




MANUAL CHANGE TRANSMITTAL		NO. 05-2
TITLE: Department of Transportation <i>Construction Manual</i>	APPROVED BY:  Robert Pieplow Chief, Division of Construction	DATE ISSUED: December 30, 2005
SUBJECT AREA Index and other areas of the <i>Construction Manual</i>	ISSUING UNIT Division of Construction	
SUPERSEDES CPB 05-5, CPB 05-4 and CPD 04-8	DISTRIBUTION All Requested Manual Holders	

The purpose of this manual change transmittal is to provide updates and corrections to the 2001 edition of the Caltrans *Construction Manual*. Please update your manual in accordance with the table below. The relevant pages are indicated in the table.

Section(s)	Remove Old Page(s)	Insert New/Revised Page(s)
Update: Chapter 1, Section 402E, "Field Office Utilities," is revised to include Form FA-2134, "Utility Service Request." Two web sites cited have also been corrected.	1-4.1 thru 1-4.3	1-4.1 thru 1-4.3
Update: Golden Rod, Chapter 3, Section 6, "Control of Materials," add new Section 610.	3-6i	3-6i
New: Chapter 3, Section 610, "Suspected Fraudulent Test and Inspection Reports," is added to include suspected material test fraud.	3-6.7 thru 3-6.8	3-6.7 thru 3-6.8
Update: Chapter 3, Section 701A, "Reporting Apparent Attempts at Fraud on Construction Contracts," is revised for suspected fraudulent test and inspection reports.	3-7.1 thru 3-7.2	3-7.1 thru 3-7.2

Update: Chapter 3, Section 801D, “Procedure for Approval or Acknowledgment of Subcontractors,” is revised to include list verification for Debarred Contractors.	3-8.7 thru 3-8.10	3-8.7 thru 3-8.10
Update: Chapter 3, Section 903E (2b), “District Weights and Measure Coordinator,” is revised for the title change of the QA Program Manual.	3-9.3 thru 3-9.4	3-9.3 thru 3-9.4
Update: Golden Rod, Chapter 4, Section 20, “Erosion Control and Highway Planting,” add new sections for seed sampling and testing.	4-20.i thru 4-20.ii	4-20.i thru 4-20.ii
Update: Chapter 4, Section 2001, “General,” office name and is corrected for Landscape Architecture.	4-20.1	4-20.1
Update: Chapter 4, Section 2002A (3), “Straw,” Section 2002A (5), “Seed,” Section 2002B, “Before Work Begins,” Section 2002C, “During the Course of Work,” and 4-2002D, “Seed Sampling,” are revised for seed germination, sampling and testing.	4-20.2 thru 4-20.20	4-20.2 thru 4-20.23
Update: Chapter 5, Section 001, “Resident Engineer’s Pending File,” is revised to include Form FA-2134, “Utility Service Request,” and instructions. Section 002, “Preconstruction Conference With Caltrans Personnel,” and Section 003, “Preconstruction Conferences with the Contractor,” are revised to add Storm water coordinator and Environmental- Construction liaison.	5-0.1 thru 5-0.7	5-0.1 thru 5-0.7
Update: Chapter 5, Section 006, and Section 007 web sites.	5-0.8 thru 5-0.11	5-0.8 thru 5-0.11
Update: Golden Rod, Chapter 5, Section 1, “Project Records and Reports,” for CEM-1202 & 1203.	5-1.i thru 5-1.ii	5-1.i thru 5-1.ii

Update: Chapter 5, Section 101B, “Construction Forms,” is revised to add Forms CEM-1202 and CEM-1203 descriptions. Additional information has been included for Form CEM-1201. Forms CEM-2401 and CEM-2402(F) have been revised to delete the stock number. Form LA-16, “Product, Material, or Method Report (For Highway Planting or Erosion Control),” name is corrected for Landscape Architecture.	5-1.1 thru 5-1.11	5-1.1 thru 5-1.11
Update: Chapter 5, Section 103B, “Project Initiation and Update,” and Section 103B (1d), “Card type C09 to C14,” are revised to include the requirements of Forms CEM-1202 and 1203.	5-1.37 thru 5-1.46	5-1.37 thru 5-1.46
Update: Chapter 6, Section 6-102C (2), “Certification of Samplers and Testers,” and Section 6-102D, “Independent Assurance Sampling and Testing,” are revised to change the name of the <i>Quality Assurance Program Manual</i> to the <i>Independent Assurance Manual</i> .	6-1.3 thru 6-1.4	6-1.3 thru 6-1.4
Update: Golden Rod, Appendix 1, “Sample Forms.”	A-1.i thru A-1.iii	A-1.i thru A-1.iii
Update: Appendix to include Forms CEM-1202, CEM-1203 and instructions.	A-1.9 thru A-1.10	A-1.9 thru A-1.10b

Section 4 Facilities and Equipment

1-401 General

This section provides guidelines for the acquisition and the care of facilities and equipment used in Caltrans construction field operations.

1-402 Resident Engineer Offices

District construction must provide offices for resident engineers. Charge the rent and other items and services included in the cost of resident engineers' offices to the phase 4 expenditure authorization as state-furnished material. When an office is used for more than one project, appropriately prorate the charges.

For a description of items and services included in the cost of the resident engineer's office, refer to the *Coding Manual*, Volume I, "Object Code 184." State-furnished material funds may also be used for utilities (Object Code 002) and monthly communications (phones and cell phones, Object Code 025).

Carefully select the field office location. Consider security, and avoid areas, such as residential neighborhoods, where the field office would create a nuisance.

Use service contracts to move furniture and equipment between offices.

1-402A Commercial Office Space

Generally, secure commercial office space only for large or multistage projects. The process to secure approval of a lease for commercial office space takes 90 to 180 days.

Refer any questions concerning commercial property leases to the appropriate district right of way unit.

1-402B Caltrans Facilities

Space in Caltrans facilities, such as district offices or maintenance station buildings, may be available for resident engineer offices.

1-402C Trailers

Where land is available, you may lease commercial office trailers or use Caltrans-owned trailers, if available, for resident engineer offices. Check with the district equipment manager to see if any Caltrans-owned office trailers are available.

Lease commercial office trailers in the same way you would lease commercial office space. Do not rent furnished commercial office trailers. For leasing information, contact the district right of way unit.

You may arrange to place office trailers in maintenance yards or on state highway right-of-way.

Section 4 Facilities and Equipment

1-401 General

1-402 Resident Engineer Offices

1-402D Maintaining Resident Engineers' Offices

The resident engineer must maintain both the interior and exterior of the project office. When more than one resident engineer occupies an office, they must jointly decide on the maintenance responsibilities.

Each member of the resident engineer's staff must routinely maintain neatness in the field facility. This responsibility includes picking up papers, keeping desktops neat, filing papers, and hanging maps.

For janitorial work, you may use service contracts. Lease agreements for commercial office space may already include a janitorial service. The use of janitorial services does not preclude Caltrans personnel from light housekeeping between service periods.

Each resident engineer's field office must display a sign that identifies the office as a Caltrans facility.

1-402E Field Office Utilities

Use a service contract for field office utility work. Notify the Division of Accounting when starting, transferring or terminating utility services. Form FA-2134, "Utility Service Request," should be filled out and forwarded to the Division of Accounting and a copy kept in the project files. The Division of Accounting has a web site with an electronic form and instructions at:

<http://onramp.dot.ca.gov/hq/accounting/utility>.

For more information, contact the district construction office. If the location is so isolated that electricity is not available, the Division of Equipment can supply skid-mounted generators to supply electrical power for office trailers.

1-403 1-403 Care of Equipment

Care of Equipment

Resident engineers and staff are responsible for the proper care and operation of assigned equipment. District construction must have an inventory process to address equipment assignments and to track moves between offices. Complete an inventory no less than once a year, and reconcile all discrepancies.

Resident engineers must maintain current information on equipment assigned to them and must properly document the disposal or movement of equipment. Report new equipment purchases to the district property controller. Also contact the district property controller for questions about what to include as inventory equipment.

When a member of the resident engineer's staff is not present, always keep the field office locked. Commercial security systems may be warranted for a field office. You can use funds for state-furnished materials to obtain a security system, or a security system may be included in the rental cost for commercial office space. For details, contact the district office.

Annually service fire extinguishers in Caltrans facilities. For guidelines on fire extinguishers, see Section 8.06, "Emergency Action Plan Requirements," of the *Caltrans Safety Manual*.

1-404 1-404 Nuclear Gauges

Nuclear Gauges

Only properly trained and qualified personnel must operate nuclear gauges. Resident engineers and supervisors of nuclear gauge operators must be aware of the requirements for handling nuclear gauges, including transporting and storage. Refer to California Test 121, "Use of Nuclear Gages," for nuclear gauge requirements.



1-405 Automotive Equipment

District construction assigns vehicles to field personnel. The resident engineer or the construction engineer will determine the use of vehicles at the project level with due consideration for the needs of the Office of Structure Construction's personnel. To accomplish the work, vehicles may be exchanged at the project level as necessary.

1-405A Operation of State Vehicles

For policies, guidelines, and rules for driver training and the safe operation of motor vehicles, refer to Chapter 17, "Motor Vehicle Safety," of the *Caltrans Safety Manual*.

Section 9-09, "Requirements for First Aid Medical Supplies" of the *Caltrans Safety Manual* requires a 10-unit first aid kit to be at each construction crew field site. To satisfy this requirement, each vehicle must carry a first aid kit.

For reporting accidents, see the procedures in Chapter 18, "Motor Vehicle Accidents," of the *Caltrans Safety Manual*. Chapter 18 requires that each vehicle carry Form STD. 269, "Accident Identification Card."

You may obtain supplies and repairs for vehicles from the Division of Equipment facilities. In case of breakdown, contact the nearest Division of Equipment facility. Also, each vehicle contains a directory that lists the shops and personnel to contact in case of a vehicle breakdown or emergency on the road. Roadside assistance is also available 24 hours a day with the use of the official state credit card for fuel. Each vehicle must be equipped with the credit card and instructions for obtaining emergency service.

1-405B Home Storage Permits

The California Code of Regulations requires the use of vehicle home storage permits. The director of the Division of Equipment develops, publishes, maintains, and oversees the administration of guidelines for home storage permits. For these guidelines, see the Division of Equipment web page at the following address:

| <http://onramp.dot.ca.gov/hq/equipment/InfoRes.htm>

The guidelines contain specific requirements for field employees in construction, surveys, material testing, and structure construction.

1-406 Reporting Losses

If theft, burglary, pilferage, or damage by vandalism occurs, immediately notify the individual in the district who is responsible for coordinating the reporting of such incidents. Unless advised not to do so by this district coordinator, notify the local police authorities, giving full details as you know them and complete descriptions of the damaged or missing articles. The district coordinator will advise the resident engineer of any further action.

Also notify the district property controller of any lost, stolen, destroyed, or damaged inventory property. For this purpose, use Form ADM-0396, "Report of Lost, Stolen, or Destroyed/Damaged State-Owned Property."

1-405 Automotive Equipment

1-406 Reporting Losses

Section 6 Control of Materials

3-601 General

3-602 State Furnished Materials

3-603 Defective Materials

3-604 Trade Names and Alternatives

3-605 Certificates of Compliance

3-605A Buy America Requirements

3-605A (1) Resident Engineer Approval of Minimum Use Requirements

3-605A (2) Federal Highway Administration Approval of Waivers

3-606 Out-of-State Fabrication

3-607 Local Materials

3-607A Compliance with Materials or Disposal Agreements

3-607B Public Interest Determination

3-607C Disposal of Material

3-608 Testing

3-609 Testing by Contractor

3-610 Suspected Fraudulent Test and Inspection Reports

In accordance with the State Contract Act, aggregate sources must comply with the Surface Mining and Reclamation Act of 1975 (SMARA). Refer to Chapter 7, “Environmental,” of this manual for further information on SMARA requirements.

If the contract change order directs the contractor to obtain material from Caltrans’ chosen source, the Federal Highway Administration (FHWA) considers the source mandatory. The FHWA then requires written approval of a public interest determination before approval of the contract change order.

At a minimum, the public interest determination, written by the resident engineer, must include the following:

- The reason the chosen source is the most economical. If the determination is not based on economy, other reasons such as public safety or convenience must be included.
- The alternatives considered.
- The effect on the value of the material site.

All such sites are subject to compliance with SMARA. Mining operations determined to be in compliance are listed on the AB 3098 SMARA Eligible List. This list can be obtained from the Division of Construction or at the Department of Conservation’s web site at <http://www.consrv.ca.gov/omr/SMARA/3098-list>. Also, see Section 7-103D to determine if the proposed materials site is exempt from SMARA.

