra Costa                             |  |  |   |   | Route/Direction:580 / EB |   |   |   |   |   |   |    |    |    | PM: 3.8 |    |    |    |    |    |    |    |    |    |    |    |   |
| Closure limits: Cutting Blvd. off-ramp           |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| From hour to hour                                |  | 24   | 1 | 2 | 3                        | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13      | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |   |
| Mondays through Thursdays                        |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Fridays  |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Saturdays  |  | C  | C | C | C                        | C | C | C | C |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Sundays  |  | C  | C | C | C                        | C | C | C | C | C |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Legend:  |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| <input type="checkbox"/> C                       |  | Ramp may be closed completely  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| <input type="checkbox"/>                         |  | Work allowed within the highway where shoulder or lane closure is not required |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| REMARKS:   |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |

| Chart no. CC580E7<br>Complete Ramp Closure Hours |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
|--|--|--|---|---|--------------------------|---|---|---|---|---|---|----|----|----|---------|----|----|----|----|----|----|----|----|----|----|----|---|
| County: Contra Costa                             |  |  |   |   | Route/Direction:580 / EB |   |   |   |   |   |   |    |    |    | PM: 3.6 |    |    |    |    |    |    |    |    |    |    |    |   |
| Closure limits: Harbor Way loop on-ramp          |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| From hour to hour                                |  | 24   | 1 | 2 | 3                        | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13      | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |   |
| Mondays through Thursdays                        |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Fridays  |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Saturdays  |  | C  | C | C | C                        | C | C | C | C |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Sundays  |  | C  | C | C | C                        | C | C | C | C | C |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Legend:  |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| <input type="checkbox"/> C                       |  | Ramp may be closed completely  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| <input type="checkbox"/>                         |  | Work allowed within the highway where shoulder or lane closure is not required |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| REMARKS: Use with Detour Plan No. 14.            |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |

| Chart no. CC580E8<br>Complete Ramp Closure Hours |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
|--|--|--|---|---|--------------------------|---|---|---|---|---|---|----|----|----|---------|----|----|----|----|----|----|----|----|----|----|----|---|
| County: Contra Costa                             |  |  |   |   | Route/Direction:580 / EB |   |   |   |   |   |   |    |    |    | PM: 3.6 |    |    |    |    |    |    |    |    |    |    |    |   |
| Closure limits: Harbor Way diagonal on-ramp      |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| From hour to hour                                |  | 24   | 1 | 2 | 3                        | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13      | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |   |
| Mondays through Thursdays                        |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Fridays  |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Saturdays  |  | C  | C | C | C                        | C | C | C | C |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Sundays  |  | C  | C | C | C                        | C | C | C | C | C |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Legend:  |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| <input type="checkbox"/> C                       |  | Ramp may be closed completely  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| <input type="checkbox"/>                         |  | Work allowed within the highway where shoulder or lane closure is not required |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| REMARKS: Use with Detour Plan No. 13.            |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |

| Chart no. CC580E9<br>Complete Ramp Closure Hours |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
|--|--|--|---|---|--------------------------|---|---|---|---|---|---|----|----|----|---------|----|----|----|----|----|----|----|----|----|----|----|---|
| County: Contra Costa                             |  |  |   |   | Route/Direction:580 / EB |   |   |   |   |   |   |    |    |    | PM: 2.9 |    |    |    |    |    |    |    |    |    |    |    |   |
| Closure limits: S. 23rd St. off-ramp             |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| From hour to hour                                |  | 24   | 1 | 2 | 3                        | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13      | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |   |
| Mondays through Thursdays                        |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Fridays  |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Saturdays  |  | C  | C | C | C                        | C | C | C | C |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Sundays  |  | C  | C | C | C                        | C | C | C | C | C |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Legend:  |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| <input type="checkbox"/> C                       |  | Ramp may be closed completely  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| <input type="checkbox"/>                         |  | Work allowed within the highway where shoulder or lane closure is not required |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| REMARKS:   |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |

| Chart no. CC580E10<br>Complete Ramp Closure Hours         |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
|---|--|--|---|---|--------------------------|---|---|---|---|---|---|----|----|----|---------|----|----|----|----|----|----|----|----|----|----|----|---|
| County: Contra Costa                                      |  |  |   |   | Route/Direction:580 / EB |   |   |   |   |   |   |    |    |    | PM: 2.9 |    |    |    |    |    |    |    |    |    |    |    |   |
| Closure limits: Marina Bay Pkwy./S. 23rd St. loop on-ramp |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| From hour to hour   |  | 24   | 1 | 2 | 3                        | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13      | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |   |
| Mondays through Thursdays                                 |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Fridays   |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Saturdays   |  | C  | C | C | C                        | C | C | C | C |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Sundays   |  | C  | C | C | C                        | C | C | C | C | C |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Legend:   |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| <input type="checkbox"/> C                                |  | Ramp may be closed completely  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| <input type="checkbox"/>                                  |  | Work allowed within the highway where shoulder or lane closure is not required |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| REMARKS: Use with Detour Plan No. 12.                     |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |

| Chart no. CC580E11<br>Complete Ramp Closure Hours             |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
|---|--|--|---|---|--------------------------|---|---|---|---|---|---|----|----|----|---------|----|----|----|----|----|----|----|----|----|----|----|---|
| County: Contra Costa  |  |  |   |   | Route/Direction:580 / EB |   |   |   |   |   |   |    |    |    | PM: 2.9 |    |    |    |    |    |    |    |    |    |    |    |   |
| Closure limits: Marina Bay Pkwy./S. 23rd St. diagonal on-ramp |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| From hour to hour   |  | 24   | 1 | 2 | 3                        | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13      | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |   |
| Mondays through Thursdays                                     |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Fridays   |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Saturdays   |  | C  | C | C | C                        | C | C | C | C |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Sundays   |  | C  | C | C | C                        | C | C | C | C | C |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Legend:   |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| <input type="checkbox"/> C                                    |  | Ramp may be closed completely  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| <input type="checkbox"/>                                      |  | Work allowed within the highway where shoulder or lane closure is not required |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| REMARKS: Use with Detour Plan No. 11.                         |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |

| Chart no. CC580E12<br>Complete Ramp Closure Hours    |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
|--|--|--|---|---|--------------------------|---|---|---|---|---|---|----|----|----|---------|----|----|----|----|----|----|----|----|----|----|----|---|
| County: Contra Costa                                 |  |  |   |   | Route/Direction:580 / EB |   |   |   |   |   |   |    |    |    | PM: 2.1 |    |    |    |    |    |    |    |    |    |    |    |   |
| Closure limits: Regatta Blvd./Erlandson St. off-ramp |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| From hour to hour                                    |  | 24   | 1 | 2 | 3                        | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13      | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |   |
| Mondays through Thursdays                            |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Fridays  |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Saturdays  |  | C  | C | C | C                        | C | C | C | C |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Sundays  |  | C  | C | C | C                        | C | C | C | C | C |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Legend:  |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| <input type="checkbox"/> C                           |  | Ramp may be closed completely  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| <input type="checkbox"/>                             |  | Work allowed within the highway where shoulder or lane closure is not required |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| REMARKS:   |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |

| Chart no. CC580E13<br>Complete Ramp Closure Hours        |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
|--|--|--|---|---|--------------------------|---|---|---|---|---|---|----|----|----|---------|----|----|----|----|----|----|----|----|----|----|----|---|
| County: Contra Costa                                     |  |  |   |   | Route/Direction:580 / EB |   |   |   |   |   |   |    |    |    | PM: 2.1 |    |    |    |    |    |    |    |    |    |    |    |   |
| Closure limits: Regatta Blvd./Erlandson St. loop on-ramp |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| From hour to hour  |  | 24   | 1 | 2 | 3                        | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13      | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |   |
| Mondays through Thursdays                                |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Fridays  |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Saturdays  |  | C  | C | C | C                        | C | C | C | C |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Sundays  |  | C  | C | C | C                        | C | C | C | C | C |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Legend:  |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| <input type="checkbox"/> C                               |  | Ramp may be closed completely  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| <input type="checkbox"/>                                 |  | Work allowed within the highway where shoulder or lane closure is not required |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| REMARKS: Use with Detour Plan No. 10.                    |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |

| Chart no. CC580E14<br>Complete Ramp Closure Hours |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
|---|--|--|---|---|--------------------------|---|---|---|---|---|---|----|----|----|---------|----|----|----|----|----|----|----|----|----|----|----|---|
| County: Contra Costa                              |  |  |   |   | Route/Direction:580 / EB |   |   |   |   |   |   |    |    |    | PM: 1.3 |    |    |    |    |    |    |    |    |    |    |    |   |
| Closure limits: Bayview Ave./51st St. off-ramp    |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| From hour to hour                                 |  | 24   | 1 | 2 | 3                        | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13      | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |   |
| Mondays through Thursdays                         |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Fridays   |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Saturdays   |  | C  | C | C | C                        | C | C | C | C |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Sundays   |  | C  | C | C | C                        | C | C | C | C | C |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Legend:   |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| <input type="checkbox"/> C                        |  | Ramp may be closed completely  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| <input type="checkbox"/>                          |  | Work allowed within the highway where shoulder or lane closure is not required |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| REMARKS:  |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |

| Chart no. CC580E15<br>Complete Ramp Closure Hours |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
|---|--|--|---|---|--------------------------|---|---|---|---|---|---|----|----|----|---------|----|----|----|----|----|----|----|----|----|----|----|---|
| County: Contra Costa                              |  |  |   |   | Route/Direction:580 / EB |   |   |   |   |   |   |    |    |    | PM: 1.3 |    |    |    |    |    |    |    |    |    |    |    |   |
| Closure limits: Bayview Blvd./51st St. on-ramp    |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| From hour to hour                                 |  | 24   | 1 | 2 | 3                        | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13      | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |   |
| Mondays through Thursdays                         |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Fridays   |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Saturdays   |  | C  | C | C | C                        | C | C | C | C |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Sundays   |  | C  | C | C | C                        | C | C | C | C | C |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Legend:   |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| <input type="checkbox"/> C                        |  | Ramp may be closed completely  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| <input type="checkbox"/>                          |  | Work allowed within the highway where shoulder or lane closure is not required |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| REMARKS: Use with Detour Plan No. 9.              |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |

| Chart no. CC580E16<br>Complete Ramp Closure Hours |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
|---|--|--|---|---|--------------------------|---|---|---|---|---|---|----|----|----|---------|----|----|----|----|----|----|----|----|----|----|----|---|
| County: Contra Costa                              |  |  |   |   | Route/Direction:580 / EB |   |   |   |   |   |   |    |    |    | PM: 0.2 |    |    |    |    |    |    |    |    |    |    |    |   |
| Closure limits: Central Ave. off-ramp             |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| From hour to hour                                 |  | 24   | 1 | 2 | 3                        | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13      | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |   |
| Mondays through Thursdays                         |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Fridays   |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Saturdays   |  | C  | C | C | C                        | C | C | C | C |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Sundays   |  | C  | C | C | C                        | C | C | C | C | C |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Legend:   |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| <input type="checkbox"/> C                        |  | Ramp may be closed completely  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| <input type="checkbox"/>                          |  | Work allowed within the highway where shoulder or lane closure is not required |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| REMARKS:  |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |

| Chart no. CC580E17<br>Complete Ramp Closure Hours |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
|---|--|--|---|---|--------------------------|---|---|---|---|---|---|----|----|----|---------|----|----|----|----|----|----|----|----|----|----|----|---|
| County: Contra Costa                              |  |  |   |   | Route/Direction:580 / EB |   |   |   |   |   |   |    |    |    | PM: 0.2 |    |    |    |    |    |    |    |    |    |    |    |   |
| Closure limits: Central Ave. on-ramp              |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| From hour to hour                                 |  | 24   | 1 | 2 | 3                        | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13      | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |   |
| Mondays through Thursdays                         |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Fridays   |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Saturdays   |  | C  | C | C | C                        | C | C | C | C |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Sundays   |  | C  | C | C | C                        | C | C | C | C | C |   |    |    |    |         |    |    |    |    |    |    |    |    |    | C  | C  | C |
| Legend:   |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| <input type="checkbox"/> C                        |  | Ramp may be closed completely  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| <input type="checkbox"/>                          |  | Work allowed within the highway where shoulder or lane closure is not required |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |
| REMARKS: Use with Detour Plan No. 8.              |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |

**Replace "Reserved" in section 12-4.05E with:**

| Chart no. CC580W2<br>Complete Ramp Closure Hours |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
|--|--|--|---|---|--------------------------|---|---|---|---|---|---|----|----|----|---------|----|----|----|----|----|----|----|----|----|----|----|---|---|---|
| County: Contra Costa                             |  |  |   |   | Route/Direction:580 / WB |   |   |   |   |   |   |    |    |    | PM: 0.2 |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| Closure limits: Central Ave. off-ramp            |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| From hour to hour                                |  | 24   | 1 | 2 | 3                        | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13      | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |   |   |   |
| Mondays through Thursdays                        |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    | C  | C | C |   |
| Fridays  |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    | C | C | C |
| Saturdays  |  | C  | C | C | C                        | C | C | C | C |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    | C | C | C |
| Sundays  |  | C  | C | C | C                        | C | C | C | C | C |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    | C | C | C |
| Legend:  |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| <input type="checkbox"/> C                       |  | Ramp may be closed completely  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| <input type="checkbox"/>                         |  | Work allowed within the highway where shoulder or lane closure is not required |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| REMARKS:   |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |

**Replace "Reserved" in section 12-4.05E with:**

| Chart no. CC580W3<br>Complete Ramp Closure Hours |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
|--|--|--|---|---|--------------------------|---|---|---|---|---|---|----|----|----|---------|----|----|----|----|----|----|----|----|----|----|----|---|---|---|
| County: Contra Costa                             |  |  |   |   | Route/Direction:580 / WB |   |   |   |   |   |   |    |    |    | PM: 0.2 |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| Closure limits: Central Ave. on-ramp             |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| From hour to hour                                |  | 24   | 1 | 2 | 3                        | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13      | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |   |   |   |
| Mondays through Thursdays                        |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    | C | C | C |
| Fridays  |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    | C | C | C |
| Saturdays  |  | C  | C | C | C                        | C | C | C | C |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    | C | C | C |
| Sundays  |  | C  | C | C | C                        | C | C | C | C | C |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    | C | C | C |
| Legend:  |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| <input type="checkbox"/> C                       |  | Ramp may be closed completely  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| <input type="checkbox"/>                         |  | Work allowed within the highway where shoulder or lane closure is not required |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| REMARKS: Use with Detour Plan No. 1.             |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |

**Replace "Reserved" in section 12-4.05E with:**

| <b>Chart no. CC580W4<br/>Complete Ramp Closure Hours</b> |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
|--|--|--|---|---|--------------------------|---|---|---|---|---|---|----|----|----|---------|----|----|----|----|----|----|----|----|----|----|----|---|---|---|
| County: Contra Costa                                     |  |  |   |   | Route/Direction:580 / WB |   |   |   |   |   |   |    |    |    | PM: 1.3 |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| Closure limits: Bayview Blvd. off-ramp                   |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| From hour to hour  |  | 24   | 1 | 2 | 3                        | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13      | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |   |   |   |
| Mondays through Thursdays                                |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    | C  | C | C |   |
| Fridays  |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    | C | C | C |
| Saturdays  |  | C  | C | C | C                        | C | C | C | C |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    | C | C | C |
| Sundays  |  | C  | C | C | C                        | C | C | C | C | C |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    | C | C | C |
| Legend:  |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| <input type="checkbox"/> C                               |  | Ramp may be closed completely  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| <input type="checkbox"/>                                 |  | Work allowed within the highway where shoulder or lane closure is not required |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| REMARKS:   |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |

**Replace "Reserved" in section 12-4.05E with:**

| <b>Chart no. CC580W5<br/>Complete Ramp Closure Hours</b> |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
|--|--|--|---|---|--------------------------|---|---|---|---|---|---|----|----|----|---------|----|----|----|----|----|----|----|----|----|----|----|---|---|---|
| County: Contra Costa                                     |  |  |   |   | Route/Direction:580 / WB |   |   |   |   |   |   |    |    |    | PM: 1.3 |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| Closure limits: Bayview Ave. on-ramp                     |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| From hour to hour  |  | 24   | 1 | 2 | 3                        | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13      | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |   |   |   |
| Mondays through Thursdays                                |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    | C | C | C |
| Fridays  |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    | C | C | C |
| Saturdays  |  | C  | C | C | C                        | C | C | C | C |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    | C | C | C |
| Sundays  |  | C  | C | C | C                        | C | C | C | C | C |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    | C | C | C |
| Legend:  |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| <input type="checkbox"/> C                               |  | Ramp may be closed completely  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| <input type="checkbox"/>                                 |  | Work allowed within the highway where shoulder or lane closure is not required |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| REMARKS: Use with Detour Plan No. 2.                     |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |

**Replace "Reserved" in section 12-4.05E with:**

| Chart no. CC580W6<br>Complete Ramp Closure Hours     |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
|--|--|--|---|---|--------------------------|---|---|---|---|---|---|----|----|----|---------|----|----|----|----|----|----|----|----|----|----|----|---|---|---|
| County: Contra Costa                                 |  |  |   |   | Route/Direction:580 / WB |   |   |   |   |   |   |    |    |    | PM: 2.1 |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| Closure limits: Regatta Blvd./Erlandson St. off-ramp |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| From hour to hour                                    |  | 24   | 1 | 2 | 3                        | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13      | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |   |   |   |
| Mondays through Thursdays                            |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    | C  | C | C |   |
| Fridays  |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    | C | C | C |
| Saturdays  |  | C  | C | C | C                        | C | C | C | C |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    | C | C | C |
| Sundays  |  | C  | C | C | C                        | C | C | C | C | C |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    | C | C | C |
| Legend:  |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| <input type="checkbox"/> C                           |  | Ramp may be closed completely  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| <input type="checkbox"/>                             |  | Work allowed within the highway where shoulder or lane closure is not required |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| REMARKS:   |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |

**Replace "Reserved" in section 12-4.05E with:**

| Chart no. CC580W7<br>Complete Ramp Closure Hours    |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
|---|--|--|---|---|--------------------------|---|---|---|---|---|---|----|----|----|---------|----|----|----|----|----|----|----|----|----|----|----|---|---|---|
| County: Contra Costa                                |  |  |   |   | Route/Direction:580 / WB |   |   |   |   |   |   |    |    |    | PM: 2.1 |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| Closure limits: Regatta Blvd./Erlandson St. on-ramp |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| From hour to hour                                   |  | 24   | 1 | 2 | 3                        | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13      | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |   |   |   |
| Mondays through Thursdays                           |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    | C | C | C |
| Fridays   |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    | C | C | C |
| Saturdays   |  | C  | C | C | C                        | C | C | C | C |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    | C | C | C |
| Sundays   |  | C  | C | C | C                        | C | C | C | C | C |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    | C | C | C |
| Legend:   |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| <input type="checkbox"/> C                          |  | Ramp may be closed completely  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| <input type="checkbox"/>                            |  | Work allowed within the highway where shoulder or lane closure is not required |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| REMARKS: Use with Detour Plan No. 3.                |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |

**Replace "Reserved" in section 12-4.05E with:**

| Chart no. CC580W8<br>Complete Ramp Closure Hours |  |    |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |
|--|--|----|---|---|--------------------------|---|---|---|---|---|---|----|----|----|---------|----|----|----|----|----|----|----|----|----|----|----|---|---|
| County: Contra Costa                             |  |    |   |   | Route/Direction:580 / WB |   |   |   |   |   |   |    |    |    | PM: 2.9 |    |    |    |    |    |    |    |    |    |    |    |   |   |
| Closure limits: S. 23rd St. off-ramp             |  |    |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |
| From hour to hour                                |  | 24 | 1 | 2 | 3                        | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13      | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |   |   |
| Mondays through Thursdays                        |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    | C  | C | C |
| Fridays  |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    | C  | C | C |
| Saturdays  |  | C  | C | C | C                        | C | C | C | C |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    | C  | C | C |
| Sundays  |  | C  | C | C | C                        | C | C | C | C | C |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    | C  | C | C |

Legend:

C Ramp may be closed completely

Work allowed within the highway where shoulder or lane closure is not required

REMARKS:

**Replace "Reserved" in section 12-4.05E with:**

| Chart no. CC580W9<br>Complete Ramp Closure Hours |  |    |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |
|--|--|----|---|---|--------------------------|---|---|---|---|---|---|----|----|----|---------|----|----|----|----|----|----|----|----|----|----|----|---|---|
| County: Contra Costa                             |  |    |   |   | Route/Direction:580 / WB |   |   |   |   |   |   |    |    |    | PM: 2.9 |    |    |    |    |    |    |    |    |    |    |    |   |   |
| Closure limits: S. 23rd St. loop on-ramp         |  |    |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |
| From hour to hour                                |  | 24 | 1 | 2 | 3                        | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13      | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |   |   |
| Mondays through Thursdays                        |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    | C  | C | C |
| Fridays  |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    | C  | C | C |
| Saturdays  |  | C  | C | C | C                        | C | C | C | C |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    | C  | C | C |
| Sundays  |  | C  | C | C | C                        | C | C | C | C | C |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    | C  | C | C |

Legend:

C Ramp may be closed completely

Work allowed within the highway where shoulder or lane closure is not required

REMARKS: Use with Detour Plan No. 4.

**Replace "Reserved" in section 12-4.05E with:**

| Chart no. CC580W10<br>Complete Ramp Closure Hours |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |
|---|--|--|---|---|--------------------------|---|---|---|---|---|---|----|----|----|---------|----|----|----|----|----|----|----|----|----|----|----|---|---|
| County: Contra Costa                              |  |  |   |   | Route/Direction:580 / WB |   |   |   |   |   |   |    |    |    | PM: 2.9 |    |    |    |    |    |    |    |    |    |    |    |   |   |
| Closure limits: S. 23rd St. diagonal on-ramp      |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |
| From hour to hour                                 |  | 24   | 1 | 2 | 3                        | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13      | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |   |   |
| Mondays through Thursdays                         |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    | C  | C | C |
| Fridays   |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    | C  | C | C |
| Saturdays   |  | C  | C | C | C                        | C | C | C | C |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    | C  | C | C |
| Sundays   |  | C  | C | C | C                        | C | C | C | C | C |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    | C  | C | C |
| Legend:   |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |
| <input type="checkbox"/> C                        |  | Ramp may be closed completely  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |
| <input type="checkbox"/>                          |  | Work allowed within the highway where shoulder or lane closure is not required |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |
| REMARKS: Use with Detour Plan No. 5.              |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |

**Replace "Reserved" in section 12-4.05E with:**

| Chart no. CC580W11<br>Complete Ramp Closure Hours |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |
|---|--|--|---|---|--------------------------|---|---|---|---|---|---|----|----|----|---------|----|----|----|----|----|----|----|----|----|----|----|---|---|
| County: Contra Costa                              |  |  |   |   | Route/Direction:580 / WB |   |   |   |   |   |   |    |    |    | PM: 3.6 |    |    |    |    |    |    |    |    |    |    |    |   |   |
| Closure limits: Harbor Way off-ramp               |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |
| From hour to hour                                 |  | 24   | 1 | 2 | 3                        | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13      | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |   |   |
| Mondays through Thursdays                         |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    | C  | C | C |
| Fridays   |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    | C  | C | C |
| Saturdays   |  | C  | C | C | C                        | C | C | C | C |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    | C  | C | C |
| Sundays   |  | C  | C | C | C                        | C | C | C | C | C |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    | C  | C | C |
| Legend:   |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |
| <input type="checkbox"/> C                        |  | Ramp may be closed completely  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |
| <input type="checkbox"/>                          |  | Work allowed within the highway where shoulder or lane closure is not required |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |
| REMARKS:  |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |

**Replace "Reserved" in section 12-4.05E with:**

| <p align="center"><b>Chart no. CC580W12</b><br/><b>Complete Ramp Closure Hours</b></p>  |  |    |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
|---|--|----|---|---|--------------------------|---|---|---|---|---|---|----|----|----|---------|----|----|----|----|----|----|----|----|----|----|----|---|---|---|
| County: Contra Costa  |  |    |   |   | Route/Direction:580 / WB |   |   |   |   |   |   |    |    |    | PM: 3.8 |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| Closure limits: Cutting Blvd. off-ramp  |  |    |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| From hour to hour   |  | 24 | 1 | 2 | 3                        | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13      | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |   |   |   |
| Mondays through Thursdays   |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    | C  | C | C |   |
| Fridays   |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    | C | C | C |
| Saturdays   |  | C  | C | C | C                        | C | C | C | C |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    | C | C | C |
| Sundays   |  | C  | C | C | C                        | C | C | C | C | C |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    | C | C | C |
| <p>Legend:</p> <p><input type="checkbox"/> C Ramp may be closed completely</p> <p><input type="checkbox"/> Work allowed within the highway where shoulder or lane closure is not required</p> |  |    |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| REMARKS:  |  |    |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |

**Replace "Reserved" in section 12-4.05E with:**

| <p align="center"><b>Chart no. CC580W13</b><br/><b>Complete Ramp Closure Hours</b></p>  |  |    |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
|---|--|----|---|---|--------------------------|---|---|---|---|---|---|----|----|----|---------|----|----|----|----|----|----|----|----|----|----|----|---|---|---|
| County: Contra Costa  |  |    |   |   | Route/Direction:580 / WB |   |   |   |   |   |   |    |    |    | PM: 3.8 |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| Closure limits: Cutting Blvd. on-ramp.  |  |    |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| From hour to hour   |  | 24 | 1 | 2 | 3                        | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13      | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |   |   |   |
| Mondays through Thursdays   |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    | C | C | C |
| Fridays   |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    | C | C | C |
| Saturdays   |  | C  | C | C | C                        | C | C | C | C |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    | C | C | C |
| Sundays   |  | C  | C | C | C                        | C | C | C | C | C |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    | C | C | C |
| <p>Legend:</p> <p><input type="checkbox"/> C Ramp may be closed completely</p> <p><input type="checkbox"/> Work allowed within the highway where shoulder or lane closure is not required</p> |  |    |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| REMARKS: Use with Detour Plan No. 6.  |  |    |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |

**Replace "Reserved" in section 12-4.05E with:**

| <b>Chart no. CC580W14<br/>Complete Ramp Closure Hours</b> |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
|---|--|--|---|---|--------------------------|---|---|---|---|---|---|----|----|----|---------|----|----|----|----|----|----|----|----|----|----|----|---|---|---|
| County: Contra Costa                                      |  |  |   |   | Route/Direction:580 / WB |   |   |   |   |   |   |    |    |    | PM: 4.6 |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| Closure limits: Canal Blvd. off-ramp.                     |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| From hour to hour   |  | 24   | 1 | 2 | 3                        | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13      | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |   |   |   |
| Mondays through Thursdays                                 |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    | C  | C | C |   |
| Fridays   |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    | C | C | C |
| Saturdays   |  | C  | C | C | C                        | C | C | C | C |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    | C | C | C |
| Sundays   |  | C  | C | C | C                        | C | C | C | C | C |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    | C | C | C |
| Legend:   |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| <input type="checkbox"/> C                                |  | Ramp may be closed completely  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| <input type="checkbox"/>                                  |  | Work allowed within the highway where shoulder or lane closure is not required |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| REMARKS:  |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |

**Replace "Reserved" in section 12-4.05E with:**

| <b>Chart no. CC580W15<br/>Complete Ramp Closure Hours</b>                             |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
|---|--|--|---|---|--------------------------|---|---|---|---|---|---|----|----|----|---------|----|----|----|----|----|----|----|----|----|----|----|---|---|---|
| County: Contra Costa  |  |  |   |   | Route/Direction:580 / WB |   |   |   |   |   |   |    |    |    | PM: 4.6 |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| Closure limits: Canal Blvd. on-ramp.  |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| From hour to hour   |  | 24   | 1 | 2 | 3                        | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13      | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |   |   |   |
| Mondays through Thursdays   |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    | C | C | C |
| Fridays   |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    | C | C | C |
| Saturdays   |  | C  | C | C | C                        | C | C | C | C |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    | C | C | C |
| Sundays   |  | C  | C | C | C                        | C | C | C | C | C |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    | C | C | C |
| Legend:   |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| <input type="checkbox"/> C  |  | Ramp may be closed completely  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| <input type="checkbox"/>  |  | Work allowed within the highway where shoulder or lane closure is not required |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| REMARKS: Use with Detour Plan No. 7 and WB Route 580 Castro St. loop on-ramp closure. |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |

**Replace "Reserved" in section 12-4.05E with:**

| <b>Chart no. CC580W16<br/>Complete Ramp Closure Hours</b> |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
|---|--|--|---|---|--------------------------|---|---|---|---|---|---|----|----|----|---------|----|----|----|----|----|----|----|----|----|----|----|---|---|---|
| County: Contra Costa                                      |  |  |   |   | Route/Direction:580 / WB |   |   |   |   |   |   |    |    |    | PM: 5.4 |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| Closure limits: Castro St. off-ramp.                      |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| From hour to hour   |  | 24   | 1 | 2 | 3                        | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13      | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |   |   |   |
| Mondays through Thursdays                                 |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    | C  | C | C |   |
| Fridays   |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    | C | C | C |
| Saturdays   |  | C  | C | C | C                        | C | C | C | C |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    | C | C | C |
| Sundays   |  | C  | C | C | C                        | C | C | C | C | C |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    | C | C | C |
| Legend:   |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| C   |  | Ramp may be closed completely  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
|   |  | Work allowed within the highway where shoulder or lane closure is not required |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| REMARKS:  |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |

**Replace "Reserved" in section 12-4.05E with:**

| <b>Chart no. CC580W17<br/>Complete Ramp Closure Hours</b>                         |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
|---|--|--|---|---|--------------------------|---|---|---|---|---|---|----|----|----|---------|----|----|----|----|----|----|----|----|----|----|----|---|---|---|
| County: Contra Costa  |  |  |   |   | Route/Direction:580 / WB |   |   |   |   |   |   |    |    |    | PM: 5.4 |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| Closure limits: Castro St. loop on-ramp.  |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| From hour to hour   |  | 24   | 1 | 2 | 3                        | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13      | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |   |   |   |
| Mondays through Thursdays   |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    | C | C | C |
| Fridays   |  | C  | C | C | C                        | C | C |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    | C | C | C |
| Saturdays   |  | C  | C | C | C                        | C | C | C | C |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    | C | C | C |
| Sundays   |  | C  | C | C | C                        | C | C | C | C | C |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    | C | C | C |
| Legend:   |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| C   |  | Ramp may be closed completely  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
|   |  | Work allowed within the highway where shoulder or lane closure is not required |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |
| REMARKS: Use with Detour Plan No. 7 and WB Route 580 Canal Blvd. on-ramp closure. |  |  |   |   |                          |   |   |   |   |   |   |    |    |    |         |    |    |    |    |    |    |    |    |    |    |    |   |   |   |

**Replace section 12-5 with:**

**12-5 TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE**

**12-5.01 GENERAL**

Section 12-5.02 includes specifications for closing traffic lanes, ramps, or a combination, with stationary and moving lane closures on multilane highways and 2-lane, 2-way highways. The traffic control system for a lane closure or a ramp closure must comply with the details shown.

Traffic control system includes signs.

## **12-5.02 MATERIALS**

Vehicles equipped with attenuators must comply with section 12-3.13 of the special provisions.

## **12-5.03 CONSTRUCTION**

### **12-5.03A General**

During traffic striping and pavement marker placement using bituminous adhesive, control traffic with a stationary or a moving lane closure. During other activities, control traffic with stationary lane closures.

Whenever components of the traffic control system are displaced or cease to operate or function as specified from any cause, immediately repair the components to the original condition or replace the components and restore the components to the original location.

### **12-5.03B Stationary Lane Closures**

For a stationary lane closure, ramp closure, or a combination, made only for the work period, remove the components of the traffic control system from the traveled way and shoulder, except for portable delineators placed along open trenches or excavation adjacent to the traveled way at the end of each work period. You may store the components at selected central locations designated by the Engineer within the limits of the highway.

Each vehicle used to place, maintain, and remove components of a traffic control system on a multilane highway must be equipped with a Type II flashing arrow sign that must be in operation whenever the vehicle is being used for placing, maintaining, or removing the components. Vehicles equipped with a Type II flashing arrow sign not involved in placing, maintaining, or removing the components if operated within a stationary-type lane closure must display only the caution display mode. The sign must be controllable by the operator of the vehicle while the vehicle is in motion. If a flashing arrow sign is required for a lane closure, the flashing arrow sign must be operational before the lane closure is in place.

For multilane freeway or expressway lane closures, do not place the 1,700-foot tangent section shown along lane lines between the 1,000-foot lane closure tapers.

### **12-5.03C Moving Lane Closures**

A changeable message sign used in a moving lane closure must comply with section 12-3.12 except the sign must be truck-mounted. The full operational height to the bottom of the sign may be less than 7 feet above the ground but must be as high as practicable.

A flashing arrow sign used in a moving lane closure must be truck-mounted. Operate the flashing arrow sign in the caution display mode whenever it is being used on a 2-lane, 2-way highway.

## **12-5.04 PAYMENT**

Traffic control system for lane closure is paid for as traffic control system.

The requirements in section 4-1.05 for payment adjustment do not apply to traffic control system. Adjustments in compensation for traffic control system will be made for an increase or decrease in traffic control work if ordered and will be made on the basis of the cost of the necessary increased or decreased traffic control. The adjustment will be made on a force account basis for increased work and estimated on the same basis in the case of decreased work.

A traffic control system required by change order work is paid for as a part of the change order work.

**Replace section 12-8 with:**

## **12-8 TEMPORARY PAVEMENT DELINEATION**

### **12-8.01 GENERAL**

Section 12-8 includes specifications for placing, applying, maintaining, and removing temporary pavement delineation.

Painted traffic stripe used for temporary delineation must comply with section 84-3. Apply 1 or 2 coats.

Temporary signing for no-passing zones must comply with section 12-3.06.

## **12-8.02 MATERIALS**

### **12-8.02A General**

Not Used

### **12-8.02B Temporary Lane Line and Centerline Delineation**

Temporary pavement markers must be the same color as the lane line or centerline markers being replaced. Temporary pavement markers must be one of the temporary pavement markers on the Authorized Material List for short-term day or night use, 14 days or less, or long-term day or night use, 180 days or less.

### **12-8.02C Temporary Edge Line Delineation**

Temporary, removable, construction-grade striping and pavement marking tape must be one of the types on the Authorized Material List. Apply temporary, removable, construction-grade striping and pavement marking tape under the manufacturer's instructions.

## **12-8.03 CONSTRUCTION**

### **12-8.03A General**

Whenever work activities obliterate pavement delineation, place temporary or permanent pavement delineation before opening the traveled way to traffic. Place lane line and centerline pavement delineation for traveled ways open to traffic. On multilane roadways, freeways, and expressways, place edge line delineation for traveled ways open to traffic.

Establish the alignment for temporary pavement delineation, including required lines or markers. Surfaces to receive an application of paint or removable traffic tape must be dry and free of dirt and loose material. Do not apply temporary pavement delineation over existing pavement delineation or other temporary pavement delineation. Maintain temporary pavement delineation until it is superseded or you replace it with a new striping detail of temporary pavement delineation or permanent pavement delineation.

Place temporary pavement delineation on or adjacent to lanes open to traffic for a maximum of 14 days. Before the end of the 14 days, place the permanent pavement delineation. If the permanent pavement delineation is not placed within the 14 days, replace the temporary pavement markers with additional temporary pavement delineation equivalent to the striping detail specified for the permanent pavement delineation for the area. The Department does not pay for the additional temporary pavement delineation.

When the Engineer determines the temporary pavement delineation is no longer required for the direction of traffic, remove the markers, underlying adhesive, and removable traffic tape from the final layer of surfacing and from the existing pavement to remain in place. Remove temporary pavement delineation that conflicts with any subsequent or new traffic pattern for the area.

### **12-8.03B Temporary Lane Line and Centerline Delineation**

Whenever lane lines or centerlines are obliterated, the minimum lane line and centerline delineation must consist of temporary pavement markers placed longitudinally at intervals not exceeding 24 feet. The temporary pavement markers must be temporary pavement markers on the Authorized Material List for short-term day or night use, 14 days or less, or long-term day or night use, 180 days or less. Place temporary pavement markers under the manufacturer's instructions. Cement the markers to the surfacing with the adhesive recommended by the manufacturer, except do not use epoxy adhesive to place pavement markers in areas where removal of the markers will be required.

For temporary lane line or centerline delineation consisting entirely of temporary pavement markers, place the markers longitudinally at intervals not exceeding 24 feet.

### **12-8.03C Temporary Edge Line Delineation**

Whenever edge lines are obliterated on multilane roadways, freeways, and expressways, place edge line delineation for that area adjacent to lanes open to traffic consisting of (1) solid, 4-inch wide traffic stripe tape of the same color as the stripe being replaced, (2) traffic cones, (3) portable delineators or channelizers placed longitudinally at intervals not exceeding 100 feet. You may apply temporary painted traffic stripe where removal of the 4-inch wide traffic stripe will not be required.



The cold planing machine must be:

1. Equipped with a cutter head width that matches the planing width. If the cutter head width is wider than the cold plane area shown, submit to the Engineer a request for using a wider cutter head. Do not cold plane unless the Engineer approves your request.
2. Equipped with automatic controls for the longitudinal grade and transverse slope of the cutter head and:
  - 2.1. If a ski device is used, it must be at least 30 feet long, rigid, and a 1-piece unit. The entire length must be used in activating the sensor.
  - 2.2. If referencing from existing pavement, the cold planing machine must be controlled by a self-contained grade reference system. The system must be used at or near the centerline of the roadway. On the adjacent pass with the cold planing machine, a joint-matching shoe may be used.
3. Equipped to effectively control dust generated by the planing operation
4. Operated so that no fumes or smoke is produced.

Replace broken, missing, or worn machine teeth.

#### **15-2.02B(3)(c)(ii) Grade Control and Surface Smoothness**

Furnish, install, and maintain grade and transverse slope references.

The depth, length, width, and shape of the cut must be as shown or as ordered. The final cut must result in a neat and uniform surface. Do not damage the remaining surface.

The completed surface of the planed asphalt concrete pavement must not vary more than 0.02 foot when measured with a 12-foot straightedge parallel with the centerline. With the straightedge at right angles to the centerline, the transverse slope of the planed surface must not vary more than 0.03 foot.

Where lanes are open to traffic, the drop-off of between adjacent lanes must not be more than 0.15 foot.

#### **15-2.02B(3)(c)(iii) Temporary HMA Tapers**

If a drop-off between the existing pavement and the planed area at transverse joints cannot be avoided before opening to traffic, construct a temporary HMA taper. The HMA temporary taper must be:

1. Placed to the level of the existing pavement and tapered on a slope of 30:1 (horizontal:vertical) or flatter to the level of the planed area
2. Compacted by any method that will produce a smooth riding surface

Completely remove temporary tapers before placing permanent surfacing.

#### **15-2.02B(3)(c)(iv) Remove Planed Material**

Remove cold planed material concurrent with planing activities so that removal does not lag more than 50 feet behind the planer.

#### **15-2.02B(3)(d) Payment**

Payment for removal of pavement markers, thermoplastic traffic stripe, painted traffic stripe, and pavement marking within the area of cold planing is included in the payment for cold plane asphalt concrete pavement of the types shown in the Bid Item List.

#### **Replace section 15-2.02F with:**

#### **15-2.02F Remove Asphalt Concrete Dikes**

Before removing the dike, cut the outside edge of the asphalt concrete on a neat line and to a minimum depth of 0.17 foot.

AA

## DIVISION V SURFACINGS AND PAVEMENTS

### 37 BITUMINOUS SEALS

**Add to section 37-5.02:**

Crack treatment material must be Type 3

**Add to section 37-5.03:**

Crack treatment must be hot-applied.

Construct the reservoir 3/4 inches wide by 1 inches deep.

**Replace the 2nd sentence of the 7th paragraph of section 37-5.03 with:**

Fill the crack recessed 1/4 inch.

AA

### 39 HOT MIX ASPHALT

**Replace section 39 with:**

#### 39 HOT MIX ASPHALT, SUPERPAVE

#### 39-1.01 GENERAL

##### 39-1.01A Summary

Section 39 includes specifications for producing and placing HMA by mixing aggregate and asphalt binder at a mixing plant and spreading and compacting the HMA mixture.

HMA includes one or more of the following types:

1. HMA-Type A-SP
2. RHMA-G-SP
3. OGFC including HMA-O, and RHMA-O

##### 39-1.01B Definitions

**coarse aggregate:** Aggregate retained on a 1/4-inch screen

**fine aggregate:** Aggregate passing the 1/4-inch screen.

**hot mix asphalt, superpave:** Performance based HMA that takes into account quality properties of the binder and aggregate to improve a mix's resistance to rutting and low temperature and fatigue cracking.

**leveling course:** A thin layer of HMA used to correct minor variations in the longitudinal and transverse profile of the pavement prior to placement of other pavement layers.

**lower course:** HMA-TYPE A-SP layers below 0.2 feet from finished grade

**miscellaneous areas:** Areas outside the traveled way such as:

1. Median areas not including inside shoulders
2. Island areas
3. Sidewalks
4. Gutters
5. Gutter flares

6. Ditches
7. Overside drains
8. Aprons at the ends of drainage structures

**modified binder:** A PG graded binder designated as polymer modified (PM) or terminal blend (TR), or any PG grade binder with rubber modifiers.

**processed RAP:** RAP that has been fractioned.

**supplemental fine aggregate:** Aggregate passing the no. 30 sieve, including hydrated lime, portland cement, and fines from dust collectors.

**surface course:** Upper 0.2 feet of HMA-TYPE A-SP exclusive of HMA-O or RHMA-O.

**top layer:** Final riding surface exclusive of OGFC.

### **39-1.01C Submittals**

#### **39-1.01C(1) General**

For miscellaneous areas and dikes, a JMF submittal is not required.

For JMF mix design, JMF verification, production start-up, and each 10,000 tons, submit AASHTO T 283 and AASHTO T 324 (Modified) test results to the Engineer and electronically to:

Moisture\_Tests@dot.ca.gov

At production start-up and within 1000 tons of the halfway point of production of HMA, submit samples split from your HMA production sample for AASHTO T 283 and AASHTO T 324 (Modified) tests to the Engineer and the Transportation Laboratory, Attention: Moisture Test.

Submit quality control test results within 2 days of a request.

For tests performed under AASHTO T324 (Modified) as specified in section 39-1.01D(1), submit test data and 1 tested sample set within 72 hours of sampling.

#### **39-1.01C(2) Job Mix Formula**

##### **39-1.01C(2)(a) General**

For each type of HMA shown, submit your proposed JMF on the *Contractor Job Mix Formula Proposal* form along with:

1. Mix design documentation on *Hot Mix Asphalt Design Data* form dated within 12 months of submittal
2. MSDS for:
  - 2.1. Asphalt binder
  - 2.2. Base asphalt binder used in asphalt rubber binder
  - 2.3. CRM and asphalt modifier used in asphalt rubber binder
  - 2.4. Blended asphalt rubber binder mixture
  - 2.5. Supplemental fine aggregate except fines from dust collectors
  - 2.6. Antistrip additives
3. For RHMA-G-SP, asphalt rubber binder design and profile

The JMF must be based on a HMA mix design determined as described in the Superpave Mix Design SP-2 Manual by the Asphalt Institute.

Allow the Engineer 5 business days from a complete JMF submittal for document review of the aggregate qualities, mix design, and JMF. Do not start HMA production before verification and acceptance of JMF.

Submit a new JMF if you change any of the following:

1. Target asphalt binder percentage greater than  $\pm 0.2$  percent
2. Asphalt binder supplier
3. Asphalt rubber binder supplier
4. Component materials used in asphalt rubber binder or percentage of any component materials
5. Combined aggregate gradation

- 6. Aggregate sources
- 8. Any material in the JMF

Submit a new JMF when the average binder content in a new fractionated RAP stockpile is more than  $\pm 2.0$  percent from the average binder content of the original fractionated RAP stockpile used in the mix design.

Submit a new JMF when the processed RAP specific gravity is more than  $\pm 0.060$  from the average maximum specific gravity reported on page 4 of your Contractor Hot Mix Asphalt Design Data form.

**39-1.01C(2)(b) Mix Design**

The HMA mix design must comply with AASHTO R 35 except:

- 1. Notes 3, 6, and 10 do not apply
- 2. AASHTO M 323 does not apply on combinations of aggregate gradations and asphalt binder contents to determine the OBC and HMA mixture qualities

Your Hot Mix Asphalt Design Data form must show documentation on aggregate quality.

For HMA mixtures utilizing RAP the maximum binder replacement is 25.0 percent for surface course and 40.0 percent for lower courses.

For HMA with a binder replacement percent less than or equal to 25 percent of optimum binder content, you may request that the performance graded asphalt binder grade with upper and lower temperature classifications be reduced by 6 degrees C from the specified grade.

For HMA with a binder replacement greater than 25 percent of optimum binder content and less than or equal to 40 percent of optimum binder content, you must use a performance graded asphalt binder grade with upper and lower temperature classifications reduced by degrees C from the specified grade.

The mix design must comply with the quality characteristics of the following table:

**Hot Mix Asphalt Mix Design Requirements**

| Quality characteristic   | Test method   | HMA   |                                      |
|--|---|---|--------------------------------------|
|  |   | HMA-TYPE<br>A-SP  | RHMA-G-SP                            |
| Air voids content (%)  | AASHTO<br>T 269 <sup>a</sup>                            | N <sub>initial</sub> 8.0<br>N <sub>design</sub> 4.0<br>N <sub>max</sub> 2.0 | N <sub>design</sub><br>Specification |
| Gyrations Compaction<br>(number of gyrations)                                      | AASHTO<br>T 312   | N <sub>initial</sub> 8<br>N <sub>design</sub> 85<br>N <sub>max</sub> 130    | N <sub>design</sub> 50–150           |
| Voids in mineral aggregate (%<br>min.)   | SP-2<br>Asphalt<br>Mixtures<br>Volumetrics <sup>c</sup> |   |                                      |
| 1/4" grading   |   | 18.0  | --                                   |
| 3/8" grading   |   | 16.0  | --                                   |
| 1/2" grading   |   | 14.5  | 19.0–24.0 <sup>b</sup>               |
| 3/4" grading   |   | 13.5  | 19.0–24.0 <sup>b</sup>               |
| Voids filled with asphalt (%)  | SP-2<br>Asphalt<br>Mixtures<br>Volumetrics <sup>c</sup> |   |                                      |
| 1/4" grading   |   | 65.0–75.0   | Report Only                          |
| 3/8" grading   |   | 65.0–75.0   |                                      |
| 1/2" grading   |   | 65.0–75.0   |                                      |
| 3/4" grading   |   | 65.0–75.0   |                                      |
| Dust proportion  | SP-2<br>Asphalt<br>Mixtures<br>Volumetrics <sup>c</sup> |   |                                      |
| 1/4" and 3/8" gradings   |   | 0.9–2.0   | Report Only                          |
| 1/2" and 3/4" gradings   |   | 0.6–1.3   |                                      |
| Hamburg wheel track<br>(minimum number of passes at 0.5<br>inch average rut depth) | AASHTO<br>T 324<br>(Modified) <sup>d, e</sup>           |   |                                      |
| PG 58  |   | 10,000  | 15,000                               |
| PG 64  |   | 15,000  | 20,000                               |
| PG-70  |   | 20,000  | 25,000                               |
| PG-76 or higher  |   | 25,000  |                                      |
| Hamburg wheel track<br>(inflection point minimum number<br>of passes) <sup>f</sup> | AASHTO<br>T 324<br>(Modified) <sup>d, e</sup>           |   |                                      |
| PG 58  |   | 10,000  | 10,000                               |
| PG 64  |   | 10,000  | 10,000                               |
| PG-70  |   | 12,500  | 12,500                               |
| PG-76 or higher  |   | 15,000  |                                      |
| Moisture susceptibility<br>(minimum dry strength, psi)                             | AASHTO<br>T 283 <sup>d</sup>                            | 120   | 120                                  |
| Moisture susceptibility<br>(tensile strength ration, %)                            | AASHTO<br>T 283 <sup>df</sup>                           | 70  | 70                                   |

<sup>a</sup>Calculate the air voids content of each specimen using AASHTO T 275 to determine bulk specific gravity AASHTO T 209 Method A to determine theoretical maximum specific gravity. Under AASHTO T 209 use a digital monometer and pycnometer when performing AASHTO T 209.

<sup>b</sup>Voids in mineral aggregate for RHMA-G-SP-G must be within this range.

<sup>c</sup>Measure bulk specific gravity using AASHTO T 275.

<sup>d</sup>Test plant produced HMA.

<sup>e</sup>Test as specified in section 39-1.01D(1).

<sup>f</sup>Freeze thaw is not required

If the test results for AASHTO T 283 or AASHTO T 324 (Modified) for untreated plant produced HMA is less than minimum requirements for HMA-mix design, determine the plasticity index of the aggregate blend under California Test 204. The antistrip treatment must be based on plasticity index in compliance with the following table:

**Hot Mix Asphalt Antistrip Treatment Options**

| Quality characteristic   | Test method            | Treatment requirement  |
|--|------------------------|--|
| Plasticity index<br>Plasticity index from 4 to 10 <sup>a</sup> | California Test<br>204 | Dry hydrated lime with marination<br>Lime slurry with marination   |
| Plasticity index less than 4                                   |                        | Liquid<br>Dry hydrated lime without marination<br>Dry hydrated lime with marination<br>Lime slurry with marination |

<sup>a</sup>If the plasticity index is greater than 10, do not use that aggregate blend.

If the tensile strength ratio test result for treated plant produced RHMA-G-SP is less than the RHMA-G-SP mix design requirement for tensile strength ratio, the minimum tensile strength ratio requirement is waived, but you must use any of the following antistrip treatments:

1. HMA aggregate lime treatment – slurry method
2. HMA aggregate lime treatment – dry lime method
3. Liquid antistrip treatment using 0.5 percent liquid antistrip

**39-1.01C(2)(c) Liquid Antistrip Treatment**

If liquid antistrip (LAS) treatment is used, submit the following with your proposed JMF submittal:

1. MSDS for LAS.
2. One 1-pint sample.
3. Infrared analysis including copy of absorption spectra.
4. Certified copy of test results and an MSDS for each LAS lot.
5. Certificate of compliance for each LAS shipment. With each certificate of compliance, include:
  - 5.1. Your signature and printed name.
  - 5.2. Shipment number
  - 5.3. Material type.
  - 5.4. Material specific gravity
  - 5.5. Refinery.
  - 5.6. Consignee.
  - 5.7. Destination.
  - 5.8. Quantity.
  - 5.9. Contact or purchase order number.
  - 5.10. Shipment date
6. Proposed proportions for LAS. If you change the brand or type of LAS, submit a new JMF.

For each job site delivery of LAS, submit one 1/2-pint sample to METS. Submit shipping documents. Label each LAS sampling container with:

1. LAS type
2. Application rate
3. Sample date
4. Contract number

At the end of each day's production shift, submit production data in electronic and printed media. Present data on electronic media in tab delimited format. Use line feed carriage return with 1 separate record per line for each production data set. Allow sufficient fields for the specified data. Include data titles at least once per report. For each mixing operation type, submit the following items in order:

1. Batch mixing:
  - 1.1. Production date
  - 1.2. Time of batch completion
  - 1.3. Mix size and type
  - 1.4. Each ingredient's weight
  - 1.5. Asphalt binder content as a percentage of the dry aggregate weight
  - 1.6. LAS content as a percentage of the asphalt binder weight
2. Continuous mixing
  - 2.1. Production date
  - 2.2. Data capture time
  - 2.3. Mix size and type
  - 2.4. Flow rate of wet aggregate collected directly from the aggregate weigh belt
  - 2.5. Aggregate moisture content as percentage of the dry aggregate weight
  - 2.6. Flow rate of asphalt binder collected from the asphalt binder meter
  - 2.7. Flow rate of LAS collected from the LAS meter
  - 2.8. Asphalt binder content as percentage of the dry aggregate weight calculated from:
    - 2.8.1. Aggregate weigh belt output
    - 2.8.2. Aggregate moisture input
    - 2.8.3. Asphalt binder meter output
  - 2.9. LAS content as percentage of the asphalt binder weight calculated from:
    - 2.9.1. Asphalt binder meter output
    - 2.9.2. LAS meter output

#### **39-1.01C(2)(d) Lime Treatment**

If aggregate lime treatment is used, submit the following with your proposed JMF:

1. Exact lime proportions for fine and coarse virgin aggregate with the proposed JMF
2. If marination is required, the averaged aggregate quality test results within 24 hours of sampling
3. For dry lime aggregate treatment, a treatment data log from the dry lime and aggregate proportioning device in the following order:
  - 3.1. Treatment date
  - 3.2. Time of day the data is captured
  - 3.3. Aggregate size being treated
  - 3.4. HMA type and mix aggregate size
  - 3.5. Wet aggregate flow rate collected directly from the aggregate weigh belt
  - 3.6. Aggregate moisture content, expressed as a percent of the dry aggregate weight
  - 3.7. Flow rate of dry aggregate calculated from the flow rate of wet aggregate
  - 3.8. Dry lime flow rate
  - 3.9. Lime ratio from the accepted JMF for each aggregate size being treated
  - 3.10. Lime ratio from the accepted JMF for the combined aggregate
  - 3.11. Actual lime ratio calculated from the aggregate weigh belt output, the aggregate moisture input, and the dry lime meter output, expressed as a percent of the dry aggregate weight
  - 3.12. Calculated difference between the authorized lime ratio and the actual lime ratio
4. For lime slurry aggregate treatment, a treatment data log from the slurry proportioning device in the following order:
  - 4.1. Treatment date
  - 4.2. Time of day the data is captured
  - 4.3. Aggregate size being treated
  - 4.4. Wet aggregate flow rate collected directly from the aggregate weigh belt
  - 4.5. Moisture content of the aggregate just before treatment, expressed as a percent of the dry aggregate weight
  - 4.6. Dry aggregate flow rate calculated from the wet aggregate flow rate
  - 4.7. Lime slurry flow rate measured by the slurry meter
  - 4.8. Dry lime flow rate calculated from the slurry meter output
  - 4.9. Authorized lime ratio for each aggregate size being treated
  - 4.10. Actual lime ratio calculated from the aggregate weigh belt and the slurry meter output, expressed as a percent of the dry aggregate weight
  - 4.11. Calculated difference between the authorized lime ratio and the actual lime ratio
  - 4.12. Dry lime and water proportions at the slurry treatment time

Each day during lime treatment, submit the treatment data log on electronic media in tab delimited format on a removable CD-ROM storage disk. Each continuous treatment data set must be a separate record using a line feed carriage return to present the specified data on 1 line. The reported data must include data titles at least once per report.

### **39-1.01C(2)(e) Asphalt Rubber Binder**

For the asphalt rubber binder used, submit:

1. Log of production daily.
2. Certificate of compliance with test results for CRM and asphalt modifier with each truckload delivered to the HMA plant. The certificate of compliance for asphalt modifier must represent no more than 5,000 lbs.
3. Submit certified weight slips for the CRM and asphalt modifier furnished.

Submit a certificate of compliance for the asphalt rubber binder. With the certificate of compliance, submit test results for CRM and asphalt modifier with each truckload delivered to the HMA plant. A certificate of compliance for asphalt modifier must not represent more than 5,000 lbs.

### **39-1.01C(2)(f) Reclaimed Asphalt Pavement**

Submit QC test results for RAP gradation with the combined aggregate gradation within 2 days of taking RAP samples during HMA-TYPE A-SP production.

### **39-1.01C(3) Quality Control Plan**

With your proposed JMF submittal, submit a QC plan for HMA. The QC plan must describe the organization and procedures for:

1. Controlling HMA quality characteristics
2. Obtaining samples, including sampling locations
3. Establishing, implementing, and maintaining QC
2. Determining when corrective actions are needed
3. Implementing corrective actions
4. Taking samples, including location of sampling

The QCP must address the elements affecting HMA quality including:

1. Aggregate
2. Asphalt binder
3. Additives
4. Production
5. Paving

The QC plan must include aggregate quality control sampling and testing during lime treatment.

The Engineer reviews the QC plan within 5 business days from the submittal. Do not start HMA production until the Engineer authorizes the plan.

If QC procedures, personnel, tester qualifications, or lab accreditation status change, submit a QC plan supplement at least 3 business days before implementing proposed changes.

### **39-1.01C(4) Profilograms**

Submit final profilograms including 1 electronic copy of profile information in Microsoft Excel and 1 electronic copy of longitudinal pavement profiles in ".erd" format or other ProVAL compatible format to the Engineer and to:

Smoothness@dot.ca.gov

### **39-1.01C(5) Data Cores**

At least 3 business days before starting coring, submit proposed methods and materials for backfilling data core holes.

Submit a summary of data cores taken and a photograph of each data core to the Engineer and to:

Coring@dot.ca.gov

### **39-1.01D Quality Control and Assurance**

#### **39-1.01D(1) General**

AASHTO T 324 (Modified) is AASHTO T 324, "Hamburg Wheel-Track Testing of Compacted Hot Mix Asphalt (HMA)," with the following parameters:

1. Target air voids must equal  $7 \pm 1$  percent.
2. Number of test specimens must be 4.
3. Test specimen must be a 6-inch gyratory compacted specimen.
4. Test temperature must be set at  $122 \pm 2$  degrees F.
5. Measurements for impression must be taken at every 100 passes.
6. Inflection point defined as the number of wheel passes at the intersection of the creep slope and the stripping slope.
7. Testing shut off must be set at 25,000 passes

During production, take samples under California Test 125.

If the Engineer requests, sample the following materials in the presence of the Engineer and place in labeled containers weighing no more than 50 lbs. each:

1. Coarse, fine, and supplemental fine aggregate from stockpiles, cold feed belts, or hot bins. Samples must include at least 120 lbs. for each coarse aggregate, 80 lbs. for each fine aggregate, and 10 lbs. for each type of supplemental fines. The Department combines these aggregate samples to comply with the JMF target values submitted on Contractor Job Mix Formula Proposal form.
2. RAP from stockpiles or RAP system. Samples must be at least 100 lbs.
3. Asphalt binder from the binder supplier. Samples must be in two 1-quart cylindrical shaped cans with open top and friction lids.
4. Asphalt rubber binder with the components blended in the proportions to be used. Samples must be in four 1-quart cylindrical shaped cans with open top and friction lids.

Notify the Engineer at least 2 business days before sampling materials. For aggregate and RAP, split the samples into at least 4 parts. Submit 3 parts to the Engineer and use 1 part for your testing.

#### **39-1.01D(2) Verification and Acceptance of Job Mix Formula**

For OGFC, the Engineer determines the asphalt binder content under California Test 368 within 20 days of your complete JMF submittal and provides you a Hot Mix Asphalt Verification form.

For HMA, the Engineer verifies the JMF from samples taken from HMA produced by the plant to be used. Notify the Engineer at least 2 business days before sampling materials.

In the Engineer's presence and from the same production run, take samples of:

1. Aggregate
2. Asphalt binder
3. RAP
4. HMA

Sample aggregate from cold feed belts or hot bins. Sample RAP from the RAP system.

You may sample from a different project including a non-Department project if you make arrangements for the Engineer to be present during sampling.

For aggregate, RAP, and HMA, split the samples into at least 4 parts and label their containers. Submit 3 parts to the Engineer and use 1 part for your testing.

The Engineer verifies each proposed JMF within 20 days of receiving verification samples. Verification is testing for compliance with the specifications for:

1. Aggregate quality
2. Aggregate gradation (JMF TV  $\pm$  tolerance)
3. Asphalt binder content (JMF TV  $\pm$  tolerance)
4. HMA quality specified in the table Hot Mix Asphalt Mix Design Requirements except:
  - 4.1. Air voids content (design value  $\pm$  1.5 percent)
  - 4.2. VMA (minimum HMA mix design requirement +3.0 -1.0)
  - 4.3. Dust proportion (design value +/- 0.5)

To verify the JMF air voids content the Engineer uses an average of three briquettes for air voids content, VMA, VFA, and Dust Proportion The Engineer tests plant produced material.

If the Engineer verifies the JMF, the Engineer provides you a Hot Mix Asphalt Verification form.

If the Engineer's tests on plant-produced samples do not verify the JMF, the Engineer notifies you and you must submit a new JMF or submit an adjusted JMF based on your testing. JMF adjustments may include a change in:

1. Asphalt binder content target value up to  $\pm$ 0.2 percent from the OBC value submitted on Hot Mix Asphalt Design Data form except do not adjust the target value for asphalt rubber binder for RHMA-G-SP below 7.5 percent by total weight of mixture.
2. Aggregate gradation target values within the target value limits specified in the aggregate gradation table.

You may adjust the JMF only once due to a failed verification test. An adjusted JMF requires a new Contractor Job Mix Formula Proposal form and Hot Mix Asphalt Design Data form and verification of a plant-produced sample.

The Engineer re verifies the JMF if HMA production has stopped for longer than 30 days and the verified JMF is older than 12 months.

For each HMA type and aggregate size specified, the Engineer verifies up to 2 proposed JMF submittals including a JMF adjusted after verification failure. If you submit more than 2 JMF for each type of HMA and aggregate size, the Engineer deducts \$3,000 from payments for each verification exceeding this limit. This deduction does not apply to verifications initiated by the Engineer or if a JMF expires while HMA production is stopped longer than 30 days.

If you have a verified Hot Mix Asphalt Verification form, the Engineer will verify 1 binder source change for each HMA type and aggregate size specified. The Engineer deducts \$2,000 from payments for this verification.

You may start HMA production if:

1. The Engineer's review of the JMF shows compliance with the specifications
2. The Department has verified the JMF within 12 months before HMA production
3. The Engineer accepts the verified JMF

### **39-1.01D(2) Quality Control Plan**

Implement your QC plan. If a change to your QC plan is needed, do not implement the change without authorization.

### **39-1.01D(3) Prepaving Conference**

Meet with the Engineer at a prepaving conference at a mutually agreed time and place. Discuss the QC plan and the methods of performing production and paving work.

The following personnel must attend the prepaving conference:

1. Project Manager
2. Superintendent
3. HMA plant manager

4. HMA paving foreman

**39-1.01D(4) Quality Control Testing**

Perform sampling and testing as specified in the following 4 tables:

**Minimum Quality Control Requirements for Aggregate**

| Quality characteristic   | Test method            | Minimum sampling and testing frequency                 | HMA                          |                              |                              |
|--|------------------------|--|------------------------------|------------------------------|------------------------------|
|  |                        |  | HMA-TYPE A-SP                | RHMA-G-SP                    | OGFC                         |
| Aggregate gradation <sup>a</sup>   | AASHTO T 27            | 1 per 750 tons and any remaining part                  | JMF ± Tolerance <sup>b</sup> | JMF ± Tolerance <sup>b</sup> | JMF ± Tolerance <sup>b</sup> |
| Sand equivalent (min.) <sup>c</sup>  | AASHTO T 176           |  | 47                           | 47                           | --                           |
| Aggregate moisture content at continuous mixing plants and RAP moisture content at continuous mixing plants and batch mixing plants  | AASHTO T 329           | 2 per day during production                            | --                           | --                           | --                           |
| Percent of crushed particles<br>Coarse aggregate (% min.)<br>One fractured face<br>Two fractured faces<br>Fine aggregate (% min)<br>(Passing No. 4 sieve and retained on No. 8 sieve.)<br>One fractured face | AASHTO T 335 Method 2  | One per 10,000 tons or 2 per project whichever is more | 95                           | --                           | 90                           |
|  |                        |  | 90                           | 90                           | 90                           |
| 70   | 70                     |  | 90                           |                              |                              |
| Los Angeles Rattler (% max.)<br>Loss at 100 rev.<br>Loss at 500 rev.   | AASHTO T 96            |  | 12<br>40                     | 12<br>40                     | 12<br>40                     |
| Flat and elongated particles (% max. by weight @ 5:1)  | ASTM D 4791            |  | Report only                  | Report only                  | Report only                  |
| Fine aggregate angularity (% min.)   | AASHTO T 304, Method A |  | 45                           | 45                           | --                           |

<sup>a</sup>If RAP is used, test the combined aggregate gradation under Laboratory Procedure LP-9.

<sup>b</sup>Comply with the allowable tolerances in section 39-1.02E.

<sup>c</sup>Report the average of 3 tests from a single split sample. Use of a Sand Reader Indicator is required as shown in AASHTO T 176, Figure 1. Sections 4.7, 4.8, 7.1.2, 8.4.2 and 8.4.3 do not apply.

**Minimum Quality Control Requirements for HMA Mix**

| Quality Characteristic  | Test method                                    | Minimum sampling and testing frequency                         | HMA  |                                    |           |
|---|--|--|--|------------------------------------|-----------|
|   |  |  | HMA-TYPE A-SP                                    | RHMA-G-SP                          | OGFC      |
| Asphalt binder content (%)  | AASHTO T 308 Method A                          | 1 per 750 tons and any remaining part                          | JMF ± 0.3  | JMF ± 0.4                          | JMF ± 0.4 |
| HMA moisture content (% max.)   | AASHTO T 329                                   | 1 per 2,500 tons but not less than 1 per paving day            | 1.0  | 1.0                                | 1.0       |
| Air voids content (%) <sup>a</sup>  | AASHTO T 269                                   | One per 4,000 tons or 2 per 5 business days, whichever is more | 4 ± 1.5  | Specification ± 1.5                | --        |
| Voids filled with asphalt (%)<br>1/4" grading<br>3/8" grading<br>1/2" grading<br>3/4" grading       | SP-2 Asphalt Mixtures Volumetrics <sup>a</sup> | One per 10,000 tons or 2 per project whichever is more         | 65.0–75.0<br>65.0–75.0<br>65.0–75.0<br>65.0–75.0 | Report only                        | --        |
| Voids in mineral aggregate (% min.)<br>1/4" grading<br>3/8" grading<br>1/2" grading<br>3/4" grading | SP-2 Asphalt Mixtures Volumetrics <sup>a</sup> |  | 16.5<br>14.5<br>13.5<br>12.5                     | --<br>--<br>18.0–23.0<br>18.0–23.0 | --        |
| Dust proportion<br>1/4" and 3/8" gradings<br>1/2" and 3/4" gradings                                 | SP-2 Asphalt Mixtures Volumetrics <sup>a</sup> |  | 0.9–2.0<br>0.6–1.3                               | Report only                        | --        |

<sup>a</sup>Determine bulk specific gravity using AASHTO T 275.

**Minimum Quality Control for In-Place HMA**

| Quality Characteristic   | Test method                          | Minimum sampling and testing frequency                 | HMA                                  |                                  |      |
|--|--------------------------------------|--|--------------------------------------|----------------------------------|------|
|  |                                      |  | HMA-TYPE A-SP                        | RHMA-G-SP                        | OGFC |
| Percent of theoretical maximum density (%) by core <sup>a, b</sup>   | California Test 375                  | 2 per paving day (min.)                                | 92-97                                | 92-97                            | --   |
| Percent of theoretical maximum density by Nuclear gauge (%) <sup>a, b, c</sup>   | California Test 375                  | 3 per 250 tons but not less than 3 per paving day      | 92-97                                | 92-97                            | --   |
| Hamburg wheel track (minimum number of passes at 0.5 inch average rut depth)<br>PG 58<br>PG 64<br>PG-70<br>PG-76 or higher | AASHTO T 324 (Modified) <sup>d</sup> | One per 10,000 tons or 1 per project whichever is more | 10,000<br>15,000<br>20,000<br>25,000 | 15,000<br>20,000<br>25,000<br>-- | --   |
| Hamburg wheel track (inflection point minimum number of passes) <sup>e</sup><br>PG 58<br>PG 64<br>PG-70<br>PG-76 or higher | AASHTO T 324 (Modified) <sup>d</sup> |  | 10,000<br>10,000<br>12,500<br>15,000 | 10,000<br>12,500<br>15,000<br>-- | --   |
| Moisture susceptibility (minimum dry strength, psi)  | AASHTO T 283                         | One per 10,000 tons or 1 per project whichever is more | 120                                  | 120                              | --   |
| Moisture susceptibility (tensile strength ratio, %) <sup>e</sup>   | AASHTO T 283                         |  | 70                                   | 70                               | --   |

<sup>a</sup>Determine theoretical maximum density if any of the following applies:

1. 1/2-inch, 3/8-inch, or 1/4-inch grading is used and the specified total paved thickness is at least 0.15 foot.
2. 3/4-inch aggregate grading is used and the specified total paved thickness is at least 0.20 foot.

<sup>b</sup>Determine theoretical maximum density under AASHTO T 209 Method A at the frequency specified for Test Maximum Density in California Test 375, Part 5.D. Use a digital manometer and a pycnometer when performing AASHTO T 209.

<sup>c</sup>Verify gauge correlation to cores every 10,000 tons utilizing the average of two cores.

<sup>d</sup>Test as specified in section 39-1.01D(1).

<sup>e</sup>Freeze thaw not required.

**Miscellaneous Minimum Quality Control Requirements**

| Quality Characteristic                                 | Test method                            | Minimum sampling and testing frequency                         | HMA   |   |                                     |
|--|--|--|---|---|-------------------------------------|
|  |  |  | HMA-TYPE A-SP   | RHMA-G-SP   | OGFC                                |
| Smoothness   | California Test 526                    | --   | 12-foot straightedge, must-grind, and PI <sub>0</sub> | 12-foot straightedge, must-grind, and PI <sub>0</sub> | 12-foot straightedge and must-grind |
| Asphalt rubber binder viscosity @ 375 °F (centipoises) | LP-11                                  | Once per hour, minimum of 1 test per batch                     | --  | 1,500 – 4,000   | 1,500 – 4,000                       |
| Asphalt modifier                                       | ASTM D 445<br>ASTM D 92<br>ASTM D 2007 | 1 per truckload delivered to the RHMA-G-SP production facility | --  | Section 39-1.02D(2)(b)                                | Section 39-1.02D(2)(b)              |
| Crumb rubber modifier                                  | LP-10<br>CT 208<br>ASTM D 297          | 1 per truckload delivered to the RHMA-G-SP production facility | --  | Section 39-1.02D(2)(c)                                | Section 39-1.02D(2)(c)              |

Prepare 3 briquettes for air voids content and VMA determination. Report the average of 3 tests.

For any single quality characteristic except smoothness, if 2 quality control test results for 1 day's production do not comply with the action limits or specifications:

1. Stop production
2. Notify the Engineer
3. Take corrective action
4. Show how you will comply with the specifications before resuming production and placement on the State highway

**39-1.01D(5) Asphalt Rubber Binder**

Take asphalt rubber binder samples from the feed line connecting the asphalt rubber binder tank to the HMA plant. Sample and test asphalt rubber binder under Laboratory Procedure LP-11. Use an AASHTO-certified laboratory for testing.

Test asphalt rubber binder for compliance with the viscosity requirements in section 39-1.02D(2)(b). During asphalt rubber binder production and HMA production using asphalt rubber binder, measure viscosity every hour with not less than 1 reading for each asphalt rubber binder batch. Log measurements with corresponding time and asphalt rubber binder temperature. Sample and test gradation and wire and fabric content of CRM once per 10,000 lbs. of scrap tire CRM and once per 3,400 lbs. of high natural CRM. Sample and test scrap tire CRM and high natural CRM separately.

**39-1.01D(6) Aggregate**

Laboratories testing aggregate qualities and preparing the mix design and JMF must be qualified under AASHTO Materials Reference Laboratory program (AMRL), and the Department's Independent Assurance Program. Take samples under California Test 125.