The FHWA must then approve the resident engineer’s determination. One method of submitting a public interest determination for approval is to include the required statements on Form CEM-4903, “CCO Memorandum.” The Division of Construction will pursue approval of the public interest determination before approval of the contract change order. To expedite approval of the contract change order, the resident engineer should, whenever possible, send the public interest determination to the Division of Construction before submission of the contract change order.

The above requirements do not apply to “local borrow,” as defined in Section 19-7, “Borrow Excavation,” of the *Standard Specifications*.

3-607C Disposal of Material

Section 7-1.13, “Disposal of Material Outside the Highway Right of Way,” of the *Standard Specifications*, and Section 7-103D, “Environmental Rules and Requirements,” of this manual, cover the requirements for the contractor’s disposal of materials (unless modified by special provisions). When required to execute documents related to disposal sites, the contractor should use agreements similar to those shown earlier in this section for material sites, with the wording modified to indicate disposal sites instead.

3-608 Testing

The *Standard Specifications* contain references to the standards and tests of the American Association of State Highway and Transportation Officials (AASHTO) and the American Society for Testing and Materials (ASTM). These standards and tests may, or may not, be readily available to the resident engineer. Note any references to these tests well in advance of need, and obtain any necessary copies of them from the district materials engineer. It is not practical to supply each resident engineer with complete AASHTO and ASTM standard test procedures.

Whenever samples are taken from materials sites, the resident engineer must ensure the samples are representative of material being used. Degradation and segregation may occur in aggregates between the processing operation and their incorporation

3-608 Testing

in the work. The resident engineer cannot assume that material satisfactorily tested at the source or at the processing plant is still satisfactory at the job site. To ensure specification compliance, test at the frequencies shown in the specifications as the material is being incorporated into the work.

3-608A Operating Range and Contract Compliance

Section 25, “Aggregate Subbases,” Section 26, “Aggregate Bases,” Section 27, “Cement-treated Bases,” Section 28, “Lean Concrete Base,” Section 39, “Asphalt Concrete,” and Section 90, “Portland Cement Concrete,” of the *Standard Specifications*, all contain provisions for an acceptable range of test results and unacceptable results for aggregate gradation tests. If a test result fails to meet the requirements of the operating range but meets contract compliance, the contractor usually needs to make some change in operations to ensure subsequent test results meet the “Operating Range” requirements. The resident engineer should document the contractor’s actions and any off-site testing done before the next day’s work.

If a test result fails to meet the specified value for contract compliance, the result should be treated just like any other failing test result. However, if the contractor writes a request, the resident engineer may consider leaving the material in place and applying the specified deduction, if the specifications allow. The contractor’s written request, along with documentation for reasons for leaving the material in place and the contractor’s actions, is sufficient for the contract records. A contract change order accepting out-of-specification material is not required in this case because the specifications provide the procedure for acceptance.

The resident engineer must inform the contractor promptly of test results that indicate unacceptable or borderline work. The contractor must be advised that all test results are available for the contractor’s inspection. Accordingly, test results must remain in the project files for ready accessibility.

3-609 Testing by Contractor

Testing by Contractor

The contractor must be satisfied at all times that the quality of materials entering the work and the work performed, regardless of who supplies the materials or performs the work, will meet the contract requirements. For acceptance of materials or work, resident engineers must not use as documentation any tests the contractor performs to control the work. Perform and record acceptance tests as required by Section 6-1, “Sample Types and Frequencies,” of this manual.

3-610 Suspected Fraudulent Test and Inspection Reports

Suspected Fraudulent Test and Inspection Reports

When fraudulent tests or inspection reports are suspected, discuss the situation with the Division of Construction field coordinator. Contact the Office of Materials Engineering and Testing Services for assistance in evaluating the reports. Retest the material represented by suspect tests, as appropriate. If after investigating, fraud is still suspected, the deputy district director provides the facts in writing to the Division of Construction field coordinator.

Section 7 Legal Relations and Responsibility

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3-701 Laws to Be Observed

3-701 Laws to Be Observed

According to the specifications, the contractor must be familiar with and comply with all laws, regulations, and ordinances that affect the labor, materials, or conduct of the work. However, the specifications do not intend or require that the resident engineer exercise police enforcement power. If the engineer learns that the contractor has violated a work-related law or regulation, the engineer must bring the matter to the contractor's attention in writing.

3-701A Reporting Apparent Attempts at Fraud on Construction Contracts

Resident engineers are confronted occasionally with situations where contractors or their subcontractors or suppliers attempt to obtain improper additional payment.

These matters may differ in magnitude and intent, and minor situations may be resolved satisfactorily at the project level. However, certain fraudulent acts, such as presenting false weight certificates, padding the number of loads of a commodity delivered, tampering with scales or falsifying test or inspection reports may require special investigation and appropriate action. Such investigations are confidential and begin with a discussion between the resident engineer and the construction engineer. To request a special investigation, write a letter to the construction field coordinator.

3-701B Labor Code Requirements and Fair Labor Standards Act

For the resident engineer's duties with regard to Labor Code requirements and the Fair Labor Standards Act, see Chapter 8, "Employment Practices," of the *Construction Manual* (manual).

3-701C Contractor's Licensing Laws

According to the specifications, all contractors and bidders must be licensed. For bidders and prime contractors, the Office of Contract Awards and Services in the Office of Office Engineer verifies compliance with the specifications. If you become aware that a prime contractor or subcontractor is not licensed for the work being performed, notify the California Contractors State License Board.

3-701D Vehicle Code

In any areas open to public traffic within the project's limits, the contractor is not exempt from Vehicle Code requirements. Equipment that fails to comply with the Vehicle Code must not be operated on detours or any other roadway open to public traffic.

3-701D (1) Weight Limitations

Except for special conditions described in Section 7-1.02, "Load Limitations," of the *Standard Specifications*, all equipment hauling materials over roads or streets open to public traffic to, from, or within the project must comply with weight limitations required by the Vehicle Code. To enforce weight limitations for overloads

hailed over public roads and streets, follow the procedure outlined below. The permitted tolerance described below is selected to make Caltrans actions compatible with routine enforcement procedures used by the California Highway Patrol (CHP). Here is the procedure to follow:

- The assistant resident engineer receiving a weight slip indicating an overload may accept a load that is not more than 90 kg over the legal gross weight. However, advise the contractor immediately that if the violation continues, Caltrans will refuse to accept such loads and will notify the CHP.
- When a weight slip indicates that a load is more than 90 kg over the legal gross weight, reject the load and notify the CHP that overloads are being hauled.
- Prohibit rejected material from being used in the work unless the load is reduced to or below the legal maximum weight (not including the tolerance) and is again weighed to establish a new weight.
- Record the identification of rejected weight slips in the daily report.

The objective of the above procedure is to discourage hauling overloads. Minor variations in the above procedure are acceptable provided the objective is met.

3-701E Trench Safety

The Office of Structure Construction's *Trenching and Shoring Manual* provides technical guidance for analyzing designs of trenching and shoring systems. It also contains information regarding California's legal requirements for trench safety.

3-701F Falsework Erection or Removal

Detailed instructions for reviewing falsework for bridges or other major structures are contained in the Office of Structure Construction's *Falsework Manual*. When the erection or dismantling of falsework is over or adjacent to a traveled way, project personnel must do the following:

- Before the erection or removal of falsework, determine the exact method of operation the contractor proposes to use.
- If any possibility exists that a material or equipment failure or human error could endanger the public, ensure traffic is rerouted or temporarily stopped during critical portions of the erection and removal operations.
- Normally, the contract will provide necessary detours or other restrictions such as the time of day when certain operations may be performed. In the absence of specific contract requirements, require the contractor to take the necessary measures in accordance with Section 7-1.09, "Public Safety," of the *Standard Specifications*.
- Ensure unplanned detours are paid for in accordance with Section 4-1.04, "Detours," of the *Standard Specifications*.
- Notify the Transportation Permits Branch of the upcoming reduction of vertical clearance. See "Impaired Clearance (temporary)" later in this section.

3-701G Air Pollution Control

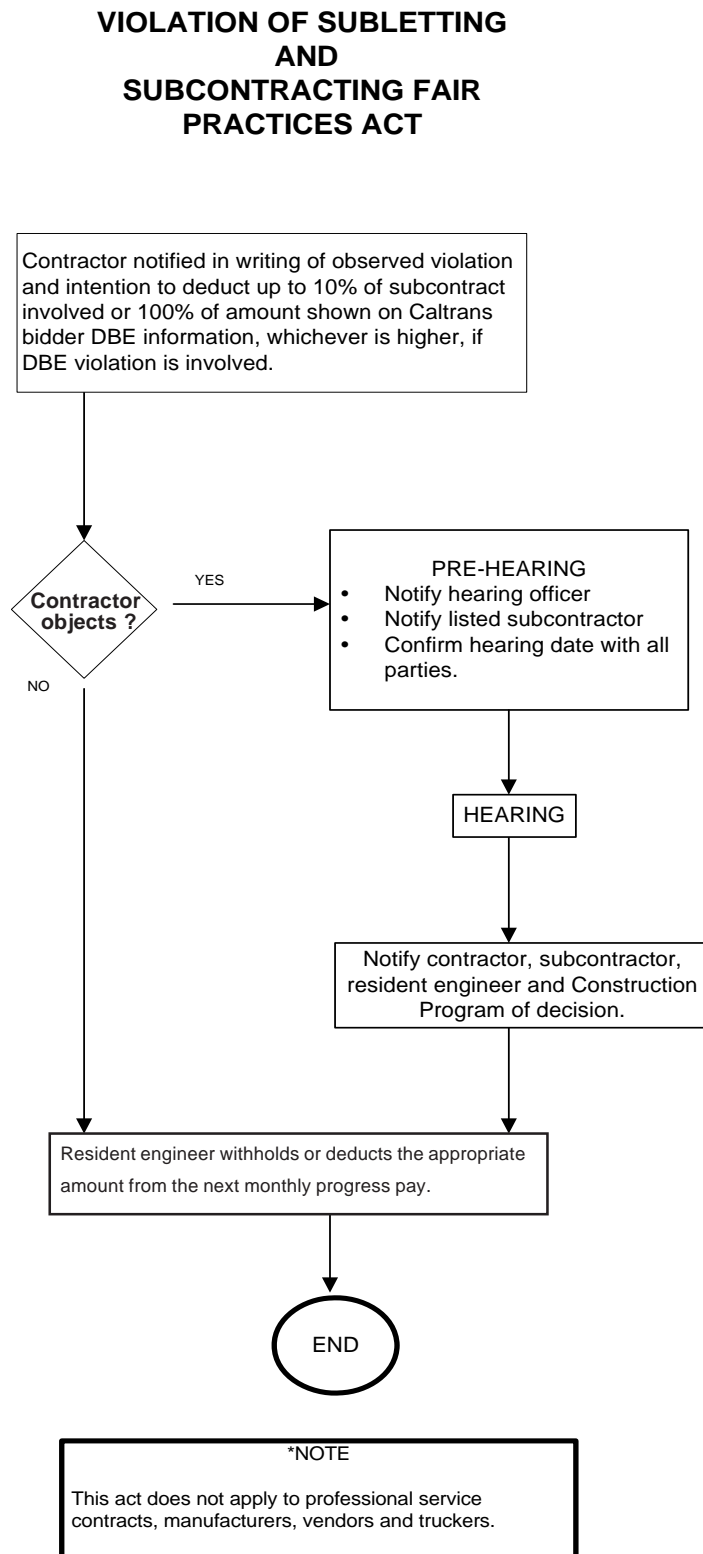
See Chapter 7, "Environmental," of this manual.

3-701H Water Pollution

See Chapter 7, "Environmental," of this manual.

The following flowchart shows the steps to take when the contractor is found to be in violation of the Subletting and Subcontracting Fair Practices Act.

Table 3-8.2 Violation of Subletting and Subcontracting Fair Practices Act Flowchart



3-801D Procedure for Approval or Acknowledgment of Subcontractors

The resident engineer has the responsibility for approving subcontractors on federally funded projects or acknowledging subcontractors on state-financed projects.

In general, approving or acknowledging subcontractors is necessary only for first-tier subcontractors.

To request subcontracting, the contractor must submit Form CEM-1201, “Subcontracting Request,” to the resident engineer. When the contract was awarded, the contractor received a blank Form CEM-1201, along with other documents. The resident engineer should provide to the contractor additional blank forms when necessary. The back of the form contains instructions for completing the form.