Determine the aggregate moisture content moisture content in continuous mixing plants at least twice a day during production and adjust the plant controller.

**39-1.01D(7) Reclaimed Asphalt Pavement**

Sample and test processed RAP at a minimum frequency of 1 sample per 1000 tons with a minimum of 6 samples per fractionated stockpile to assure that its asphalt binder content and specific gravity meet the processed RAP quality characteristics. If a fractionated RAP stockpile is augmented, sample and test processed RAP quality characteristics at a minimum frequency of 1 sample per 500 tons of augmented RAP.

The quality characteristic for processed RAP asphalt binder content must be within ± 2.0 percent of the average fractionated RAP stockpile asphalt binder content when tested under ASTM D 2172 (Method B). If new fractionated RAP stockpiles piles are required, the average binder content of the new fractionated RAP stockpile must be within ± 2.0 percent of the average binder content of the original fractionated RAP stockpile.

The quality characteristic for maximum specific gravity for processed RAP, must be within ± 0.06 when tested under AASHTO T 209, of the average maximum specific gravity reported on page 4 of your Contractor Hot Mix Asphalt Design Data form.

During production, sample RAP twice daily and perform QC testing for:

1. Aggregate gradation at least once a day under Laboratory Procedure LP-9
2. Moisture content at least twice a day during and adjust the plant controller

**39-1.01D(8) Liquid Antistrip Treatment**

For continuous mixing and batch mixing operations, sample asphalt binder before adding LAS. For continuous mixing operations, sample combined asphalt binder and LAS after the static mixer.

**39-1.01D(9) Aggregate Lime Treatment**

For lime slurry aggregate treatment and dry lime aggregate treatment with marination, sample and test before treatment at the minimum frequencies shown in the following table:

**Aggregate Quality Control During Lime Treatment**

| Quality characteristic       | Test method           | Minimum sampling and testing frequency                 |
|------------------------------|-----------------------|--|
| Sand equivalent              | AASHTO T 176          | Once per 750 tons of untreated aggregate               |
| Percent of crushed particles | AASHTO T 335 method 2 | One per 10,000 tons or 2 per project whichever is more |
| Los Angeles Rattler          | AASHTO T 96           |  |
| Fine aggregate angularity    | AASHTO T 304 method A |  |
| Flat and elongated particles | ASTM D4791            |  |

Note: During lime treatment, sample coarse and fine aggregate from individual stockpiles. Combine aggregate in the JMF proportions. Run tests for aggregate quality in triplicate and report test results as the average of 3 tests.

For lime slurry aggregate treatment, determine the aggregate moisture content at least once during each 2 hours of treatment. Calculate moisture content under AASHTO T 329 and report it as a percent of dry aggregate weight. Use the moisture content calculations as a set point for the proportioning process controller.

**39-1.01D(10) Production Start-up Evaluation**

The Engineer evaluates HMA production and placement at production start-up.

Within the first 750 tons produced on the first day of HMA production, in the Engineer's presence and from the same production run, take samples of:

1. Aggregate
2. Asphalt binder
3. RAP
4. HMA

Sample aggregate from cold feed belts or hot bins. Take RAP samples from the RAP system. Sample HMA under California Test 125. You must identify your sampling location in your Quality Control Plan.

For aggregate, RAP, and HMA, split the samples into at least 4 parts and label their containers. Submit 3 split parts to the Engineer and keep 1 part.

You and the Engineer must test the split samples and report test results within 3 business days of sampling. If you proceed before receipt of the test results, the Engineer may consider the HMA placed to be represented by these test results.

Take 4-inch or 6-inch diameter density cores within the first 750 tons on the first day of HMA production. For each density core, the Engineer reports the bulk specific gravity determined under AASHTO T 275, Method A in addition to the percent of theoretical maximum density. You must test for in-place density at the density core locations and include them in your production tests for percent of theoretical maximum density.

#### **39-1.01D(11) Nuclear Gauge Density**

During HMA placement determine HMA density using a nuclear gauge. On the 1st day of production, develop a correlation factor between cores and nuclear gauge under California Test 375. Take a minimum of 3 nuclear gauge density readings for every 250 tons of HMA placed at random locations you select.

#### **39-1.01D(12) Smoothness**

##### **39-1.01D(12)(a) General**

Determine HMA smoothness with a profilograph and a straightedge.

Smoothness specifications do not apply to OGFC placed on existing pavement not constructed under the same project.

If portland cement concrete is placed on HMA-TYPE A-SP:

1. Cold plane the HMA-TYPE A-SP finished surface to within specified tolerances if it is higher than the grade specified by the Engineer.
2. Remove and replace HMA-TYPE A-SP if the finished surface is lower than 0.05 foot below the grade specified by the Engineer.

##### **39-1.01D(12)(b) Straightedge**

The HMA pavement top layer must not vary from the lower edge of a 12-foot long straightedge:

1. More than 0.01 foot when the straight edge is laid parallel with the centerline
2. More than 0.02 foot when the straightedge is laid perpendicular to the centerline and extends from edge to edge of a traffic lane
3. More than 0.02 foot when the straightedge is laid within 24 feet of a pavement conform

##### **39-1.01D(12)(c) Profilographs**

Under California Test 526, determine the zero (null) blanking band Profile Index ( $PI_0$ ) and must-grinds on the top layer of HMA-TYPE A-SP, and RHMA-G-SP pavement. Take 2 profiles within each traffic lane, 3 feet from and parallel with the edge of each lane.

A must-grind is a deviation of 0.3 inch or more in a length of 25 feet. You must correct must-grinds.

For OGFC, only determine must-grinds when placed over HMA constructed under the same project. The top layer of the underlying HMA must comply with the smoothness specifications before placing OGFC.

Profile pavement in the Engineer's presence. Choose the time of profiling.

On tangents and horizontal curves with a centerline radius of curvature 2,000 feet or more, the  $PI_0$  must be at most 2.5 inches per 0.1-mile section.

On horizontal curves with a centerline radius of curvature between 1,000 feet and 2,000 feet including pavement within the superelevation transitions, the  $PI_0$  must be at most 5 inches per 0.1-mile section.

Before the Engineer accepts HMA pavement for smoothness, submit written final profilograms.

The following HMA pavement areas do not require a  $PI_0$ . You must measure these areas with a 12-foot straightedge and determine must-grinds with a profilograph:

1. New HMA with a total thickness less than 0.25 foot
2. HMA sections of city or county streets and roads, turn lanes and collector lanes that are less than 1,500 feet in length

The following HMA pavement areas do not require a  $PI_0$ . You must measure these areas with a 12-foot straightedge:

1. Horizontal curves with a centerline radius of curvature less than 1,000 feet including pavement within the superelevation transitions of those curves
2. Within 12 feet of a transverse joint separating the pavement from:
  - 2.1. Existing pavement not constructed under the same project
  - 2.2. A bridge deck or approach slab
3. Exit ramp termini, truck weigh stations, and weigh-in-motion areas
4. If steep grades and superelevation rates greater than 6 percent are present on:
  - 4.1. Ramps
  - 4.2. Connectors
5. Turn lanes
6. Areas within 15 feet of manholes or drainage transitions
7. Acceleration and deceleration lanes for at-grade intersections
8. Shoulders and miscellaneous areas
9. HMA pavement within 3 feet from and parallel to the construction joints formed between curbs, gutters, or existing pavement

#### **39-1.01D(12)(d) Smoothness Corrections**

If the top layer of HMA-TYPE A-SP or RHMA-G-SP pavement does not comply with the smoothness specifications, grind the pavement to within tolerances, remove and replace it, or place a layer of HMA. The Engineer must authorize your choice of correction before the work begins.

Remove and replace the areas of OGFC not in compliance with the must-grind and straightedge specifications, except you may grind OGFC for correcting smoothness:

1. At a transverse joint separating the pavement from pavement not constructed under the same project
2. Within 12 feet of a transverse joint separating the pavement from a bridge deck or approach slab

Corrected HMA pavement areas must be uniform rectangles with edges:

1. Parallel to the nearest HMA pavement edge or lane line
2. Perpendicular to the pavement centerline

Measure the corrected HMA pavement surface with a profilograph and a 12-foot straightedge and correct the pavement to within specified tolerances. If a must-grind area or straightedged pavement cannot be corrected to within specified tolerances, remove and replace the pavement.

On ground areas not overlaid with OGFC, apply fog seal coat under section 37-1.

#### **39-1.01D(13) Density Cores**

Take 4-inch or 6-inch density cores to determine percent of theoretical maximum density. Take a minimum of 2 density cores each paving day from random locations you select. Backfill and compact holes with authorized material.

### **39-1.01D(14) Data Cores**

Data core summary and data core digital photographs are required to document the pavement structural section. Take data cores that include the completed HMA pavement, underlying base, and subbase material. Protect data cores and surrounding pavement from damage.

Take 4-inch or 6-inch diameter data cores:

1. At the beginning, end, and every 1/2 mile within the paving limits of each route on the project
2. After all paving is complete
3. From the center of the specified lane

On a 2-lane roadway, take data cores from either lane. On a 4-lane roadway, take data cores from each direction in the outermost lane. On a roadway with more than 4 lanes, take data cores from the median lane and the outermost lane in each direction. After coring, backfill and compact core holes with authorized material.

Each core must include the stabilized materials encountered. You may choose not to recover unstabilized material but you must identify the material. Unstabilized material includes:

1. Granular material
2. Crumbled or cracked stabilized material
3. Sandy or clayey soil

Prepare a summary for each data core, the summary must include:

1. Project identification number
2. Date cored
3. Core identification number
4. Type of materials recovered
5. Type and approximate thickness of unstabilized material not recovered
6. Total core thickness
7. Thickness of each individual material to within:
  - 7.1. For recovered material, 1/2 inch
  - 7.2. For unstabilized material, 1.0 inch
8. Location including:
  - 8.1. County
  - 8.2. Route
  - 8.3. Post mile
  - 8.4. Lane number
  - 8.5. Lane direction
  - 8.6. Station

Each data core digital photograph must include a ruler laid next to the data core. Each photograph must include:

1. The core
2. Project identification number
3. Core identification number
4. Date cored
5. County
6. Route
7. Post mile
8. Lane number
9. Lane direction

After data core summary and photograph submittal, dispose of cores.

**39-1.01D(15) Engineer's Acceptance**

The Engineer samples materials for testing under California Test 125 and tests under the applicable test method except samples may only be taken from one of the following:

1. Plant, a truck, or automatic sampling device
2. Mat behind the paver

The Engineer's sampling and testing is independent of your QC sampling and testing, statistically-based, and random.

If you request, the Engineer splits samples and provides you with a part.

The Engineer prepares 3 briquettes for air voids content and VMA determination. The Engineer reports the average of 3 tests.

The Engineer accepts HMA based on:

1. Accepted JMF
2. Authorized QC plan
3. Visual inspection
4. Compliance quality characteristics of the following 4 tables:

**HMA Aggregate Acceptance**

| Quality characteristic   |      |      |      | Test method           | HMA                          |                              |                              |
|--|------|------|------|-----------------------|------------------------------|------------------------------|------------------------------|
|  |      |      |      |                       | HMA-TYPE A-SP                | RHMA-G-SP                    | OGFC                         |
| Aggregate gradation <sup>a, b</sup>  |      |      |      | AASHTO T 27           | JMF ± Tolerance <sup>c</sup> | JMF ± Tolerance <sup>c</sup> | JMF ± Tolerance <sup>c</sup> |
| Sieve  | 3/4" | 1/2" | 3/8" |                       |                              |                              |                              |
| 1/2"   | X    | --   | --   |                       |                              |                              |                              |
| 3/8"   | --   | X    | --   |                       |                              |                              |                              |
| No. 4  | --   | --   | X    |                       |                              |                              |                              |
| No. 8  | X    | X    | X    |                       |                              |                              |                              |
| No. 200  | X    | X    | X    |                       |                              |                              |                              |
| Sand equivalent (min.) <sup>d</sup>  |      |      |      | AASHTO T 176          | 47                           | 47                           | --                           |
| Percent of theoretical maximum density (%)   |      |      |      | California Test 375   | 92–97                        | 92–97                        | --                           |
| Percent of crushed particles<br>Coarse aggregate (% min.)<br>One fractured face<br>Two fractured faces<br>Fine aggregate (% min)<br>(Passing No. 4 sieve and retained on No. 8 sieve.)<br>One fractured face |      |      |      | AASHTO T 335 Method 2 | 95<br>90                     | --<br>90                     | 90<br>90                     |
| Los Angeles Rattler (% max.)<br>Loss at 100 rev.<br>Loss at 500 rev.   |      |      |      | AASHTO T 96           | 12<br>40                     | 12<br>40                     | 12<br>40                     |
| Fine aggregate angularity (% min.)   |      |      |      | AASHTO T 304 Method A | 45                           | 45                           | --                           |
| Flat and elongated particles (% max. by weight @ 5:1)  |      |      |      | ASTM D 4791           | Report only                  | Report only                  | Report only                  |

<sup>a</sup>The Engineer determines combined aggregate gradations containing RAP under Laboratory Procedure LP-9.

<sup>b</sup>"X" denotes the sieves the Engineer considers for the specified aggregate gradation.

<sup>c</sup>The tolerances must comply with the allowable tolerances in section 39-1.02E.

<sup>d</sup>The Engineer reports the average of 3 tests from a single split sample.

### HMA Mix Acceptance

| Quality characteristic  | Test method                                    | HMA  |                                    |           |
|---|--|--|------------------------------------|-----------|
|   |  | HMA-Type A-SP                                    | RHMA-G-SP                          | OGFC      |
| Asphalt binder content (%)  | AASHTO T 308 Method A                          | JMF±0.3  | JMF ± 0.4                          | JMF ± 0.4 |
| HMA moisture content (% , max.)   | AASHTO T 329                                   | 1.0  | 1.0                                | 1.0       |
| Air voids content (%) <sup>a, b</sup>   | AASHTO T 269                                   | 4 ± 1.5  | Specification ± 1.5                | --        |
| Voids filled with asphalt (%)<br>1/4" grading<br>3/8" grading<br>1/2" grading<br>3/4" grading       | SP-2 Asphalt Mixtures Volumetrics <sup>c</sup> | 65.0-75.0<br>65.0-75.0<br>65.0-75.0<br>65.0-75.0 | Report only                        | --        |
| Voids in mineral aggregate (% min.)<br>1/4" grading<br>3/8" grading<br>1/2" grading<br>3/4" grading | SP-2 Asphalt Mixtures Volumetrics <sup>c</sup> | 16.5<br>14.5<br>13.5<br>12.5                     | --<br>--<br>18.0-23.0<br>18.0-23.0 |           |
| Dust proportion<br>1/4" and 3/8" gradings<br>1/2" and 3/4" gradings                                 | SP-2 Asphalt Mixtures Volumetrics <sup>c</sup> | 0.9-2.0<br>0.6-1.3                               | Report only                        | --        |
| Percent of theoretical maximum density (%) <sup>d, f, g</sup>                                       | California Test 375                            | 92-97  | 92-97                              | --        |

<sup>a</sup>The Engineer reports the average of 3 tests from a single split sample.

<sup>b</sup>The Engineer determines the bulk specific gravity of each lab-compacted briquette under AASHTO T 275 , and theoretical maximum specific gravity under AASHTO T 209, Method A.

<sup>c</sup>Determine bulk specific gravity using AASHTO T 275.

<sup>d</sup>The Engineer determines percent of theoretical maximum density if any of the following:

1. 1/2-inch, 3/8-inch, or 1/4-inch grading is used and the specified total paved thickness is at least 0.15 foot.
2. 3/4-inch aggregate grading is used and the specified total paved thickness is at least 0.20 foot.

<sup>f</sup>The Engineer determines percent of theoretical maximum density under California Test 375 except the Engineer uses:

1. AASHTO T 275 to determine in-place density of each density core instead of using the nuclear gauge in Part 4, "Determining In-Place Density By The Nuclear Density Device."
2. AASHTO T 209 Method A to determine theoretical maximum density instead of calculating test maximum density in Part 5, "Determining Test Maximum Density."

<sup>g</sup>The Engineer determines theoretical maximum density (AASHTO T 209 Method A) at the frequency specified for Test Maximum Density under California Test 375, Part 5. D.

### HMA Acceptance In Place

| Quality characteristic  | Test method                                | HMA                                  |                                  |      |
|---|--|--------------------------------------|----------------------------------|------|
|   |  | HMA-TYPE<br>A-SP                     | RHMA-G-<br>SP                    | OGFC |
| Hamburg wheel track<br>(minimum number of<br>passes at 0.5 inch<br>average rut depth)<br>PG 58<br>PG 64<br>PG-70<br>PG-76 or higher | AASHTO<br>T 324<br>(Modified) <sup>a</sup> | 10,000<br>15,000<br>20,000<br>25,000 | 15,000<br>20,000<br>25,000<br>-- | --   |
| Hamburg wheel track<br>(inflection point<br>minimum number of<br>passes)<br>PG 58<br>PG 64<br>PG-70<br>PG-76 or higher              | AASHTO<br>T 324<br>(Modified) <sup>a</sup> | 10,000<br>10,000<br>12,500<br>15,000 | 10,000<br>12,500<br>15,000<br>-- | --   |
| Moisture susceptibility<br>(minimum dry strength,<br>psi)   | AASHTO<br>T 283                            | 120                                  | 120                              | --   |
| Moisture susceptibility<br>(tensile strength ratio,<br>%) <sup>b</sup>  | AASHTO<br>T 283                            | 70                                   | 70                               | --   |

<sup>a</sup>Test as specified in section 39-1.01D(1).

<sup>b</sup>Freeze thaw not required.

### Miscellaneous Quality HMA Acceptance

| Quality characteristic  | Test method                                  | HMA   |  |   |
|---|--|---|--|---|
|   |  | HMA-TYPE<br>A-SP  | RHMA-G-SP  | OGFC                                      |
| Smoothness  | California<br>Test 526                       | 12-foot<br>straightedge<br>, must-grind,<br>and PI <sub>0</sub> | 12-foot<br>straightedge,<br>must-grind,<br>and PI <sub>0</sub> | 12-foot<br>straightedge<br>and must-grind |
| Asphalt rubber<br>binder viscosity<br>@ 375 °F<br>(centipoises) | LP-11  | --  | 1,500–4,000  | 1,500–4,000                               |
| Asphalt modifier  | ASTM D<br>445<br>ASTM D 92<br>ASTM D<br>2007 | --  | Section<br>39-1.02D(2)(b)                                      | Section<br>39-1.02D(2)(b)                 |
| Crumb rubber<br>modifier  | LP-10<br>CT 208<br>ASTM D<br>297             | --  | Section<br>39-1.02D(2)(c)                                      | Section<br>39-1.02D(2)(c)                 |

No single test result may represent more than the smaller of 750 tons or 1 day's production.

For any single quality characteristic except smoothness, if 2 acceptance test results for 1 day's production do not comply with the specifications:

1. Stop production.
2. Take corrective action.
3. In the Engineer's presence, take samples and split each sample into 4 parts. Test 1 part for compliance with the specifications and submit 3 parts to the Engineer. The Engineer tests 1 part for compliance with the specifications and reserves and stores 2 parts.
4. Demonstrate compliance with the specifications before resuming production and placement on the State highway.

The Engineer tests the density core you take from each 250 tons of HMA-TYPE A-SP, and RHMA-G-SP production. The Engineer determines the percent of theoretical maximum density for each density core by determining the density core's density and dividing by the theoretical maximum density.

The Engineer determines the percent of theoretical maximum density from density cores taken from the final layer measured the full depth of the total paved HMA-TYPE A-SP, and RHMA-G-SP thickness if any of the following applies:

1. If 1/2-inch, 3/8-inch, or 1/4-inch aggregate grading is used and the specified total paved thickness is at least 0.15 foot and any layer is less than 0.15 foot.
2. If 3/4-inch aggregate grading is used and the specified total paved thickness is at least 0.20 foot and any layer is less than 0.20 foot.

If the percent of theoretical maximum density does not comply with the specifications, the Engineer may accept the HMA-TYPE A-SP, and RHMA-G-SP and the Department deducts payment based on the factors shown in the following table:

**Reduced Payment Factors for Percent of Theoretical Maximum Density**

| HMA-TYPE A-SP and RHMA-G-SP Percent of Theoretical maximum density | Reduced Payment Factor | HMA-TYPE A-SP and RHMA-G-SP Percent of Theoretical maximum density | Reduced Payment Factor |
|--|------------------------|--|------------------------|
| 92.0   | 0.0000                 | 97.0   | 0.0000                 |
| 91.9   | 0.0125                 | 97.1   | 0.0125                 |
| 91.8   | 0.0250                 | 97.2   | 0.0250                 |
| 91.7   | 0.0375                 | 97.3   | 0.0375                 |
| 91.6   | 0.0500                 | 97.4   | 0.0500                 |
| 91.5   | 0.0625                 | 97.5   | 0.0625                 |
| 91.4   | 0.0750                 | 97.6   | 0.0750                 |
| 91.3   | 0.0875                 | 97.7   | 0.0875                 |
| 91.2   | 0.1000                 | 97.8   | 0.1000                 |
| 91.1   | 0.1125                 | 97.9   | 0.1125                 |
| 91.0   | 0.1250                 | 98.0   | 0.1250                 |
| 90.9   | 0.1375                 | 98.1   | 0.1375                 |
| 90.8   | 0.1500                 | 98.2   | 0.1500                 |
| 90.7   | 0.1625                 | 98.3   | 0.1625                 |
| 90.6   | 0.1750                 | 98.4   | 0.1750                 |
| 90.5   | 0.1875                 | 98.5   | 0.1875                 |
| 90.4   | 0.2000                 | 98.6   | 0.2000                 |
| 90.3   | 0.2125                 | 98.7   | 0.2125                 |
| 90.2   | 0.2250                 | 98.8   | 0.2250                 |
| 90.1   | 0.2375                 | 98.9   | 0.2375                 |
| 90.0   | 0.2500                 | 99.0   | 0.2500                 |
| < 90.0   | Remove and Replace     | > 99.0   | Remove and Replace     |

### **39-1.01D(16) Dispute Resolution**

You and the Engineer must work together to avoid potential conflicts and to resolve disputes regarding test result discrepancies. Notify the Engineer within 5 business days of receiving a test result if you dispute the test result.

If you or the Engineer dispute each other's test results, submit quality control test results and copies of paperwork including worksheets used to determine the disputed test results. An independent third party (ITP) performs referee testing. Before the ITP participates in a dispute resolution, the ITP must be qualified under AASHTO Materials Reference Laboratory program (AMRL), and the Department's Independent Assurance Program. The ITP must be independent of the project. By mutual agreement, the ITP is chosen from:

1. A Department laboratory
2. A Department laboratory in a district or region not in the district or region the project is located
3. The Transportation Laboratory
4. A laboratory not currently employed by you or your HMA producer

If split QC or acceptance samples are not available, the ITP uses any available material representing the disputed HMA for evaluation.

### **39-1.02 MATERIALS**

#### **39-1.02A General**

Use RAP aggregate for HMA-TYPE A-SP as part of the virgin aggregate in a quantity equal to  $25.0 \pm 1.0$  percent of the aggregate blend.

Do not use RAP aggregate for RHMA-G-SP and OGFC

For miscellaneous areas and dikes:

1. Choose the 3/8-inch or 1/2-inch HMA-TYPE A-SP and aggregate gradations.
2. Minimum asphalt binder content must be 6.8 percent for 3/8-inch aggregate and 6.0 percent for 1/2-inch aggregate. If you request and the Engineer authorizes, you may reduce the minimum asphalt binder content.
3. Choose asphalt binder Grade PG 70-10 or use the same grade specified for HMA-SP.

#### **39-1.02B Geosynthetic Pavement Interlayer**

Geosynthetic pavement interlayer must comply with section 88 for paving fabric or paving mat.

#### **39-1.02C Tack Coat**

Tack coat must comply with the specifications for asphaltic emulsion or asphalt binder. Choose the type and grade.

Notify the Engineer if you dilute asphaltic emulsion with water. The weight ratio of added water to asphaltic emulsion must not exceed 1 to 1.

Measure added water either by weight or volume under section 9-1.02 or you may use water meters from water districts, cities, or counties. If you measure water by volume, apply a conversion factor to determine the correct weight.

With each dilution, submit:

1. Weight ratio of water to bituminous material in the original asphaltic emulsion
2. Weight of asphaltic emulsion before diluting
3. Weight of added water
4. Final dilution weight ratio of water to asphaltic emulsion

#### **39-1.02D Asphalt Binder**

##### **39-1.02D(1) General**

Asphalt binder in HMA must comply with section 92.

For HMA-Type A-SP, the grade of binder must be PG 64-10.

For RHMA-G-SP, the grade of asphalt binder must be PG 64-16.

Asphalt binder for geosynthetic pavement interlayer must comply with section 92. Choose from Grades PG 64-10, PG 64-16, or PG 70-10.

LAS-treated asphalt binder must comply with the specifications for asphalt binder. Do not use LAS as a substitute for asphalt binder.

### **39-1.02D(2) Asphalt Rubber Binder**

#### **39-1.02D(2)(a) General**

Use asphalt rubber binder in RHMA-G-SP, and RHMA-O,. Asphalt rubber binder must be a combination of:

1. Asphalt binder
2. Asphalt modifier
3. Crumb rubber modifier (CRM)

The combined asphalt binder and asphalt modifier must be  $80.0 \pm 2.0$  percent by weight of the asphalt rubber binder.

Determine the amount of asphalt rubber binder to be mixed with the aggregate for RHMA-G-SP as follows:

1. Base the calculations on the average of 3 briquettes produced at each asphalt rubber binder content.
2. Plot asphalt rubber binder content versus average air voids content for each set of three specimens and connect adjacent points with a best-fit curve.
3. Calculate voids in mineral aggregate (VMA) and voids filled with asphalt (VFA) for each specimen, average each set, and plot the average versus asphalt rubber binder content.
4. Calculate the dust proportion and plot versus asphalt rubber binder content.
5. From the curve plotted in Step 2, select the theoretical asphalt rubber binder content that has 5.0 percent air voids.
6. At the selected asphalt rubber binder content, evaluate corresponding voids in mineral aggregate, voids filled with asphalt, and dust proportion to verify compliance with requirements. If necessary, develop an alternate composite aggregate gradation to conform to the RHMA-G-SP requirements.
7. Record the asphalt rubber binder content in Step 5 as the Optimum Bitumen Content (OBC).
8. To establish a recommended range, use the OBC as the high value and 0.2 percent less as the low value. The recommended range must not extend below 7.5 percent by total weight of the mix. If the OBC is 7.5 percent, then there is no recommended range, and 7.5 percent is the recommended value.

Laboratory mixing and compaction must comply with AASHTO R 35, except the mixing temperature of the aggregate must be from 300 to between 300 degrees F and 325 degrees F. The mixing temperature of the asphalt-rubber binder must be from 375 to 425 degrees F. The compaction temperature of the combined mixture must be from 290 to 320 degrees F.

### 39-1.02D(2)(b) Asphalt Modifier

Asphalt modifier must be a resinous, high flash point, and aromatic hydrocarbon, and comply with:

#### Asphalt Modifier for Asphalt Rubber Binder

| Quality characteristic                                       | Test method | Requirement        |
|--|-------------|--------------------|
| Viscosity, m <sup>2</sup> /s (x 10 <sup>-6</sup> ) at 100 °C | ASTM D 445  | X ± 3 <sup>a</sup> |
| Flash Point, CL.O.C., °C                                     | ASTM D 92   | 207 minimum        |
| Molecular Analysis   |             |                    |
| Asphaltenes, percent by mass                                 | ASTM D 2007 | 0.1 maximum        |
| Aromatics, percent by mass                                   | ASTM D 2007 | 55 minimum         |

<sup>a</sup>The symbol "X" is the proposed asphalt modifier viscosity. "X" must be between 19 and 36. A change in "X" requires a new asphalt rubber binder design.

Asphalt modifier must be from 2.0 percent to 6.0 percent by weight of the asphalt binder in the asphalt rubber binder.

### 39-1.02D(2)(c) Crumb Rubber Modifier

CRM must consist of a ground or granulated combination of scrap tire CRM and high natural CRM. CRM must be 75.0 ± 2.0 percent scrap tire CRM and 25.0 ± 2.0 percent high natural CRM by total weight of CRM. Scrap tire CRM must be from any combination of automobile tires, truck tires, or tire buffings.

Sample and test scrap tire CRM and high natural CRM separately. CRM must comply with:

#### Crumb Rubber Modifier for Asphalt Rubber Binder

| Quality characteristic                                      | Test method         | Requirement |
|---|---------------------|-------------|
| Scrap tire CRM gradation (% passing No. 8 sieve)            | LP-10               | 100         |
| High natural CRM gradation (% passing No. 10 sieve)         | LP-10               | 100         |
| Wire in CRM (% max.)  | LP-10               | 0.01        |
| Fabric in CRM (% max.)                                      | LP-10               | 0.05        |
| CRM particle length (inch max.) <sup>a</sup>                | --                  | 3/16        |
| CRM specific gravity <sup>a</sup>                           | California Test 208 | 1.1 – 1.2   |
| Natural rubber content in high natural CRM (%) <sup>a</sup> | ASTM D 297          | 40.0 – 48.0 |

<sup>a</sup>Test at mix design and for Certificate of Compliance.

Only use CRM ground and granulated at ambient temperature. If steel and fiber are cryogenically separated, it must occur before grinding and granulating. Only use cryogenically produced CRM particles that can be ground or granulated and not pass through the grinder or granulator.

CRM must be dry, free-flowing particles that do not stick together. CRM must not cause foaming when combined with the asphalt binder and asphalt modifier. You may add calcium carbonate or talc up to 3 percent by weight of CRM.

### 39-1.02E Aggregate

Aggregate must be clean and free from deleterious substances.

Gradations are based on nominal maximum aggregate size (NMAS).

The aggregate for HMA-TYPE A-SP must comply with the 1/2-inch grading for compacted layers in the range of 0.125 foot to 0.20 foot and 3/4-inch grading for compacted layers 0.20 foot and above.

The aggregate for RHMA-G-SP must comply with the 1/2-inch grading for compacted layers whose thickness is at least 0.10 foot and 3/4-inch grading for compacted layers whose thickness is at least 0.20 foot.

Aggregate gradation must be within the TV limits for the specified sieve size shown in the following tables:

**Aggregate Gradation  
(Percentage Passing)  
HMA-TYPE A-SP**

3/4–inch HMA-TYPE A-SP

| Sieve Sizes | Target Value Limits | Allowable Tolerance |
|-------------|---------------------|---------------------|
| 1"          | 100                 | —                   |
| 3/4"        | 90–98               | TV ± 5              |
| 1/2"        | 70–90               | TV ± 6              |
| No. 4       | 42–58               | TV ± 5              |
| No. 8       | 29–43               | TV ± 5              |
| No. 30      | 10–23               | TV ± 4              |
| No. 200     | 2–7                 | TV ± 2              |

1/2–inch HMA-TYPE A-SP

| Sieve Sizes | Target Value Limits | Allowable Tolerance |
|-------------|---------------------|---------------------|
| 3/4"        | 100                 | --                  |
| 1/2"        | 95–98               | TV ± 5              |
| 3/8"        | 72–95               | TV ± 5              |
| No. 4       | 52–69               | TV ± 5              |
| No. 8       | 35–55               | TV ± 5              |
| No. 30      | 15–30               | TV ± 4              |
| No. 200     | 2–8                 | TV ± 2              |

3/8–inch HMA-TYPE A-SP

| Sieve Sizes | Target Value Limits | Allowable Tolerance |
|-------------|---------------------|---------------------|
| 1/2"        | 100                 | --                  |
| 3/8"        | 95–98               | TV ± 5              |
| No. 4       | 55–75               | TV ± 5              |
| No. 8       | 30–50               | TV ± 5              |
| No. 30      | 15–35               | TV ± 5              |
| No. 200     | 2–9                 | TV ± 2              |

1/4–inch HMA-TYPE A-SP

| Sieve Sizes | Target Value Limits | Allowable Tolerance |
|-------------|---------------------|---------------------|
| 3/8"        | 100                 | --                  |
| No. 4       | 95–98               | TV ± 5              |
| No. 8       | 70–80               | TV ± 6              |
| No. 30      | 34–45               | TV ± 5              |
| No. 200     | 2–12                | TV ± 4              |

### Rubberized Hot Mix Asphalt - Gap Graded (RHMA-G-SP)

#### 3/4-inch RHMA-G-SP

| Sieve Sizes | Target Value Limits | Allowable Tolerance |
|-------------|---------------------|---------------------|
| 1"          | 100                 | --                  |
| 3/4"        | 95-98               | TV ± 5              |
| 1/2"        | 83-87               | TV ± 6              |
| 3/8"        | 65-70               | TV ± 5              |
| No. 4       | 28-42               | TV ± 6              |
| No. 8       | 14-22               | TV ± 5              |
| No. 200     | 0-6                 | TV ± 2              |

#### 1/2-inch RHMA-G-SP

| Sieve Sizes | Target Value Limits | Allowable Tolerance |
|-------------|---------------------|---------------------|
| 3/4"        | 100                 | --                  |
| 1/2"        | 90-98               | TV ± 6              |
| 3/8"        | 83-87               | TV ± 5              |
| No. 4       | 28-42               | TV ± 6              |
| No. 8       | 14-22               | TV ± 5              |
| No. 200     | 0-6                 | TV ± 2              |

### Open Graded Friction Course (OGFC)

#### 1-inch OGFC

| Sieve Sizes | Target Value Limits | Allowable Tolerance |
|-------------|---------------------|---------------------|
| 1 1/2"      | 100                 | --                  |
| 1"          | 99-100              | TV ± 5              |
| 3/4"        | 85-96               | TV ± 5              |
| 1/2"        | 55-71               | TV ± 6              |
| No. 4       | 10-25               | TV ± 7              |
| No. 8       | 6-16                | TV ± 5              |
| No. 200     | 1-6                 | TV ± 2              |

#### 1/2-inch OGFC

| Sieve Sizes | Target Value Limits | Allowable Tolerance |
|-------------|---------------------|---------------------|
| 3/4"        | 100                 | --                  |
| 1/2"        | 95-100              | TV ± 6              |
| 3/8"        | 78-89               | TV ± 6              |
| No. 4       | 28-37               | TV ± 7              |
| No. 8       | 7-18                | TV ± 5              |
| No. 30      | 0-10                | TV ± 4              |
| No. 200     | 0-3                 | TV ± 2              |

#### 3/8-inch OGFC

| Sieve Sizes | Target Value Limits | Allowable Tolerance |
|-------------|---------------------|---------------------|
| 1/2"        | 100                 | --                  |
| 3/8"        | 90-100              | TV ± 6              |
| No. 4       | 29-36               | TV ± 7              |
| No. 8       | 7-18                | TV ± 6              |
| No. 30      | 0-10                | TV ± 5              |
| No. 200     | 0-3                 | TV ± 2              |

Aggregate gradation must be before the addition of asphalt binder and must include supplemental fines. The Engineer tests for aggregate grading under AASHTO T 27, note 4, and AASHTO T 11 do not apply. Use a mechanical sieve shaker. Aggregate shaking time must not exceed 10 minutes for both course and fine aggregate portions.

Choose a sieve size TV within each target value limits shown in the tables titled "Aggregate Gradation".

Before the addition of asphalt binder and lime treatment, aggregate must comply with:

| <b>Aggregate Quality</b>                              |                             |               |           |      |
|---|-----------------------------|---------------|-----------|------|
| Quality characteristic                                | Test method                 | HMA           |           |      |
|   |                             | HMA-TYPE A-SP | RHMA-G-SP | OGFC |
| Percent of crushed particles                          | AASHTO<br>T 335<br>Method 2 |               |           |      |
| Coarse aggregate (% min.)                             |                             |               |           |      |
| One fractured face                                    |                             | 95            | --        | 90   |
| Two fractured faces                                   | 90                          | 90            | 90        |      |
| Fine aggregate (% min)                                |                             |               |           |      |
| (Passing No. 4 sieve and retained on No. 8 sieve.)    |                             |               |           |      |
| Two fractured face                                    | 70                          | 70            | 90        |      |
| Los Angeles Rattler (% max.)                          | AASHTO<br>T 96              |               |           |      |
| Loss at 100 Rev.                                      |                             | 12            | 12        | 12   |
| Loss at 500 Rev.                                      |                             | 40            | 40        | 40   |
| Sand equivalent (min.) <sup>a, b</sup>                | AASHTO<br>T 176             | 47            | 47        | --   |
| Fine aggregate angularity (% min.)                    | AASHTO<br>T 304<br>Method A | 45            | 45        | --   |
| Flat and elongated particles (% max. by weight @ 5:1) | ASTM<br>D 4791              | 10            | 10        | 10   |

<sup>a</sup>Reported value must be the average of 3 tests from a single sample.

<sup>b</sup>Use of a Sand Reader Indicator is required as shown in AASHTO T 176, Figure 1. Sections 4.7, 4.8, 7.1.2, 8.4.2 and 8.4.3 do not apply

### 39-1.02F Reclaimed Asphalt Pavement

For HMA-TYPE A-SP , substitute RAP aggregate for part of the virgin aggregate in a quantity equal to 25.0 ± 1.0 percent of the aggregate blend

Provide enough space for meeting all RAP handling requirements at your facility. Provide a clean, graded base, well drained area for stockpiles.

If RAP is from multiple sources blend the RAP thoroughly and completely before fractionating. Fractionate RAP into 2 sizes, a coarse fraction RAP retained on 1/4-inch screen, and a fine fraction RAP passing 1/4-inch screen.

Isolate the processed RAP stockpiles from other materials. Store processed RAP in conical or longitudinal stockpiles. Processed RAP must not be agglomerated or be allowed to congeal in large stockpiles.

### 39-1.02G Liquid Antistrip

LAS total amine value must be 325 minimum when tested under ASTM D 2074.

Use only 1 LAS type or brand at a time. Do not mix LAS types or brands.

Store and mix LAS under the manufacturer's instruction.

### 39-1.02H Lime

Lime for treating aggregate must be high-calcium hydrated lime and comply with section 24-2.02B.

### **39-1.02I Water**

Water for lime treated aggregate must comply with section 24-2.02C.

### **39-1.02J Hot Mix Asphalt Production**

#### **39-1.02J(1) General**

Produce HMA in a batch mixing plant or a continuous mixing plant.

HMA plants must be Department-qualified. Before production, the HMA plant must have a current qualification under the Department's Materials Plant Quality Program.

Proportion aggregate by hot or cold feed control. During production, you may adjust hot or cold feed proportion controls for virgin aggregate and RAP.

HMA-TYPE A-SP must have  $25 \pm 3$  percent RAP.

HMA plant asphalt binder set point for HMA-TYPE A-SP production must be the optimum binder content specified on your Hot Mix Asphalt Design Data form minus the percent RAP multiplied by the combined average binder content of the processed fractionated RAP stockpile. You must request adjustments to the plant asphalt binder set point based on new fractionated RAP stockpiles average binder content. Do not adjust the HMA-TYPE A-SP plant asphalt binder set point until approved by the Engineer.

You must notify the engineer when a new RAP stockpile is to be utilized.

HMA plant asphalt binder set point for RHMA-G-SP, production must be the optimum binder content specified on your Hot Mix Asphalt Design Data form.

HMA plant asphalt binder set point for HMA-O, and RHMA-O, production must be the optimum binder content specified by the Engineer.

#### **39-1.02J(2) Mixing**

Mix HMA ingredients into a homogeneous mixture of coated aggregates.

Asphalt binder must be from 275 to 375 degrees F when mixed with aggregate.

Asphalt rubber binder must be from 375 to 425 degrees F when mixed with aggregate.

When mixed with asphalt binder, aggregate must not be more than 325 degrees F except aggregate for OGFC with unmodified asphalt binder must be not more than 275 degrees F. Aggregate temperature specifications do not apply to RAP.

HMA must not be more than 325 degrees F.

#### **39-1.02J(3) Asphalt Rubber Binder**

Deliver scrap tire CRM and high natural CRM in separate bags.

Either proportion and mix asphalt binder, asphalt modifier, and CRM simultaneously or premix the asphalt binder and asphalt modifier before adding CRM. If you premix asphalt binder and asphalt modifier, mix them for at least 20 minutes. When you add CRM, the asphalt binder and asphalt modifier must be from 375 to 440 degrees F.

Do not use asphalt rubber binder during the first 45 minutes of the reaction period. During this period, the asphalt rubber binder mixture must be between 375 degrees F and the lower of 425 or 25 degrees F below the asphalt binder's flash point indicated in the MSDS.

If any asphalt rubber binder is not used within 4 hours after the reaction period, discontinue heating. If the asphalt rubber binder drops below 375 degrees F, reheat before use. If you add more scrap tire CRM to the reheated asphalt rubber binder, the binder must undergo a 45-minute reaction period. The added scrap tire CRM must not exceed 10 percent of the total asphalt rubber binder weight. Reheated and reacted asphalt rubber binder must comply with the viscosity specifications for asphalt rubber binder in section 39-1.02D(2). Do not reheat asphalt rubber binder more than twice.

**39-1.02J(4) Liquid Antistrip Treatment**

Perform liquid antistrip treatment (LAS) when the HMA mix design determines LAS treatment of HMA is required. LAS must be from 0.5 to 1.0 percent by weight of asphalt binder.

If 3 consecutive sets of recorded production data show actual delivered LAS weight is more than ±1 percent of the authorized mix design LAS weight, stop production and take corrective action.

If a set of recorded production data shows actual delivered LAS weight is more than ±2 percent of the authorized mix design LAS weight, stop production. If the LAS weight exceeds 1.2 percent of the asphalt binder weight, do not use the HMA represented by that data.

The continuous mixing plant controller proportioning the HMA must produce a production data log. The log consists of a series of data sets captured at 10-minute intervals throughout daily production. The data must be a production activity register and not a summation. The material represented by the data is the quantity produced 5 minutes before and 5 minutes after the capture time. For the duration of the Contract, collected data must be stored by the plant controller or a computer’s memory at the plant.

The Engineer orders proportioning operations stopped for any of the following if you:

1. Do not submit data
2. Submit incomplete, untimely, or incorrectly formatted data
3. Do not take corrective actions
4. Take late or unsuccessful corrective actions
5. Do not stop production when proportioning tolerances are exceeded
6. Use malfunctioning or failed proportioning devices

If you stop production, notify the Engineer of any corrective actions taken before resuming.

**39-1.02J(5) Aggregate Lime Treatment**

Perform aggregate lime treatment when the HMA mix design determines aggregate lime treatment is required. Notify the Engineer at least 24 hours before the start of aggregate treatment.

Do not treat RAP.

For aggregate dry lime treatment, marinate aggregate if the plasticity index determined under California Test 204 is from 4 to 10.

For lime slurry aggregate treatment, treat aggregate separate from HMA production, stockpile and marinate the aggregate.

If marination is required:

1. Treat and marinate coarse and fine aggregates separately.
2. Treat the aggregate and stockpile for marination only once.
3. Treat the aggregate separate from HMA production.

The lime ratio is the pounds of dry hydrated lime per 100 lbs. of dry virgin aggregate expressed as a percentage. Water content of slurry or untreated aggregate must not affect the lime ratio.

Aggregate gradations must have the lime ratio ranges shown in the following table:

| Aggregate gradation | Lime ratio percent |
|---------------------|--------------------|
| Coarse              | 0.4–1.0            |
| Fine                | 1.5–2.0            |
| Combined            | 0.8–1.5            |

You may reduce the combined aggregate lime ratio for OGFC to 0.5 from 1.0 percent.

The lime ratio for fine and coarse aggregate must be within  $\pm 0.2$  percent of the lime ratio in the accepted JMF. The lime ratio must be within  $\pm 0.2$  percent of the authorized lime ratio when you combine the individual aggregate sizes in the JMF proportions. The lime ratio must be determined before the addition of RAP.

The device controlling lime and aggregate proportioning must produce a treatment data log. The log consists of a series of data sets captured at 10-minute intervals throughout daily treatment. The data must be a treatment activity register and not a summation. The material represented by a data set is the quantity produced 5 minutes before and 5 minutes after the capture time. For the duration of the Contract, collected data must be stored by the controller.

If 3 consecutive sets of recorded treatment data indicate deviation more than 0.2 percent above or below the lime ratio in the accepted JMF, stop treatment.

If a set of recorded treatment data indicates a deviation of more than 0.4 percent above or below the lime ratio in the accepted JMF, stop treatment and do not use the material represented by that set of data in HMA.

If 20 percent or more of the total daily treatment indicates deviation of more than 0.2 percent above or below the lime ratio in the accepted JMF, stop treatment and do not use the day's treated aggregate in HMA.

If you stop treatment for noncompliance, you must implement corrective action and successfully treat aggregate for a 20-minute period. Notify the Engineer before beginning the 20-minute treatment period.

#### **39-1.02J(6) Proportioning Dry Lime**

Proportion dry lime by weight with a continuous operation.

If you use a batch-type proportioning operation for HMA production, control proportioning in compliance with the specifications for continuous mixing plants. Use a separate dry lime aggregate treatment operation from HMA batching operations including:

1. Pugmill mixer
2. Controller
3. Weigh belt for the lime
4. Weigh belt for the aggregate

If using a continuous mixing operation for HMA without lime marinated aggregates, use a controller that measures the blended aggregate weight after any additional water is added to the mixture. The controller must determine the quantity of lime added to the aggregate from the aggregate weigh belt input in connection with the manually input total aggregate moisture, the manually input target lime content, and the lime proportioning system output. Use a continuous aggregate weigh belt and pugmill mixer for the lime treatment operation in addition to the weigh belt for the aggregate proportioning to asphalt binder in the HMA plant. If you use a water meter for moisture control for lime treatment, the meter must comply with Materials Plant Quality Program manual.

At the time of mixing dry lime with aggregate, the aggregate moisture content must ensure complete lime coating. The aggregate moisture content must not cause aggregate to be lost between the point of weighing the combined aggregate continuous stream and the dryer. Add water for mixing and coating aggregate to the aggregate before dry lime addition. Immediately before mixing lime with aggregate, water must not visibly separate from aggregate.

The HMA plant must be equipped with a bag-house dust system. Material collected in the dust system must be returned to the mix.

#### **39-1.02J(7) Proportioning Lime Slurry**

Proportion lime and water with a continuous or batch operation.

Add lime to the aggregate as slurry consisting of mixed dry lime and water at a ratio of 1 part lime to from 2 to 3 parts water by weight. The slurry must completely coat the aggregate.

Immediately before mixing lime slurry with the aggregate, water must not visibly separate from the aggregate.

#### **39-1.02J(8) Mixing Dry Lime and Aggregate**

Mix aggregate, water, and dry lime with a continuous pugmill mixer with twin shafts. Immediately before mixing lime with aggregate, water must not visibly separate from the aggregate. Store dry lime in a uniform and free-flowing condition. Introduce dry lime to the pugmill in a continuous operation. The introduction must occur after the aggregate cold feed and before the point of proportioning across a weigh belt and the aggregate dryer. Prevent loss of dry lime.

The pugmill must be equipped with paddles arranged to provide sufficient mixing action and mixture movement. The pugmill must produce a homogeneous mixture of uniformly coated aggregates at mixer discharge.

If the aggregate treatment operation is stopped longer than 1 hour, clean the equipment of partially treated aggregate and lime.

Aggregate must be completely treated before introduction into the mixing drum.

#### **39-1.02J(9) Mixing Lime Slurry and Aggregate**

Proportion lime slurry and aggregate by weight in a continuous operation.

#### **39-1.02J(10) Production**

Before virgin aggregate is treated, it must comply with the aggregate quality specifications. Do not test treated aggregate for quality control except for gradation. The Department does not test treated aggregate for acceptance except for gradation.

The Engineer determines the combined aggregate gradation during HMA production after you have treated the aggregate.

Treated aggregate must not have lime balls or clods.

For any of the following, the Engineer orders proportioning operations stopped if you:

1. Do not submit the treatment data log
2. Do not submit the aggregate quality control data for marinated aggregate
3. Submit incomplete, untimely, or incorrectly formatted data
4. Do not take corrective actions
5. Take late or unsuccessful corrective actions
6. Do not stop treatment when proportioning tolerances are exceeded
7. Use malfunctioning or failed proportioning devices

If you stop treatment, notify the Engineer of any corrective actions taken and conduct a successful 20-minute test run before resuming treatment.

If marination is required, marinate treated aggregate in stockpiles from 24 hours to 60 days before using in HMA. Do not use aggregate marinated longer than 60 days.

#### **39-1.02K Spreading and Compacting Equipment**

##### **39-1.02K(1) General**

Paving equipment for spreading must be:

1. Self-propelled
2. Mechanical
3. Equipped with a screed or strike-off assembly that can distribute HMA the full width of a traffic lane
4. Equipped with a full-width compacting device
5. Equipped with automatic screed controls and sensing devices that control the thickness, longitudinal grade, and transverse screed slope

Install and maintain grade and slope references.

The screed must produce a uniform HMA surface texture without tearing, shoving, or gouging.

The paver must not leave marks such as ridges and indentations unless you can eliminate them by rolling.

Rollers must be equipped with a system that prevents HMA from sticking to the wheels. You may use a parting agent that does not damage the HMA or impede the bonding of layers.

In areas inaccessible to spreading and compacting equipment:

1. Spread the HMA by any means to obtain the specified lines, grades and cross sections.
2. Use a pneumatic tamper, plate compactor, or equivalent to achieve thorough compaction.

### **39-1.02K(2) Method Compaction Equipment**

For method compaction, each paver spreading HMA must be followed by 3 rollers:

1. One vibratory roller specifically designed to compact HMA. The roller must be capable of at least 2,500 vibrations per minute and must be equipped with amplitude and frequency controls. The roller's gross static weight must be at least 7.5 tons.
2. One oscillating type pneumatic-tired roller at least 4 feet wide. Pneumatic tires must be of equal size, diameter, type, and ply. The tires must be inflated to 60 psi minimum and maintained so that the air pressure does not vary more than 5 psi.
3. One steel-tired, 2-axle tandem roller. The roller's gross static weight must be at least 7.5 tons.

Each roller must have a separate operator. Rollers must be self-propelled and reversible.

Compact RHMA-G-SP under the specifications for compacting HMA except do not use pneumatic-tired rollers.

Compact OGFC with steel-tired, 2-axle tandem rollers. If placing over 300 tons of OGFC per hour, use at least 3 rollers for each paver. If placing less than 300 tons of OGFC per hour, use at least 2 rollers for each paver. Each roller must weigh between 126 to 172 pounds per linear inch of drum width. Turn the vibrator off.

## **39-1.03 CONSTRUCTION**

### **39-1.03A General**

Do not pave HMA on a wet pavement or frozen surface.

For miscellaneous areas and dikes, prepare the area to receive HMA. Preparing the area includes excavating and backfilling as needed. Spread HMA in 1 layer and compact to the specified lines and grades.

### **39-1.03B Surface Preparation**

#### **39-1.03B(1) General**

Prepare subgrade or apply tack coat to surfaces receiving HMA. If specified, place geosynthetic pavement interlayer over a coat of asphalt binder.

#### **39-1.03B(2) Subgrade**

Subgrade to receive HMA-TYPE A-SP must comply with the compaction and elevation tolerance specifications in the sections for the material involved. Subgrade must be free of loose and extraneous material. If HMA-TYPE A-SP is paved on existing base or pavement, remove loose paving particles, dirt, and other extraneous material by any means including flushing and sweeping.

#### **39-1.03B(3) Tack Coat**

Apply tack coat:

1. To existing pavement including planed surfaces
2. Between HMA layers
3. To vertical surfaces of:
  - 3.1. Curbs
  - 3.2. Gutters
  - 3.3. Construction joints

Before placing HMA, apply tack coat in 1 application at the minimum residual rate specified for the condition of the underlying surface:

**Tack Coat Application Rates for HMA**

| HMA over:                    | Minimum Residual Rates (gal/sq yd)                                 |  |   |
|------------------------------|--|--|---|
|                              | CSS1/CSS1h,<br>SS1/SS1h and<br>QS1h/CQS1h<br>Asphaltic<br>Emulsion | CRS1/CRS2,<br>RS1/RS2 and<br>QS1/CQS1<br>Asphaltic<br>Emulsion | Asphalt Binder and<br>PMRS2/PMCRS2<br>and<br>PMRS2h/PMCRS2h<br>Asphaltic Emulsion |
| New HMA (between layers)     | 0.02   | 0.03   | 0.02  |
| Existing AC and PCC pavement | 0.03   | 0.04   | 0.03  |
| Planed pavement              | 0.05   | 0.06   | 0.04  |

**Tack Coat Application Rates for OGFC**

| OGFC over:                   | Minimum Residual Rates (gal/sq yd)                                 |  |   |
|------------------------------|--|--|---|
|                              | CSS1/CSS1h,<br>SS1/SS1h and<br>QS1h/CQS1h<br>Asphaltic<br>Emulsion | CRS1/CRS2,<br>RS1/RS2 and<br>QS1/CQS1<br>Asphaltic<br>Emulsion | Asphalt Binder and<br>PMRS2/PMCRS2<br>and<br>PMRS2h/PMCRS2h<br>Asphaltic Emulsion |
| New HMA                      | 0.03   | 0.04   | 0.03  |
| Existing AC and PCC pavement | 0.05   | 0.06   | 0.04  |
| Planed pavement              | 0.06   | 0.07   | 0.05  |

If you dilute asphaltic emulsion, mix until homogeneous before application.

Apply to vertical surfaces with a residual tack coat rate that will thoroughly coat the vertical face without running off.

If you request and the Engineer authorizes, you may:

1. Change tack coat rates
2. Omit tack coat between layers of new HMA during the same work shift if:
  - 2.1. No dust, dirt, or extraneous material is present
  - 2.2. Surface is at least 140 degrees F

Immediately in advance of placing HMA, apply additional tack coat to damaged areas or where loose or extraneous material is removed.

Close areas receiving tack coat to traffic. Do not track tack coat onto pavement surfaces beyond the job site.

Asphalt binder tack coat temperature must be from 285 to 350 degrees F when applied.

**39-1.03B(4) Geosynthetic Pavement Interlayer**

Place geosynthetic pavement interlayer in compliance with the manufacturer's recommendations.

Before placing the geosynthetic pavement interlayer and asphalt binder:

1. Repair cracks 1/4 inch and wider, spalls, and holes in the pavement. Repairing cracks is change order work.
2. Clean the pavement of loose and extraneous material.

Immediately before placing the interlayer, apply 0.25 gallon ± 0.03 gallon of asphalt binder per square yard of interlayer or until the fabric is saturated. Apply asphalt binder the width of the geosynthetic pavement interlayer plus 3 inches on each side. At interlayer overlaps, apply asphalt binder on the lower interlayer the same overlap distance as the upper interlayer.

Align and place the interlayer with no overlapping wrinkles, except a wrinkle that overlaps may remain if it is less than 1/2 inch thick. If the overlapping wrinkle is more than 1/2 inch thick, cut the wrinkle out and overlap the interlayer no more than 2 inches.

The minimum HMA thickness over the interlayer must be 0.12 foot thick including conform tapers. Do not place the interlayer on a wet or frozen surface.

Overlap the interlayer borders between 2 inches and 4 inches. In the direction of paving, overlap the following roll with the preceding roll at any break.

You may use rolling equipment to correct distortions or wrinkles in the interlayer.

If asphalt binder tracked onto the interlayer or brought to the surface by construction equipment causes interlayer displacement, cover it with a small quantity of HMA.

Before placing HMA on the interlayer, do not expose the interlayer to:

1. Traffic except for crossings under traffic control and only after you place a small HMA quantity
2. Sharp turns from construction equipment
3. Damaging elements

Pave HMA on the interlayer during the same work shift.

### **39-1.03C Transporting, Spreading, and Compacting**

#### **39-1.03C(1) General**

You may deposit HMA in a windrow and load it in the paver if:

1. Paver is equipped with a hopper that automatically feeds the screed
2. Loading equipment can pick up the windrowed material and deposit it in the paver hopper without damaging base material
3. Activities for deposit, pick-up, loading, and paving are continuous
4. HMA temperature in the windrow does not fall below 260 degrees F

You may pave HMA in 1 or more layers on areas less than 5 feet wide and outside the traveled way including shoulders. You may use mechanical equipment other than a paver for these areas. The equipment must produce a uniform smoothness and texture.

HMA handled, spread, or windrowed must not stain the finished surface of any improvement including pavement.

Do not use petroleum products such as kerosene or diesel fuel to release HMA from trucks, spreaders, hand tools or compactors.

HMA must be free of:

1. Segregation
2. Coarse or fine aggregate pockets
3. Hardened lumps

Longitudinal joints in the top layer must match specified lane edges. Alternate longitudinal joint offsets in lower layers at least 0.5 foot from each side of the specified lane edges. You may request other longitudinal joint placement patterns.

Until the adjoining through lane's top layer has been paved, do not pave the top layer of:

1. Shoulders
2. Tapers
3. Transitions
4. Road connections
5. Driveways
6. Curve widening
7. Chain control lanes
8. Turnouts
9. Turn pockets

If the number of lanes change, pave each through lane's top layer before paving a tapering lane's top layer. Simultaneous to paving a through lane's top layer, you may pave an adjoining area's top layer including shoulders. Do not operate spreading equipment on any area's top layer until completing final compaction.

If HMA-TYPE A-SP (leveling course) is specified, fill and level irregularities and ruts with HMA-TYPE A-SP before spreading HMA over base, existing surfaces, or bridge decks. You may use mechanical equipment other than a paver for these areas. The equipment must produce a uniform smoothness and texture. HMA used to change an existing surface's cross slope or profile is not HMA-TYPE A-SP (leveling course).

If placing HMA against the edge of existing pavement, sawcut or grind the pavement straight and vertical along the joint and remove extraneous material without damaging the surface remaining in place. If placing HMA against the edge of a longitudinal or transverse construction joint and the joint is damaged or not placed to a neat line, sawcut or grind the pavement straight and vertical along the joint and remove extraneous material without damaging the surface remaining in place. Repair or remove and replace damaged pavement at your expense.

Rolling must leave the completed surface compacted and smooth without tearing, cracking, or shoving. Complete finish rolling activities before the pavement surface temperature is:

1. Below 150 degrees F for HMA-TYPE A-SP with unmodified binder
2. Below 140 degrees F for HMA-TYPE A-SP with modified binder
3. Below 200 degrees F for RHMA-G-SP

If a vibratory roller is used as a finish roller, turn the vibrator off.

Do not use a pneumatic tired roller to compact RHMA-G-SP.

If a 3/4-inch aggregate grading is specified, you may use a 1/2-inch aggregate grading if the specified paved thickness is from 0.15 to 0.20 foot thick.

Spread and compact HMA as specified for method compaction in section 39-1.03C(2) for any of the following conditions:

1. Specified paved thickness is less than 0.15 foot.
2. Specified paved thickness is less than 0.20 foot and a 3/4-inch aggregate grading is specified and used.
3. You spread and compact at:
  - 3.1. Asphalt concrete surfacing replacement areas
  - 3.2. Leveling courses
  - 3.3. Areas the Engineer determines conventional compaction and compaction measurement methods are impeded

Do not open new HMA pavement to traffic until its mid-depth temperature is below 160 degrees F.

If you request and the Engineer authorizes, you may cool HMA-TYPE A-SP with water when rolling activities are complete. Apply water under section 17.

Spread sand at a rate between 1 pound and 2 pounds per square yard on new RHMA-G-SP, and RHMA-O pavement when finish rolling is complete. Sand must be free of clay or organic matter. Sand must comply with section 90-1.02C(3). Keep traffic off the pavement until spreading sand is complete.

**39-1.03C(2) Method Compaction**

Pave HMA in maximum 0.25-foot thick compacted layers.

If the surface to be paved is both in sunlight and shade, pavement surface temperatures are taken in the shade.

Spread HMA-TYPE A-SP only if atmospheric and surface temperatures are:

**Minimum Atmospheric and Surface Temperatures**

| Compacted Layer Thickness, feet | Atmospheric, °F           |                                      | Surface, °F               |                                      |
|---------------------------------|---------------------------|--------------------------------------|---------------------------|--------------------------------------|
|                                 | Unmodified Asphalt Binder | Modified Asphalt Binder <sup>a</sup> | Unmodified Asphalt Binder | Modified Asphalt Binder <sup>a</sup> |
| < 0.15                          | 55                        | 50                                   | 60                        | 55                                   |
| 0.15 – 0.25                     | 45                        | 45                                   | 50                        | 50                                   |

<sup>a</sup>Except asphalt rubber binder.

If the asphalt binder for HMA-TYPE A-SP is:

1. Unmodified asphalt binder, complete:
  - 1.1. First coverage of breakdown compaction before the surface temperature drops below 250 degrees F
  - 1.2. Breakdown and intermediate compaction before the surface temperature drops below 190 degrees F
  - 1.3. Finish compaction before the surface temperature drops below 150 degrees F
2. Modified asphalt binder, complete:
  - 2.1. First coverage of breakdown compaction before the surface temperature drops below 240 degrees F
  - 2.2. Breakdown and intermediate compaction before the surface temperature drops below 180 degrees F
  - 2.3. Finish compaction before the surface temperature drops below 140 degrees F

For RHMA-G-SP:

1. Only spread and compact if the atmospheric temperature is at least 55 degrees F and the surface temperature is at least 60 degrees F.
2. Complete the first coverage of breakdown compaction before the surface temperature drops below 280 degrees F.
3. Complete breakdown and intermediate compaction before the surface temperature drops below 250 degrees F.
4. Complete finish compaction before the surface temperature drops below 200 degrees F.
5. If the atmospheric temperature is below 70 degrees F, cover loads in trucks with tarpaulins. The tarpaulins must completely cover the exposed load until you transfer the mixture to the paver's hopper or to the pavement surface.

For HMA-O with unmodified asphalt binder:

1. Only spread and compact if the atmospheric temperature is at least 55 degrees F and the surface temperature is at least 60 degrees F.
2. Complete first coverage using 2 rollers before the surface temperature drops below 240 degrees F.
3. Complete all compaction before the surface temperature drops below 200 degrees F.
4. If the atmospheric temperature is below 70 degrees F, cover loads in trucks with tarpaulins. The tarpaulins must completely cover the exposed load until you transfer the mixture to the paver's hopper or to the pavement surface.

For HMA-O with modified asphalt binder except asphalt rubber binder:

1. Only spread and compact if the atmospheric temperature is at least 50 degrees F and the surface temperature is at least 50 degrees F.
2. Complete first coverage using 2 rollers before the surface temperature drops below 240 degrees F.
3. Complete all compaction before the surface temperature drops below 180 degrees F.
4. If the atmospheric temperature is below 70 degrees F, cover loads in trucks with tarpaulins. The tarpaulins must completely cover the exposed load until you transfer the mixture to the paver's hopper or to the pavement surface.

For RHMA-O:

1. Only spread and compact if the atmospheric temperature is at least 55 degrees F and surface temperature is at least 60 degrees F.
2. Complete the 1st coverage using 2 rollers before the surface temperature drops below 280 degrees F.
3. Complete compaction before the surface temperature drops below 250 degrees F.
4. If the atmospheric temperature is below 70 degrees F, cover loads in trucks with tarpaulins. The tarpaulins must completely cover the exposed load until the mixture is transferred to the paver's hopper or to the pavement surface.

For RHMA-G-SP and OGFC, tarpaulins are not required if the time from discharge to truck until transfer to the paver's hopper or the pavement surface is less than 30 minutes.

HMA compaction coverage is the number of passes needed to cover the paving width. A pass is 1 roller's movement parallel to the paving in either direction. Overlapping passes are part of the coverage being made and are not a subsequent coverage. Do not start a coverage until completing the prior coverage.

Start rolling at the lower edge and progress toward the highest part.

Perform breakdown compaction of each layer of HMA-TYPE A-SP and RHMA-G-SP with 3 coverages using a vibratory roller. The speed of the vibratory roller in miles per hour must not exceed the vibrations per minute divided by 1,000. If the HMA layer thickness is less than 0.08 foot, turn the vibrator off. The Engineer may order fewer coverages if the HMA-TYPE A-SP or RHMA-G-SP layer thickness is less than 0.15 foot.

Perform intermediate compaction of each layer of HMA-TYPE A-SP or RHMA-G-SP with 3 coverages using a pneumatic-tired roller at a speed not to exceed 5 mph.

Perform finish compaction of HMA-TYPE A-SP and RHMA-G-SP with 1 coverage using a steel-tired roller.

Compact OGFC with 2 coverages using steel-tired rollers.

AA

## **DIVISION IX TRAFFIC CONTROL FACILITIES**

### **86 ELECTRICAL SYSTEMS**

**Add to the end of the 1st paragraph of section 86-1.01:**

This work is shown on sheets labeled E. The work involved in each section 86 bid item is shown on a sheet with a sheet title matching the bid item description except for the following bid items:

1. Maintaining existing traffic management system elements during construction

Traffic signal work must be performed at the following locations:

1. Rte 580 EB Off Ramp with Regatta Blvd
2. Rte 580 EB Off Ramp with South 23rd St 3. Rte 580 WB Off Ramp with South 23rd St
4. Rte 580 WB Off Ramp with Cutting Blvd
5. Rte 580 EB Off Ramp with Cutting Blvd
6. Rte 580 WB Off Ramp with Canal Blvd
7. Rte 580 EB Off Ramp with Canal Blvd
8. Rte 580 WB Off Ramp with Castro St

**Add to section 86-1.03:**

Submit a schedule of values within 15 days after Contract approval.

**Replace "Reserved" in section 86-1.06B with:**

Traffic Management System (TMS) elements include, but are not limited to ramp metering (RM) system, communication system, traffic monitoring stations, video image vehicle detection system (VIVDS), microwave vehicle detection system (MVDS), loop detection system, changeable message sign (CMS) system, extinguishable message sign (EMS) system, highway advisory radio (HAR) system, closed circuit television (CCTV) camera system, roadway weather information system (RWIS), visibility sensor, and fiber optic system.

Existing TMS elements, including detection systems, shown and located within the project limits must remain in place and be protected from damage. If the construction activities require existing TMS elements to be nonoperational or off line, and if temporary or portable TMS elements are not shown, the Contractor must provide for temporary or portable TMS elements. The Contractor must receive authorization on the type of temporary or portable TMS elements and installation method.

Before work is performed, the Engineer, the Contractor, and the Department's Traffic Operations Electrical representatives must jointly conduct a pre-construction operational status check of all existing TMS elements and each element's communication status with the Traffic Management Center (TMC), including existing TMS elements not shown and elements that may not be impacted by the Contractor's activities. The Department's Traffic Operations Electrical representatives will certify the TMS elements' location and status, and provide a copy of the certified list of the existing TMS elements within the project limits to the Contractor. The status list will include the operational, defined as having full functionality, and the nonoperational components.

The Contractor must obtain authorization at least 72 hours before interrupting existing TMS elements' communication with the TMC that will result in the elements being nonoperational or off line. The Contractor must notify the Engineer at least 72 hours before starting excavation activities.

Traffic monitoring stations and their associated communication systems, which were verified to be operational during the pre-construction operational status check, must remain operational on freeway/highway mainline at all times, except:

1. For a duration of up to 15 days on any continuous segment of the freeway/highway longer than 3 miles
2. For a duration of up to 60 days on any continuous segment of the freeway/highway shorter than 3 miles

If the construction activities require existing detection systems to be nonoperational or off line for a longer time period or the spacing between traffic monitoring stations is more than the specified criteria above, and temporary or portable detection operations are not shown, the Contractor must provide provisions for temporary or portable detection operations. The Contractor must receive authorization on the type of detection and installation before installing the temporary or portable detection.

If existing TMS elements shown or identified during the pre-construction operational status check, except traffic monitoring stations, are damaged or fail due to the Contractor's activity, where the elements are not fully functional, the Engineer must be notified immediately. If the Contractor is notified by the Engineer that existing TMS elements have been damaged, have failed or are not fully functional due to the Contractor's activity, the damaged or failed TMS elements, excluding structure-related elements, must be repaired or replaced, at the Contractor's expense, within 24 hours. For a structure-related elements, the Contractor must install temporary or portable TMS elements within 24 hours. For nonstructure-related TMS elements, the Engineer may authorize temporary or portable TMS elements for use during the construction activities.

The Contractor must demonstrate that repaired or replaced elements operate in a manner equal to or better than the replaced equipment. If the Contractor fails to perform required repairs or replacement work, the Department may perform the repair or replacement work and the cost will be deducted from monies due to the Contractor.

A TMS element must be considered nonoperational or off line for the duration of time that active communications with the TMC is disrupted, resulting in messages and commands not transmitted from or to the TMS element.

The Contractor must provide provisions for replacing existing TMS elements within the project limits, including detection systems, that were not identified on the plans or during the pre-construction operational status check that became damaged due to the Contractor's activities.

If the pre-construction operational status check identified existing TMS elements, then the Contractor, the Engineer, and the Department's Traffic Operations Electrical representatives must jointly conduct a post construction operational status check of all existing TMS elements and each element's communication status with the TMC. The Department's Traffic Operations Electrical representatives will certify the TMS elements' status and provide a copy of the certified list of the existing TMS elements within the project limits to the Contractor. The status list will include the operational, defined as having full functionality, and the nonoperational components. TMS elements that cease to be functional between pre and post construction status checks must be repaired at the Contractor's expense.

The Engineer will authorize the schedule for final replacement, the replacement methods and the replacement elements, including element types and installation methods before repair or replacement work is performed. The final TMS elements must be new and of equal or better quality than the existing TMS elements.

If no electrical work exists on the project and no TMS elements are identified within the project limits, the pre-construction operational status check is change order work.

Furnishing and installing temporary or portable TMS elements that are not shown, but are required when an existing TMS element becomes nonoperational or off line due to construction activities, is change order work.

Furnishing and installing temporary or portable TMS elements and replacing TMS elements that are not shown nor identified during the pre-construction operational status check and were damaged by construction activities is change order work.

If the Contractor is required to submit provisions for the replacement of TMS elements that were not identified, submitting the provisions is change order work.

**Delete items 2–5 in the list in the 2nd paragraph of section 86-2.06A(2).**

**Add to section 86-2.06A(2):**

Do not place grout in the bottom of the pull box.

Replace "Reserved" in section 86-2.06B of the RSS for section 86-2.06 with:

**86-2.06B(1) General**

**86-2.06B(1)(a) Summary**

This work includes installing non-traffic-rated pull boxes.

**86-2.06B(1)(b) Submittals**

Before shipping pull boxes to the jobsite, submit a list of materials, Contract number, pull box manufacturer, manufacturer's instructions for pull box installation, and your contact information to METS.

Submit reports for pull box from an NRTL-accredited lab.

**86-2.06B(1)(c) Quality Control and Assurance**

**86-2.06B(1)(c)(i) General**

Pull boxes may be tested by the Department. Deliver pull boxes and covers to METS and allow 30 days for testing. When testing is complete, you will be notified. You must pick up the boxes and covers from the test site and deliver it to the job site.

Any failure of the pull box or the cover that renders the unit noncompliant with these specifications will be a cause for rejection. If the unit is rejected, you must allow 30 days for retesting. Retesting period starts when the replacement pull box is delivered to the test site. You must pay for all retesting costs. Delays resulting from the submittal of noncompliant materials does not relieve you from executing the Contract within the allotted time.

If the pull box submitted for testing does not comply with the specifications, remove the unit from the test site within 5 business days after notification that it is rejected. If the unit is not removed within that period, it may be shipped to you at your expense.