Upon receipt of Form CEM-1201, the resident engineer will complete the lower portion of the form. Before approving the contractor’s request, the resident engineer must do the following:

- Check the contractor’s portion of the form.
- Verify that subcontractors are not on the Debarred Contractors list on the Division of Construction’s web site.
- Complete lines 1 through 9. Lines 2 and 6 will contain running balances, so process requests in order of request number. Complete the remainder of the form as outlined on the form.
- Verify subcontractors comply with DBE goals submitted by the contractor before the contract award. Ensure no conflict exists between the DBE requirements and the listing requirements of the Subletting and Subcontracting Fair Practices Act.
- If the contractor’s request meets all the requirements, sign and date the form and distribute it as indicated on the form.

The special provisions for most contracts considered non-highway related (building contracts) waive the requirements of Section 8-1.01, “Subcontracting,” of the *Standard Specifications*. The effect of this waiver is that a subcontractor who is listed in the bid proposal may perform the work without advance notification to the resident engineer, and the requirements about the prime contractor performing 50 percent of the work are not applicable. However, those contracts that contain federal funding still require that subcontractors receive prior approval and that prime contractors perform a specified percentage of the work. Such federally funded contracts must be processed as discussed above.

3-802 Beginning of Work

Beginning of Work

This section covers the subject of when the contractor begins work. This subject is not to be confused with the beginning of contract time and the preparation of Form CEM-2701, “Weekly Statement of Working Days,” which is covered below in Section 3-805, “Time of Completion.”

The contract normally requires the contractor to begin work on a project within 15 calendar days after receiving notice that the contract has been approved. The special provisions may modify the 15-day requirement.

The resident engineer must determine when to record the beginning of work, based on judgment and experience. For example, setting up signs could be the only work under way. If conversations with the contractor indicate movement toward pursuing the work, the setting up of signs is sufficient to indicate the beginning of work.



Record the date the contractor begins work on Form CEM-2701 in the resident engineer's daily report, and on the original or supplemental Form CEM-6003, "Progress Pay Estimate, Project Initiation or Update." For more information, see Section 5-103B (1), "Completing Form CEM-6003, Project Pay-Estimate Project Initiation or Update," of this manual.

Adequately record the district's actions toward encouraging the contractor to begin work. Notes of discussions from the preconstruction conference or other conversations with the contractor provide the necessary records. If a contractor fails to begin work by the specified time, remind the contractor of this failure under "Remarks" on Form CEM-2701. Send a separate letter with an additional reminder.

When the district decides that failure to begin work will result in unsatisfactory progress, discuss the situation with the construction field coordinator.

3-802A Work Before Contract Approval

After the contractor has executed and returned the contract to Caltrans, the contractor, after submitting the specified notice, may enter the site and begin operations.

When a contractor wants to start work before contract approval, call the Office of Office Engineer, contract documents unit, to determine whether Caltrans has received the executed contract documents. If the office has received the documents, proceed as set forth in Section 8-1.03, "Beginning of Work," of the *Standard Specifications*.

If a contractor wants to begin work before contract documents have been delivered to Caltrans, the contractor must obtain an encroachment permit from the district. The permit must incorporate the same terms stated in Section 8-1.03 that apply after the contractor has returned the executed contract documents to Caltrans but before the time of the contract's approval. In addition the permit must include the following:

- A statement that the contractor is responsible and liable for any personal injury or property damage resulting from the work.
- The requirements for cooperation contained in the special provisions and in Section 7-1.14, "Cooperation," of the *Standard Specifications*. The terms of the permit should include notice that the contractor may be working on the site concurrently with others performing utility relocation, right-of-way clearance work, or other construction operations and that the work of the others will take precedence over the contractor's operations.
- When obvious conflicts are apparent, a permit should not be issued.
- The limits of the area in which work will be performed.
- The operation or operations to be performed.
- A statement that the contractor will comply with the requirements of the contract plans, *Standard Specifications*, and the project's special provisions and that the contractor will comply with any order of work specified in these documents.
- A statement that the contractor's operations will not deprive property owners of access.
- A requirement to provide an adequate bond (or cash deposit) to cover the work contemplated before starting any work. The amount should be the same as for other types of work, as covered in the *Manual for Encroachment Permits on California State Highways*.
- A reference to the contract's water pollution control requirements.

When extra work must be a first order of work, it should be performed under a “prior authorization,” as covered in Section 5-3, “Contract Change Orders,” of this manual. After the executed contract documents have been delivered as specified, contract change orders may be approved in the normal manner.

The district must not process requests for relief from maintenance or for contract acceptance until after the contract’s approval.

3-803 Progress Schedule

When the special provisions require a progress schedule, the resident engineer must make every effort to obtain a reasonable schedule at the beginning of the contract. Any communication regarding the progress schedule must be recorded in the daily report. Notify the contractor in advance if a progress payment will be withheld for failure to submit a satisfactory schedule.

Any schedule that does the following will meet the specification requirements:

- Separates the major items into activities that are likely to become the controlling operation or operations.
- Can be used by the contractor and resident engineer to monitor and evaluate progress, determine controlling items of work, and analyze time impacts from contract changes or work delays.
- Is consistent with contract time requirements.
- Displays milestones such as placing traffic on detours or new pavement and beginning new phases of the work in staged construction.

The resident engineer must require an updated or revised progress schedule regularly or when significant changes occur in the project.

The special provisions may require a progress schedule using the critical path method (CPM). The special provisions will contain all the requirements for such a schedule. For CPM information and guidelines, refer to the Construction Scheduling Manual published by the Division of Construction.

3-804 Temporary Suspension of Work

3-804 Temporary Suspension of Work

Temporary suspension of work, as covered under Section 8-1.05, “Temporary Suspension of Work,” of the *Standard Specifications*, falls into two general categories:

1. This category relates to the contractor’s failure to carry out orders or to perform any provision of the contract. Any letter ordering such a suspension must include references to applicable sections of the specifications and, if possible, state the conditions under which work may be resumed. Such action is taken only after careful consideration of all aspects of the problem.
2. This category relates to unsuitable weather or conditions unfavorable for the suitable prosecution of the work. This type of suspension may result from anticipated heavy traffic due to a holiday or a special event.

a. Suspension of an Item or Operation

A suspension that affects an item or several items may be ordered. Usually this suspension is used when either the work or the public will be affected adversely by continued operation.

- Private scale technicians performing California Test 109, “Test for Weighing and Measuring Devices”

3-903E (2) Responsibilities

All Caltrans personnel must be alert for conditions that contribute to failure to obtain the accurate weight and measurement of materials. The following describes the typical duties and responsibilities for ensuring compliance with the specifications for weighing and metering:

3-903E (2a) Resident Engineers

The resident engineers must do the following:

- Ensure accurate weighing and measuring through adequate inspection.
- Routinely determine that proper weighing procedures are used.
- Ensure that the spot-checking of weighing procedures is recorded in daily reports.
- Require the contractor to correct any malfunctioning weighing or metering device.
- To ensure accuracy, order the resealing and retesting of scales and meters as often as necessary.
- Determine when load slips are to be used. Order the use of load slips except when the number of loads is very small or conditions preclude that proper weighing procedures be used. In the daily report, record the reasons for not using load slips.

3-903E (2b) District Weights And Measures Coordinator

The district weights and measures coordinator must do the following:

- Provide technical assistance to the resident engineer and assistant resident engineers.
- Provide information to resident engineers regarding the adequacy of scales and the validity of seals.
- When requested by the resident engineer, witness the testing of scales or meters in compliance with the requirements of California Test 109, “Test for Weighing and Measuring Devices.” For California Test 109 procedures, see Section 3-12, “Accuracy and Suitability of Scales and Meters (Materials-Producing Plants),” of the *Independent Assurance Manual*.
- Furnish copies of California Test 109 report to each project using a scale tested in accordance with California Test 109.
- Furnish and attach Form CEM-4204, “California Test 109 Sticker,” to tested scales.
- Maintain a file on the current status of all scales that are commonly used for weighing materials for Caltrans projects in the district.
- On request, provide scale status information to adjacent districts.
- Perform spot-checks of weighing and metering devices and procedures in the district, and furnish written reports to the resident engineer.

- Determine whether any weighing or metering problems should involve the Division of Measurement Standards. Request any such involvement through the Division of Construction weights and measures coordinator.

3-903E (2c) Assistant Resident Engineers

Assistant resident engineers act for the resident engineer and, depending on the authority delegated to them, do the following:

- Observe the installation of scales installed primarily for use on a given project. Decide whether such scales and appurtenances meet the requirements of the specifications. When necessary request assistance from the district weights and measures coordinator.
- Inspect and observe the general condition of all scales used on the project. If the scales are in questionable condition, request advice from the district weights and measures coordinator.
- Request a material plant approval report from the district weights and measures coordinator on the validity of the current seals. If a seal or Form CEM-4204 is not valid, require the contractor to have the scales tested before use.
- Witness scale testing. Determine that the scales have been tested to the capacity for which they are being used on the project. Request the district weights and measures coordinator to observe the procedure.
- Whenever a scale is moved, overhauled, or shows obvious deficiencies, require the scale to be restored to normal operating condition and then retested.
- To observe the weighing of materials, visit the scale house or plant periodically. If necessary, request technical assistance from the district weights and measurement coordinator. Check the scale sheets and load slips to ensure they are being used properly.
- Spot-check tare and gross weights to see that weigh masters are using the correct tare. Ensure the weigh master is licensed for the scale location.
- Observe all meters that are required under the contract, and ensure they have been tested and sealed.
- Collect load slips at the point of delivery. A Caltrans employee should be present at the work site to collect load slips. Sign or initial the load slip or weight certificate to indicate that the represented material was used in the work.

When certified summary scale sheets are used, and load slips are not used, verify that material shown on the summary sheets has been used in the work. Do this verification by using a tally sheet, a spread record, or a random check. In the daily report, record that the material has been used in the work and also the verification method. Sign the summary scale sheets to certify that the represented material, less any material deducted from the total, was used in the work

Return to the contractor a copy of any load slips or scale sheets representing loads or partial loads that are not to be paid for. On the load slip or scale sheet, indicate the quantity of material not included for payment. Retain a copy for the project records. When a determination is made to reduce the quantity, advise the

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Section 20 Erosion Control and Highway Planting

4-2001 General

Erosion control and highway planting is covered under Section 20, “Erosion Control and Highway Planting,” of the *Standard Specifications*. Erosion control materials are applied to roadside and median areas where erosion control is necessary and where planting may, or may not, be done in the future. Highway planting (landscaping) involves preparing areas for planting, furnishing and planting plants, and performing plant establishment work. Such landscaping is sometimes combined with erosion control. Irrigation systems are installed to apply water to highway planting.

For questions about the acceptability of materials and work for erosion control and highway planting, resident engineers may consult with landscape architects and landscape specialists in the district.

Note that many new products, materials, and methods used in erosion control and highway planting may not be included in Caltrans contracts. When new products, methods, or materials that meet contract requirements are used, report them to the district landscape architect and to the Landscape Architecture Program, using Form LA-16, “Product, Material, or Method Report,” (For Highway Planting or Erosion Control). The form is available in the Caltrans Electronic Forms System (CEFS) and the appendix of this manual.

4-2002 Erosion Control

Properly applied erosion control is a key element in preventing water pollution. The success of erosion control work often depends on the time of year that it is applied. Consult with the project landscape architect and landscape specialists if an apparent need exists for changing the order of work or the dates specified for erosion control.

4-2002A Materials

The following information discusses some of the materials used in erosion control:

4-2002A (1) Topsoil

Topsoil is the balance of organic matter, sand, clay, and nutrients necessary to support healthy plant life. For the specifications for topsoil, see Section 20-2.01, “Topsoil,” and Section 19-2.07, “Selected Material,” of the *Standard Specifications*. Topsoil that contains large percentages of sand and clay or silt-clay or is deficient in organic matter may be a poor medium for growing plants. High sand content tends to promote dry conditions. High clay content limits aeration and drainage. For good plant growth, the soluble salt content of topsoil generally should not exceed 500 ppm. If the topsoil’s composition is questionable, laboratory tests can determine the salt content.

Reject any proposed sources for topsoil if the topsoil has too much clay or sand or the topsoil lacks sufficient organic matter. Evidence of poor weed growth is a good indicator that the proposed topsoil source will not support healthy plant growth. If the proposed topsoil source is questionable, consider obtaining a basic soil test.

Section 20 Erosion Control and Highway Planting 4-2001 General

4-2002 Erosion Control

4-2002A (2) *Commercial Fertilizer*

The *Standard Specifications* or the special provisions cover the requirements for commercial fertilizer, which is expressed as percentages of nitrogen, phosphoric acid, soluble potash, and sulfur. Commercial fertilizer may be spread with seed and other erosion control materials using hydroseeding equipment. Commercial fertilizer may also be specified for highway planting.

4-2002A (3) *Straw*

Straw is the mulch most commonly used to protect slopes and has proven to be an effective method of controlling slope erosion.

Straw provides the following benefits:

- Protects seeded soil from wind, rain, and sun.
- Conserves surface moisture and serves to maintain uniform soil surface temperatures, thereby promoting seed germination and early growth.
- Dissipates the impact of rainfall.
- Slows the velocity of runoff.

4-2002A (4) *Fiber*

Fiber, as used in erosion control, consists of fine, hair-like tissues processed into small clumps. Natural fiber is derived from wood or other vegetable products.

When properly used, fiber provides the following benefits:

- Protects seed within hydroseeding equipment from the action of centrifugal pumps and the action of discharge through the nozzle.
- Enables more uniform seed distribution.
- Enhances a visual inspection of seed coverage.
- Forms mulch, covering and anchoring seed to the slope.
- When applied with stabilizing emulsion, bonds straw to the slope.
- Enables seed and commercial fertilizer to be applied by hydroseeding in one application.
- Can be applied by means of a hose to slopes not accessible by other mulching equipment.

The most common method of applying fiber is with hydroseeding equipment. Seed, commercial fertilizers, and emulsion, when specified, usually are applied with the fiber and water in one or more applications. Fiber is used primarily as a carrier. It holds seed on slopes where it is not feasible to incorporate or anchor straw.

4-2002A (5) *Seed*

Minimum seed purity and germination are usually specified for seed. The purity of seed is defined as the percentage of a specified seed in relation to the total quantity, which includes inert matter, weed seed, and other seed. Seed germination is the percent of pure seed that will grow when tested under laboratory conditions. The percentage of pure live seed (PLS) is the product of percent seed purity and percent germination. (percent PLS = percent purity times percent germination).

Specifications require legume seed to be inoculated. Such inoculation involves combining the seed with viable bacteria appropriate for the species used.

4-2002A (6) Stabilizing Emulsion

Stabilizing emulsion may be applied with fiber and fertilizer. The emulsion increases the amount of fiber, seed, and fertilizer that a slope will retain and, therefore, improves the ultimate production of the desired vegetation.

Manufacturers of stabilizing emulsion normally specify the amount of water that must be added to the emulsion. The amount is usually specified as “liters of water to kilograms of solids of emulsion.”

4-2002B Before Work Begins

Before work begins, the resident engineer must do the following:

- Review the plans and specifications to determine the specified type of erosion control material and the time of application.
- Verify the receipt and proper distribution of Form CEM-3101, “Notice of Materials to Be Used,” which covers erosion control materials.
- When native topsoil is specified, examine the topsoil to determine that sufficient quantity is available and that it is suitable for the planned use. For possible solutions if the native topsoil appears inadequate, consult with the project landscape architect or landscape specialists. Ensure that sufficient area exists at the top of slopes to stockpile topsoil.
- The contractor must provide the seed vendor’s lab test results. Ensure they are complete and received in a timely manner.
- Erosion control materials are applied at a specified rate of so many kilograms or tonnes per hectare. Be prepared to measure and compute areas to which erosion control is to be applied so that spread rates may be checked during application.
- Examine equipment to be used in erosion control work to determine if it meets specified requirements.

4-2002C During the Course of Work

As materials for erosion control arrive on the project, and prior to application, do the following:

- Through examination, ensure imported topsoil meets the specified requirements.
- To determine if commercial fertilizer meets specifications, check the chemical analysis on the label of the fertilizer bag. This label generally suffices to determine whether the fertilizer meets the requirements.
- In addition to furnishing certified daily summary weigh sheets, require the contractor to furnish weight tickets with each load of straw delivered to the project. Keep records for the mass of straw delivered to stockpiles. Based on specifications, check for County Agricultural Certification if out-of-county straw is used.
- Ensure the receipt of a Certificate of Compliance for fiber. Check the labeling on the package for moisture content. If necessary, sample the fiber and perform California Test 226, “Determination of Moisture Content by Oven Drying.”

- Verify the species of seed listed on the seed label for consistency with the species listed in the special provisions.
- Compare the percent total viability stated on the vendor seed label with the percent total viability in the special provisions for the seed species.
- Ensure that the percent of total weed identified on the seed label is less than the percent stated in the special provisions.
- Determine whether California prohibited noxious weeds are identified on the vendor seed label.
- Check the seed lot test date. For purity and germination, the seed must be tested every twelve months.
- Check seed package labels and other required documentation. Calculate the weight of pure live seed (PLS) in each sack by referring to Section 4-2002A (5), "Seed," of this manual.
- Collect seed samples according to Section 4-2002D, "Seed Sampling," of this manual.
- Send the complete package to the Caltran's contracted seed clearinghouse in accordance with Section 4-2002D (4), "Sample Preparation, Preservation and Packaging." Get the name and address of the clearinghouse at:
<http://pd.dot.ca.gov/design/landscape/>
- When approving the use of seed with a germination rate lower than the minimum rate specified, application rates must be such that the specified amount of pure live seed is used. Before approving a lower germination rate, consult with the project landscape architect.
- Ensure that legume seeds are inoculated as required in the specifications and that the required time limits are met.
- Ensure the receipt of a Certificate of Compliance for stabilizing emulsion. When stabilizing emulsion comes in powdered form, the actual mass of the powdered stabilizing emulsion will be the mass of the solids to be paid for. When the emulsion comes in liquid form, determine the percent of solids in the stabilizing emulsion by testing it as required by the *Standard Specifications*.

During the application of erosion control materials, do the following:

- Ensure the contractor prepares areas to receive erosion control as required in the specifications.
- Ensure topsoil, duff or compost is spread uniformly at the specified rate or depth. Ensure the contractor loosens any compacted topsoil.
- Ensure the contractor applies erosion control materials in the specified sequence and application rate.
- When straw is required, determine the spread rate by counting bales and using average bale weights. If the contractor applies the straw pneumatically, suspend the operation if wind conditions cause the straw or visible dust to be blown onto public roadways or across the property line onto private property.

- Observe the amounts and proportions of materials spread or entered into the hydroseeder. You may use sack counts and weights to determine the weights of seed, stabilizing emulsion, fiber, and commercial fertilizer.
- Compute and record the spread rates of the various materials applied. For each day of operation, compute and record the spread rates at least once.

4-2002D Seed Sampling

Use the following guidelines for obtaining samples for testing.

4-2002D (1) Scope

The purpose of seed testing is to get quality assurance data regarding the purity and viability (germination) of seed. For accurate laboratory test results, seed must be collected and handled to get representative samples. Samples submitted to the laboratory that are not representative can result in inaccurate or erroneous test results.

4-2002D (2) Size of Sample

For each seed lot greater than 1kg, take a seed sample of approximately 30 grams.

4-2002D (3) Procedure for Sampling

Before handling the seed sample, observe the following requirements:

- Do not touch or sample fungicide dyed seed, such as, dyed red or green, or mercury treated seed or seed labeled, "Treated Seed."
- Use protective gloves when sampling seed.
- Use clean gloves to avoid affecting the purity of the seed samples.
- Avoid inhaling any dust.

When taking the seed sample:

- Take a seed sample from a newly opened seed bag.
- Do not mix samples from different seed species or seed lots.
- Sample the seed by thrusting your gloved hand into the bag and withdrawing representative portions.
- Take at least seven equal portions of seed from various parts of the bag.
- Place each portion in a clean container and visually examine the seed for uniformity.
- When the portions appear to be uniform, combine them in a resealable plastic lined bag.

4-2002D (4) Sample Preparation, Preservation and Packaging

Sample preservation maintains the integrity of the sample from the time of collection until the tests is performed.

- Keep the samples in a suitable and shaded location. Avoid placing samples in a hot or a damp location.

- Identify the contents of each sample by placing the vendor's original seed label in each bag. Place a custody seal over the bag opening.
- Protect the seed from damage. Package samples in a cardboard box with bubble wrap or insulating peanuts. No additional preservation is necessary.
- Include the following documentation:
 1. Completed Form TL-0101, "Identification Card."
 2. Copy of the seed requirements from the project special provisions.
 3. Seed vendor's seed lot test results.

Send (within 24 hours) the sample and documentation via express mail to the Caltrans contracted seed clearinghouse. The clearinghouse information can be located at:

<http://pd.dot.ca.gov/design/landscape/>

4-2002E Quality Assurance Seed Testing Results

Consider the following areas when making determinations about seed.

4-2002E (1) Results

Quality assurance testing results will be provided through Caltrans contracted seed clearinghouse.

The clearing house will contact the resident engineer by letter with the results of the quality assurance testing in conformance with the specifications. Some potential issues are:

- Species of seed on the seed label does not match the species in the special provisions.
- The percent total viability of the seed is lower than what is specified in the special provisions.
- The percent total weed identified on the vendor seed label is greater than what is specified in the special provisions.
- The presence of California prohibited noxious weeds is identified on the vendor seed label or test results.

4-2002E (2) Nonconformance Procedures

If the contractor fails to comply with the contract specifications for seed, enforce the appropriate contract provisions to ensure compliance based on the nature and severity of the situation. Refer to Section 6-1.04, "Defective Materials," in the *Standard Specifications*.

4-2002F Measurement and Payment

From the weight shown on the certified scale sheets, deduct any leftover straw not used in the work. If a "weigh back" certified weight is not available, you may use bale counts and average bale weights for this purpose.

To determine pay quantities, you may use sack counts and sack weights. Make accurate counts, and record them in the project records.

Determine the pay quantity of live seed using the germination and purity rates of the bulk seed.

4-2003 Highway Planting

For the specifications related to highway planting, see Section 20-4, “Highway Planting,” of the *Standard Specifications*. Highway planting consists of preparing areas for planting, applying pesticides, and furnishing, planting, and maintaining plants.

4-2003A Materials

The following provides some general information on various materials used for highway planting:

4-2003A (1) Soil Amendment

For the requirements for soil amendment, refer to the *Standard Specifications*. The special provisions may specify the type of material to be used. For the quantities, see the plans in the Plant List and Planting Specifications chart or the special provisions.

4-2003A (2) Iron Sulfate

Iron sulfate consists of iron and sulfur. Some soils lack iron, one of the micronutrients needed for the proper formation of chlorophyll. Iron sulfate is used both to correct soils deficient in iron and to lower the pH of the soil. It makes the existing iron more readily available for plants.

4-2003A (3) Lumber

Lumber, as described in the specifications, is used for header boards to define landscaped areas.

4-2003A (4) Plants

The contract plans will specify the types and sizes of the plants to be used on a given project. If a particular plant type is unavailable from any of the contractor’s nursery sources and a change is proposed, seek a recommendation of approval from the project landscape architect, who will need to review the proposal.

4-2003A (5) Foliage Protectors

Foliage protectors protect newly installed plants from animals or rodents interested in foraging the various above-ground parts of the plants. Eventually, as the plants grow larger, the need for foliage protectors decreases. On some projects with lengthy plant establishment periods, the specifications may require the protectors be removed before contract acceptance.

4-2003A (6) Root Protectors

Wire mesh root protectors serve a similar purpose as the foliage protectors, providing below-ground protection from burrowing rodents. The specifications require removing galvanizing from the wire mesh. Such removal facilitates the decomposition of the wire mesh in the soil and allows plant roots to grow through the wire mesh without being girdled or restricted. By the time wire mesh decomposes, the plant is usually large enough to withstand some root damage by rodents.

4-2003A (7) Mulch and Compost

Mulch is used in many situations on various construction projects. Applications may vary from simple installations within plant basins to larger areas as a ground

4-2003 Highway Planting

cover within mass planting areas until the plants fill in and cover the ground. On some projects, mulch may be used as part of an approved water pollution control plan. Mulch has the following benefits:

- Retains soil moisture to assist in healthy plant development
- Acts as a weed barrier
- Aids in the prevention of surface erosion

Section 20-2.08, “Mulch,” of the *Standard Specifications*, specifies the materials and size requirements for mulch. Ensure the receipt of a Certificate of Compliance for mulch.

4-2003B Before Work Begins

Before work begins, the resident engineer must do the following:

- To determine the requirements for highway planting, review the plans and specifications.
- Verify the receipt and proper distribution of Form CEM-3101, “Notice of Materials to Be Used,” which covers highway planting materials.
- Check for planting areas where little or no weeds are growing because the lack of weeds may indicate sterile ground. Ask the maintenance landscape specialist if any planned planting areas were sterilized. If certain areas were sterilized, find out when the sterilization occurred, what chemicals were used, and what the rates of application were. For corrective measures, request assistance from the project landscape architect or the maintenance landscape specialist.
- Take photographs of existing site conditions, especially where you find evidence of sterile soil and damaged facilities.
- Invite the district landscape architect or project landscape architect and the maintenance landscape specialist to visit the site. Review the areas to be planted, and verify the limits and work involved in roadside clearing. Discuss any unusual features or potential problem areas.
- Ensure the contractor is aware of any special requirements, particularly any facilities or plants that must be preserved and protected.