You must pay for all shipping, handling, and transportation costs related to the testing and retesting.

**86-2.06B(1)(c)(ii) Functional Testing**

The pull box and cover must be tested under ANSI/SCTE 77, "Specifications for Underground Enclosure Integrity."

**86-2.06B(1)(c)(iii) Warranty**

Provide a 2-year manufacturer replacement warranty for pull box and cover from the date of installation of the pull box and cover. All warranty documentation must be submitted before installation.

Replacement parts must be provided within 5 business days after receipt of failed pull box, cover, or both at no cost to the Department and must be delivered to the Department's Maintenance Electrical Shop at Caltrans Electrical Maintenance Station, 30 Rickard Street, San Francisco, CA 94134, (415) 330-6500.

**86-2.06B(2) Materials**

The pull box and cover must comply with ANSI/SCTE 77, "Specifications for Underground Enclosure Integrity," for Tier 22 load rating and must be gray or brown in color.

Each pull box cover must have an electronic marker cast inside.

Extension for the pull box must be of the same material as the pull box and attached to the pull box to maintain the minimum combined depths as shown.

Include recesses for a hanger if a transformer or other device must be placed in a pull box.

The bolts, nuts, and washers must be a captive bolt design.

The captive bolt design must be capable of withstanding a torque range of 55 to 60 ft-lb and a minimum pull out strength of 750 lb. Perform the test with the cover in place and the bolts torqued. The pull box and cover must not be damaged while performing the test to the minimum pull out strength.

Stainless steel hardware must have an 18 percent chromium content and an 8 percent nickel content.

Galvanize ferrous metal parts under section 75-1-.05.

Manufacturer's instructions must provide guidance on:

1. Quantity and size of entries that can be made without degrading the strength of the pull box below Tier 22 load rating
2. Where side entries cannot be made
3. Acceptable method to be used to create the entry

Tier 22 load rating must be labeled or stenciled by the manufacturer on the inside and outside of the pull box and on the underside of the cover.

**86-2.06B(3) Construction**

Do not install pull box in curb ramps or driveways.

A pull box for a post or a pole standard must be located within 5 feet of the standard. Place a pull box adjacent to the back of the curb or edge of the shoulder. If this is impractical, place the pull box in a suitable, protected, and accessible location.

Bury pull box in soil 6 to 8 inches below grade. Cover the pull box with a plastic sheet before burying it.

Plastic sheets must be 20 mil thick and made of HDPE or PVC virgin compounds.

**Add to section 86-2.08A:**

Wrap conductors around the projecting end of conduit in pull boxes as shown. Secure conductors and cables to the projecting end of the conduit in pull boxes.

**Replace the 1st paragraph of section 86-2.09E with:**

Splices must be insulated by "Method B."

**Delete the 6th and 7th paragraphs of section 86-2.09E.**

**Add to section 86-5.01A(1):**

Loop wire must be Type 2.

Loop detector lead-in cable must be Type B .

Slots must be filled with elastomeric sealant or hot-melt rubberized asphalt sealant.

You may use a Type E loop where a Type A loop is shown.

For Type E detector loops, sides of the slot must be vertical and the minimum radius of the slot entering and leaving the circular part of the loop must be 1-1/2 inches. Slot width must be a maximum of 5/8 inch. Loop wire for circular loops must be Type 2. Slots of circular loops must be filled with elastomeric sealant or hot-melt rubberized asphalt sealant.

**REVISED STANDARD SPECIFICATIONS  
APPLICABLE TO THE 2010 EDITION  
OF THE STANDARD SPECIFICATIONS**

# REVISED STANDARD SPECIFICATIONS DATED 02-22-13

Revised standard specifications are under headings that correspond with the main-section headings of the *Standard Specifications*. A main-section heading is a heading shown in the table of contents of the *Standard Specifications*. A date under a main-section heading is the date of the latest revision to the section.

Each revision to the *Standard Specifications* begins with a revision clause that describes a revision to the *Standard Specifications* or introduces a revision to the *Standard Specifications*. For a revision clause that describes a revision, the date on the right above the clause is the publication date of the revision. For a revision clause that introduces a revision, the date on the right above a revised term, phrase, clause, paragraph, or section is the publication date of the revised term, phrase, clause, paragraph, or section. For a multiple-paragraph or multiple-section revision, the date on the right above a paragraph or section is the publication date of the paragraphs or sections that follow.

Any paragraph added or deleted by a revision clause does not change the paragraph numbering of the *Standard Specifications* for any other reference to a paragraph of the *Standard Specifications*.

## DIVISION I GENERAL PROVISIONS

### 1 GENERAL

10-19-12

**Replace "current" in the 2nd paragraph of section 1-1.05 with:**

most recent

04-20-12

**Add to the 4th paragraph of section 1-1.05:**

04-20-12

Any reference directly to a revised standard specification section is for convenience only. Lack of a direct reference to a revised standard specification section does not indicate a revised standard specification for the section does not exist.

**Add to the 1st table in section 1-1.06:**

10-19-12

|     |                       |
|-----|-----------------------|
| TRO | time-related overhead |
|-----|-----------------------|

06-20-12

**Delete the abbreviation and its meaning for *UDBE* in the 1st table of section 1-1.06.**

10-19-12

**Delete "Contract completion date" and its definition in section 1-1.07B.**

10-19-12

**Delete "critical delay" and its definition in section 1-1.07B.**

**Replace "day" and its definition in section 1-1.07B with:**

10-19-12

**day:** 24 consecutive hours running from midnight to midnight; calendar day.

1. **business day:** Day on the calendar except a Saturday and a holiday.
2. **working day:** Time measure unit for work progress. A working day is any 24-consecutive-hour period except:
  - 2.1. Saturday and holiday.
  - 2.2. Day during which you cannot perform work on the controlling activity for at least 50 percent of the scheduled work shift with at least 50 percent of the scheduled labor and equipment due to any of the following:
    - 2.2.1. Adverse weather-related conditions.
    - 2.2.2. Maintaining traffic under the Contract.
    - 2.2.3. Suspension of a controlling activity that you and the Engineer agree benefits both parties.
    - 2.2.4. Unanticipated event not caused by either party such as:
      - 2.2.4.1. Act of God.
      - 2.2.4.2. Act of a public enemy.
      - 2.2.4.3. Epidemic.
      - 2.2.4.4. Fire.
      - 2.2.4.5. Flood.
      - 2.2.4.6. Governor-declared state of emergency.
      - 2.2.4.7. Landslide.
      - 2.2.4.8. Quarantine restriction.
    - 2.2.5. Issue involving a third party, including:
      - 2.2.5.1. Industry or area-wide labor strike.
      - 2.2.5.2. Material shortage.
      - 2.2.5.3. Freight embargo.
      - 2.2.5.4. Jurisdictional requirement of a law enforcement agency.
      - 2.2.5.5. Workforce labor dispute of a utility or nonhighway facility owner resulting in a nonhighway facility rearrangement not described and not solely for the Contractor's convenience. Rearrangement of a nonhighway facility includes installation, relocation, alteration, or removal of the facility.
  - 2.3. Day during a concurrent delay.
3. **original working days:**
  - 3.1. Working days to complete the work shown on the *Notice to Bidders* for a non-cost plus time based bid.
  - 3.2. Working days bid to complete the work for a cost plus time based bid.

Where working days is specified without the modifier "original" in the context of the number of working days to complete the work, interpret the number as the number of original working days as adjusted by any time adjustment.

**Replace "Contract" in the definition of "early completion time" in section 1-1.07B with:**

10-19-12

work

**Replace "excusable delay" and its definition in section 1-1.07B with:**

10-19-12

**delay:** Event that extends the completion of an activity.

1. **excusable delay:** Delay caused by the Department and not reasonably foreseeable when the work began such as:
  - 1.1. Change in the work
  - 1.2. Department action that is not part of the Contract

- 1.3. Presence of an underground utility main not described in the Contract or in a location substantially different from that specified
- 1.4. Described facility rearrangement not rearranged as described, by the utility owner by the date specified, unless the rearrangement is solely for the Contractor's convenience
- 1.5. Department's failure to obtain timely access to the right-of-way
- 1.6. Department's failure to review a submittal or provide notification in the time specified
- 2. **critical delay:** Excusable delay that extends the scheduled completion date
- 3. **concurrent delay:** Occurrence of at least 2 of the following events in the same period of time, either partially or entirely:
  - 3.1. Critical delay
  - 3.2. Delay to a controlling activity caused by you
  - 3.3. Non-working day

**Replace "project" in the definition of "scheduled completion date" in section 1-1.07B with:**

work

10-19-12

**Add to section 1-1.07B:**

**Contract time:** Number of original working days as adjusted by any time adjustment.

10-19-12

**Disadvantaged Business Enterprise:** Disadvantaged Business Enterprise as defined in 49 CFR 26.5.

06-20-12

**Replace "PO BOX 911" in the District 3 mailing address in the table in section 1-1.08 with:**

703 B ST

04-20-12

**Add to the table in section 1-1.11:**

|   |   |    |    |
|---|---|----|----|
| Office Engineer–All Projects Currently Advertised | <a href="http://www.dot.ca.gov/hq/esc/oe/weekly_ads/all_advertised.php">http://www.dot.ca.gov/hq/esc/oe/weekly_ads/all_advertised.php</a> | -- | -- |
|---|---|----|----|

01-20-12

AA

## 2 BIDDING

10-19-12

**Replace the 3rd paragraph of section 2-1.06B with:**

If an *Information Handout* or cross sections are available:

01-20-12

- 1. You may view them at the Contract Plans and Special Provisions link at the Office Engineer–All Projects Currently Advertised Web site
- 2. For an informal-bid contract, you may obtain them at the Bidders' Exchange street address

01-20-12  
**Add a paragraph break between the 1st and 2nd sentences of the 5th paragraph of section 2-1.06B.**

**Add between "and" and "are" in item 2 in the list in the 7th paragraph of section 2-1.06B:**

they 04-20-12

06-20-12  
**Delete "Underutilized" in "Underutilized Disadvantaged Business Enterprises" in the heading of section 2-1.12B.**

06-20-12  
**Delete *U* in *UDBE* at each occurrence in section 2-1.12B.**

**Replace the 2nd paragraph of section 2-1.12B(1) with:**

06-20-12  
To ensure equal participation of DBEs provided in 49 CFR 26.5, the Department shows a goal for DBEs.

06-20-12  
**Delete the 3rd paragraph of section 2-1.12B(1):**

**Replace the 7th paragraph of section 2-1.12B(1) with:**

06-20-12  
All DBE participation will count toward the Department's federally-mandated statewide overall DBE goal.

**Replace "offered" at the end of the 2nd sentence of item 7 in the list of 2nd paragraph of section 2-1.12B(3) with:**

provided 06-20-12

01-20-12  
**Delete the 2nd paragraph of section 2-1.33A.**

**Replace the 3rd paragraph of section 2-1.33A with:**

01-20-12  
Except for each subcontracted bid item number and corresponding percentage and proof of each required SSPC QP certification, do not fax submittals.

**Add to section 2-1.33C:**

10-19-12  
On the *Subcontractor List*, you must either submit each subcontracted bid item number and corresponding percentage with your bid or fax these numbers and percentages to (916) 227-6282 within 24 hours after bid opening. Failure to do so results in a nonresponsive bid.



**Add to the list in the 4th paragraph of section 5-1.09A:**

9. Considering discussing with and involving all stakeholders in evaluating potential VECPs

10-19-12

**Add to the end of item 1.1 in the list in the 7th paragraph of section 5-1.09A:**

, including VECPs

10-19-12

**Replace the 1st paragraph of section 5-1.09C with:**

For a contract with a total bid over \$10 million and 100 or more working days, training in partnering skills development is required.

10-19-12

**Delete the 2nd paragraph of section 5-1.09C.**

10-19-12

**Replace "at least 2 representatives" in the 5th paragraph of section 5-1.09C with:**

field supervisory personnel

10-19-12

**Replace the 1st and 2nd sentences in the 7th paragraph of section 5-1.13B(1) with:**

If a DBE is decertified before completing its work, the DBE must notify you in writing of the decertification date. If a business becomes a certified DBE before completing its work, the business must notify you in writing of the certification date.

06-20-12

**Replace "90" in the last sentence of the 7th paragraph of section 5-1.13B(1) with:**

30

06-20-12

**Replace "Underutilized" in "Underutilized Disadvantaged Business Enterprises" in the heading of section 5-1.13B(2) with:**

Performance of

06-20-12

**Delete *U* in *UDBE* at each occurrence in section 5-1.13B(2).**

06-20-12

**Replace the 3rd paragraph of section 5-1.13B(2) with:**

Do not terminate or substitute a listed DBE for convenience and perform the work with your own forces or obtain materials from other sources without authorization from the Department.

06-20-12

**Replace item 6 in the list in the 4th paragraph of section 5-1.13B(2) with:**

6. Listed DBE is ineligible to work on the project because of suspension or debarment.

06-20-12

**Add to the list in the 4th paragraph of section 5-1.13B(2):**

8. Listed DBE voluntarily withdraws with written notice from the Contract.  
9. Listed DBE is ineligible to receive credit for the type of work required.  
10. Listed DBE owner dies or becomes disabled resulting in the inability to perform the work on the Contract.  
11. Department determines other documented good cause.

06-20-12

**Add between the 4th and 5th paragraphs of section 5-1.13B(2):**

Notify the original DBE of your intent to use other forces or material sources and provide the reasons. Provide the DBE with 5 days to respond to your notice and advise you and the Department of the reasons why the use of other forces or sources of materials should not occur. Your request to use other forces or material sources must include:

07-20-12

1. 1 or more of the reasons listed in the preceding paragraph
2. Notices from you to the DBE regarding the request
3. Notices from the DBE to you regarding the request

**Add between "terminated" and ", you" in the 5th paragraph of section 5-1.13B(2):**

or substituted

07-20-12

**Replace "Contract" in item 1 in the list in the 5th paragraph of section 5-1.13C with:**

work

10-19-12

**Replace "Reserved" in section 5-1.20C with:**

If the Contract includes an agreement with a railroad company, the Department makes the provisions of the agreement available in the *Information Handout* in the document titled "Railroad Relations and Insurance Requirements." Comply with the requirements in the document.

10-19-12

**Add between the 2nd and 3rd paragraphs of section 5-1.23A:**

Submit action and informational submittals to the Engineer.

10-19-12

**Add to section 5-1.36C:**

If the Contract does not include an agreement with a railroad company, do not allow personnel or equipment on railroad property.

07-20-12

Prevent material, equipment, and debris from falling onto railroad property.

**Add between the 1st and 2nd paragraphs of section 5-1.37A:**

10-19-12

Do not remove any padlock used to secure a portion of the work until the Engineer is present to replace it. Notify the Engineer at least 3 days before removing the lock.

**Replace the 1st sentence of the 1st paragraph of section 5-1.39C(2) with:**

10-19-12

Section 5-1.39C(2) applies if a plant establishment period of 3 years or more is shown on the *Notice to Bidders*.

**Replace "working days" in the 1st paragraph of section 5-1.43E(1)(a) with:**

10-19-12

original working days

^^

**7 LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC**

07-27-12

**Replace "20 days" in the 14th paragraph of section 7-1.04 with:**

09-16-11

25 days

**Replace "90 days" in the 14th paragraph of section 7-1.04 with:**

09-16-11

125 days

**Add between the 18th and 19th paragraphs of section 7-1.04:**

09-16-11

Temporary facilities that could be a hazard to public safety if improperly designed must comply with design requirements described in the Contract for those facilities or, if none are described, with standard design criteria or codes appropriate for the facility involved. Submit shop drawings and design calculations for the temporary facilities and show the standard design criteria or codes used. Shop drawings and supplemental calculations must be sealed and signed by an engineer who is registered as a civil engineer in the State.

**Replace the 2nd paragraph of section 7-1.11A with:**

07-27-12

A copy of form FHWA-1273 is included in section 7-1.11B. The training and promotion section of section II refers to training provisions as if they were included in the special provisions. The Department specifies the provisions in section 7-1.11D of the *Standard Specifications*. If a number of trainees or apprentices is required, the Department shows the number on the *Notice to Bidders*. Interpret each FHWA-1273 clause shown in the following table as having the same meaning as the corresponding Department clause:

**FHWA-1273 Nondiscrimination Clauses**

| FHWA-1273 section      | FHWA-1273 clause   | Department clause   |
|------------------------|--|---|
| Training and Promotion | In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. | If section 7-1.11D applies, section 7-1.11D supersedes this subparagraph.       |
| Records and Reports    | If on-the-job training is being required by special provision, the contractor will be required to collect and report training data.                        | If the Contract requires on-the-job training, collect and report training data. |

**Replace the form in section 7-1.11B with:**

07-20-12

**REQUIRED CONTRACT PROVISIONS  
FEDERAL-AID CONSTRUCTION CONTRACTS**

- I. General
- II. Nondiscrimination
- III. Nonsegregated Facilities
- IV. Davis-Bacon and Related Act Provisions
- V. Contract Work Hours and Safety Standards Act Provisions
- VI. Subletting or Assigning the Contract
- VII. Safety: Accident Prevention
- VIII. False Statements Concerning Highway Projects
- IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
- X. Compliance with Governmentwide Suspension and Debarment Requirements
- XI. Certification Regarding Use of Contract Funds for Lobbying

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

**ATTACHMENTS**

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

**II. NONDISCRIMINATION**

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

**I. GENERAL**

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding \$10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

**1. Equal Employment Opportunity:** Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under

this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

**2. EEO Officer:** The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

**3. Dissemination of Policy:** All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

**4. Recruitment:** When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

**5. Personnel Actions:** Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

**6. Training and Promotion:**

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are

applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

**7. Unions:** If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

**8. Reasonable Accommodation for Applicants / Employees with Disabilities:** The contractor must be familiar

with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

**9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment:** The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

**10. Assurance Required by 49 CFR 26.13(b):**

a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.

**11. Records and Reports:** The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on [Form FHWA-1391](#). The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor

will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

### III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

### IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding \$2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

#### 1. Minimum wages

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions

of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b. (1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or

will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program. Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

## 2. Withholding

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

## 3. Payrolls and basic records

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-

Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b. (1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/esa/whd/forms/wh347instr.htm> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency..

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

#### 4. Apprentices and trainees

##### a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly

rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

##### b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

**5. Compliance with Copeland Act requirements.** The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

**6. Subcontracts.** The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

**7. Contract termination; debarment.** A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

**8. Compliance with Davis-Bacon and Related Act requirements.** All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

**9. Disputes concerning labor standards.** Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

**10. Certification of eligibility.**

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

**V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT**

The following clauses apply to any Federal-aid construction contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

**1. Overtime requirements.** No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

**2. Violation; liability for unpaid wages; liquidated damages.** In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.

**3. Withholding for unpaid wages and liquidated damages.** The FHWA or the contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.

**4. Subcontracts.** The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

## VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term "perform work with its own organization" refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

(1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;

(2) the prime contractor remains responsible for the quality of the work of the leased employees;

(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and

(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is

evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

## VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

## VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

#### **IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT**

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.
2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

#### **X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION**

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost \$25,000 or more – as defined in 2 CFR Parts 180 and 1200.

##### **1. Instructions for Certification – First Tier Participants:**

- a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.
- b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this

covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

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## **2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:**

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

### **2. Instructions for Certification - Lower Tier Participants:**

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost \$25,000 or more - 2 CFR Parts 180 and 1200)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which

this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers to any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the

department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

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**Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:**

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

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**XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING**

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000 (49 CFR 20).

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such recipients shall certify and disclose accordingly.

AA

## 8 PROSECUTION AND PROGRESS

10-19-12

**Replace "working days" in the 1st paragraph of section 8-1.02B(1) with:**

original working days

10-19-12

**Replace "working days" at each occurrence in the 1st paragraph of section 8-1.02C(1) with:**

original working days

10-19-12

**Delete the 4th paragraph of section 8-1.02C(1).**

04-20-12

**Replace "Contract" in the 9th paragraph of section 8-1.02C(1) with:**

work

10-19-12

**Replace the 1st paragraph of section 8-1.02C(3)(a) with:**

Submit a description of your proposed schedule software for authorization.

04-20-12

**Delete the last paragraph of section 8-1.02C(3)(a).**

04-20-12

**Replace section 8-1.02C(3)(b) with:**

**8-1.02C(3)(b) Reserved**

10-19-12

**Delete the 3rd paragraph of section 8-1.02C(5).**

04-20-12

**Replace "Contract" in the last paragraph of section 8-1.02C(5) with:**

original

10-19-12

**Replace "working days" in the 1st paragraph of section 8-1.02D(1) with:**

original working days

10-19-12

**Replace "8-1.02D(1)" in the 2nd paragraph of section 8-1.02D(1) with:**

8-1.02C(1)

01-20-12

**Replace "Contract" in the 3rd paragraph of section 8-1.02D(2) with:**

10-19-12

work

**Replace "Contract" in item 9 in the list in the 4th paragraph of section 8-1.02D(4) with:**

10-19-12

work

**Replace "Contract completion" in the 4th paragraph of section 8-1.02D(6) with:**

10-19-12

work completion

**Replace "Contract working days" in the 4th paragraph of section 8-1.02D(6) with:**

10-19-12

original working days

**Delete items 1.3 and 1.4 in the list in the 1st paragraph of section 8-1.02D(10).**

04-20-12

**Replace the last paragraph of section 8-1.04B with:**

10-19-12

The Department does not adjust time for starting before receiving notice of Contract approval.

**Replace the 1st paragraph of section 8-1.05 with:**

10-19-12

Contract time starts on the last day specified to start job site activities in section 8-1.04 or on the day you start job site activities, whichever occurs first.

**Replace the 2nd paragraph of section 8-1.05 with:**

10-19-12

Complete the work within the Contract time.

**Delete "unless the Contract is suspended for reasons unrelated to your performance" in the 4th paragraph of section 8-1.05.**

10-19-12

**Replace the headings and paragraphs in section 8-1.06 with:**

10-19-12

The Engineer may suspend work wholly or in part due to conditions unsuitable for work progress. Provide for public safety and a smooth and unobstructed passageway through the work zone during the suspension as specified under sections 7-1.03 and 7-1.04. Providing the passageway is force account work. The Department makes a time adjustment for the suspension due to a critical delay.

The Engineer may suspend work wholly or in part due to your failure to (1) fulfill the Engineer's orders, (2) fulfill a Contract part, or (3) perform weather-dependent work when conditions are favorable so that weather-related unsuitable conditions are avoided or do not occur. The Department may provide for a



| Cost             | Percent markup |
|------------------|----------------|
| Labor            | 30             |
| Materials        | 10             |
| Equipment rental | 10             |

**Delete ", Huntington Beach," in the 3rd paragraph of section 9-1.07A.**

04-20-12

**Replace the formula in section 9-1.07B(2) with:**

$$Qh = HMATT \times Xa$$

04-20-12

**Replace "weight of dry aggregate" in the definition of the variable *Xa* in section 9-1.07B(2) with:**

total weight of HMA

04-20-12

**Replace the formula in section 9-1.07B(3) with:**

$$Qrh = RHMATT \times 0.80 \times Xarb$$

04-20-12

**Replace "weight of dry aggregate" in the definition of the variable *Xarb* in section 9-1.07B(3) with:**

total weight of rubberized HMA

04-20-12

**Replace the heading of section 9-1.07B(4) with:**

**Hot Mix Asphalt with Modified Asphalt Binder**

04-20-12

**Add between "in" and "modified" in the introductory clause of section 9-1.07B(4):**

HMA with

04-20-12

**Replace the formula in section 9-1.07B(4) with:**

$$Qmh = MHMATT \times [(100 - Xam) / 100] \times Xmab$$

04-20-12

**Replace "weight of dry aggregate" in the definition of the variable *Xmab* in section 9-1.07B(4) with:**

total weight of HMA

04-20-12

**Replace the formula in section 9-1.07B(5) with:**

$$Qrap = HMATT \times Xaa$$

04-20-12

**Replace "weight of dry aggregate" in the definitions of the variables *Xaa* and *Xta* in section 9-1.07B(5) with:**

04-20-12

total weight of HMA

**Add after the variable definitions in section 9-1.07B(9):**

04-20-12

The quantity of extender oil is included in the quantity of asphalt.

**Replace the headings and paragraphs in section 9-1.11 with:**

10-19-12

**9-1.11A General**

Section 9-1.11 applies if a bid item for time-related overhead is included in the Contract. If a bid item for time-related overhead is included, you must exclude the time-related overhead from every other bid item price.

**9-1.11B Payment Quantity**

The TRO quantity does not include the number of working days to complete plant establishment work.

For a contract with a TRO lump sum quantity on the Bid Item List, the Department pays you based on the following conversions:

1. LS unit of measure is replaced with WDAY
2. Lump sum quantity is replaced with the number of working days bid
3. Lump sum unit price is replaced with the item total divided by the number of working days bid

**9-1.11C Payment Inclusions**

Payment for the TRO bid item includes payment for time-related field- and home-office overhead for the time required to complete the work.

The field office overhead includes time-related expenses associated with the normal and recurring construction activities not directly attributed to the work, including:

1. Salaries, benefits, and equipment costs of:
  - 1.1. Project managers
  - 1.2. General superintendents
  - 1.3. Field office managers
  - 1.4. Field office staff assigned to the project
2. Rent
3. Utilities
4. Maintenance
5. Security
6. Supplies
7. Office equipment costs for the project's field office

The home-office overhead includes the fixed general and administrative expenses for operating your business, including:

1. General administration
2. Insurance
3. Personnel and subcontract administration
4. Purchasing
5. Accounting
6. Project engineering and estimating

Payment for the TRO bid item does not include payment for:

1. The home-office overhead expenses specifically related to:
  - 1.1. Your other contracts or other businesses
  - 1.2. Equipment coordination
  - 1.3. Material deliveries
  - 1.4. Consultant and legal fees
2. Non-time-related costs and expenses such as mobilization, licenses, permits, and other charges incurred once during the Contract
3. Additional overhead involved in incentive/disincentive provisions to satisfy an internal milestone or multiple calendar requirements
4. Additional overhead involved in performing additional work that is not a controlling activity
5. Overhead costs incurred by your subcontractors of any tier or suppliers

#### **9-1.11D Payment Schedule**

For progress payments, the total work completed for the TRO bid item is the number of working days shown for the pay period on the *Weekly Statement of Working Days*.

For progress payments, the Department pays a unit price equal to the lesser of the following amounts:

1. Price per working day as bid or as converted under section 9-1.11B.
2. 20 percent of the total bid divided by the number of original working days

For a contract without plant establishment work, the Department pays you the balance due of the TRO item total as specified in section 9-1.17B.

For a contract with plant establishment work, the Department pays you the balance due of the TRO item total in the 1st progress payment after all non-plant establishment work is completed.

#### **9-1.11E Payment Adjustments**

The 3rd paragraph of section 9-1.17C does not apply.

The Department does not adjust the unit price for an increase or decrease in the TRO quantity except as specified in section 9-1.11E.

Section 9-1.17D(2)(b) does not apply except as specified for the audit report below.

If the TRO bid item quantity exceeds 149 percent of the quantity shown on the Bid Item List or as converted under section 9-1.11B, the Engineer may adjust or you may request an adjustment of the unit price for the excess quantity. For the adjustment, submit an audit report within 60 days of the Engineer's request. The report must be prepared as specified for an audit report for an overhead claim in section 9-1.17D(2)(b).

Within 20 days of the Engineer's request, make your financial records available for an audit by the State for the purpose of verifying the actual rate of TRO described in your audit. The actual rate of TRO described is subject to the Engineer's authorization.

The Department pays the authorized actual rate for TRO in excess of 149 percent of the quantity shown on the Bid Item List or as converted under section 9-1.11B.

The Department pays for 1/2 the cost of the report; the Contractor pays for the other 1/2. The cost is determined under section 9-1.05.

**Delete "revised Contract" in item 1 of the 1st paragraph of section 9-1.16E(2).**

10-19-12

**Replace "2014" in the 1st paragraph of section 9-1.16F with:**

10-19-12

2020



AA

## 12 TEMPORARY TRAFFIC CONTROL

10-19-12

**Replace the 1st paragraph of section 12-3.01A(4) with:**

10-19-12

Category 2 temporary traffic control devices must be on FHWA's list of acceptable, crashworthy Category 2 hardware for work zones. This list is available on FHWA's Safety Program Web site.

**Replace "project" in the 4th paragraph of section 12-3.02C with:**

10-19-12

work

**Replace "project" in the 3rd paragraph of section 12-3.07C with:**

10-19-12

work

**Add between the 7th and 8th paragraphs of section 12-4.03:**

10-19-12

The contingency plan must identify the operations, equipment, processes, and materials that may fail and delay a reopening of a closure to traffic. List the additional or alternate equipment, materials, or workers necessary to ensure continuing operations and on-time opening of closures whenever a problem occurs. If the additional or alternate equipment, materials, or workers are not on site, specify their location, the method for mobilizing these items, and the required time to complete mobilization.

Based on the Engineer's review, additional materials, equipment, workers, or time to complete operations from that specified in the contingency plan may be required.

Provide a general time-scaled logic diagram displaying the major activities and sequence of planned operations that comply with the requirements of section 12-4.03. For each operation, identify the critical event when the contingency plan will be activated.

Submit any revisions to the contingency plan for an operation at least 3 business days before starting that operation. Do not close any lanes until the contingency plan has been authorized.

The 5th paragraph of section 5-1.23B(1) does not apply to reviewing contingency plans.

**Replace section 12-7 with:**

09-16-11

**12-7 RESERVED**

AA

## 13 WATER POLLUTION CONTROL

10-19-12

**Add to section 13-1.01A:**

01-20-12

Comply with the Department's general permit issued by the State Water Resources Control Board for *Order No. 99-06-DWQ, NPDES No. CAS000003, National Pollutant Discharge Elimination System (NPDES) Permit, Statewide Storm Water Permit and Waste Discharge Requirements (WDRs) for the*

*State of California, Department of Transportation (Caltrans).* The Department's general permit governs stormwater and nonstormwater discharges from the Department's properties, facilities, and activities. The Department's general permit may be viewed at the Web site for the State Water Resources Control Board, Storm Water Program, Caltrans General Permit.

**Add to the list in the 1st paragraph of section 13-1.01D(3)(b):**

3. Have completed SWRCB approved QSD training and passed the QSD exam

10-21-11

**Add to the list in the 2nd paragraph of section 13-1.01D(3)(b):**

3. Have completed SWRCB approved QSP training and passed the QSP exam

10-21-11

**Replace "working days" at each occurrence in section 13-3.04 with.**

original working days

10-19-12

**Replace the paragraph in section 13-4.04 with:**

Not Used

04-20-12

**Delete "or stockpile" in the 3rd paragraph of section 13-5.02F.**

10-19-12

**Replace section 13-5.03F with:**

**13-5.03F Reserved**

04-20-12

**Delete "or stockpile" in item 1 in the list in the 1st paragraph of section 13-5.03K.**

10-19-12

**Delete the 3rd paragraph of section 13-5.03K.**

10-19-12

**Replace the 2nd sentence in the 1st paragraph of section 13-9.01A with:**

You may use any of the following systems for temporary concrete washout:

10-19-12

1. Temporary concrete washout facility
2. Portable temporary concrete washout
3. Temporary concrete washout bin

**Replace the 2nd paragraph of section 13-9.01B with:**

Retain and submit an informational submittal for records of disposed concrete waste.

10-19-12





**DIVISION III GRADING**  
**19 EARTHWORK**

01-18-13

**Replace the 2nd paragraph of section 19-3.01A(2)(b) with:**

For cofferdams on or affecting railroad property, allow 85 days for review.

07-01-11

**Add to the list in the 1st paragraph of section 19-3.01A(2)(d):**

9. Provisions for discontinuous rows of soil nails

01-20-12

**Add to section 19-3.01A(3)(b):**

For soil nail walls, wall zones are specified in the special provisions.

01-20-12

For ground anchor walls, a wall zone is the entire wall unless otherwise specified in the special provisions.

**Delete the 2nd sentence in the 4th paragraph of section 19-3.01A(3)(b).**

01-20-12

**Replace "90" in the paragraph of section 19-3.02G with:**

90-1

01-18-13

**Replace the 1st paragraph of section 19-3.03E(3) with:**

Compact structure backfill behind lagging of soldier pile walls by hand tamping, mechanical compaction, or other authorized means.

01-20-12

**Replace the 2nd paragraph of section 19-3.03F with:**

Do not backfill over or place material over slurry cement backfill until 4 hours after placement. When concrete sand is used as aggregate and the in-place material is free draining, you may start backfilling as soon as the surface water is gone.

01-20-12

**Add between the 2nd and 3rd paragraphs of section 19-3.03K:**

Before you excavate for the installation of ground anchors in a wall zone:

01-20-12

1. Complete stability testing
2. Obtain authorization of test data







Replace section 30 with:

04-20-12

### 30 RECLAIMED PAVEMENTS

04-20-12

#### 30-1 GENERAL

##### 30-1.01 GENERAL

Section 30 includes specifications for reclaiming the pavement section and constructing a base.

#### 30-2 FULL DEPTH RECLAIMED—FOAMED ASPHALT

Reserved

#### 30-3–30-6 RESERVED

AA

## DIVISION V SURFACINGS AND PAVEMENTS

### 37 BITUMINOUS SEALS

01-18-13

Replace section 37-1.01 with:

01-18-13

##### 37-1.01 GENERAL

##### 37-1.01A Summary

Section 37-1 includes general specifications for applying bituminous seals.

##### 37-1.01B Definitions

Reserved

##### 37-1.01C Submittals

Reserved

##### 37-1.01D Quality Control and Assurance

##### 37-1.01D(1) General

Reserved

##### 37-1.01D(2) Prepaving Conference

For seal coats and micro-surfacing, schedule a prepaving conference at a mutually agreed upon time and place to meet with the Engineer.

Prepaving conference attendees must sign an attendance sheet provided by the Engineer. The prepaving conference must be attended by your:

1. Project superintendent
2. Paving construction foreman
3. Traffic control foreman

Be prepared to discuss:

1. Quality control
2. Acceptance testing
3. Placement
4. Training on placement methods
5. Checklist of items for proper placement
6. Unique issues specific to the project, including:
  - 6.1. Weather
  - 6.2. Alignment and geometrics



**Replace the paragraphs in section 39-1.02F with:**

02-22-13

**39-1.02F(1) General**

You may produce HMA Type A or B using RAP. HMA produced using RAP must comply with the specifications for HMA, except aggregate quality specifications do not apply to RAP. You may substitute RAP at a substitution rate not exceeding 25 percent of the aggregate blend. Do not use RAP in OGFC and RHMA-G.

Assign the substitution rate of RAP aggregate for virgin aggregate with the JMF submittal. The JMF must include the percent of RAP used.

Provide enough space for meeting RAP handling requirements at your facility. Provide a clean, graded, well-drained area for stockpiles. Prevent material contamination and segregation.

If RAP is from multiple sources, blend the RAP thoroughly and completely. RAP stockpiles must be homogeneous.

Isolate the processed RAP stockpiles from other materials. Store processed RAP in conical or longitudinal stockpiles. Processed RAP must not be agglomerated or be allowed to congeal in large stockpiles.

AASHTO T 324 (Modified) is AASHTO T 324, "Hamburg Wheel-Track Testing of Compacted Hot Mix Asphalt (HMA)," with the following parameters:

1. Target air voids must equal  $7 \pm 1$  percent
2. Number of test specimens must be 4
3. Test specimen must be a 6-inch gyratory compacted specimen
4. Test temperature must be set at  $140 \pm 2$  degrees F
5. Measurements for impression must be taken at every 100 passes
6. Inflection point defined as the number of wheel passes at the intersection of the creep slope and the stripping slope
7. Testing shut off must be set at 25,000 passes

**39-1.02F(2) Substitution Rate of 15 Percent or Less**

For a RAP substitution rate of 15 percent or less, you may stockpile RAP during the entire project.

**39-1.02F(3) Substitution Rate Greater than 15 Percent**

For a RAP substitution rate greater than 15 percent, fractionate RAP into 2 sizes, a coarse fraction RAP retained on 1/4-inch screen and a fine fraction RAP passing 1/4-inch screen.

Sample and test processed RAP at a minimum frequency of 1 sample per 1000 tons with a minimum of 6 samples for each processed RAP stockpile. The asphalt binder content and specific gravity must meet the processed RAP quality characteristics. If a processed RAP stockpile is augmented, sample and test processed RAP quality characteristics at a minimum frequency of 1 sample per 500 tons of augmented RAP.

The processed RAP asphalt binder content must be within  $\pm 2.0$  percent of the average processed RAP stockpile asphalt binder content when tested under ASTM D 2172, Method B. If a new processed RAP stockpile is required, the average binder content of the new processed RAP stockpile must be within  $\pm 2.0$  percent of the average binder content of the original processed RAP stockpile.

The maximum specific gravity for processed RAP must be within  $\pm 0.06$  when tested under California Test 309 of the average maximum specific gravity reported on page 4 of your *Contractor Hot Mix Asphalt Design Data* form.

**Replace "less than 10 percent" in note "b" in the table in the 5th paragraph of section 39-1.02E with:**

10 percent or less

01-20-12

**Replace items 7 and 8 in the 5th paragraph of section 39-1.03A with:**

02-22-13

7. Substitution rate by more than 5 percent if your assigned RAP substitution rate is 15 percent or less
8. Substitution rate by more than 3 percent if your assigned RAP substitution rate is greater than 15 percent
9. Average binder content by more than 2 percent from the average binder content of the original processed RAP stockpile used in the mix design
10. Maximum specific gravity of processed RAP by more than  $\pm 0.060$  from the average maximum specific gravity of processed RAP reported on page 4 of your *Contractor Hot Mix Asphalt Design Data* form
11. Any material in the JMF

**Replace the 1st paragraph of section 39-1.03B with:**

02-22-13

Perform a mix design that produces HMA with the values for the quality characteristics shown in the following table:

**HMA Mix Design Requirements**

| Quality characteristic   | Test method         | HMA type  |           |                  |
|--|---------------------|-----------|-----------|------------------|
|  |                     | A         | B         | RHMA-G           |
| Air void content (%)   | California Test 367 | 4.0       | 4.0       | Section 39-1.03B |
| Voids in mineral aggregate (% min.)<br>No. 4 grading<br>3/8" grading<br>1/2" grading<br>3/4" grading | California Test 367 | 17.0      | 17.0      | --               |
|  |                     | 15.0      | 15.0      | --               |
|  |                     | 14.0      | 14.0      | 18.0–23.0        |
|  |                     | 13.0      | 13.0      | 18.0–23.0        |
| Voids filled with asphalt (%)<br>No. 4 grading<br>3/8" grading<br>1/2" grading<br>3/4" grading       | California Test 367 | 65.0–75.0 | 65.0–75.0 | Note a           |
|  |                     | 65.0–75.0 | 65.0–75.0 |                  |
|  |                     | 65.0–75.0 | 65.0–75.0 |                  |
|  |                     | 65.0–75.0 | 65.0–75.0 |                  |
| Dust proportion<br>No. 4 and 3/8" gradings<br>1/2" and 3/4" gradings                                 | California Test 367 | 0.6–1.2   | 0.6–1.2   | Note a           |
|  |                     | 0.6–1.2   | 0.6–1.2   |                  |
| Stabilometer value (min.)<br>No. 4 and 3/8" gradings<br>1/2" and 3/4" gradings                       | California Test 366 | 30        | 30        | --               |
|  |                     | 37        | 35        | 23               |

<sup>a</sup> Report this value in the JMF submittal.

For RAP substitution rate greater than 15 percent, the mix design must comply with the additional quality characteristics shown in the following table:

**Additional HMA Mix Design Requirements  
for RAP Substitution Rate Greater Than 15 Percent**

| Quality characteristic   | Test method                                | HMA type |        |        |
|--|--|----------|--------|--------|
|  |  | A        | B      | RHMA-G |
| Hamburg wheel track<br>(minimum number of passes at 0.5<br>inch average rut depth) | AASHTO<br>T 324<br>(Modified) <sup>a</sup> |          |        |        |
| PG-58  |  | 10,000   | 10,000 | --     |
| PG-64  |  | 15,000   | 15,000 |        |
| PG-70  |  | 20,000   | 20,000 |        |
| PG-76 or higher  |  | 25,000   | 25,000 |        |
| Hamburg wheel track<br>(inflection point minimum number of<br>passes) <sup>f</sup> | AASHTO<br>T 324<br>(Modified) <sup>a</sup> |          |        |        |
| PG-58  |  | 10,000   | 10,000 | --     |
| PG-64  |  | 10,000   | 10,000 |        |
| PG-70  |  | 12,500   | 12,500 |        |
| PG-76 or higher  |  | 15000    | 15000  |        |
| Moisture susceptibility<br>(minimum dry strength, psi)                             | California<br>Test 371 <sup>a</sup>        | 120      | 120    | --     |
| Moisture susceptibility<br>(tensile strength ration, %)                            | California<br>Test 371 <sup>a</sup>        | 70       | 70     | --     |

<sup>a</sup>Test plant produced HMA.

For HMA with RAP, the maximum binder replacement must be 25.0 percent of OBC for surface course and 40.0 percent of OBC for lower courses.

For HMA with a binder replacement less than or equal to 25 percent of OBC, you may request that the PG asphalt binder grade with upper and lower temperature classifications be reduced by 6 degrees C from the specified grade.

For HMA with a binder replacement greater than 25 percent but less than or equal to 40 percent of OBC, you must use a PG asphalt binder grade with upper and lower temperature classifications reduced by 6 degrees C from the specified grade.

**Replace item 4 in the list in the 1st paragraph of section 39-1.03C with:**

4. JMF renewal on a *Caltrans Job Mix Formula Renewal* form, if applicable

01-20-12

**Add after the last paragraph of section 39-1.03C:**

For RAP substitution rate greater than 15 percent, submit with the JMF submittal:

1. California Test 371 tensile strength ratio and minimum dry strength test results
2. AASHTO T 324 (Modified) test results

02-22-13

For RAP substitution rate greater than 15 percent, submit California Test 371 and AASHTO T 324 (Modified) test results to the Engineer and to:

Moisture\_Tests@dot.ca.gov

**Replace the 2nd paragraph of section 39-1.03E with:**

04-20-12

Use the OBC specified on your *Contractor Hot Mix Asphalt Design Data* form. No adjustments to asphalt binder content are allowed. Based on your testing and production experience, you may submit an adjusted aggregate gradation TV on a *Contractor Job Mix Formula Proposal* form before verification testing. Aggregate gradation TV must be within the TV limits specified in the aggregate gradation tables.

**Add between the 3rd and 4th paragraphs of section 39-1.03E:**

04-20-12

Asphalt binder set point for HMA must be the OBC specified on your *Contractor Hot Mix Asphalt Design Data* form. When RAP is used, asphalt binder set point for HMA must be:

$$\text{Asphalt Binder Set Point} = \frac{\frac{BC_{OBC}}{\left(1 - \frac{BC_{OBC}}{100}\right)} - R_{RAP} \left[ \frac{BC_{RAP}}{\left(1 - \frac{BC_{RAP}}{100}\right)} \right]}{100 + \frac{BC_{OBC}}{\left(1 - \frac{BC_{OBC}}{100}\right)}}$$

Where:

$BC_{OBC}$  = optimum asphalt binder content, percent based on total weight of mix

$R_{RAP}$  = RAP ratio by weight of aggregate

$BC_{RAP}$  = asphalt binder content of RAP, percent based on total weight of RAP mix

**Replace item 4 in the list in the 8th paragraph of section 39-1.03E with:**

04-20-12

4. HMA quality specified in the table titled "HMA Mix Design Requirements" except:
  - 4.1. Air void content, design value  $\pm 2.0$  percent
  - 4.2. Voids filled with asphalt, report only
  - 4.3. Dust proportion, report only

**Replace the 12th paragraph of section 39-1.03E with:**

04-20-12

If tests on plant-produced samples do not verify the JMF, the Engineer notifies you and you must submit a new JMF or submit an adjusted JMF based on your testing. JMF adjustments may include a change in aggregate gradation TV within the TV limits specified in the aggregate gradation tables.

**Replace the 14th paragraph of section 39-1.03E with:**

01-20-12

A verified JMF is valid for 12 months.

**Replace the last sentence in the 15th paragraph of section 39-1.03E with:**

01-20-12

This deduction does not apply to verifications initiated by the Engineer or JMF renewal.

**Replace the 16th paragraph of section 39-1.03E with:**

02-22-13

Except for RAP substitution rate greater than 15 percent, for any HMA produced under the QC/QA process the Department does not use California Test 371 test results for verification.

**Add between the 1st and 2nd paragraphs of section 39-1.03F:**

04-20-12

Target asphalt binder content on your Contractor *Job Mix Formula Proposal* form and the OBC specified on your *Contractor Hot Mix Asphalt Design Data* form must be the same.

**Delete the 4th paragraph of section 39-1.03F.**

01-20-12

**Replace items 3 and 5 in the list in the 6th paragraph of section 39-1.03F with:**

01-20-12

3. Engineer verifies each proposed JMF renewal within 20 days of receiving verification samples.
5. For each HMA type and aggregate gradation specified, the Engineer verifies at the Department's expense 1 proposed JMF renewal within a 12-month period.

**Add between the 6th and 7th paragraphs of section 39-1.03F:**

01-20-12

The most recent aggregate quality test results within the past 12 months may be used for verification of JMF renewal or the Engineer may perform aggregate quality tests for verification of JMF renewal.

**Replace section 39-1.03G with:**

04-20-12

**39-1.03G Job Mix Formula Modification**

For an accepted JMF, you may change asphalt binder source one time during production.

Submit your modified JMF request a minimum of 3 business days before production. Each modified JMF submittal must consist of:

1. Proposed modified JMF on *Contractor Job Mix Formula Proposal* form
2. Mix design records on *Contractor Hot Mix Asphalt Design Data* form for the accepted JMF to be modified
3. JMF verification on *Hot Mix Asphalt Verification* form for the accepted JMF to be modified
4. Quality characteristics test results for the modified JMF as specified in section 39-1.03B. Perform tests at the mix design OBC as shown on the *Contractor Asphalt Mix Design Data* form
5. If required, California Test 371 test results for the modified JMF.

With an accepted modified JMF submittal, the Engineer verifies each modified JMF within 5 business days of receiving all verification samples. If California Test 371 is required, the Engineer tests for California Test 371 within 10 days of receiving verification samples.

The Engineer verifies the modified JMF after the modified JMF HMA is placed on the project and verification samples are taken within the first 750 tons following sampling requirements in section 39-1.03E, "Job Mix Formula Verification." The Engineer tests verification samples for compliance with:

1. Stability as shown in the table titled "HMA Mix Design Requirements"
2. Air void content at design value  $\pm 2.0$  percent
3. Voids in mineral aggregate as shown in the table titled "HMA Mix Design Requirements"
4. Voids filled with asphalt, report only

5. Dust proportion, report only

If the modified JMF is verified, the Engineer revises your *Hot Mix Asphalt Verification* form to include the new asphalt binder source. Your revised form will have the same expiration date as the original form.

If a modified JMF is not verified, stop production and any HMA placed using the modified JMF is rejected.

The Engineer deducts \$2,000 from payments for each modified JMF verification. The Engineer deducts an additional \$2,000 for each modified JMF verification that requires California Test 371.

**Add to section 39-1.03:**

01-20-12

**39-1.03H Job Mix Formula Acceptance**

You may start HMA production if:

1. The Engineer's review of the JMF shows compliance with the specifications.
2. The Department has verified the JMF within 12 months before HMA production.
3. The Engineer accepts the verified JMF.

**Replace "3 days" in the 1st paragraph of section 39-1.04A with:**

01-20-12

3 business days

**Replace the 2nd sentence in the 2nd paragraph of section 39-1.04A with:**

01-20-12

During production, take samples under California Test 125. You may sample HMA from:

**Replace the 2nd paragraph of section 39-1.04E with:**

02-22-13

For RAP substitution rate of 15 percent or less, sample RAP once daily.

For RAP substitution rate of greater than 15percent, sample processed RAP twice daily.

Perform QC testing for processed RAP aggregate gradation under California Test 367, appendix B, and submit the results with the combined aggregate gradation.

**Replace "5 days" in the 1st paragraph of section 39-1.06 with:**

01-20-12

5 business days

**Replace the 3rd paragraph of section 39-1.08A with:**

04-20-12

During production, you may adjust hot or cold feed proportion controls for virgin aggregate and RAP.

**Add to section 39-1.08A:**

04-20-12

During production, asphalt binder set point for HMA Type A, HMA Type B, HMA Type C, and RHMA-G must be the OBC shown in *Contractor Hot Mix Asphalt Design Data* form. For OGFC, asphalt binder set

point must be the OBC shown on *Caltrans Hot Mix Asphalt Verification* form. If RAP is used, asphalt binder set point for HMA must be calculated as specified in section 39-1.03E.

02-22-13

For RAP substitution rate of 15 percent or less, you may adjust the RAP by  $\pm 5$  percent.

For RAP substitution greater than 15, you may adjust the RAP by  $\pm 3$  percent.

04-20-12

You must request adjustments to the plant asphalt binder set point based on new RAP stockpiles average asphalt binder content. Do not adjust the HMA plant asphalt binder set point until authorized.

**Replace the 3rd paragraph of section 39-1.08B with:**

09-16-11

Asphalt rubber binder must be from 375 to 425 degrees F when mixed with aggregate.

**Replace section 39-1.11 with:**

01-18-13

**39-1.11 CONSTRUCTION**

**39-1.11A General**

Do not place HMA on wet pavement or a frozen surface.

You may deposit HMA in a windrow and load it in the paver if:

1. Paver is equipped with a hopper that automatically feeds the screed
2. Loading equipment can pick up the windrowed material and deposit it in the paver hopper without damaging base material
3. Activities for deposit, pickup, loading, and paving are continuous
4. HMA temperature in the windrow does not fall below 260 degrees F

You may place HMA in 1 or more layers on areas less than 5 feet wide and outside the traveled way, including shoulders. You may use mechanical equipment other than a paver for these areas. The equipment must produce uniform smoothness and texture.

HMA handled, spread, or windrowed must not stain the finished surface of any improvement, including pavement.

Do not use petroleum products such as kerosene or diesel fuel to release HMA from trucks, spreaders, or compactors.

HMA must be free of:

1. Segregation
2. Coarse or fine aggregate pockets
3. Hardened lumps

**39-1.11B Longitudinal Joints**

**39-1.11B(1) General**

Longitudinal joints in the top layer must match specified lane edges. Alternate the longitudinal joint offsets in the lower layers at least 0.5 foot from each side of the specified lane edges. You may request other longitudinal joint placement patterns.

A vertical longitudinal joint of more than 0.15 ft is not allowed at any time between adjacent lanes open to traffic.

For HMA thickness of 0.15 ft or less, the distance between the ends of the adjacent surfaced lanes at the end of each day's work must not be greater than can be completed in the following day of normal paving.

For HMA thickness greater than 0.15 ft, you must place HMA on adjacent traveled way lanes so that at the end of each work shift the distance between the ends of HMA layers on adjacent lanes is from 5 to 10 feet. Place additional HMA along the transverse edge at each lane's end and along the exposed longitudinal edges between adjacent lanes. Hand rake and compact the additional HMA to form temporary conforms. You may place Kraft paper or another authorized bond breaker under the conform tapers to facilitate the taper removal when paving operations resume.

### **39-1.11B(2) Tapered Notched Wedge**

For divided highways with an HMA lift thickness greater than 0.15 foot, you may construct a 1-foot wide tapered notched wedge joint as a longitudinal joint between adjacent lanes open to traffic. A vertical notch of 0.75 inch maximum must be placed at the top and bottom of the tapered wedge.

The tapered notched wedge must retain its shape while exposed to traffic. Pave the adjacent lane within 1 day.

Construct the tapered portion of the tapered notched wedge with an authorized strike-off device. The strike-off device must provide a uniform slope and must not restrict the main screed of the paver.

You may use a device attached to the screed to construct longitudinal joints that will form a tapered notched wedge in a single pass. The tapered notched wedge must be compacted to a minimum of 91 percent compaction.

Perform QC testing on the completed tapered notch wedge joint as follows:

1. Perform field compaction tests at the rate of 1 test for each 750-foot section along the joint. Select random locations for testing within each 750-foot section.
2. Perform field compaction tests at the centerline of the joint, 6 inches from the upper vertical notch, after the adjacent lane is placed and before opening the pavement to traffic.
3. Determine maximum density test results.
4. Determine percent compaction of the longitudinal joint as the ratio of the average of the field compaction values and the maximum density test results.

For HMA under QC/QA construction process, the additional quality control compaction results associated with the tapered notch wedge will not be included in the computation of any quality factor and process control.

For acceptance of the completed tapered notch wedge joint, take two 4- or 6-inch diameter cores 6 inches from the upper vertical notch of the completed longitudinal joint for every 3,000 feet at locations designated by the Engineer. Take cores after the adjacent lane is placed and before opening the pavement to traffic. Cores must be taken in the presence of the Engineer and must be marked to identify the test sites. Submit the cores. One core will be used for determination of the field density and 1 core will be used for dispute resolution. The Engineer determines:

1. Field compaction by measuring the bulk specific gravity of the cores under California Test 308, Method A
2. Percent compaction as the ratio of the average of the bulk specific gravity of the core for each day's production to the maximum density test value

For HMA under QC/QA construction process, the additional quality assurance testing by the Engineer to determine field compaction associated with the tapered notch wedge will not be included in the Engineer's verification testing and in the computation of any quality factor and process control.

Determine percent compaction values each day the joint is completed and submit values within 24 hours of testing. If the percent compaction of 1 day's production is less than 91 percent, that day's notched wedge joint is rejected. Discontinue placement of the tapered notched wedge and notify the Engineer of changes you will make to your construction process in order to meet the specifications.

For HMA under QC/QA construction process, quantities of HMA placed in the completed longitudinal joint will have a quality factor  $QF_{QC5}$  of 1.0.

### **39-1.11C Widening Existing Pavement**

If widening existing pavement, construct new pavement structure to match the elevation of the existing pavement's edge before placing HMA over the existing pavement.

### **39-1.11D Shoulders, Medians, and Other Road Connections**

Until the adjoining through lane's top layer has been paved, do not pave the top layer of:

1. Shoulders
2. Tapers
3. Transitions
4. Road connections
5. Driveways
6. Curve widenings
7. Chain control lanes
8. Turnouts
9. Turn pockets

If the number of lanes changes, pave each through lane's top layer before paving a tapering lane's top layer. Simultaneous to paving a through lane's top layer, you may pave an adjoining area's top layer, including shoulders. Do not operate spreading equipment on any area's top layer until completing final compaction.

### **39-1.11E Leveling**

If leveling with HMA is specified, fill and level irregularities and ruts with HMA before spreading HMA over the base, existing surfaces, or bridge decks. You may use mechanical equipment other than a paver for these areas. The equipment must produce uniform smoothness and texture. HMA used to change an existing surface's cross slope or profile is not paid for as HMA (leveling).

If placing HMA against the edge of existing pavement, sawcut or grind the pavement straight and vertical along the joint and remove extraneous material.

### **39-1.11F Compaction**

Rolling must leave the completed surface compacted and smooth without tearing, cracking, or shoving. Complete finish rolling activities before the pavement surface temperature is:

1. Below 150 degrees F for HMA with unmodified binder
2. Below 140 degrees F for HMA with modified binder
3. Below 200 degrees F for RHMA-G

If a vibratory roller is used as a finish roller, turn the vibrator off.

Do not use a pneumatic-tired roller to compact RHMA-G.

For Standard and QC/QA construction processes, if 3/4-inch aggregate grading is specified, you may use a 1/2-inch aggregate grading if the specified total paved thickness is at least 0.15 foot and less than 0.20 foot thick.

Spread and compact HMA under sections 39-3.03 and 39-3.04 if any of the following applies:

1. Specified paved thickness is less than 0.15 foot.
2. Specified paved thickness is less than 0.20 foot and 3/4-inch aggregate grading is specified and used.
3. You spread and compact at:
  - 3.1. Asphalt concrete surfacing replacement areas
  - 3.2. Leveling courses
  - 3.3. Areas for which the Engineer determines conventional compaction and compaction measurement methods are impeded

Do not open new HMA pavement to public traffic until its mid-depth temperature is below 160 degrees F.

If you request and if authorized, you may cool HMA Type A and Type B with water when rolling activities are complete. Apply water under section 17-3.

Spread sand at a rate from 1 to 2 lb/sq yd on new RHMA-G, RHMA-O, and RHMA-O-HB pavement when finish rolling is complete. Sand must be free of clay or organic matter. Sand must comply with section 90-1.02C(4)(c). Keep traffic off the pavement until spreading sand is complete.

**Replace the 5th and 6th paragraphs of section 39-1.12C with:**

07-20-12

On tangents and horizontal curves with a centerline radius of curvature 2,000 feet or more, the  $PI_0$  must be at most 2.5 inches per 0.1-mile section.

On horizontal curves with a centerline radius of curvature between 1,000 feet and 2,000 feet including pavement within the superelevation transitions, the  $PI_0$  must be at most 5 inches per 0.1-mile section.

**Add to section 39-1.12:**

01-20-12

**39-1.12E Reserved**

**Add to section 39-1.14:**

01-20-12

Prepare the area to receive HMA for miscellaneous areas and dikes, including any excavation and backfill as needed.

**Replace "6.8" in item 3 in the list in the 4th paragraph of section 39-1.14 with:**

04-20-12

6.4

**Replace "6.0" in item 3 in the list in the 4th paragraph of section 39-1.14 with:**

04-20-12

5.7

**Replace "6.8" in the 1st paragraph of section 39-1.15B with:**

04-20-12

6.4

**Replace "6.0" in the 1st paragraph of section 39-1.15B with:**

04-20-12

5.7

**Replace the 1st paragraph of section 39-2.02B with:**

02-22-13

Perform sampling and testing at the specified frequency for the quality characteristics shown in the following table:

**Minimum Quality Control—Standard Construction Process**

| Quality characteristic   | Test method                | Minimum sampling and testing frequency                          | HMA type                     |                              |                              |                              |
|--|----------------------------|---|------------------------------|------------------------------|------------------------------|------------------------------|
|  |                            |   | A                            | B                            | RHMA-G                       | OGFC                         |
| Aggregate gradation <sup>a</sup>   | California Test 202        | 1 per 750 tons and any remaining part at the end of the project | JMF ± Tolerance <sup>b</sup> |
| Sand equivalent (min) <sup>c</sup>   | California Test 217        |   | 47                           | 42                           | 47                           | --                           |
| Asphalt binder content (%)   | California Test 379 or 382 |   | JMF±0.40                     | JMF±0.40                     | JMF ± 0.40                   | JMF ± 0.40                   |
| HMA moisture content (% max)   | California Test 226 or 370 | 1 per 2,500 tons but not less than 1 per paving day             | 1.0                          | 1.0                          | 1.0                          | 1.0                          |
| Field compaction (% max. theoretical density) <sup>d,e</sup>   | QC plan                    | 2 per business day (min.)                                       | 91–97                        | 91–97                        | 91–97                        | --                           |
| Stabilometer value (min) <sup>c</sup><br>No. 4 and 3/8" gradings<br>1/2" and 3/4" gradings   | California Test 366        | 1 per 4,000 tons or 2 per 5 business days, whichever is greater | 30                           | 30                           | --                           | --                           |
|  |                            |   | 37                           | 35                           | 23                           | --                           |
| Air void content (%) <sup>c,f</sup>  | California Test 367        |   | 4 ± 2                        | 4 ± 2                        | TV ± 2                       | --                           |
| Aggregate moisture content at continuous mixing plants and RAP moisture content at continuous mixing plants and batch mixing plants <sup>g</sup>   | California Test 226 or 370 | 2 per day during production                                     | --                           | --                           | --                           | --                           |
| Percent of crushed particles coarse aggregate (% min)<br>One fractured face<br>Two fractured faces<br>Fine aggregate (% min)<br>(Passing no. 4 sieve and retained on no. 8 sieve.)<br>One fractured face | California Test 205        | As designated in the QC plan. At least once per project         | 90                           | 25                           | --                           | 90                           |
|  |                            |   | 75                           | --                           | 90                           | 75                           |
| Los Angeles Rattler (% max)<br>Loss at 100 rev.  | California Test 211        |   | 70                           | 20                           | 70                           | 90                           |
|  |                            |   | 12                           | --                           | 12                           | 12                           |

|   |                         |   |  |  |                                    |             |
|---|-------------------------|---|--|--|------------------------------------|-------------|
| Loss at 500 rev.  |                         |   | 45   | 50   | 40                                 | 40          |
| Flat and elongated particles (% max by weight @ 5:1)  | California Test 235     |   | Report only                                      | Report only                                      | Report only                        | Report only |
| Fine aggregate angularity (% min) <sup>h</sup>  | California Test 234     |   | 45   | 45   | 45                                 | --          |
| Voids filled with asphalt (%) <sup>i</sup><br>No. 4 grading<br>3/8" grading<br>1/2" grading<br>3/4" grading                             | California Test 367     |   | 65.0–75.0<br>65.0–75.0<br>65.0–75.0<br>65.0–75.0 | 65.0–75.0<br>65.0–75.0<br>65.0–75.0<br>65.0–75.0 | Report only                        | --          |
| Voids in mineral aggregate (% min) <sup>i</sup><br>No. 4 grading<br>3/8" grading<br>1/2" grading<br>3/4" grading                        | California Test 367     |   | 17.0<br>15.0<br>14.0<br>13.0                     | 17.0<br>15.0<br>14.0<br>13.0                     | --<br>--<br>18.0–23.0<br>18.0–23.0 | --          |
| Dust proportion <sup>l</sup><br>No. 4 and 3/8" gradings<br>1/2" and 3/4" gradings   | California Test 367     |   | 0.6-1.2<br>0.6–1.2                               | 0.6-1.2<br>0.6–1.2                               | Report only                        | --          |
| Hamburg wheel track (minimum number of passes at 0.5 inch average rut depth) <sup>j</sup><br>PG-58<br>PG-64<br>PG-70<br>PG-76 or higher | AASHTO T 324 (Modified) | 1 per 10,000 tons or 1 per project whichever is more                    | 10,000<br>15,000<br>20,000<br>25,000             | 10,000<br>15,000<br>20,000<br>25,000             | --                                 | --          |
| Hamburg wheel track (inflection point minimum number of passes) <sup>j</sup><br>PG-58<br>PG-64<br>PG-70<br>PG-76 or higher              | AASHTO T 324 (Modified) | 1 per 10,000 tons or 1 per project whichever is more                    | 10,000<br>10,000<br>12,500<br>15000              | 10,000<br>10,000<br>12,500<br>15000              | --                                 | --          |
| Moisture susceptibility (minimum dry strength, psi) <sup>j</sup>  | California Test 371     | For RAP ≥15%<br>1 per 10,000 tons or 1 per project whichever is greater | 120  | 120  | --                                 | --          |
| Moisture susceptibility (tensile strength ratio, %) <sup>j</sup>  | California Test 371     | For RAP ≥15%<br>1 per 10,000 tons or 1                                  | 70   | 70   | --                                 | --          |

|  |                     | per project<br>whichever<br>is greater |   |   |   |   |
|--|---------------------|--|---|---|---|---|
| Smoothness   | Section<br>39-1.12  | --                                     | 12-foot<br>straight-<br>edge, must<br>grind, and<br>PI <sub>0</sub> |
| Asphalt rubber<br>binder viscosity @<br>375 °F,<br>centipoises | Section<br>39-1.02D | Section<br>39-1.04C                    | --  | --  | 1,500–<br>4,000   | 1,500–<br>4,000   |
| Asphalt modifier   | Section<br>39-1.02D | Section<br>39-1.04C                    | --  | --  | Section<br>39-1.02D   | Section<br>39-1.02D   |
| CRM  | Section<br>39-1.02D | Section<br>39-1.04C                    | --  | --  | Section<br>39-1.02D   | Section<br>39-1.02D   |

<sup>a</sup> Determine combined aggregate gradation containing RAP under California Test 367.

<sup>b</sup> The tolerances must comply with the allowable tolerances in section 39-1.02E.

<sup>c</sup> Report the average of 3 tests from a single split sample.

<sup>d</sup> Determine field compaction for any of the following conditions:

1. 1/2-inch, 3/8-inch, or no. 4 aggregate grading is used and the specified total paved thickness is at least 0.15 foot.
2. 3/4-inch aggregate grading is used and the specified total paved thickness is at least 0.20 foot.

<sup>e</sup> To determine field compaction use:

1. In-place density measurements using the method specified in your QC plan.
2. California Test 309 to determine the maximum theoretical density at the frequency specified in California Test 375, Part 5C.

<sup>f</sup> Determine the bulk specific gravity of each lab-compacted briquette under California Test 308, Method A, and theoretical maximum specific gravity under California Test 309.

<sup>g</sup> For adjusting the plant controller at the HMA plant.

<sup>h</sup> The Engineer waives this specification if HMA contains 10 percent or less of nonmanufactured sand by weight of total aggregate. Manufactured sand is fine aggregate produced by crushing rock or gravel.

<sup>i</sup> Report only.

<sup>j</sup> Applies to RAP substitution rate greater than 15 percent.

**Replace the 1st paragraph of section 39-2.03A with:**

02-22-13

The Department samples for acceptance testing and tests for the quality characteristics shown in the following table:

**HMA Acceptance—Standard Construction Process**

| Quality characteristic  |                |      |      | Test method                | HMA type                     |                              |                              |                              |
|---|----------------|------|------|----------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
|   |                |      |      |                            | A                            | B                            | RHMA-G                       | OGFC                         |
| Aggregate gradation <sup>a</sup>                              |                |      |      | California Test 202        | JMF ± tolerance <sup>c</sup> |
| Sieve   | 3/4"           | 1/2" | 3/8" |                            |                              |                              |                              |                              |
| 1/2"  | X <sup>b</sup> |      |      |                            |                              |                              |                              |                              |
| 3/8"  |                | X    |      |                            |                              |                              |                              |                              |
| No. 4   |                |      | X    |                            |                              |                              |                              |                              |
| No. 8   | X              | X    | X    |                            |                              |                              |                              |                              |
| No. 200   | X              | X    | X    |                            |                              |                              |                              |                              |
| Sand equivalent (min) <sup>d</sup>                            |                |      |      | California Test 217        | 47                           | 42                           | 47                           | --                           |
| Asphalt binder content (%)                                    |                |      |      | California Test 379 or 382 | JMF±0.40                     | JMF±0.40                     | JMF ± 0.40                   | JMF ± 0.40                   |
| HMA moisture content (% max)                                  |                |      |      | California Test 226 or 370 | 1.0                          | 1.0                          | 1.0                          | 1.0                          |
| Field compaction (% max. theoretical density) <sup>e, f</sup> |                |      |      | California Test 375        | 91–97                        | 91–97                        | 91–97                        | --                           |
| Stabilometer value (min) <sup>d</sup>                         |                |      |      | California Test 366        | 30                           | 30                           | --                           | --                           |
| No. 4 and 3/8" gradings                                       |                |      |      |                            |                              |                              |                              |                              |
| 1/2" and 3/4" gradings  |                |      |      |                            | 37                           | 35                           | 23                           | --                           |
| Air void content (%) <sup>d, g</sup>                          |                |      |      | California Test 367        | 4 ± 2                        | 4 ± 2                        | TV ± 2                       | --                           |
| Percent of crushed particles                                  |                |      |      | California Test 205        |                              |                              |                              |                              |
| Coarse aggregate (% min)                                      |                |      |      |                            |                              |                              |                              |                              |
| One fractured face  |                |      |      |                            |                              |                              |                              |                              |
| Two fractured faces   |                |      |      |                            |                              |                              |                              |                              |
| Fine aggregate (% min)  |                |      |      |                            |                              |                              |                              |                              |
| (Passing no. 4 sieve and retained on no. 8 sieve.)            |                |      |      |                            |                              |                              |                              |                              |
| One fractured face  |                |      |      | 70                         | 20                           | 70                           | 90                           |                              |
| Los Angeles Rattler (% max)                                   |                |      |      | California Test 211        | 12                           | --                           | 12                           | 12                           |
| Loss at 100 rev.  |                |      |      |                            |                              |                              |                              |                              |
| Loss at 500 rev.  |                |      |      |                            | 45                           | 50                           | 40                           | 40                           |
| Fine aggregate angularity (% min) <sup>h</sup>                |                |      |      | California Test 234        | 45                           | 45                           | 45                           | --                           |
| Flat and elongated particles (% max by weight @ 5:1)          |                |      |      | California Test 235        | Report only                  | Report only                  | Report only                  | Report only                  |
| Voids filled with asphalt (%) <sup>i</sup>                    |                |      |      | California Test 367        | 65.0–75.0                    | 65.0–75.0                    | Report only                  | --                           |
| No. 4 grading   |                |      |      |                            |                              |                              |                              |                              |
| 3/8" grading  |                |      |      |                            |                              |                              |                              |                              |
| 1/2" grading  |                |      |      |                            |                              |                              |                              |                              |
| 3/4" grading  |                |      |      |                            |                              |                              |                              |                              |
| Voids in mineral aggregate (% min) <sup>i</sup>               |                |      |      | California Test 367        | 17.0                         | 17.0                         | --                           | --                           |
| No. 4 grading   |                |      |      |                            |                              |                              |                              |                              |
| 3/8" grading  |                |      |      |                            |                              |                              |                              |                              |
| 1/2" grading  |                |      |      |                            |                              |                              |                              |                              |
| 3/4" grading  |                |      |      |                            |                              |                              |                              |                              |
| Dust proportion <sup>i</sup>                                  |                |      |      | California                 |                              |                              | Report only                  | --                           |

|   |                               |  |   |   |   |
|---|-------------------------------|--|---|---|---|
| No. 4 and 3/8" gradings<br>1/2" and 3/4" gradings   | Test 367                      | 0.6-1.2<br>0.6-1.2   | 0.6-1.2<br>0.6-1.2  |   |   |
| Hamburg wheel track<br>(minimum number of passes at<br>0.5 inch average rut depth) <sup>j</sup><br>PG-58<br>PG-64<br>PG-70<br>PG-76 or higher | AASHTO<br>T 324<br>(Modified) | 10,000<br>15,000<br>20,000<br>25,000                                   | 10,000<br>15,000<br>20,000<br>25,000                                | --  | --  |
| Hamburg wheel track<br>(inflection point minimum<br>number of passes) <sup>j</sup><br>PG-58<br>PG-64<br>PG-70<br>PG-76 or higher              | AASHTO<br>T 324<br>(Modified) | 10,000<br>10,000<br>12,500<br>15000                                    | 10,000<br>10,000<br>12,500<br>15000                                 | --  | --  |
| Moisture susceptibility<br>(minimum dry strength, psi) <sup>j</sup>   | California<br>Test 371        | 120  | 120   | --  | --  |
| Moisture susceptibility<br>(tensile strength ration, %) <sup>j</sup>  | California<br>Test 371        | 70   | 70  | --  | --  |
| Smoothness  | Section<br>39-1.12            | 12-foot<br>straight-<br>edge,<br>must<br>grind, and<br>PI <sub>0</sub> | 12-foot<br>straight-<br>edge, must<br>grind, and<br>PI <sub>0</sub> | 12-foot<br>straight-<br>edge, must<br>grind, and<br>PI <sub>0</sub> | 12-foot<br>straight-<br>edge and<br>must grind    |
| Asphalt binder  | Various                       | Section 92   | Section 92  | Section 92  | Section 92  |
| Asphalt rubber binder   | Various                       | --   | --  | Section<br>92-<br>1.01D(2)<br>and section<br>39-1.02D               | Section<br>92-1.01D(2)<br>and section<br>39-1.02D |
| Asphalt modifier  | Various                       | --   | --  | Section<br>39-1.02D   | Section<br>39-1.02D                               |
| CRM   | Various                       | --   | --  | Section<br>39-1.02D   | Section<br>39-1.02D                               |

<sup>a</sup> The Engineer determines combined aggregate gradations containing RAP under California Test 367.