4-2003B (1) Pesticides

Before any work using pesticides begins, the resident engineer must do the following:

- Review the specifications covering pesticide use.
- Review the guidelines for pesticide use contained in Chapter C2, “Vegetation Control,” of the Caltrans *Maintenance Manual*. These guidelines can also be applied in a general way to contract work.
- Obtain and review a copy of the contractor’s recommendations for pesticide use, as submitted to the contractor by a licensed pest control adviser. For assistance, you may call the maintenance landscape specialist, who is an expert in this area. Ensure the recommended pesticides are limited to those specified in the special provisions. Any change in the specified pesticides must be made by a contract change order.

- Some counties have environmentally sensitive areas where special requirements or prohibitions may apply. Consider any restrictions imposed by county agricultural commissioners.
- Ensure the proposed application rates or other features will not cause damage to abutting properties or to existing plants that must remain. Do not approve harmful pesticides that can be carried to other locations by runoff during the rainy season.
- Upon completion of the necessary reviews, advise the contractor in writing that the pest control adviser's recommendations have been approved subject to the provisions of Section 7-1.01H, "Use of Pesticides," of the *Standard Specifications*.

4-2003B (2) *Plants*

Before any work with plants begins, the resident engineer must do the following:

- Discuss the requirements for plants with the contractor and ask if the contractor wants the inspection of plants to occur before shipping. Ensure the contractor understands that the plants will still be subject to inspection at the job site.
- When requested by the contractor, you may arrange to inspect the plants at the plant supplier's nursery. For inspection of the plants at a nursery in another district, request assistance from a qualified person in the district where the nursery is located. Send all necessary contract information to the plant inspector.
- The inspection should be done after the contractor submits the required 10-day notice of the plant shipping date. The plant inspector must document the results of the inspection, including rejection of any plants and the reasons for rejection. The inspector must send the report to the resident engineer. However, plants that have been examined at the nursery are still subject to inspection at the job site. Inspect plants for compliance with Section 20-2.13, "Plants," of the *Standard Specifications*, and with any special provisions. The following are guidelines for plant inspection.
 1. Examine the plants and their nametags to confirm the plants are of the variety and size specified.
 2. Observe the methods of transporting and storing the plants. Pay particular attention to the requirements for keeping plants wet. Reject plants that are dry, wilted, or otherwise unsuitable when delivered to the planting area. Note such rejection in the daily report.
 3. Check to see if plants are obviously deformed, diseased, or insect infested. Obtain inspection certificates that indicate all plants comply with federal and state laws requiring inspection for diseases and infestations. Before accepting plants from another county, require the contractor to produce evidence of clearance from the county agricultural commissioner.
 4. For the specified number of plants, remove earth from the roots of container-grown plants to determine the condition of the roots. Ensure enough roots have grown so that the dirt and root ball will hold together when planting.

5. Do not accept root bound plants. See Figure 4-20.1 “Roots,” for an example of acceptable and non-acceptable roots. After a root bound plant is planted, water cannot penetrate the tight mass of roots, or at maturity, the plant may strangle itself. Root bound plants occur when seedlings are grown too long in small containers. The roots grow to the bottom of the container and then turn and grow around the ball of the plant. It is difficult to overcome a root bound condition merely by planting into a larger container or into the ground.

Figure 4-20.1 Roots



Good Roots

Acceptable



Pot Bound Roots

Not Acceptable

6. Check for root girdling in plants that have a main taproot. Girdling occurs when a plant has been left in a container for too long. The taproot circles and chokes the root system until the plant eventually dies.
7. Ensure plants in larger containers have not recently been transplanted from a smaller container. Plants should be well rooted in proportion to the container from which they are taken.

8. Make random measurements of carpobrotus cuttings to ensure the cuttings equal the specified length.

4-2003C During the Course of Work

Use the following guidelines to ensure highway planting complies with the plans and specifications:

4-2003C (1) Roadside Clearing

Roadside clearing includes removing trash and debris, killing, removing, or mowing weeds and other vegetation, and controlling rodents. During roadside clearing, the resident engineer must do the following:

- Give due consideration to the requirements for water pollution control. It may be desirable to leave some vegetation on the slopes to reduce the potential for storm water pollution during the rainy season.
- Ensure the contractor removes stumps and large roots to the depth specified. Check areas to be planted to ensure they are free of living weeds at the time of planting.
- Gophers are among the rodents requiring control. Evidence of gophers includes surface mounds left from their nighttime tunneling when the gophers eat plant roots and chew on irrigation wires. Their burrows can damage plant basins. Baiting and trapping are the methods used to control gophers. Some counties have rodent abatement programs and will give expert advice upon request. For information, contact the maintenance landscape specialist.

4-2003C (2) Pesticides

During pesticide use, the resident engineer must do the following:

- Observe the mixing and applying of pesticides to ensure these processes comply with the approved recommendations and specifications. Ensure that workers applying pesticides wear protective clothing, including eye protection. A person with a pesticide applicator's license must be at the site. However, the person spraying the chemicals does not need a license. Include notes about the pesticide application in the daily report
- Provide the contractor with Form LA-17, "Report of Chemical Spray Operations."
- Obtain a completed chemical spray report from the contractor each week. Retain one copy in the project files, and forward other copies in accordance with district procedures.
- Early enough in the contract so a good weed kill can be obtained, ensure the contractor has applied the specified pesticide to problem weeds, such as Bermuda grass.

4-2003C (3) Preparing Planting Areas

After roadside clearance, irrigation system installation, trench testing and backfilling, the preparation of planting areas begins. During this preparation, the resident engineer must do the following:

- Using the plan sheets for plant layout, ensure the location for plants and the perimeter of ground cover areas are designated with gypsum, small wire-mounted

flags or other suitable markers. The contractor must furnish the labor, materials, and transportation for placing stakes or other suitable markers to indicate the designated locations. This phase of designating locations is when necessary changes can be made with the least inconvenience and cost to the contractor or to Caltrans.

- When establishing plant locations, ensure compliance with the guidelines in Chapter 900, "Landscape Architecture," of the *Highway Design Manual*, which contains planting design standards.
- Ensure plant locations meet the minimum setbacks from the traveled way, pavements, fences, walls, and ditches, as shown on the Plant List and Planting Specifications chart in the contract plans. However, plant locations on the ground do not need to match the plans exactly. The contractor may need to adjust the locations of shrubs and trees for proper setback from the traveled way. Whenever possible, also avoid extremely rocky or poorly drained areas, old roadbeds, sign locations, and utility lines. Keep in mind the intended purpose of the planting, and visualize the size, shape and characteristics of the mature plants. Select locations so branches of mature plants will not extend into the roadway or over a right-of-way fence.
- If cultivation will be required, the plans or special provisions will say so.
- Ensure the soil is loosened to the specified depth, and prohibit rubber-tired equipment on cultivated areas.
- When rocks are encountered in an area of predominantly fine native materials, most rocks larger than 65 mm should be removed. In predominantly rocky areas, consult with the project landscape architect for alternatives to removing rocks.
- If rocks need to be removed, prepare a contract change order to pay for disposal. Consider using the rocks at drainage outlets or other areas to prevent erosion.
- To support payment, maintain adequate records of cultivation. When the contract item for cultivation includes payment for soil amendments and fertilizer, ensure these materials are incorporated at the specified rates. Note your observations in the daily report.

4-2003C (4) Header Boards

Measure header boards, and ensure they are installed as the contract requires. Ensure that nails, lag screws, and hardware are galvanized and that lumber is of the specified quality.

4-2003C (5) Planting

Inspect the planting operation, and ensure the requirements specified in the plant list are met for the following:

- Hole size
- Basin type
- Iron sulfate

- Soil amendment or fertilizer
- Mulch
- Plant stakes, if required

Observe the general planting operation to ensure the following:

- No more plants are distributed along the roadside than can be planted and watered on the same day.
- Containers are not cut until delivered to the planting area.
- Roots of plants not in containers remain covered and moist.
- Before transporting the plants to the planting area, nursery stakes are removed from the plants at the project site.
- Before ground cover is planted, trees and shrubs for such areas are planted, watered, mulched, and staked (if required).

For ground cover, make sufficient observations to ensure the following:

- Cuttings are placed to the required depth.
- The soil is moist at the time of planting.
- Plants are watered as specified.
- The specified spacing is provided.

Also, the resident engineer must do the following during the course of planting:

- Note all observations, including any pertinent instructions given to the contractor, in the daily report.
- Before planting in holes or trenches, ensure the contractor has prepared backfill and has applied water as specified. Before backfill is tamped down, ensure the plants are straight in their holes.
- Review planted areas to ensure plants have been staked and tied in the specified manner.
- Mulch, if required, must be placed as soon as possible after planting. It will help to retain moisture and discourage weeds. Ensure the removal of wood chips that are longer than the specifications allow. Keep mulch away from drainage channels and away from plant stems. Postpone placing mulch in extremely wet weather when trampling the areas would compact the soil and the mulch would hold excessive moisture around the plant.
- Decide on test areas for counting plants as specified. Prepare adequate records for progress payments.
- When it is obvious that plants will not survive or will be damaged severely due to weather, consider allowing a delay of planting until a more favorable period. If planting, delayed because of unfavorable weather conditions, is the controlling operation you may grant nonworking days in accordance with Section 8-1.06, "Time of Completion," of the *Standard Specifications*.

4-2003C (6) Watering

For watering, the resident engineer must do the following:

- Ensure the contractor applies sufficient water so the plants will develop properly. Too much water, improperly applied, can cause damage. Factors such as weather, soil, and plant type determine the amount of water and frequency of application.
- Beginning with the initial watering, closely check the amount of water applied and the manner in which it is applied. Most plants should be watered immediately after they are planted. Do not allow initial watering to be delayed until the following day.
- To ensure watering requirements are met, periodically observe planted areas after initial watering.
- Ensure the irrigation system distributes water evenly. To ensure proper coverage and to ensure water does not reach the traveled way, routinely check the sprinklers' water distribution.

4-2003C (7) Replacement

A plant need not die before the contractor replaces it. Ensure the contractor replaces any plants that have been injured or damaged sufficiently to render them unsuitable.

When a replacement plant obviously will not survive because of weather or other predictable causes, consider delaying replacement until a more favorable time.

To substitute an alternative species, seek authorization through a contract change order and obtain concurrence from the project landscape architect.

4-2003C (8) Plant Establishment Work

The objective of plant establishment is to ensure that, before contract acceptance, plants are healthy and established and the irrigation system works as planned.

Caltrans has two categories of plant establishment, described as follows:

- Type 1, which is normally used on projects where highway planting is a major portion of the work.
- Type 2, which is used on projects where highway planting is incidental to other work.

Plant establishment consists of caring for the project as specified. Establishment work begins with each plant after it is planted and watered for the first time. Therefore, new highway planting must be properly maintained both before and during plant establishment. During the course of plant establishment, the resident engineer must do the following:

- When it is necessary to replace poorly cared for plants, order replacement promptly. However, do not allow replacement as a substitute for proper maintenance. A plant that was planted earlier and maintained for a longer period of time will be more developed and will require less maintenance upon completion of the contract than one planted late in the plant establishment period.
- Ensure the contractor follows specifications requiring plants and planted areas to be well watered. The words "well watered" mean more than just

enough water to keep a plant alive. It is intended that the plant will flourish during plant establishment. Once the root systems become established, watering can be reduced.

- Ensure the contractor maintains sufficiently formed basins around each plant to permit the ponding of irrigation water and to provide ample room for the required mulch. During wet weather, the contractor may need to create temporary openings in the basin walls to drain excess water from the plants.
- Ensure the contractor controls weeds as specified. Without weed control, the weeds' rapid growth will reduce the availability to the plants of moisture and nutrients in the soil. If plants have to compete with weeds for moisture, nutrients, and sunlight, they will not develop properly.
- Within basins or header boards and adjacent to fences, ensure ground cover is removed from paved areas, as specified.
- From roadside clearing and planting areas, ensure the contractor removes surplus earth, paper, trash, and debris, as specified.
- Ensure commercial fertilizer is applied at the specified time, in the required amounts, and in a workmanlike manner. Prohibit the concentration of commercial fertilizer at the base or stem of the plant; otherwise, injury to the plant will result.
- Require the contractor to give instructions on the use and adjustment of the irrigation controllers as required in the specifications. Invite the appropriate landscape maintenance personnel to the instructional session.
- When all work except plant establishment is complete, require the contractor to remove construction area signs. If appropriate, use temporary traffic control signs during plant establishment work.

4-2003C (8a) Administering plant establishment time requirements:

In administering the time requirements for plant establishment, the resident engineer must take the actions below.