<sup>b</sup> "X" denotes the sieves the Engineer tests for the specified aggregate gradation.

<sup>c</sup> The tolerances must comply with the allowable tolerances in section 39-1.02E.

<sup>d</sup> The Engineer reports the average of 3 tests from a single split sample.

<sup>e</sup> The Engineer determines field compaction for any of the following conditions:

1. 1/2-inch, 3/8-inch, or no. 4 aggregate grading is used and the specified total paved thickness is at least 0.15 foot.
2. 3/4-inch aggregate grading is used and the specified total paved thickness is at least 0.20 foot.

<sup>f</sup> To determine field compaction, the Engineer uses:

1. California Test 308, Method A, to determine in-place density of each density core.
2. California Test 309 to determine the maximum theoretical density at the frequency specified in California Test 375, Part 5C.

<sup>g</sup> The Engineer determines the bulk specific gravity of each lab-compacted briquette under California Test 308, Method A, and theoretical maximum specific gravity under California Test 309.

<sup>h</sup> The Engineer waives this specification if HMA contains 10 percent or less of nonmanufactured sand by weight of total aggregate. Manufactured sand is fine aggregate produced by crushing rock or gravel.

<sup>i</sup> Report only.

<sup>j</sup> Applies to RAP substitution rate greater than 15 percent.

**Replace the 5th paragraph of section 39-2.03A with:**

01-20-12

The Engineer determines the percent of maximum theoretical density from density cores taken from the final layer measured the full depth of the total paved HMA thickness if any of the following applies:

1. 1/2-inch, 3/8-inch, or no. 4 aggregate grading is used and the specified total paved thickness is at least 0.15 foot and any layer is less than 0.15 foot.
2. 3/4-inch aggregate grading is used and the specified total paved thickness is at least 0.2 foot and any layer is less than 0.20 foot.

**Replace the 1st paragraph of section 39-3.02A with:**

02-22-13

The Department samples for acceptance testing and tests for the quality characteristics shown in the following table:

**HMA Acceptance—Method Construction Process**

| Quality characteristic  | Test method                | HMA type                     |                              |                              |                              |
|---|----------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
|   |                            | A                            | B                            | RHMA-G                       | OGFC                         |
| Aggregate gradation <sup>a</sup>  | California Test 202        | JMF ± tolerance <sup>b</sup> |
| Sand equivalent (min) <sup>c</sup>  | California Test 217        | 47                           | 42                           | 47                           | --                           |
| Asphalt binder content (%)  | California Test 379 or 382 | JMF±0.40                     | JMF±0.40                     | JMF ± 0.40                   | JMF ± 0.40                   |
| HMA moisture content (% max)  | California Test 226 or 370 | 1.0                          | 1.0                          | 1.0                          | 1.0                          |
| Stabilometer value (min) <sup>c</sup><br>No. 4 and 3/8" gradings<br>1/2" and 3/4" gradings  | California Test 366        | 30                           | 30                           | --                           | --                           |
|   |                            | 37                           | 35                           | 23                           | --                           |
| Percent of crushed particles<br>Coarse aggregate (% min)<br>One fractured face<br>Two fractured faces<br>Fine aggregate (% min)<br>(Passing no. 4 sieve and retained on no. 8 sieve.)<br>One fractured face | California Test 205        | 90                           | 25                           | --                           | 90                           |
|   |                            | 75                           | --                           | 90                           | 75                           |
|   |                            | 70                           | 20                           | 70                           | 90                           |
| Los Angeles Rattler (% max)<br>Loss at 100 rev.<br>Loss at 500 rev.   | California Test 211        | 12                           | --                           | 12                           | 12                           |
|   |                            | 45                           | 50                           | 40                           | 40                           |
| Air void content (%) <sup>c, d</sup>  | California Test 367        | 4 ± 2                        | 4 ± 2                        | TV ± 2                       | --                           |
| Fine aggregate angularity (% min) <sup>e</sup>  | California Test 234        | 45                           | 45                           | 45                           | --                           |
| Flat and elongated particles (% max by weight @ 5:1)  | California Test 235        | Report only                  | Report only                  | Report only                  | Report only                  |
| Voids filled with asphalt (%) <sup>f</sup><br>No. 4 grading<br>3/8" grading<br>1/2" grading<br>3/4" grading   | California Test 367        | 65.0–75.0                    | 65.0–75.0                    | Report only                  | --                           |
|   |                            | 65.0–75.0                    | 65.0–75.0                    |                              |                              |
|   |                            | 65.0–75.0                    | 65.0–75.0                    |                              |                              |
|   |                            | 65.0–75.0                    | 65.0–75.0                    |                              |                              |
| Voids in mineral aggregate (% min) <sup>f</sup><br>No. 4 grading<br>3/8" grading<br>1/2" grading<br>3/4" grading  | California Test 367        | 17.0                         | 17.0                         | --                           | --                           |
|   |                            | 15.0                         | 15.0                         | --                           | --                           |
|   |                            | 14.0                         | 14.0                         | 18.0–23.0                    | --                           |
|   |                            | 13.0                         | 13.0                         | 18.0–23.0                    | --                           |
| Dust proportion <sup>g</sup><br>No. 4 and 3/8" gradings<br>1/2" and 3/4" gradings   | California Test 367        | 0.6–1.2                      | 0.6–1.2                      | Report only                  | --                           |
|   |                            | 0.6–1.2                      | 0.6–1.2                      |                              |                              |
| Hamburg wheel track (minimum number of passes at 0.5 inch average rut depth) <sup>g</sup><br>PG-58<br>PG-64   | AASHTO T 324 (Modified)    | 10,000                       | 10,000                       | --                           | --                           |
|   |                            | 15,000                       | 15,000                       |                              |                              |

|  |                               |  |  |   |   |
|--|-------------------------------|--|--|---|---|
| PG-70<br>PG-76 or higher   |                               | 20,000<br>25,000                               | 20,000<br>25,000                               |   |   |
| Hamburg wheel track<br>(inflection point minimum<br>number of passes) <sup>g</sup> | AASHTO<br>T 324<br>(Modified) |  |  | --  | --  |
| PG-58  |                               | 10,000   | 10,000   |   |   |
| PG-64  |                               | 10,000   | 10,000   |   |   |
| PG-70  |                               | 12,500   | 12,500   |   |   |
| PG-76 or higher  |                               | 15000  | 15000  |   |   |
| Moisture susceptibility<br>(minimum dry strength, psi) <sup>g</sup>                | California<br>Test 371        | 120  | 120  | --  | --  |
| Moisture susceptibility<br>(tensile strength ration, %) <sup>g</sup>               | California<br>Test 371        | 70   | 70   | --  | --  |
| Smoothness   | Section<br>39-1.12            | 12-foot<br>straight-<br>edge and<br>must-grind | 12-foot<br>straight-<br>edge and<br>must-grind | 12-foot<br>straight-<br>edge and<br>must-grind        | 12-foot<br>straight-<br>edge and<br>must-grind        |
| Asphalt binder   | Various                       | Section 92                                     | Section 92                                     | Section 92  | Section 92  |
| Asphalt rubber binder  | Various                       | --   | --   | Section<br>92-<br>1.01D(2)<br>and section<br>39-1.02D | Section<br>92-<br>1.01D(2)<br>and section<br>39-1.02D |
| Asphalt modifier   | Various                       | --   | --   | Section<br>39-1.02D                                   | Section<br>39-1.02D                                   |
| CRM  | Various                       | --   | --   | Section<br>39-1.02D                                   | Section<br>39-1.02D                                   |

<sup>a</sup> The Engineer determines combined aggregate gradations containing RAP under California Test 367.

<sup>b</sup> The tolerances must comply with the allowable tolerances in section 39-1.02E.

<sup>c</sup> The Engineer reports the average of 3 tests from a single split sample.

<sup>d</sup> The Engineer determines the bulk specific gravity of each lab-compacted briquette under California Test 308, Method A, and theoretical maximum specific gravity under California Test 309.

<sup>e</sup> The Engineer waives this specification if HMA contains 10 percent or less of nonmanufactured sand by weight of total aggregate. Manufactured sand is fine aggregate produced by crushing rock or gravel.

<sup>f</sup> Report only.

<sup>g</sup> Applies to RAP substitution rate greater than 15 percent.

**Replace "280 degrees F" in item 2 in the list in the 6th paragraph of section 39-3.04 with:**

285 degrees F

01-20-12

**Replace "5,000" in the 5th paragraph of section 39-4.02C with:**

10,000

02-22-13

**Replace the 7th paragraph of section 39-4.02C with:**

Except for RAP substitution rate of greater than 15 percent, the Department does not use results from California Test 371 to determine specification compliance.

02-22-13

**Replace the 8th paragraph of section 39-4.02C with:**

02-22-13

Comply with the values for the HMA quality characteristics and minimum random sampling and testing for quality control shown in the following table:

**Minimum Quality Control—QC/QA Construction Process**

| Quality characteristic   | Test method                | Minimum sampling and testing frequency                          | HMA Type                     |                              |                              | Location of sampling                              | Maximum reporting time allowance |
|--|----------------------------|---|------------------------------|------------------------------|------------------------------|---|----------------------------------|
|  |                            |   | A                            | B                            | RHMA-G                       |   |                                  |
| Aggregate gradation <sup>a</sup>   | California Test 202        | 1 per 750 tons  | JMF ± tolerance <sup>b</sup> | JMF ± tolerance <sup>b</sup> | JMF ± tolerance <sup>b</sup> | California Test 125                               | 24 hours                         |
| Asphalt binder content (%)   | California Test 379 or 382 |   | JMF±0.40                     | JMF±0.40                     | JMF ±0.40                    | Loose mix behind paver<br>See California Test 125 |                                  |
| Field compaction (% max. theoretical density) <sup>c,d</sup>   | QC plan                    |   | 92–96                        | 92–96                        | 91–96                        | QC plan   |                                  |
| Aggregate moisture content at continuous mixing plants and RAP moisture content at continuous mixing plants and batch mixing plants <sup>e</sup> | California Test 226 or 370 | 2 per day during production                                     | --                           | --                           | --                           | Stock-piles or cold feed belts                    | --                               |
| Sand equivalent (min) <sup>f</sup>   | California Test 217        | 1 per 750 tons  | 47                           | 42                           | 47                           | California Test 125                               | 24 hours                         |
| HMA moisture content (% max)   | California Test 226 or 370 | 1 per 2,500 tons but not less than 1 per paving day             | 1.0                          | 1.0                          | 1.0                          | Loose Mix Behind Paver<br>See California Test 125 | 24 hours                         |
| Stabilometer value (min) <sup>f</sup>  | California Test 366        | 1 per 4,000 tons or 2 per 5 business days, whichever is greater | 30                           | 30                           | --                           |   | 48 hours                         |
| No. 4 and 3/8" gradings<br>1/2" and 3/4" gradings  |                            |   | 37                           | 35                           | 23                           |   |                                  |
| Air void content (%) <sup>f,g</sup>  | California Test 367        |   | 4 ± 2                        | 4 ± 2                        | TV ± 2                       |   |                                  |

|   |                     |   |             |             |             |                     |          |
|---|---------------------|---|-------------|-------------|-------------|---------------------|----------|
| Percent of crushed particles coarse aggregate (% min.):<br>One fractured face<br>Two fractured faces                  | California Test 205 | As designated in QC plan.<br><br>At least once per project. | 90          | 25          | --          | California Test 125 | 48 hours |
|   |                     |   | 75          | --          | 90          |                     |          |
| Fine aggregate (% min) (Passing no. 4 sieve and retained on no. 8 sieve):<br>One fractured face                       |                     |   | 70          | 20          | 70          |                     |          |
|   |                     |   |             |             |             |                     |          |
| Los Angeles Rattler (% max):<br>Loss at 100 rev.<br>Loss at 500 rev.  | California Test 211 |   | 12          | --          | 12          | California Test 125 |          |
|   |                     |   | 45          | 50          | 40          |                     |          |
| Fine aggregate angularity (% min) <sup>h</sup>  | California Test 234 |   | 45          | 45          | 45          | California Test 125 |          |
| Flat and elongated particle (% max by weight @ 5:1)   | California Test 235 |   | Report only | Report only | Report only | California Test 125 |          |
| Voids filled with asphalt (%) <sup>i</sup><br><br>No. 4 grading<br>3/8" grading<br>1/2" grading<br>3/4" grading       | California Test 367 |   |             |             | Report only |                     |          |
|   |                     |   | 65.0–75.0   | 65.0–75.0   |             |                     |          |
|   |                     | 65.0–75.0   | 65.0–75.0   |             |             |                     |          |
|   |                     | 65.0–75.0   | 65.0–75.0   |             |             |                     |          |
|   |                     | 65.0–75.0   | 65.0–75.0   |             |             |                     |          |
| Voids in mineral aggregate (% min.) <sup>i</sup><br><br>No. 4 grading<br>3/8" grading<br>1/2" grading<br>3/4" grading | California Test 367 |   |             |             |             |                     |          |
|   |                     | 17.0  | 17.0        | --          |             |                     |          |
|   |                     | 15.0  | 15.0        | --          |             |                     |          |
|   |                     | 14.0  | 14.0        | 18.0–23.0   |             |                     |          |
|   |                     | 13.0  | 13.0        | 18.0–23.0   |             |                     |          |

|   |                         |   |  |  |  |                  |          |  |
|---|-------------------------|---|--|--|--|------------------|----------|--|
| Dust proportion <sup>i</sup>  | California Test 367     |   |  |  |  |                  |          |  |
| No. 4 and 3/8" gradings<br>1/2" and 3/4" gradings   |                         |   | 0.6–1.2<br>0.6–1.2                                     | 0.6–1.2<br>0.6–1.2                                     | Report only  |                  |          |  |
| Hamburg wheel track (minimum number of passes at 0.5 inch average rut depth) <sup>j</sup><br>PG-58<br>PG-64<br>PG-70<br>PG-76 or higher | AASHTO T 324 (Modified) | 1 per 10,000 tons or 1 per project whichever is greater | 10,000<br>15,000<br>20,000<br>25,000                   | 10,000<br>15,000<br>20,000<br>25,000                   | --   | --               |          |  |
| Hamburg wheel track (inflection point minimum number of passes) <sup>j</sup><br>PG-58<br>PG-64<br>PG-70<br>PG-76 or higher              | AASHTO T 324 (Modified) | 1 per 10,000 tons or 1 per project whichever is greater | 10,000<br>10,000<br>12,500<br>15000                    | 10,000<br>10,000<br>12,500<br>15000                    | --   | --               |          |  |
| Moisture susceptibility (minimum dry strength, psi) <sup>j</sup>  | California Test 371     | 1 per 10,000 tons or 1 per project whichever is greater | 120  | 120  | --   | --               |          |  |
| Moisture susceptibility (tensile strength ratio, %) <sup>j</sup>  | California Test 371     | 1 per 10,000 tons or 1 per project whichever is greater | 70   | 70   | 70   | --               |          |  |
| Smoothness  | Section 39-1.12         | --  | 12-foot straight-edge, must-grind, and Pl <sub>0</sub> | 12-foot straight-edge, must-grind, and Pl <sub>0</sub> | 12-foot straight-edge, must-grind, and Pl <sub>0</sub> | --               |          |  |
| Asphalt rubber binder viscosity @ 375 °F, centipoises   | Section 39-1.02D        | --  | --   | --   | 1,500–4,000  | Section 39-1.02D | 24 hours |  |
| CRM   | Section 39-1.02D        | --  | --   | --   | Section 39-1.02D                                       | Section 39-1.02D | 48 hours |  |

- <sup>a</sup> Determine combined aggregate gradation containing RAP under California Test 367.
- <sup>b</sup> The tolerances must comply with the allowable tolerances in section 39-1.02E.
- <sup>c</sup> Determines field compaction for any of the following conditions:
  1. 1/2-inch, 3/8-inch, or no. 4 aggregate grading is used and the specified total paved thickness is at least 0.15 foot.
  2. 3/4-inch aggregate grading is used and the specified total paved thickness is at least 0.20 foot.
- <sup>d</sup> To determine field compaction use:
  1. In-place density measurements using the method specified in your QC plan.
  2. California Test 309 to determine the maximum theoretical density at the frequency specified in California Test 375, Part 5C.
- <sup>e</sup> For adjusting the plant controller at the HMA plant.
- <sup>f</sup> Report the average of 3 tests from a single split sample.
- <sup>g</sup> Determine the bulk specific gravity of each lab-compacted briquette under California Test 308, Method A, and theoretical maximum specific gravity under California Test 309.
- <sup>h</sup> The Engineer waives this specification if HMA contains 10 percent or less of nonmanufactured sand by weight of total aggregate. Manufactured sand is fine aggregate produced by crushing rock or gravel.
- <sup>i</sup> Report only.
- <sup>j</sup> Applies to RAP substitution rate greater than 15 percent.

**Replace the 1st sentence in the 1st paragraph of section 39-4.03B(2) with:**

01-20-12

For aggregate gradation and asphalt binder content, the minimum ratio of verification testing frequency to quality control testing frequency is 1:5.

**Replace the 2nd "and" in the 7th paragraph of section 39-4.03B(2) with:**

01-20-12

or

**Replace the 1st paragraph of section 39-4.04A with:**

02-22-13

The Engineer samples for acceptance testing and tests for the following quality characteristics:

**HMA Acceptance—QC/QA Construction Process**

| Index (i) | Quality characteristic   |                                  |      |      | Weight -ing factor (w) | Test method                | HMA type                     |                              |                                    |
|-----------|--|----------------------------------|------|------|------------------------|----------------------------|------------------------------|------------------------------|------------------------------------|
|           |  |                                  |      |      |                        |                            | A                            | B                            | RHMA-G                             |
|           |  | Aggregate gradation <sup>a</sup> |      |      |                        | California Test 202        | JMF ± Tolerance <sup>c</sup> |                              |                                    |
|           | Sieve  | 3/4"                             | 1/2" | 3/8" |                        |                            |                              |                              |                                    |
| 1         | 1/2"   | X <sup>b</sup>                   | --   | --   | 0.05                   |                            |                              |                              |                                    |
| 1         | 3/8"   | --                               | X    | --   | 0.05                   |                            |                              |                              |                                    |
| 1         | No. 4  | --                               | --   | X    | 0.05                   |                            |                              |                              |                                    |
| 2         | No. 8  | X                                | X    | X    | 0.10                   |                            |                              |                              |                                    |
| 3         | No. 200  | X                                | X    | X    | 0.15                   |                            |                              |                              |                                    |
| 4         | Asphalt binder content (%)   |                                  |      |      | 0.30                   | California Test 379 or 382 | JMF±0.40                     | JMF±0.40                     | JMF ± 0.40                         |
| 5         | Field compaction (% max. theoretical density) <sup>d, e</sup>  |                                  |      |      | 0.40                   | California Test 375        | 92–96                        | 92–96                        | 91–96                              |
|           | Sand equivalent (min) <sup>f</sup>   |                                  |      |      |                        | California Test 217        | 47                           | 42                           | 47                                 |
|           | Stabilometer value (min) <sup>f</sup><br>No. 4 and 3/8" gradings<br>1/2" and 3/4" gradings   |                                  |      |      |                        | California Test 366        | 30<br>37                     | 30<br>35                     | --<br>23                           |
|           | Air void content (%) <sup>f, g</sup>   |                                  |      |      |                        | California Test 367        | 4 ± 2                        | 4 ± 2                        | TV ± 2                             |
|           | Percent of crushed particles coarse aggregate (% min)<br>One fractured face<br>Two fractured faces<br>Fine aggregate (% min)<br>(Passing no. 4 sieve and retained on No. 8 sieve.)<br>One fractured face |                                  |      |      |                        | California Test 205        | 90<br>75<br>70               | 25<br>--<br>20               | --<br>90<br>70                     |
|           | HMA moisture content (% max)   |                                  |      |      |                        | California Test 226 or 370 | 1.0                          | 1.0                          | 1.0                                |
|           | Los Angeles Rattler (% max)<br>Loss at 100 rev.<br>Loss at 500 rev.  |                                  |      |      |                        | California Test 211        | 12<br>45                     | --<br>50                     | 12<br>40                           |
|           | Fine aggregate angularity (% min) <sup>h</sup>   |                                  |      |      |                        | California Test 234        | 45                           | 45                           | 45                                 |
|           | Flat and elongated particle (% max by weight @ 5:1)  |                                  |      |      |                        | California Test 235        | Report only                  | Report only                  | Report only                        |
|           | Voids in mineral aggregate (% min) <sup>i</sup><br>No. 4 grading<br>3/8" grading<br>1/2" grading<br>3/4" grading   |                                  |      |      |                        | California Test 367        | 17.0<br>15.0<br>14.0<br>13.0 | 17.0<br>15.0<br>14.0<br>13.0 | --<br>--<br>18.0–23.0<br>18.0–23.0 |

|  |  |  |                               |  |   |   |
|--|--|--|-------------------------------|--|---|---|
|  | Voids filled with asphalt (%) <sup>i</sup><br>No. 4 grading<br>3/8" grading<br>1/2" grading<br>3/4" grading  |  | California<br>Test 367        | 65.0–75.0<br>65.0–75.0<br>65.0–75.0<br>65.0–75.0                       | 65.0–75.0<br>65.0–75.0<br>65.0–75.0<br>65.0–75.0                    | Report only   |
|  | Dust proportion <sup>1</sup><br>No. 4 and 3/8" gradings<br>1/2" and 3/4" gradings  |  | California<br>Test 367        | 0.6–1.2<br>0.6–1.2   | 0.6–1.2<br>0.6–1.2  | Report only   |
|  | Hamburg Wheel Tracker<br>(minimum number of<br>passes at 0.5 inch average<br>rut depth) <sup>j</sup><br>PG-58<br>PG-64<br>PG-70<br>PG-76 or higher |  | AASHTO<br>T 324<br>(Modified) | 10,000<br>15,000<br>20,000<br>25,000                                   | 10,000<br>15,000<br>20,000<br>25,000                                | --  |
|  | Hamburg Wheel Tracker<br>(inflection point minimum<br>number of passes) <sup>j</sup><br>PG-58<br>PG-64<br>PG-70<br>PG-76 or higher                 |  | AASHTO<br>T 324<br>(Modified) | 10,000<br>15,000<br>20,000<br>25,000                                   | 10,000<br>15,000<br>20,000<br>25,000                                | --  |
|  | Moisture susceptibility<br>(minimum dry strength, psi) <sup>j</sup>  |  | California<br>Test 371        | 120  | 120   | --  |
|  | Moisture susceptibility<br>(tensile strength ratio %) <sup>j</sup>   |  | California<br>Test 371        | 70   | 70  | 70  |
|  | Smoothness   |  | Section<br>39-1.12            | 12-foot<br>straight-<br>edge,<br>must<br>grind, and<br>PI <sub>0</sub> | 12-foot<br>straight-<br>edge, must<br>grind, and<br>PI <sub>0</sub> | 12-foot<br>straight-<br>edge, must<br>grind, and<br>PI <sub>0</sub> |
|  | Asphalt binder   |  | Various                       | Section 92   | Section 92  | Section 92  |
|  | Asphalt rubber binder  |  | Various                       | --   | --  | Section<br>92-1.01D(2)<br>and section<br>39-1.02D                   |
|  | Asphalt modifier   |  | Various                       | --   | --  | Section<br>39-1.02D   |
|  | CRM  |  | Various                       | --   | --  | Section<br>39-1.02D   |

- <sup>a</sup> The Engineer determines combined aggregate gradations containing RAP under California Test 367.
- <sup>b</sup> "X" denotes the sieves the Engineer tests for the specified aggregate gradation.
- <sup>c</sup> The tolerances must comply with the allowable tolerances in section 39-1.02E.
- <sup>d</sup> The Engineer determines field compaction for any of the following conditions:
  1. 1/2-inch, 3/8-inch, or no. 4 aggregate grading is used and the specified total paved thickness is at least 0.15 foot and less than 0.20 foot.
  2. 3/4-inch aggregate grading is used and the specified total paved thickness is at least 0.20 foot.
- <sup>e</sup> To determine field compaction, the Engineer uses:
  1. California Test 308, Method A, to determine in-place density of each density core.
  2. California Test 309 to determine the maximum theoretical density at the frequency specified in California Test 375, Part 5C.
- <sup>f</sup> The Engineer reports the average of 3 tests from a single split sample.
- <sup>g</sup> The Engineer determines the bulk specific gravity of each lab-compacted briquette under California Test 308, Method A, and theoretical maximum specific gravity under California Test 309.
- <sup>h</sup> The Engineer waives this specification if HMA contains 10 percent or less of nonmanufactured sand by weight of total aggregate. Manufactured sand is fine aggregate produced by crushing rock or gravel.
- <sup>i</sup> Report only.
- <sup>j</sup> Applies to RAP substitution rate greater than 15 percent.

**Replace the 3rd paragraph of section 39-4.04A with:**

01-20-12

The Department determines the percent of maximum theoretical density from density cores taken from the final layer measured the full depth of the total paved HMA thickness if any of the following applies:

1. 1/2-inch, 3/8-inch, or no. 4 aggregate grading is used and the specified total paved thickness is at least 0.15 foot and any layer is less than 0.15 foot.
2. 3/4-inch aggregate grading is used and the specified total paved thickness is at least 0.20 and any layer is less than 0.20 foot.

AA

**40 CONCRETE PAVEMENT**

01-20-12

**Replace section 40-1.01C(4) with:**

01-20-12

**40-1.01C(4) Authorized Laboratory**

Submit for authorization the name of the laboratory you propose to use for testing the drilled core specimens for air content.

**Replace the paragraph in section 40-1.01C(8) with:**

01-20-12

Submit a plan for protecting concrete pavement during the initial 72 hours after paving when the forecasted minimum ambient temperature is below 40 degrees F.

01-20-12

**Delete "determined under California Test 559" in section 40-1.01C(9).**

**Replace the 2nd and 3rd paragraphs in section 40-1.01D(4) with:**

01-20-12

The QC plan must include details of corrective action to be taken if any process is out of control. As a minimum, a process is out of control if any of the following occurs:

1. For fine and coarse aggregate gradation, 2 consecutive running averages of 4 tests are outside the specification limits
2. For individual penetration or air content measurements:
  - 2.1. One point falls outside the suspension limit line
  - 2.2. Two points in a row fall outside the action limit line

Stop production and take corrective action for out of control processes or the Engineer rejects subsequent material.

**Replace the 1st paragraph in section 40-1.01D(5) with:**

01-20-12

Determine the minimum cementitious materials content. Use your value for minimum cementitious material content for *MC* in equation 1 and equation 2 of section 90-1.02B(3).

**Replace the 1st sentence of the 3rd paragraph of section 40-1.01D(9) with:**

01-20-12

Use a California profilograph to determine the concrete pavement profile.

**Replace the title of the table in section 40-1.01D(13)(a) with:**

01-20-12

**Concrete Pavement Acceptance Testing**

**Replace the 2nd and 3rd paragraphs in section 40-1.01D(13)(a) with:**

01-20-12

Pavement smoothness may be accepted based on the Department's testing. A single test represents no more than 0.1 mile.

Acceptance of modulus of rupture, thickness, dowel bar and tie bar placement, coefficient of friction, smoothness, and air content, does not constitute final concrete pavement acceptance.

**Delete item 4 in the list in the 2nd paragraph in section 40-1.01D(13)(c)(2).**

01-20-12

**Replace items 1 and 2 in the list in the 2nd paragraph in 40-1.01D(13)(d) with:**

01-20-12

1. For tangents and horizontal curves having a centerline radius of curvature 2,000 feet or more, the  $PI_0$  must be at most 2-1/2 inches per 0.1-mile section.
2. For horizontal curves having a centerline radius of curvature from 1,000 to 2,000 feet including concrete pavement within the superelevation transitions of those curves, the  $PI_0$  must be at most 5 inches per 0.1-mile section.

**Replace the 1st and 2nd variables in the equation in section 40-1.01D(13)(f) with:**

01-20-12

$n_c$  = Number of your quality control tests (minimum of 6 required)

$n_v$  = Number of verification tests (minimum of 2 required)

**Replace "Your approved third party independent testing laboratory" in the 4th paragraph of section 40-1.01D(13)(f) with:**

01-20-12

The authorized laboratory

**Replace item 2 in the list in the 2nd paragraph of section 40-1.01D(13)(g):**

01-20-12

2. One test for every 4,000 square yards of concrete pavement with tie bars or remaining fraction of that area. Each tie bar test consists of 2 cores with 1 on each tie-bar-end to expose both ends and allow measurement.

**Replace section 40-1.01D(13)(h) with:**

01-20-12

**40-1.01D(13)(h) Bar Reinforcement**

Bar reinforcement is accepted based on inspection before concrete placement.

**Replace the paragraph in section 40-1.02B(2) with:**

01-20-12

PCC for concrete pavement must comply with section 90-1 except as otherwise specified.

**Replace the paragraphs in section 40-1.02D with:**

01-20-12

Bar reinforcement must be deformed bars.

If the project is not shown to be in high desert or any mountain climate region, bar reinforcement must comply with section 52.

If the project is shown to be in high desert or any mountain climate regions, bar reinforcement must be one of the following:

1. Epoxy-coated bar reinforcement under section 52-2.03B except bars must comply with either ASTM A 706/A 706M; ASTM A 996/A 996M; or ASTM A 615/A 615M, Grade 40 or 60. Bars must be handled under ASTM D 3963/D 3963M and section 52-2.02C.
2. Low carbon, chromium steel bar complying with ASTM A 1035/A 1035M

**Replace the paragraphs in section 40-1.02E with:**

01-20-12

Tie bars must be deformed bars.

If the project is not shown to be in high desert or any mountain climate region, tie bars must be one of the following:

1. Epoxy-coated bar reinforcement. Bars must comply with either section 52-2.02B or 52-2.03B except bars must comply with either ASTM A 706/A 706M; ASTM A 996/A 996M; or ASTM A 615/A 615M, Grade 40 or 60.
2. Stainless-steel bars. Bars must be descaled, pickled, polished, and solid stainless-steel bars under ASTM A 955/A 955M, Grade 60, UNS Designation S31603 or S31803.
3. Low carbon, chromium-steel bars under ASTM A 1035/A 1035M.

If the project is shown to be in high desert or any mountain climate region, tie bars must be one of the following:

1. Epoxy-coated bar reinforcement. Bars must comply with section 52-2.03B except bars must comply with either ASTM A 706/A 706M; ASTM A 996/A 996M; or ASTM A 615/A 615M, Grade 40 or 60.
2. Stainless-steel bars. Bars must be descaled, pickled, polished, and solid stainless-steel bars under ASTM A 955/A 955M, Grade 60, UNS Designation S31603 or S31803.

Fabricate, sample, and handle epoxy-coated tie bars under ASTM D 3963/D 3963M, section 52-2.02C, or section 52-2.03C.

Do not bend tie bars.

**Replace the 1st, 2nd, and 3rd paragraphs in section 40-1.02F with:**

01-20-12

Dowel bars must be plain bars. Fabricate, sample, and handle epoxy-coated dowel bars under ASTM D 3963/D 3963M and section 52-2.03C except each sample must be 18 inches long.

If the project is not shown to be in high desert or any mountain climate region, dowel bars must be one of the following:

1. Epoxy-coated bars. Bars must comply with ASTM A 615/A 615M, Grade 40 or 60. Epoxy coating must comply with either section 52-2.02B or 52-2.03B.
2. Stainless-steel bars. Bars must be descaled, pickled, polished, and solid stainless-steel bars under ASTM A 955/A 955M, Grade 60, UNS Designation S31603 or S31803.
3. Low carbon, chromium-steel bars under ASTM A 1035/A 1035M.

If the project is shown to be in high desert or any mountain climate region, dowel bars must be one of the following:

1. Epoxy-coated bars. Bars must comply with ASTM A 615/A 615M, Grade 40 or 60. Epoxy coating must comply with section 52-2.03B.
2. Stainless-steel bars. Bars must be descaled, pickled, polished, and solid stainless-steel bars under ASTM A 955/A 955M, Grade 60, UNS Designation S31603 or S31803.

**Replace the paragraphs in section 40-1.02G with:**

01-20-12

For dowel and tie bar baskets, wire must comply with ASTM A 82/A 82M and be welded under ASTM A 185/A 185M, Section 7.4. The minimum wire-size no. is W10. Use either U-frame or A-frame shaped assemblies.

If the project is not shown to be in high desert or any mountain climate region. Baskets may be epoxy-coated, and the epoxy coating must comply with either section 52-2.02B or 52-2.03B.

If the project is shown to be in high desert or any mountain climate region, wire for dowel bar and tie bar baskets must be one of the following:

1. Epoxy-coated wire complying with section 52-2.03B
2. Stainless-steel wire. Wire must be descaled, pickled, and polished solid stainless-steel. Wire must comply with (1) the chemical requirements in ASTM A 276/A 276M, UNS Designation S31603 or S31803 and (2) the tension requirements in ASTM A 1022/ A 1022M.

Handle epoxy-coated tie bar and dowel bar baskets under ASTM D 3963/D 3963M and either section 52-2.02B or 52-2.03B.

Fasteners must be driven fasteners under ASTM F 1667. Fasteners on lean concrete base or HMA must have a minimum shank diameter of 3/16 inch and a minimum shank length of 2-1/2 inches. For asphalt

treated permeable base or cement treated permeable base, the shank diameter must be at least 3/16 inch and the shank length must be at least 5 inches.

Fasteners, clips, and washers must have a minimum 0.2-mil thick zinc coating applied by either electroplating or galvanizing.

**Replace the 1st paragraph in section 40-1.02H with:**

01-20-12

Chemical adhesive for drilling and bonding dowels and tie bars must be on the Authorized Material List. The Authorized Material List indicates the appropriate chemical adhesive system for the concrete temperature and installation conditions.

**Replace section 40-1.02I(2) with:**

01-20-12

**40-1.02I(2) Silicone Joint Sealant**

Silicone joint sealant must be on the Authorized Material List.

**Replace the last sentence in section 40-1.02I(4) with:**

01-20-12

Show evidence that the seals are compressed from 30 to 50 percent for the joint width at time of installation.

**Replace the paragraph in section 40-1.02L with:**

01-20-12

Water for core drilling may be obtained from a potable water source, or submit proof that it does not contain:

1. More than 1,000 parts per million of chlorides as Cl
2. More than 1,300 parts per million of sulfates as  $SO_4$
3. Impurities that cause pavement discoloration or surface etching

**Replace the paragraph in section 40-1.03B with:**

01-20-12

Before placing concrete pavement, develop enough water supply for the work under section 17.

**Replace the last paragraph in section 40-1.03D(1) with:**

01-20-12

Removal of grinding residue must comply with section 42-1.03B.

**Replace the 1st and 2nd paragraphs in section 40-1.03E(6)(c) with:**

01-20-12

Install preformed compressions seals in isolation joints if specified in the special provisions.

Install longitudinal seals before transverse seals. Longitudinal seals must be continuous except splicing is allowed at intersections with transverse seals. Transverse seals must be continuous for the entire transverse length of concrete pavement except splices are allowed for widenings and staged construction. With a sharp instrument, cut across the longitudinal seal at the intersection with transverse

construction joints. If the longitudinal seal does not relax enough to properly install the transverse seal, trim the longitudinal seal to form a tight seal between the 2 joints.

If splicing is authorized, splicing must comply with the manufacturer's written instructions.