- Notify the contractor of the beginning of the plant establishment period. On Form CEM-2701, "Weekly Statement of Working Days," under "Remarks," note the date of the first day of the plant establishment period.
- During plant establishment, credit the contractor with one plant establishment working day for each day except Saturdays, Sundays, and legal holidays when plant establishment work is satisfactory.
- Ensure that all required work is complete before beginning to give credit for plant establishment working days.
- Judge carefully when deciding whether or not to give credit for a plant establishment day. Base the decision on whether the planted areas are maintained as specified. When necessary, order corrective work in writing. If the contractor does not correct deficiencies within a reasonable period, do not give credit for plant establishment days. In most cases, you may consider a response time within two weeks as reasonable. For normal conditions, order corrections no more often than once each week. Whenever progress is being made toward correcting deficiencies, allow

credit for plant-establishment working days. However, when deficiencies appear faster than they are corrected, prohibit credit.

4-2003C (8b) Tracking time for Type 1 plant establishment:

For Type 1 plant establishment, the contractor must complete all work except plant establishment before the plant establishment period begins. Only plant establishment may be in progress during the plant establishment period. The special provisions require plant establishment to be performed satisfactorily for a specified number of working days.

Until plant establishment begins, track contract time on Form CEM-2701, “Weekly Statement of Working Days,” in the normal manner. After plant establishment begins, continue filling out the upper part of the form as before. Show all days except Saturdays, Sundays, or legal holidays as working days, regardless of weather or other conditions. Track the progress of plant establishment under “Remarks” in the manner similar to that shown for Type 2 plant establishment shown in the sample weekly statements of working days in Example 3-8.6 and Example 3-8.7 in Section 3-8, “Prosecution and Progress,” of the *Construction Manual* (manual). Credit all working days as plant establishment days except for days on which the contractor fails to satisfactorily perform plant establishment.

4-2003C (8c) Tracking time for Type 2 plant establishment:

Two time limits are specified for projects with Type 2 plant establishment. An amount for liquidated damages is also specified for each time period. The following are the two time periods:

- The number of working days for all work except plant establishment.
- The total number of working days for all contract work, including the plant establishment period.

For Type 2 plant establishment, the contractor must complete all highway planting before plant establishment begins. In addition to plant establishment, other contract work may be in progress during the Type 2 plant establishment period.

For examples of how to track contract time when both time periods are running concurrently, see Example 3-8.6 in Section 3-8, “Prosecution and Progress,” of this manual. Show the “working days specified in the contract” as the number of days specified for all work except plant establishment. Fill in the weekly statement in the normal manner, and track the progress of plant establishment as shown under “Remarks.”

Example 3-8.7 in Section 3-8 shows the method of tracking contract time and plant establishment days after the contractor has completed all work except plant establishment. After all work except plant establishment has been completed, show the “working days specified in the contract” as the total number of days specified. In the last weekly statement occurring while work other than plant establishment is in progress, record any overrun in contract time for the shorter contract time period.

4-2003D Measurement and Payment

The specifications may specify that highway planting be paid for as a single lump sum contract item or as individual contract items. Resident engineers and assistant resident engineers must carefully determine the methods for measurement and payment for each element of highway planting.

When highway planting is paid for as a single lump sum contract item and the special provisions specify a “cost breakdown,” ensure the contractor submits the required information. Until you have approved the cost breakdown, do not make partial payments for highway planting. Use the cost breakdown to determine payment for increases and decreases in the units of work within lump sum contract items for highway planting.

When a lump sum contract item is used for payment, you will usually need to measure some of the units of work performed to verify the contractor completed the planned work. Record these units of work in the project records. As an example of the need to measure a unit of work included in a lump sum item, the designer may include ground cover in the lump sum contract item for highway planting. The plans will indicate the number of cuttings to be planted in each area. You must ensure and document that the correct number is planted by measuring the cuttings as specified in Section 20-4.09, “Measurement,” of the *Standard Specifications*, and recording the result in the daily report.

When a single lump sum contract item is used, you should not need to measure items such as pipe for supply lines, as long as the plan remains unchanged. However, you must measure and record quantities of items such as plants, fertilizer, and mulch.

When individual contract items are used, measure quantities in accordance with the specified methods.

4-2004 Irrigation Systems

Irrigation systems may be manual or automatic, as specified in Section 20-5, “Irrigation Systems,” of the *Standard Specifications*. The special provisions may require the installation of radio equipment that can communicate with a centrally located computer and radio base station.

4-2004A Components of Irrigation Systems

The following are the major components of an irrigation system:

4-2004A (1) Water Meter

The water meter measures the quantity of water delivered to the project. The water may be from a local water district providing domestic potable water or reclaimed water from a water treatment facility.

4-2004A (2) Backflow Preventer

The backflow preventer protects the domestic water system from contamination by preventing water within the irrigation system from siphoning back into the domestic water supply. All domestic water irrigation systems are required to have backflow prevention. The backflow preventer is installed downstream from the water meter in a domestic potable water system.

4-2004 Irrigation Systems

4-2004A (3) Wye Strainers

Wye strainers filter solid particles from irrigation water. They are installed as part of backflow preventer assemblies and at other locations in the supply lines.

4-2004A (4) Main Supply Line

The main supply line is installed downstream from the water meter and backflow preventer. The supply line carries water under pressure to quick coupling valves and the remote control valves.

4-2004A (5) Master Remote Control Valve

The master remote control valve is located downstream from the backflow preventer. Its purpose is to control the flow of water to supply lines so that they are not under constant pressure when irrigation is not taking place. The master remote control valve is activated when any remote control valve is activated.

4-2004A (6) Remote Control Valves

Remote control valves control the flow of water to the lateral water supply lines and sprinklers. When not operating, they are closed. Remote control valves are usually grouped for ease of maintenance.

4-2004A (7) Quick Coupling Valve

A quick coupling valve is used to attach a hose to the irrigation system.

4-2004A (8) Gate Valve

Gate valves are manually operated to shut off water to allow repairs or modifications to the irrigation system.

4-2004A (9) Lateral Supply Line

Lateral supply lines are pipes that carry water between the remote control valves and the sprinklers. Lateral supply lines are only under pressure when the remote control valve is open.

4-2004A (10) Emitters and Sprinklers

Emitters are watering devices used with drip irrigation systems. They require additional filtration of the water being used in the system because they are easily clogged. Because they apply water at a slow rate, potential erosion of the plant basins is almost nonexistent. Requirements for emitters will be included in the special provisions and on the plans. The plans will specify flow rates and operating pressures for emitters. Sprinklers apply water in a spray pattern to the soil around plants. The special provisions and the plans specify the sprinklers by type, pattern, material, and operating characteristics. Emitters and sprinklers are installed on the lateral supply line.

4-2004A (11) Filter Assembly Unit

Filter assembly units prevent small particles from clogging sprinklers or emitters.

4-2004A (12) Irrigation Crossovers

Irrigation crossovers consist of conduit and pipe used to carry irrigation water under roadways. They are often installed as part of a highway construction project before

the highway landscaping project begins.

4-2004A (13) Irrigation Controllers

Electrically operated irrigation controllers supply low voltage to activate the remote control valves. The controllers may operate on 110-volt electrical circuits, batteries, or solar power. Irrigation controllers are placed inside heavy-duty metal enclosures bolted to concrete pads.

4-2004A (14) Electrical Conduit, Pull Boxes, and Conductors

These electrical components of the irrigation system supply electrical power to operate irrigation controllers and valves.

4-2004B Before Work Begins

Before the irrigation system is installed, the resident engineer must do the following:

- Verify the receipt and proper distribution of Form CEM-3101, “Notice of Materials to be Used,” which lists all irrigation system materials.
- When existing irrigation systems are to be maintained, review the systems with the appropriate landscape maintenance personnel. Check existing systems for proper operation and state of repair.
- Review with the contractor the requirements for maintaining existing irrigation systems. When Caltrans maintenance forces are involved, ensure that the contractor and Caltrans maintenance personnel are aware of each other’s responsibilities.
- For correspondence with the serving utility companies, contact the project landscape architect. Ensure that, when Caltrans must do so, all orders for water and electrical service have been placed with the serving utility. If services have not been completed, check service points and meter locations with the field representative of the serving utility. Verify the availability of water in the quantities and the pressure required for the irrigation system.
- Verify with the appropriate district unit the availability of any specified state-furnished material.
- As required by Section 20-5.027B, “Wiring Plans and Diagrams,” of the *Standard Specifications*, obtain from the contractor working drawings of wiring plans for the electrical portions of the irrigation systems. Ensure that the manufacturer of the controller has approved the wiring plans. Also send the plans to the district landscape architect for review. After review and approval, forward a copy to the contractor with the following written statement:

“The plans are approved pursuant to Section 5-1.02, Plans and Working Drawings,” of the *Standard Specifications*.”

- The Office of Structure Design’s Office of Electrical, Mechanical, Water and Wastewater usually designs the more complex electrical and mechanical work, such as pump installations. Contact that office to arrange for periodic inspections of the work as it progresses.

- Inspect irrigation system materials as they are delivered to the project site. For most irrigation system materials, the Office of Materials Engineering and Testing Services (METS) will assign responsibility for this type of inspection to the resident engineer. Ensure the contractor furnishes certificates of compliance, when required. For all material not inspected and released by DMETS, inspect the material for contract compliance and complete Form CEM-4102, “Material Inspected and Released on Job.” File the form with the project records.
- Before doing any other irrigation work, locate existing conduits to be used as part of a new irrigation system. Determine the locations using as-built plan information, physical evidence such as Type A pavement markers, and metal detectors. After you have determined the locations as closely as possible, require the contractor to excavate and backfill exploratory holes. Process a contract change order, if necessary, to pay for additional exploration in accordance with Section 20-5.03B, “Conduit for Irrigation Crossovers,” of the *Standard Specifications*. After the ends of existing conduits for irrigation crossovers are exposed, examine them for damage. Ensure the conduits are free of obstructions. Process a contract change order to pay for any necessary repair or replacement.
- Check the planned location of valves, sprinklers, and automatic controllers and, if necessary, make the following revisions:
 1. Move sprinklers and valves away from areas adjacent to shoulders, where public traffic could damage them.
 2. Locate irrigation controllers behind guardrail or at other locations where they will be protected from public traffic.
 3. Locate sprinklers away from signposts, existing trees, or other obstructions affecting coverage.
 4. Locate sprinklers to obtain full coverage without overspray.
 5. Locate sprinklers so that irrigation controllers and pump housings are not soaked.
 6. Locate irrigation controllers and backflow preventers within a reasonable distance from safe and legal parking. Also locate them in high visibility areas to deter vandalism.
- When the irrigation lines are laid out and before trenches are backfilled, schedule a meeting on the project site to meet with the project landscape architect. This meeting provides an opportunity to look at the overall layout of the landscape system and make any desirable changes.

4-2004C During the Course of Work

Use the following guidelines to ensure the various components of irrigation systems are installed and constructed as required:

4-2004C (1) Water Lines and Conduit

During the course of installing water lines and conduit, the resident engineer must do the following:

- Inspect the installation and location of backflow preventers to ensure they conform to the requirements of local codes and to the plans and specifications. Pay particular attention to the installation of gate valves and unions on each side of the backflow preventer.
- To protect soil from eroding, ensure the contractor directs the outlets of the wye strainer or pressure relief valve toward the concrete pad.
- Observe trenching and the placement of conduit and pipe. Make measurements to determine that pipe and conduit are installed at the specified depths and setbacks.
- Ensure the contractor does not use excessive water when jacking or drilling conduit. Excessive water is any amount that would damage the roadway or create future maintenance problems.
- When rocks or other debris are brought to the surface during trenching operations decide whether such material should be removed. Base the decision on the same factors considered when preparing planting areas, as previously covered in Section 4-2003C(3), “Preparing Planting Areas” in this section. However, whether or not you order rock removal, the contractor must protect the pipe from sharp objects and must not place rocks directly on, under, or around the pipe. Ensure the contractor backfills in the specified manner, and make notes in the daily report of all inspections.
- When rocks must be removed, prepare a contract change order to cover payment, and keep the required extra work records.
- If excavated material is not suitable for placing around the pipe, prepare a contract change order to pay for supplying and placing a clean bedding material.
- Trench widths must be such that plastic pipe that is not connected by rubber type fittings can be snaked. Snaking means placing the pipe in an undulating line to provide for expansion and contraction.
- For installing plastic pipe supply lines, thrust blocks, plastic pipe irrigation lines, and fittings, obtain a copy of the manufacturer’s instructions from the contractor. Observe the installation to ensure the contractor completes it according to those instructions.
- Where supply lines or conduits are installed through existing paved areas, advise the contractor of acceptable replacement material. Ensure the contractor performs such replacement.

- Ensure the contractor installs dielectric couplings or bushings as specified where two dissimilar metals, such as galvanized steel and brass, are joined.
- For solvent cement welding of plastic pipe, obtain the manufacturer's printed instructions from the contractor. Ensure the contractor completes solvent cement welding according to those instructions. For plastic pipe joined with solvent or glue, good workmanship includes immediately wiping off excess solvent or glue from the pipe. When left exposed on the surface, such material will cause rapid deterioration of the pipe.
- Ensure the contractor places the specified pavement markers to show the location of crossover conduits.
- Observe whether unattached ends of pipes, fittings, and valves are plugged or capped pending attachment of additional pipes or fittings. Use judgment in ordering compliance, but as a minimum, expect all such plugs or caps to be in place at the end of each workday.
- Ensure the contractor tests all pipe supply lines for leakage as specified. To hold water lines in place, partial backfill is usually allowed during testing as long as all fittings are left uncovered. Observe the testing, and note in the daily report the time when the pressure test on any segment of the irrigation system begun and the results of this test. The contractor must locate and repair any leaks and repeat the test as many times as necessary.
- After backfilling and ponding or jetting, examine trenches. Require the contractor to refill trenches that have settled below the level of the surrounding area.
- Ensure the contractor tests backflow preventers as specified. File the test results in the project records.
- Observe the operation of the entire irrigation system. Before planting work begins, ensure adequate coverage. If coverage is not adequate to water the planting areas, consider ordering revisions. Be aware that the valves and pipes are designed to accommodate a certain flow at a certain pressure. If the contractor adds sprinklers or increases the sprinkler nozzle size, coverage of each sprinkler will be reduced. If necessary, prepare and process a change order to make revisions to the planned irrigation system.
- Ensure the contractor replaces any existing plants that are removed or damaged during installation of the irrigation system.

4-2004C (2) Electrical Installations

During the course of installing water lines and conduit, the resident engineer must do the following:

- Observe the installation of sprinkler control crossovers to ensure they comply with the size and type specified. When specified, ensure that pull wire or pull rope is installed.
- Ensure that electric service installations conform to the plans and specifications. Consult with district electrical specialists.

- Ensure that controllers are installed as specified. For each type of controller, obtain the maintenance and operations manual. Give the manual to the maintenance landscape supervisor responsible for the irrigation system after contract acceptance.
- Ensure the contractor places a schematic wiring diagram and irrigation as-built plan in the controller enclosure as specified. The inspection date and expiration date for the guarantee must be marked on the inside face of the controllers.
- Observe the installation of conduit, conductors, and pull boxes to ensure compliance with the specifications.
- After trench backfilling to the required depth, observe the specified testing of conductors. Record the results of tests in the daily report.
- Before the beginning of plant establishment, witness a satisfactorily completed, functional test of the irrigation system. Advise the contractor of the lengths and frequencies of the cycles to be used during the functional test. Record the test results in the daily report.

4-2004D Measurement and Payment

The specifications may require irrigation system work to be paid for as a single lump sum item or as individual contract items.

When a single lump sum item is used for payment and the special provisions specify a “cost breakdown,” ensure the contractor submits the required information. For completeness and accuracy, review the cost breakdown. Until you have approved the cost breakdown, do not make partial payments for irrigation system items. Use the cost breakdown to determine payment for increases and decreases in the units of work within lump sum contract items for highway planting.

When irrigation system work is paid for as individual contract items, use the methods of measurement specified for each contract item.

Conduct of the Work

5-001 Resident Engineer's Pending File

For guidance and information, the project engineer assembles and forwards to the resident engineer a set of letters, memoranda, and other data entitled, "resident engineer's pending file." This file must contain all pertinent information, comments, and advice that may be useful on the specific project to which the resident engineer is assigned. A detailed list of the information that should be included in the resident engineer's pending file is contained in Appendix GG, "Project Data Checklists," of the *Project Development Procedures Manual*. The file usually includes the following:

- Memoranda between programs, service centers, and districts, especially comments about preliminary reports and dummy special provisions.
- Special requirements that are enumerated in the freeway agreement and that may require action by the resident engineer. For instance, a special requirement may be notification of the date work begins on locally owned facilities.
- Memoranda about materials from the Office of Materials Engineering and Testing Services or the district materials unit.
- Copies of right-of-way agreements that require work to be done under the contract or that affect the project's construction.
- Copies of "Notice to Owner," which covers utilities and their completion status.
- Copies of the partially completed Form FA-2134, "Utility Service Request," which the resident engineer will use for the installation and coordination of utility services. Forward this form to the Division of Accounting and the district signals and lighting coordinator. If there is no form and the plans have utilities, contact the district signals and lighting coordinator to ensure proper procedures are followed. This form is available on the Division of Accounting's web site at:
<http://onramp.dot.ca.gov/hq/accounting/utility>.
- Copies of correspondence giving the background of any unusual project features.
- All pertinent engineering data previously prepared in connection with the project. This data should include the project engineer's quantity calculations.
- Copies of the project report, preliminary report, and materials reports.

Conduct of the Work

5-001 Resident Engineer's Pending File

- A copy of the “materials information” as given to prospective bidders.
- A copy of the environmental document, including any permits, agreements, and commitments.
- A separate summary of all environmental commitments, as well as any special instructions or explanations for meeting permit and other legal requirements and commitments to other agencies.

The resident engineer must consult with the project engineer who forwarded the file if the file has any of the following problems:

- Information appears to conflict.
- Information appears to be missing.
- Additional information or explanations are required.

5-002 5-002 Preconstruction Conference With Caltrans Personnel

Preconstruction Conference With Caltrans Personnel

Before the start of construction, the resident engineer should review the job with the following people:

- Project manager
- Project engineer
- Right-of-way agent
- Hydraulics engineer
- Traffic engineer
- Materials engineer
- Maintenance superintendent
- Environmental - construction liaison
- Construction storm water coordinator
- Environmental planner
- Public information officer
- Landscape architect (if landscape work is included in the project)
- Local agencies and communities
- Affected utility companies
- Others who may have a direct interest in the project

At this preconstruction stage, such a review will significantly aid in explaining the reasons for certain design features such as the following:

- Right-of-way obligations
- Signing and traffic handling difficulties
- Materials sites
- Selected material



- Foundation treatment
- Potential slides
- Environmental commitments
- Potential drainage and maintenance problems, including erosion control and water pollution

The resident engineer must ensure implementation of environmental mitigation measures included in the project approval. To be fully informed of the environmental mitigation measures, commitments, or concerns on projects that include environmental commitments, the resident engineer must review the environmental commitment record and meet with the assigned environmental staff. At the same time, the resident engineer can reach agreement on both the assistance required from environmental specialists and also the tentative schedule and plan for environmental monitoring.

On projects involving structure construction personnel, preconstruction conferences are mandatory and should be held as soon as possible after bids are opened. The conferences should include structure and construction engineers, the resident engineer, and the structure representative. These personnel should reach agreement regarding the following items:

- Office facilities. The district must provide suitable office space and furniture for both district and structure field personnel. When the office facilities are trailers, the resident engineer and structure representative should both occupy the same trailer. When the office facilities are in a building, the engineer and the representative should occupy adjacent rooms. This arrangement facilitates the assignment of the structure engineer as acting resident engineer during extended absences of the assigned resident engineer.
- Personnel for the total work. Conference participants must discuss the total work (both road work and structure work) and take full advantage of instances where people could be used interchangeably to reduce the number of people on the project. When the contractor's schedule is available, meeting participants must review the personnel required.
- Division of the work. The items should be categorized as roadwork and structure work. In some cases, the item may be divided by portions of items or by phases of the work. Before the start of work, the Office of Structure Construction requires from the structure representative a written report on this categorization of the work.

5-003 Preconstruction Conferences with the Contractor

Before the start of work, a conference must be held. Depending on the project's complexity, more than one conference may be desirable to limit the scope and number of individuals attending. The conferences must include the resident engineer and structure representative and may include principal assistants, the construction engineer, the district construction deputy director, the contractor's superintendent, and other key personnel. Subject to district policy, specialists such as the district labor compliance officer and the district safety coordinator, among others, may be included. Alternatively, the resident engineer may cover the respective responsibilities.

5-003

Preconstruction Conferences with the Contractor

When environmental commitments have been made that affect or constrain the contractor's operations, the environmental - construction liaison and other appropriate environmental specialists should also attend the preconstruction conference with the contractor.

Meeting participants should discuss, among other items, the following:

- Work plans
- Equipment to be used
- Progress schedule
- Layout of job
- Labor compliance
- Equal employment opportunity
- Safety requirements
- Environmental commitments and permits
- Water pollution control requirements

This discussion affords both parties a common understanding of the proposed work and the problems and possible solutions that may be expected during the life of the contract.

The contractor should receive advance notice of the items that will be discussed. Among other documents, the contractor must bring a copy of the contractor's "Code of Safe Practices" and a water pollution control plan. The project file must contain a record of the conferences (or the reason for omitting a conference). Depending on the conference's complexity, the record can be a relatively complete set of minutes or a copy of the resident engineer's daily report.

The police, fire department, public transportation agency, schools, and other affected agencies should receive any information developed from the meetings that will affect these agencies' operations.

In the list below, we present the guidelines for the preconstruction conference. However, bear in mind that these are reminders only. Items will or will not be included depending upon their applicability to a specific project. Also, consider any previous experience of a particular contractor with Caltrans projects. Further, the district construction office may have completed some of the items listed below, and therefore, these items need not be included at the conference.

- Introduce all participants, including in your introduction statements about each person's responsibilities for the project.
- Discuss superintendence as well as lines of authority for both contractors and Caltrans personnel. If you have not yet received it, request the written information required by Section 5-1.06, "Superintendence," of the *Standard Specifications*.
- Discuss the subcontracting requirements covered in Section 8-1.01, "Subcontracting," of the *Standard Specifications*.
- When required by the special provisions, discuss railroad insurance.

- If not yet received, request evidence of insurance, as required by Section 7-1.12, “Indemnification and Insurance,” of the *Standard Specifications*.
- Discuss requirements related to labor compliance and equal employment opportunity. Advise the contractor of the deadlines for submitting payrolls and other required documents. Also advise the contractor of the contractual and administrative deductions that will be applied for noncompliance. Provide the necessary state-furnished forms and posters.
- Review the contract’s safety requirements.
- Discuss the procedure for inspecting materials, particularly the early submittal of Form CEM-3101, “Notice of Materials to Be Used.”
- When the contract requires, discuss the contractor’s quality control plans.
- Discuss the requirements for submitting working drawings.
- Discuss the progress schedule (if the contract requires). If the contract requires a critical path method schedule, discuss the provisions for submitting, reviewing, updating, and revising it. See Section 3-803, “Progress Schedule,” of this manual.
- Discuss weighing procedures, weight limitations, and the Caltrans policy on overloads. For more information, see Section 3-702, “Load Limitations,” of this manual.
- Advise the contractor of administrative procedures and deadlines for payment for material on hand. Give the contractor the required Form CEM-5101, “Request for Payment for Materials on Hand.”
- Discuss the requirements for submitting survey requests and any significant survey issues.
- Review the contract’s provisions about water pollution control. Discuss the contractor’s water pollution control plan.
- Review the contract’s provisions and the environmental commitments record for environmental permits and agreements. Discuss the contractor’s plan for implementing environmental commitments and environmental work windows.
- Remind the contractor to submit a program to control water pollution before beginning work.
- Discuss the requirements for handling public traffic.
- Discuss any unusual project features.
- Remind the contractor of the contractual procedures to follow in the event of disagreements. Emphasize the necessity for timely written notices. Furnish Form CEM-6201, “Notice of Potential Claim.”
- Discuss the scheduling of utility work. For a discussion of utility preconstruction conferences, see Section 3-809, “Utility and Non-Highway Facilities,” of this manual.

**5-004
Resident Engineer's
Daily Report**

5-004 Resident Engineer's Daily Report

The following instructions are directed to the resident engineer who must do the following:

- For each contract day during the project's life, make a daily report on Form CEM-4501, "Resident Engineer's Daily Report/Assistant Resident Engineer's Daily Report."
- Include any information that may be pertinent even though no activity may have occurred. For example, such information could include support for determining working or nonworking days. Include the following in the daily report:
 1. Important discussions and agreements with the contractor. Record these on the day discussed. Give the names of specific persons to whom instructions were given or with whom agreements were made. If the contractor objects or comments, note these items, too. Actual quotations on significant discussion points can be useful. Through letters to the contractor, confirm important verbal instructions. (Also, see Section 5-403, "Response to Disputes," of this manual.)
 2. A general statement about the type of work done. Include the controlling operation and any facts concerning the work's progress.
 3. Weather conditions such as maximum and minimum temperatures and precipitation, among other items. Expand on exceptional weather conditions.
 4. Statements of any other important facts pertaining to the contract that are not specifically covered elsewhere in the contract records.
- Keep the report concise, yet include any important information. The report should not contain routine matters, such as quantities placed, that can be found in other records.
- Promptly send one copy of the daily report to the construction engineer, who will review the copy. After the review, the construction engineer may discard the copy or file it until the project's completion, in accordance with district policy. Retain the original copy with the project records.

**5-005
Assistant Resident
Engineer's Daily
Report**

5-005 Assistant Resident Engineer's Daily Report

To report the activity for a contract item, assistant resident engineers must submit a report for each contract day. Complete the report on Form CEM-4601, "Assistant Resident Engineer's Daily Report." Also, use this form for reporting extra work and for labor compliance. The form contains a narrative portion and a tabular portion.

The narrative portion of the assistant resident engineer's report should include statements about the contractor's operation and the activities of the individual preparing the report. The description of the contractor's operation should include the following:

- The location where the work was performed
- A brief description of the operation

- The quantities placed or the amount of work completed for the day
- Significant statements by the contractor

The statement of the assistant resident engineer's activities should be sufficient to demonstrate the performance of duties such as those outlined in Chapter 4, "Construction Details," of this manual. Record observations of contractor compliance or noncompliance, actions taken, statements made to the contractor, and approvals given.

Use the tabular portion of Form CEM-4601, to report the following:

- Extra work. For details, see Section 3-904D, "Extra Work Records," of this manual.
- Hours worked by labor and equipment. Provide sufficient detail to permit a review of the contractor's costs in a manner similar to a force account. Using the publication titled *Labor Surcharge and Equipment Rental Rates (Cost of Equipment Ownership)*, sufficiently identify equipment to enable the determination of applicable rental rates. Sufficiently identify the labor classification to enable determination of the appropriate wage rate. Also record the equipment's arrival and departure dates, as well as idle time for breakdowns or other reasons. This information can be used to make a possible adjustment of compensation due to an overrun or an underrun of quantities, a change in character, a protest, or a potential claim.
- The name of the contractor or subcontractor performing the work. When the report will be used to determine compliance with the contract's labor provisions, you must include the names or identification numbers of the contractor's personnel or report these separately. However, if the report is not for determining compliance with the contract's labor provisions, you only need to include in the tabular portion of the daily report the respective classifications of the work being performed and the number of hours worked on the date the report covers.

Distribute the assistant resident engineer's reports as follows:

- Retain the original of all reports in the project files in the field office.
- File reports covering extra work according to the procedure in Section 3-01, "Organization of Project Documents," of this manual.
- Distribute all other copies in accordance with district policy.

See Section 5-102, "Organization of Project Documents," of this manual for details to consider when establishing a system for handling assistant resident engineer's reports on a specific project.

5-006 Maintenance Reviews

Keep maintenance superintendents and supervisors informed of the start of work and job progress for all construction projects within the superintendents' and supervisors' maintenance areas. Before the start of construction, send a copy of Form CEM-0101, "Resident Engineer's Report of Assignment," to the maintenance region manager.

5-006 Maintenance Reviews

Provide the maintenance superintendents and supervisors an opportunity to review the contract with the resident engineer and to conduct a joint field review of the job site within the first two weeks of construction. The intent of this field review is to accomplish the following:

- Discuss the scope of the project.
- Coordinate contingency planning for traffic management.
- Discuss Caltrans' maintenance responsibility as described in Section 3-704E, "Highway Maintenance," of this manual.
- Discuss complex construction activities that could affect adjacent maintenance operations.
- Discuss features requiring special attention.
- Discuss manufacturers' warranties and service instructions.
- Schedule regular reviews. When the contract work is 50 percent complete schedule at least one review, unless both construction and maintenance representatives agree the review is unnecessary.

When the project nears 90 percent completion, invite the maintenance superintendent, supervisor, or both for a final field review of the project. Ensure this review includes identifying all items necessary to comply with the construction National Pollutant Discharge Elimination System permit, Section A, "Storm Water Pollution Prevention Plan," Subsection 7, "Stabilization." A copy of the permit can be obtained from the State Water Resources Control Board via the following web address:

| <http://www.swrcb.ca.gov/stormwtr/docs/finalconstpermit.pdf>

The resident engineer should work closely with the district maintenance personnel to make minor field adjustments to the project. The project manager must approve any amendments to the contract plans or specifications that significantly affect project cost, scope, or schedule.

When the work nears completion and just before contract acceptance, the resident engineer must notify the maintenance superintendent or supervisor to facilitate the transfer of maintenance and responsibility from the contractor to Caltrans forces.

5-007 Federal Highway Administration Involvement in Contract Administration

5-007 Federal Highway Administration Involvement in Contract Administration

Federally funded projects are classified as either full oversight or state-authorized to indicate the Federal Highway Administration (FHWA) oversight requirements as stated in the stewardship agreement between FHWA and Caltrans. The stewardship agreement between FHWA and Caltrans can be found by visiting the budgets web site:

| <http://onramp/hq/budgets/>



Caltrans assigns project numbers to federally funded projects, and upon FHWA classification, adds a suffix “N” or “E” to the project number. Projects with the suffix “N” are subject to full FHWA oversight requirements. Projects with the suffix “E” are state-authorized.

Caltrans has been delegated oversight approval authority for all federally funded projects except those activities not covered by Title 23 of the United States Code (National Environmental Policy Act [NEPA], right-of-way, and civil rights among other activities). Consequently, there are several issues or events that require the resident engineer to seek FHWA approval or request FHWA involvement in a project.

Projects with the suffix “N” are subject to full FHWA oversight requirements, so early and frequent communication with the FHWA engineer is essential to ensure full compliance with all federal requirements. Project with the suffix “E” are exempt from full FHWA oversight requirements. Resident engineers are not formally required to communicate with the FHWA engineer except for a few instances. Informal discussions for technical guidance are encouraged.

5-007A Events invoking Federal Highway Administration Involvement on Full Oversight projects

There are several events during the construction phase of an “N” project that may make FHWA involvement necessary. The resident engineer should meet with their FHWA engineer immediately following award of the contract to determine when FHWA involvement, if any, is necessary. The FHWA engineer is contacted sufficiently in advance of any project event deemed necessary to allow their participation. In all other cases, contact the FHWA engineer as soon as practical to ensure federal concurrence and participation.

Events invoking FHWA involvement may include:

- Preconstruction conferences.
- Partnering workshops.
- Value analysis studies.
- Notices of potential claim (NOPC):
 1. Submission and updates to the list of NOPCs to the NOPC log to FHWA engineer.
 2. Resident engineer’s determination of NOPC merit.
 3. Notice of potential claim resolution.
 4. Updates to items 1 through 3 above.
- Dispute review boards:
 1. Formation.
 2. Meeting invitations.

3. Recommendation of dispute review board.
 4. Copies of Caltrans and contractor acceptance or rejection of DRB recommendations.
- Proposed final estimate: Submit a copy of the final acceptance checklist to FHWA engineer (see Example 5-0.1 at the end of this section) with a copy of the proposed final estimate.
 - Claims:
 1. Exceptions to the proposed final estimate payments.
 2. FHWA agreement to amount of settlement.
 - Director days.
 - Boards of review:
 1. Meetings.
 2. Recommendations.
 - District Director Determinations.
 - Arbitration - Division of Construction coordinators will be responsible for keeping the FHWA area engineer informed of:
 1. Filings.
 2. Hearings.
 3. Settlements.
 4. Decisions.
 - Other major milestones, events, or occurrences as deemed necessary by the resident engineer and the FHWA engineer.

Example 5-0.1 Final Acceptance Checklist for Federal-Aid “N” Projects

FHWA
FINAL ACCEPTANCE CHECKLIST
FOR FEDERAL-AID “N” PROJECTS

Project Information:

EA No. _____ Federal-aid No. _____
Project Description: _____
District/County/Route/KP: _____
Date Awarded: _____ Approval Date: _____
Time Started: _____ Work Started: _____
Contract Days: _____ Final No. Working Days: _____
Original Completion Date: _____ State Acceptance Date: _____
Liquidated Damages (No. of days and total \$ amount): _____

Submittals:

	<u>Submitted?</u>	<u>Date:</u>
Material Certification (CM 6-1.1)	Yes/No – N/A	_____
Form FHWA-47M	Yes/No – N/A	_____
Proposed Final Estimate	Yes/No – N/A	_____
Last Statement of Working Days	Yes/No – N/A	_____
Contractor’s Written Statement Of Claims (Submitted Separately)	Yes/No – N/A	_____
List of contract change orders (Approved and Pending) (Participating/Non-Participating)	Yes/No – N/A	_____
List of Time Extensions (FHWA Approved/Not Approved)	Yes/No – N/A	_____
Form CEM-2402 (F) Final Report Utilization of DBE	Yes/No – N/A	_____
Mitigation Monitoring Reporting Record (If available, status of environmental commitments if not completed)	Yes/No – N/A	_____

Additional Information:

Labor Compliance Problems: _____

Any other changes: _____

(Original – Project File

cc – FHWA – with Proposed Final Estimate)

Section 1 Project Records and Reports**5-101 Forms Used For Contract Administration**

5-101A General

5-101B Construction Forms

Form CEM-0101, Resident Engineer's Report of Assignment

Form CEM-0501, Relief from Maintenance

Form CEM-0601, Construction Safety Report

Form CEM-0602, Project Safety Program Statement

Form CEM-0603, Major Construction Incident Notification

Form CEM-1101, Documents Bond of State Highway Oversight Projects

Form CEM-1201, Subcontracting Request

*Form CEM-1202, Contractor Action Request – Change of Name/Address-
Assignment of Contract Monies*

*Form CEM-1203, Contractor Action Request – Assignment of Contract
Performance*

*Form CEM-2001, National Pollution Discharge Elimination System Annual
Certification*

Form CEM-2002, Notification of Construction (NOC)

Form CEM-2003, Notification of Completion of Construction (NCC)

Form CEM-2025, Solid Waste Disposal and Recycling Report

Form CEM-2101, COZEEP Daily Report

Form CEM-2102, COZEEP/MAZEEP Task Order

Form CEM-2103, COZEEP/MAZEEP Cancellation Form

*Form CEM-2401, Substitution Report for Disadvantaged Business
Enterprise/Disabled Veteran Business Enterprise*

*Form CEM-2402(F), Final Report- Utilization of Disadvantaged Business
Enterprises (DBE), First - Tier Subcontractors (Federally Funded Projects)*

*Form CEM-2402(S), Final Report - Utilization of Disabled Veteran Business
Enterprises (DVBE) State Funded Projects*

*Form CEM-2403(F), Disadvantaged Business Enterprises (DBE)
Certification Status Change*

Form CEM-2404(F), Monthly DBE Trucking Verification

Form CEM-2501, Fringe Benefit Statement

Form CEM-2502, Contractor/Subcontractor Payroll

Form CEM-2503, Statement of Compliance

Form CEM-2504, Employee Interview: Labor Compliance/EEO

Form CEM-2504 (Spanish), Entrevista de Empleado: Labor Compliance/EEO

Form CEM-2505, Owner - Operator Listing Statement of Compliance

Form CEM-2506, Labor Compliance - Wage Violation

Form CEM-2507, Labor Violation: Case Summary

Form CEM-2508, Contractor's Payroll Source Document Review
Form CEM-2509, Checklist - Source Document Review
Form CEM-2601, Construction Progress Chart
Form CEM-2701, Weekly Statement of Working Days
Form CEM-2702, Overrun in Contract Time
Form CEM-3101, Notice of Materials to be Used
Form CEM-3501, AC Production/Placement Checklist
Form CEM-3701, Test Result Summary
Form CEM-3702, Relative Compaction Summary
Form CEM-4101, Materials Release Summary
Form CEM-4102, Material Inspected and Released on Job
Form CEM-4202, Material Plant Safety Checklist
Form CEM-4204, California Test 109 Sticker
*Form CEM-4501, Resident Engineer's Daily Report/Assistant Resident Engineer's
Daily Report*
Form CEM-4601, Assistant Resident Engineer's Daily Report
Form CEM-4701, Drainage System Summary
Form CEM-4801, Quantity Calculations
Form CEM-4900, Contract Change Order
Form CEM-4901, Contract Change Order Input
Form CEM-4902, Extra Work Bill (Short Form)
Form CEM 4902A, Extra Work Bill - Title Page
Form CEM-4902B, Extra Work Bill - Labor Charges
Form CEM-4902C, Extra Work Bill - Equipment Charges
Form CEM-4902D, Extra Work Bill - Material