**Replace the 12th and 13th paragraphs in section 40-1.03G with:**

01-20-12

Construct additional test strips if you:

1. Propose different paving equipment including:
  - 1.1. Paver
  - 1.2. Dowel bar inserter
  - 1.3. Tie bar inserter
  - 1.4. Tining
  - 1.5. Curing equipment
2. Change concrete mix proportions

You may request authorization to eliminate the test strip if you use paving equipment and personnel from a Department project (1) for the same type of pavement and (2) completed within the past 12 months. Submit supporting documents and previous project information with your request.

**Replace the 1st paragraph in section 40-1.03I with:**

01-20-12

Place tie bars in compliance with the tolerances shown in the following table:

| <b>Tie Bar Tolerance</b>      |   |
|-------------------------------|---|
| Dimension                     | Tolerance   |
| Horizontal and vertical skew  | 10 degrees maximum  |
| Longitudinal translation      | ± 2 inch maximum  |
| Horizontal offset (embedment) | ± 2 inch maximum  |
| Vertical depth                | 1. Not less than 1/2 inch below the saw cut depth of joints<br>2. When measured at any point along the bar, not less than 2 inches clear of the pavement's surface and bottom |

**Replace item 4 in the list in the 2nd paragraph in section 40-1.03I with:**

01-20-12

4. Use tie bar baskets. Anchor baskets at least 200 feet in advance of pavement placement activity. If you request a waiver, describe the construction limitations or restricted access preventing the advanced anchoring. After the baskets are anchored and before paving, demonstrate the tie bars do not move from their specified depth and alignment during paving. Use fasteners to anchor tie bar baskets.

**Replace "The maximum distance below the depth shown must be 0.05 foot." in the table in section 40-1.03J with:**

01-20-12

The maximum distance below the depth shown must be 5/8 inch.

**Replace sections 40-1.03L and 40-1.03M with:**

01-20-12

**40-1.03L Finishing**

**40-1.03L(1) General**

Reserved

**40-1.03L(2) Preliminary Finishing**

**40-1.03L(2)(a) General**

Preliminary finishing must produce a smooth and true-to-grade finish. After preliminary finishing, mark each day's paving with a stamp. The stamp must be authorized before paving starts. The stamp must be approximately 1 by 2 feet in size. The stamp must form a uniform mark from 1/8 to 1/4 inch deep. Locate the mark  $20 \pm 5$  feet from the transverse construction joint formed at each day's start of paving and  $1 \pm 0.25$  foot from the pavement's outside edge. The stamp mark must show the month, day, and year of placement and the station of the transverse construction joint. Orient the stamp mark so it can be read from the pavement's outside edge.

Do not apply more water to the pavement surface than can evaporate before float finishing and texturing are completed.

**40-1.03L(2)(b) Stationary Side Form Finishing**

If stationary side form construction is used, give the pavement a preliminary finish by the machine float method or the hand method.

If using the machine float method:

1. Use self-propelled machine floats.
2. Determine the number of machine floats required to perform the work at a rate equal to the pavement delivery rate. If the time from paving to machine float finishing exceeds 30 minutes, stop pavement delivery. When machine floats are in proper position, you may resume pavement delivery and paving.
3. Run machine floats on side forms or adjacent pavement lanes. If running on adjacent pavement, protect the adjacent pavement surface under section 40-1.03P. Floats must be hardwood, steel, or steel-shod wood. Floats must be equipped with devices that adjust the underside to a true flat surface.

If using the hand method, finish pavement smooth and true to grade with manually operated floats or powered finishing machines.

**40-1.03L(2)(c) Slip-Form Finishing**

If slip-form construction is used, the slip-form paver must give the pavement a preliminary finish. You may supplement the slip-form paver with machine floats.

Before the pavement hardens, correct pavement edge slump in excess of 0.02 foot exclusive of edge rounding.

**40-1.03L(3) Final Finishing**

After completing preliminary finishing, round the edges of the initial paving widths to a 0.04-foot radius. Round transverse and longitudinal construction joints to a 0.02-foot radius.

Before curing, texture the pavement. Perform initial texturing with a burlap drag or broom device that produces striations parallel to the centerline. Perform final texturing with a steel-tined device that produces grooves parallel with the centerline.

Construct longitudinal grooves with a self-propelled machine designed specifically for grooving and texturing pavement. The machine must have tracks to maintain constant speed, provide traction, and maintain accurate tracking along the pavement surface. The machine must have a single row of rectangular spring steel tines. The tines must be from 3/32 to 1/8 inch wide, on 3/4-inch centers, and must have enough length, thickness, and resilience to form grooves approximately 3/16 inch deep. The machine must have horizontal and vertical controls. The machine must apply constant down pressure on the pavement surface during texturing. The machines must not cause ravels.

Construct grooves over the entire pavement width in a single pass except do not construct grooves 3 inches from the pavement edges and longitudinal joints. Final texture must be uniform and smooth. Use a guide to properly align the grooves. Grooves must be parallel and aligned to the pavement edge across the pavement width. Grooves must be from 1/8 to 3/16 inch deep after the pavement has hardened.

For irregular areas and areas inaccessible to the grooving machine, you may hand-construct grooves under section 40-1.03L(2) using the hand method. Hand-constructed grooves must comply with the specifications for machine-constructed grooves.

Initial and final texturing must produce a coefficient of friction of at least 0.30 when tested under California Test 342. Notify the Engineer when the pavement is scheduled to be opened to traffic to allow at least 25 days for the Department to schedule testing for coefficient of friction. Notify the Engineer when the pavement is ready for testing which is the latter of:

1. Seven days after paving
2. When the pavement has attained a modulus of rupture of 550 psi

The Department tests for coefficient of friction within 7 days of receiving notification that the pavement is ready for testing.

Do not open the pavement to traffic unless the coefficient of friction is at least 0.30.

#### **40-1.03M Reserved**

#### **Replace the 4th paragraph of 40-1.03P with:**

01-20-12

Construct crossings for traffic convenience. If authorized, you may use RSC for crossings. Do not open crossings until the Department determines that the pavement's modulus of rupture is at least 550 psi under California Test 523 or California Test 524.

#### **Replace the 1st paragraph of section 40-6.01A with:**

01-20-12

Section 40-6 includes specifications for applying a high molecular weight methacrylate resin system to pavement surface cracks that do not extend the full slab depth.

#### **Replace the 4th paragraph of section 40-6.01C(2) with:**

01-20-12

If the project is in an urban area adjacent to a school or residence, the public safety plan must also include an airborne emissions monitoring plan prepared by a CIH certified in comprehensive practice by the American Board of Industrial Hygiene. Submit a copy of the CIH's certification. The CIH must monitor the emissions at a minimum of 4 points including the mixing point, the application point, and the point of nearest public contact. At work completion, submit a report by the industrial hygienist with results of the airborne emissions monitoring plan.

#### **Delete the 1st sentence of the 2nd paragraph in section 40-6.02B.**

01-20-12

#### **Replace item 4 in the list in the last paragraph in section 40-6.03A with:**

01-20-12

4. Coefficient of friction is at least 0.30 under California Test 342







**Add to section 49-1.03:**

04-20-12

Dispose of drill cuttings under section 19-2.03B.

**Replace the 2nd paragraph of section 49-2.01D with:**

01-20-12

Furnish piling is measured along the longest side of the pile from the specified tip elevation shown to the plane of pile cutoff.

**Replace the 3rd and 4th paragraphs of section 49-2.04B(2) with:**

10-19-12

Piles in a corrosive environment must be steam or water cured under section 90-4.03.

If piles in a corrosive environment are steam cured, either:

1. Keep the piles continuously wet for at least 3 days. The 3 days includes the holding and steam curing periods.
2. Apply curing compound under section 90-1.03B(3) after steam curing.

**Add to section 49-3.01A:**

01-20-12

Concrete must comply with section 51.

**Replace the 1st paragraph of section 49-3.01C with:**

01-20-12

Except for CIDH concrete piles constructed under slurry, construct CIP concrete piles such that the excavation methods and the concrete placement procedures provide for placing the concrete against undisturbed material in a dry or dewatered hole.

**Replace "Reserved" in section 49-3.02A(2) with:**

01-20-12

**dry hole:**

1. Except for CIDH concrete piles specified as end bearing, a drilled hole that:
  - 1.1. Accumulates no more than 12 inches of water in the bottom of the drilled hole during a period of 1 hour without any pumping from the hole during the hour.
  - 1.2. Has no more than 3 inches of water in the bottom of the drilled hole immediately before placing concrete.
2. For CIDH concrete piles specified as end bearing, a drilled hole free of water without the use of pumps.

**Replace "Reserved" in section 49-3.02A(3)(a) with:**

01-20-12

If plastic spacers are proposed for use, submit the manufacturer's data and a sample of the plastic spacer. Allow 10 days for review.

**Replace item 5 in the list in the 1st paragraph of section 49-3.02A(3)(b) with:**

10-19-12

5. Methods and equipment for determining:
  - 5.1. Depth of concrete
  - 5.2. Theoretical volume of concrete to be placed, including the effects on volume if casings are withdrawn
  - 5.3. Actual volume of concrete placed

**Add to the list in the 1st paragraph of section 49-3.02A(3)(b):**

01-18-13

8. Drilling sequence and concrete placement plan.

**Replace item 2 in the list in the 1st paragraph of section 49-3.02A(3)(g) with:**

01-20-12

2. Be sealed and signed by an engineer who is registered as a civil engineer in the State. This requirement is waived for either of the following conditions:
  - 2.1. The proposed mitigation will be performed under the current Department-published version of *ADSC Standard Mitigation Plan 'A' - Basic Repair* without exception or modification.
  - 2.2. The Engineer determines that the rejected pile does not require mitigation due to structural, geotechnical, or corrosion concerns, and you elect to repair the pile using the current Department-published version of *ADSC Standard Mitigation Plan 'B' - Grouting Repair* without exception or modification.

**Replace item 1 in the list in the 1st paragraph of section 49-3.02A(4)(d)(ii) with:**

01-20-12

1. Inspection pipes must be schedule 40 PVC pipe complying with ASTM D 1785 with a nominal pipe size of 2 inches. Watertight PVC couplers complying with ASTM D 2466 are allowed to facilitate pipe lengths in excess of those commercially available. Log the location of the inspection pipe couplers with respect to the plane of pile cutoff.

**Add to section 49-3.02A(4)(d)(iv):**

01-20-12

If the Engineer determines it is not feasible to use one of ADSC's standard mitigation plans to mitigate the pile, schedule a meeting and meet with the Engineer before submitting a nonstandard mitigation plan.

The meeting attendees must include your representatives and the Engineer's representatives involved in the pile mitigation. The purpose of the meeting is to discuss the type of pile mitigation acceptable to the Department.

Provide the meeting facility. The Engineer conducts the meeting.

**Replace the 1st paragraph of section 49-3.02B(5) with:**

01-20-12

Grout used to backfill casings must comply with section 50-1.02C, except:

1. Grout must consist of cementitious material and water, and may contain an admixture if authorized. Cementitious material must comply with section 90-1.02B, except SCMs are not required. The minimum cementitious material content of the grout must not be less than 845 lb/cu yd of grout.
2. Aggregate must be used to extend the grout as follows:



- 2.3. Mechanically calibrate the gages with a dead weight tester or other authorized means before calibration of the jacking equipment by METS
- 2.4. Provide enough labor, equipment, and material to (1) install and support the jacking and calibration equipment and (2) remove the equipment after the calibration is complete
- 2.5. Plot the calibration results
- 3. Each jack used to tension prestressing steel permanently anchored at less than 25 percent of its specified minimum ultimate tensile strength must be calibrated by an authorized laboratory within 6 months of use and after each repair.

**Replace "diameter" in item 9 in the list in the 1st paragraph of section 50-1.02D with:**

cross-sectional area

04-20-12

**Add to section 50-1.02:**

09-16-11

**50-1.02G Sheathing**

Sheathing for debonding prestressing strand must:

- 1. Be split or un-split flexible polymer plastic tubing
- 2. Have a minimum wall thickness of 0.025 inch
- 3. Have an inside diameter exceeding the maximum outside diameter of the strand by 0.025 to 0.14 inch

Split sheathing must overlap at least 3/8 inch.

Waterproofing tape used to seal the ends of the sheathing must be flexible adhesive tape.

The sheathing and waterproof tape must not react with the concrete, coating, or steel.

**Add to section 50-1.03B(1):**

01-20-12

After seating, the maximum tensile stress in the prestressing steel must not exceed 75 percent of the minimum ultimate tensile strength shown.

**Add to section 50-1.03B(2):**

09-16-11

**50-1.03B(2)(e) Debonding Prestressing Strands**

Where shown, debond prestressing strands by encasing the strands in plastic sheathing along the entire length shown and sealing the ends of the sheathing with waterproof tape.

Distribute the debonded strands symmetrically about the vertical centerline of the girder. The debonded lengths of pairs of strands must be equal.

Do not terminate debonding at any one cross section of the member for more than 40 percent of the debonded strands or 4 strands, whichever is greater.

Thoroughly seal the ends with waterproof tape to prevent the intrusion of water or cement paste before placing the concrete.

AA

## 51 CONCRETE STRUCTURES

10-19-12

### Replace the paragraphs of section 51-1.01A with:

10-19-12

Section 51-1 includes general specifications for constructing concrete structures.

Earthwork for the following concrete structures must comply with section 19-3:

1. Sound wall footings
2. Sound wall pile caps
3. Culverts
4. Barrier slabs
5. Junction structures
6. Minor structures
7. Pipe culvert headwalls, endwalls, and wingwalls for a pipe with a diameter of 5 feet or greater

Falsework must comply with section 48-2.

Joints must comply with section 51-2.

Elastomeric bearing pads must comply with section 51-3.

Reinforcement for the following concrete structures must comply with section 52:

1. Sound wall footings
2. Sound wall pile caps
3. Barrier slabs
4. Junction structures
5. Minor structures
6. PC concrete members

You may use RSC for a concrete structure only where the specifications allow the use of RSC.

### Add to section 51-1.03C(2)(c)(i):

04-20-12

Permanent steel deck forms are only allowed where shown or if specified as an option in the special provisions.

### Replace the 3rd paragraph of section 51-1.03C(2)(c)(ii) with:

04-20-12

Compute the physical design properties under AISI's *North American Specification for the Design of Cold-Formed Steel Structural Members*.

### Replace the 8th paragraph of section 51-1.03D(1) with:

10-19-12

Except for concrete placed as pipe culvert headwalls and endwalls, slope paving and aprons, and concrete placed under water, consolidate concrete using high-frequency internal vibrators within 15 minutes of placing concrete in the forms. Do not attach vibrators to or hold them against forms or reinforcing steel. Do not displace reinforcement, ducts, or prestressing steel during vibrating.

**Add to section 51-1.03E(5):**

08-05-11

Drill the holes without damaging the adjacent concrete. If reinforcement is encountered during drilling before the specified depth is attained, notify the Engineer. Unless coring through the reinforcement is authorized, drill a new hole adjacent to the rejected hole to the depth shown.

**Replace "Reserved" in section 51-1.03F(5)(b) with:**

04-20-12

**51-1.03F(5)(b)(i) General**

Except for bridge widenings, texture the bridge deck surfaces longitudinally by grinding and grooving or by longitudinal tining.

10-19-12

For bridge widenings, texture the deck surface longitudinally by longitudinal tining.

04-20-12

In freeze-thaw areas, do not texture PCC surfaces of bridge decks.

**51-1.03F(5)(b)(ii) Grinding and Grooving**

When texturing the deck surface by grinding and grooving, place a 1/4 inch of sacrificial concrete cover on the bridge deck above the finished grade shown. Place items to be embedded in the concrete based on the final profile grade elevations shown. Construct joint seals after completing the grinding and grooving.

Before grinding and grooving, deck surfaces must comply with the smoothness and deck crack treatment requirements.

Grind and groove the deck surface as follows:

1. Grind the surface to within 18 inches of the toe of the barrier under section 42-3. Grinding must not reduce the concrete cover on reinforcing steel to less than 1-3/4 inches.
2. Groove the ground surfaces longitudinally under section 42-2. The grooves must be parallel to the centerline.

**51-1.03F(5)(b)(iii) Longitudinal Tining**

When texturing the deck surface by longitudinal tining, perform initial texturing with a burlap drag or broom device that produces striations parallel to the centerline. Perform final texturing with spring steel tines that produce grooves parallel with the centerline.

The tines must:

1. Be rectangular in cross section
2. Be from 3/32 to 1/8 inch wide on 3/4-inch centers
3. Have enough length, thickness, and resilience to form grooves approximately 3/16 inch deep

Construct grooves to within 6 inches of the layout line of the concrete barrier toe. Grooves must be from 1/8 to 3/16 inch deep and 3/16 inch wide after concrete has hardened.

For irregular areas and areas inaccessible to the grooving machine, you may hand construct grooves. Hand-constructed grooves must comply with the specifications for machine-constructed grooves.

Tining must not cause tearing of the deck surface or visible separation of coarse aggregate at the surface.

**Replace the paragraphs of section 51-1.04 with:**

10-19-12

If concrete involved in bridge work is not designated by type and is not otherwise paid for under a separate bid item, the concrete is paid for as structural concrete, bridge.

The payment quantity for structural concrete includes the volume in the concrete occupied by bar reinforcing steel, structural steel, prestressing steel materials, and piling.

The payment quantity for seal course concrete is the actual volume of seal course concrete placed except the payment quantity must not exceed the volume of concrete contained between vertical planes 1 foot outside the neat lines of the seal course shown. The Department does not adjust the unit price for an increase or decrease in the seal course concrete quantity.

Structural concrete for pier columns is measured as follows:

1. Horizontal limits are vertical planes at the neat lines of the pier column shown.
2. Bottom limit is the bottom of the foundation excavation in the completed work.
3. Upper limit is the top of the pier column concrete shown.

The payment quantity for drill and bond dowel is determined from the number and depths of the holes shown.

**Replace "SSPC-QP 3" in the 1st paragraph of section 51-2.02A(2) with:**

AISC-420-10/SSPC-QP 3

10-19-12

**Replace the 2nd and 3rd paragraphs of section 51-2.02B(3)(b) with:**

Concrete saws for cutting grooves in the concrete must have diamond blades with a minimum thickness of 3/16 inch. Cut both sides of the groove simultaneously for a minimum 1st pass depth of 2 inches. The completed groove must have:

1. Top width within 1/8 inch of the width shown or ordered
2. Bottom width not varying from the top width by more than 1/16 inch for each 2 inches of depth
3. Uniform width and depth

Cutting grooves in existing decks includes cutting any conflicting reinforcing steel.

**Replace the 2nd paragraph of section 51-2.02E(1)(e) with:**

Except for components in contact with the tires, the design loading must be the AASHTO LRFD Bridge Design Specifications Design Truck with 100 percent dynamic load allowance. Each component in contact with the tires must support a minimum of 80 percent of the AASHTO LRFD Bridge Design Specifications Design Truck with 100 percent dynamic load allowance. The tire contact area must be 10 inches measured normal to the longitudinal assembly axis by 20 inches wide. The assembly must provide a smooth-riding joint without slapping of components or tire rumble.

**Add between the 1st and 2nd paragraphs of section 51-4.01A:**

Prestressing concrete members must comply with section 50.

10-19-12

**Delete the 2nd paragraph of section 51-4.01A.**

04-20-12

**Replace the 3rd paragraph of section 51-4.01C(2) with:**

04-20-12

For segmental or spliced-girder construction, shop drawings must include the following additional information:

1. Details showing construction joints or closure joints
2. Arrangement of bar reinforcing steel, prestressing tendons, and pressure-grouting pipe
3. Materials and methods for making closures
4. Construction joint keys and surface treatment
5. Other requested information

For segmental girder construction, shop drawings must include concrete form and casting details.

**Delete the 1st and 2nd paragraphs of section 51-4.02A.**

10-19-12

**Replace the 3rd paragraph of section 51-4.02B(2) with:**

04-20-12

For segmental or spliced-girder construction, materials for construction joints or closure joints at exterior girders must match the color and texture of the adjoining concrete.

**Add to section 51-4.02B(2):**

04-20-12

At spliced-girder closure joints:

1. If shear keys are not shown, the vertical surfaces of the girder segment ends must be given a coarse texture as specified for the top surface of PC members.
2. Post-tensioning ducts must extend out of the vertical surface of the girder segment closure end sufficiently to facilitate splicing of the duct.

For spliced girders, pretension strand extending from the closure end of the girder segment to be embedded in the closure joint must be free of mortar, oil, dirt, excessive mill scale and scabby rust, and other coatings that would destroy or reduce the bond.

**Add to section 51-4.03B:**

04-20-12

The specifications for prestressing force distribution and sequencing of stressing in the post-tensioning activity in 50-1.03B(2)(a) do not apply if post-tensioning of spliced girders before starting deck construction is described. The composite deck-girder structure must be post-tensioned in a subsequent stage.

Temporary spliced-girder supports must comply with the specifications for falsework in section 48-2.

Before post-tensioning of spliced girders, remove the forms at CIP concrete closures and intermediate diaphragms to allow inspection for concrete consolidation.

**Add between the 1st and 2nd paragraphs of section 51-7.01A:**

10-19-12

Minor structures include:

1. Pipe culvert headwalls and endwalls for a pipe with a diameter less than 5 feet
2. Drainage inlets
3. Other structures described as minor structures

**Delete the 4th paragraph of section 51-7.01A.**

10-19-12

**Replace the 1st and 2nd paragraphs of section 51-7.01B with:**

10-19-12

Concrete must comply with the specifications for minor concrete.

**Add to section 51:**

10-19-12

**51-8-51-15 RESERVED**

^^

**52 REINFORCEMENT**

01-18-13

**Add to section 52-1.01A:**

07-20-12

Splicing of bar reinforcement must comply with section 52-6.

**Replace the 1st and 2nd paragraphs of section 52-1.02B with:**

10-19-12

Reinforcing bars must be deformed bars complying with ASTM A 706/A 706M, Grade 60, except you may use:

- 1. Deformed bars complying with ASTM A 615/A 615M, Grade 60, in:
  - 1.1. Junction structures
  - 1.2. Sign and signal foundations
  - 1.3. Minor structures
  - 1.4. Concrete crib members
  - 1.5. Mechanically-stabilized-embankment concrete panels
  - 1.6. Masonry block sound walls
- 2. Deformed or plain bars complying with ASTM A 615/A 615M, Grade 40 or 60, in:
  - 2.1. Slope and channel paving
  - 2.2. Concrete barriers Type 50 and 60
- 3. Plain bars for spiral or hoop reinforcement in structures and concrete piles

**Add to the list in the 3rd paragraph of section 52-1.02B:**

04-20-12

- 9. Shear reinforcement stirrups in PC girders

**Replace the 6th paragraph of section 52-6.01D(4)(a) with:**

01-18-13

Before performing service splice or ultimate butt splice testing, perform total slip testing on the service splice or ultimate butt splice test samples under section 52-6.01D(4)(b).



AA

**57 WOOD AND PLASTIC LUMBER STRUCTURES**

10-19-12

**Replace "51-2.01C(3)" in the 1st paragraph of section 57-2.01C(3)(a) with:**

10-19-12

57-2.01C(3)

AA

**58 SOUND WALLS**

10-19-12

**Delete the 3rd paragraph of section 58-1.01.**

10-19-12

**Replace the 1st paragraph of section 58-2.01D(5)(a) with:**

08-05-11

You must employ a special inspector and an authorized laboratory to perform Level 1 inspections and structural tests of masonry to verify the masonry construction complies with section 1704, "Special Inspections," and section 2105, "Quality Assurance," of the 2007 CBC.

**Delete the 1st paragraph of section 58-2.02F.**

10-19-12

AA

**59 PAINTING**

10-19-12

**Replace "SSPC-SP 10" at each occurrence in section 59 with:**

10-19-12

SSPC-SP 10/NACE no. 2

**Replace "SSPC-SP 6" at each occurrence in section 59 with:**

10-19-12

SSPC-SP 6/NACE no. 3

**Replace "SSPC-CS 23.00" at each occurrence in section 59 with:**

10-19-12

SSPC-CS 23.00/AWS C 2.23M/NACE no. 12

**Replace "SSPC-QP 3 or AISC SPE, Certification P-1 Enclosed" in item 3 in the list in the 1st paragraph of section 59-2.01D(1) with:**

10-19-12

AISC-420-10/SSPC-QP 3 (Enclosed Shop)

**Replace the paragraphs in section 59-2.03A with:**

10-19-12

Clean and paint all exposed structural steel and other metal surfaces.

You must provide enclosures for cleaning and painting structural steel. Cleaning and painting of new structural steel must be performed in an Enclosed Shop as defined in AISC-420-10/SSPC-QP 3. Maintain atmospheric conditions inside enclosures within specified limits.

Except for blast cleaning within closed buildings, perform blast cleaning and painting during daylight hours.

**Add to section 59-2.03C:**

10-19-12

**59-2.03C(3) Moisture-Cured Polyurethane Coating**

Reserved

**Replace item 1 in the list in the 2nd paragraph of section 59-2.03C(1) with:**

10-19-12

1. Apply a stripe coat of undercoat paint on all edges, corners, seams, crevices, interior angles, junctions of joining members, weld lines, and similar surface irregularities. The stripe coat must completely hide the surface being covered. If spot blast cleaning portions of the bridge, apply the stripe coat of undercoat paint before each undercoat and follow with the undercoat as soon as practical. If removing all existing paint from the bridge, apply the undercoat first as soon as practical and follow with the stripe coat of undercoat paint for each undercoat.

**Add to section 59-2.03C(2)(a):**

10-19-12

Coatings for new structural steel must comply with the requirements shown in the following table:

**Zinc Coating System for New Structural Steel**

| Description                | Coating   | Dry film thickness (mils)         |
|----------------------------|---|-----------------------------------|
| All surfaces:              |   |                                   |
| Undercoat                  | Inorganic zinc primer,<br>AASHTO M 300 Type I or II | 4–8                               |
| Finish coat <sup>a</sup>   | Exterior grade latex,<br>2 coats                    | 2 minimum each coat,<br>4–8 total |
| Total thickness, all coats |   | 8–14                              |

<sup>a</sup>If no finish coats are described, a final coat of inorganic zinc primer is required

Coatings for existing structural steel must comply with the requirements shown in the following table:







**Replace section 78 with:**

07-20-12

**78 INCIDENTAL CONSTRUCTION**

07-20-12

**78-1 GENERAL**

Section 78 includes specifications for incidental bid items that are not closely associated with other sections.

**78-2-78-50 RESERVED**

AA

**80 FENCES**

10-19-12

**Add to section 80-2.02D:**

10-19-12

Vertical stays must:

- 1. Comply with ASTM A641
- 2. Be 12-1/2 gage
- 3. Have a Class 3 zinc coating

**Replace item 1 in the list in section 80-2.02E with:**

10-19-12

Comply with ASTM A 116, Type Z, Grade 60, Class 1

**Add after "galvanized wire" in the 1st paragraph of section 80-2.02F:**

10-19-12

complying with ASTM A 641

**Replace the 3rd and 4th paragraphs of section 80-2.02F with:**

10-19-12

Each staple used to fasten barbed wire and wire mesh fabric to wood posts must:

- 1. Comply with ASTM F 1667
- 2. Be at least 1-3/4 inches long
- 3. Be manufactured from 9-gage galvanized wire

Wire ties used to fasten barbed wire and wire mesh to metal posts must be at least 11-gage galvanized wire complying with ASTM F 626. Clips and hog rings used for metal posts must be at least 9-gage galvanized wire complying with ASTM F 626.

**Replace the 8th through 14th paragraphs of section 80-2.03 with:**

10-19-12

Attach the wire mesh and barbed wire to each post.

Securely fasten tension wires to wood posts. Make a single or double loop around each post at each attachment point and staple the wire to the post. Use wire ties, hog rings, or wire clips to fasten the wires to the metal posts.





You may use a larger standard size pull box than that shown on the plans or specified.

A pull box in ground or sidewalk area must be installed as follows:

1. Embed bottom of the pull box in crushed rock.
2. Place a layer of roofing paper on the crushed rock.
3. Place grout over the layer of roofing paper. Grout must be 0.50 to 1 inch thick and sloped toward the drain hole.
4. Make a 1-inch drain hole in the center of the pull box through the grout and roofing paper.
5. Place grout between the pull box and the pull box extension, and around conduits.

The top of the pull box must be flush with the surrounding grade or the top of an adjacent curb, except in unpaved areas where the pull box is not immediately adjacent to and protected by a concrete foundation, pole, or other protective construction. Place the pull box 1-1/4 inches above the surrounding grade. Where practical, place a pull box shown in the vicinity of curbs or adjacent to a standard on the side of the foundation facing away from traffic. If a pull box is installed in a sidewalk area, adjust the depth of the pull box so that the top of the pull box is flush with the sidewalk.

Reconstruct the sump of an existing pull box if disturbed by your activities. Remove old grout and replace with new if the sump was grouted.

**86-2.06B Non-Traffic-Rated Pull Boxes**

Reserved

**86-2.06C Traffic Pull Boxes**

Traffic pull box and cover must comply with ASTM C857, "Standard Practice for Minimum Structural Design Loading for Underground Precast Concrete Utility Structures," for HS20-44 loading. You must be able to place the load anywhere on the box and cover for 1 minute without causing cracks or permanent deformations.

Frame must be anchored to the box with 1/4 by 2-1/4 inch concrete anchors. Four concrete anchors must be included for No. 3-1/2(T) pull box; one placed in each corner. Six concrete anchors must be included for No. 5(T) and No. 6(T) pull boxes; one placed in each corner and one near the middle of each of the longer sides.

Nuts must be zinc-plated carbon steel, vibration resistant, and have a wedge ramp at the root of the thread.

After installation of traffic pull box, install the steel cover and keep it bolted down when your activities are not in progress at the pull box. When the steel cover is placed for the final time, the cover and Z bar frame must be cleaned of debris and tightened securely.

Steel cover must be countersunk approximately 1/4 inch to accommodate the bolt head. When tightened, the bolt head must not exceed more than 1/8 inch above the top of the cover.

Concrete placed around and under traffic pull boxes must be minor concrete.

**Replace "project" in the 3rd paragraph of section 86-2.11A with:**

10-19-12

work

**Replace "Contract" in item 2 in the list in the 11th paragraph of section 86-2.11A with:**

10-19-12

work

AA

## 88 GEOSYNTHETICS

01-18-13

**Replace the row for hydraulic bursting strength in the table in the 2nd paragraph of section 88-1.02B with:**

10-19-12

|                                       |             |     |
|---------------------------------------|-------------|-----|
| Puncture strength, lb<br>min          | ASTM D 6241 | 310 |
| Trapezoid tearing strength, lb<br>min | ASTM D 4533 | 56  |

**Replace the 3rd paragraph in section 88-1.02C with:**

10-19-12

Geocomposite wall drain must be from 0.25 to 2 inches thick.

**Replace the value for permittivity of woven fabric in the table in the 1st paragraph of section 88-1.02E with:**

01-20-12

0.05

**Replace the value for apparent size opening of nonwoven fabric in the table in the 1st paragraph of section 88-1.02E with:**

01-20-12

0.012

**Replace the table in the 1st paragraph of section 88-1.02G with:**

01-20-12

**Sediment Filter Bag**

| Property   | Test        | Values  |          |
|--|-------------|---------|----------|
|  |             | Woven   | Nonwoven |
| Grab breaking load, lb, 1-inch grip<br>min, in each direction            | ASTM D 4632 | 200     | 250      |
| Apparent elongation, percent<br>min, in each direction                   | ASTM D 4632 | 10      | 50       |
| Water flow rate, gal per minute/sq ft<br>min and max average roll value  | ASTM D 4491 | 100-200 | 75-200   |
| Permittivity, sec <sup>-1</sup><br>min                                   | ASTM D 4491 | 1.0     | 1.0      |
| Apparent opening size, inches<br>max average roll value                  | ASTM D 4751 | 0.023   | 0.012    |
| Ultraviolet resistance, %<br>min retained grab breaking load,<br>500 hr. | ASTM D 4355 | 70      | 70       |

Replace the table in the 1st paragraph of section 88-1.02H with:

01-20-12

**Temporary Cover**

| Property   | Test        | Values |          |
|--|-------------|--------|----------|
|  |             | Woven  | Nonwoven |
| Grab breaking load, lb, 1-inch grip min, in each direction           | ASTM D 4632 | 200    | 200      |
| Apparent elongation, percent min, in each direction                  | ASTM D 4632 | 15     | 50       |
| Water flow rate, gal per minute/sq ft min and max average roll value | ASTM D 4491 | 4-10   | 80-120   |
| Permittivity, sec <sup>-1</sup> min                                  | ASTM D 4491 | 0.05   | 1.0      |
| Apparent opening size, inches max average roll value                 | ASTM D 4751 | 0.023  | 0.012    |
| Ultraviolet resistance, % min retained grab breaking load, 500 hr.   | ASTM D 4355 | 70     | 70       |

Replace section 88-1.02P with:

01-18-13

**88-1.02P Biaxial Geogrid**

Geosynthetics used for biaxial geogrid must be a punched and drawn polypropylene material formed into an integrally formed biaxial grid. When tested under the referenced test methods, properties of biaxial geogrid must have the values shown in the following table:

**Biaxial Geogrid**

| Property   | Test        | Value             |
|--|-------------|-------------------|
| Aperture size, inch <sup>a</sup> min and max                             | Calipered   | 0.8-1.3 x 1.0-1.6 |
| Rib thickness, inch min  | Calipered   | 0.04              |
| Junction thickness, inch min   | Calipered   | 0.150             |
| Tensile strength, 2% strain, lb/ft <sup>a</sup> min                      | ASTM D 6637 | 410 x 620         |
| Tensile strength at ultimate, lb/ft <sup>a</sup> min                     | ASTM D 6637 | 1,310 x 1,970     |
| Ultraviolet resistance, percent min retained tensile strength, 500 hours | ASTM D 4355 | 100               |
| Junction strength, lb/ft <sup>a</sup> min                                | ASTM D 7737 | 1,220 x 1,830     |
| Overall flexural rigidity, mg-cm min                                     | ASTM D 7748 | 750,000           |
| Torsional rigidity at 20 cm-kg, mm-kg/deg <sup>b</sup> min               | GRI:GG9     | 0.65              |

<sup>a</sup>Machine direction x cross direction

<sup>b</sup>Geosynthetic Research Institute, Test Method GG9, *Torsional Behavior of Bidirectional Geogrids When Subjected to In-Plane Rotation*

AA

**DIVISION X MATERIALS**  
**90 CONCRETE**

08-05-11

**Replace the 3rd paragraph of section 90-1.01C(7) with:**

08-05-11

Submit weighmaster certificates in printed form or, if authorized, in electronic media. Present electronic media in a tab-delimited format on a CD or DVD. Captured data for the ingredients represented by each batch must be line feed carriage return and one line separate record with sufficient fields for the specified data.

**Replace the 3rd paragraph of section 90-3.01C(5) with:**

08-05-11

Production data must be input by hand into a pre-printed form or captured and printed by the proportioning device. Present electronic media containing recorded production data in a tab-delimited format on a CD or DVD. Each capture of production data must be followed by a line feed carriage return with sufficient fields for the specified data.

AA

**91 PAINT**

10-19-12

**Add to section 91-2:**

10-19-12

**91-2.03 MOISTURE-CURED POLYURETHANE COATING**

Reserved

**Replace "saint" in the 1st paragraph of section 91-4.05 with:**

10-19-12

paint

AA

**92 ASPHALTS**

01-20-12

**Replace the row for dynamic shear for original binder in the table in the 1st paragraph of section 92-1.02B with:**

01-20-12

|   |       |      |      |      |      |      |
|---|-------|------|------|------|------|------|
| Dynamic shear,<br>Test temperature at 10<br>rad/s, °C | T 315 | 58   | 64   | 64   | 64   | 70   |
| min G*/sin(delta), kPa                                |       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| max G*/sin(delta), kPa                                |       | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |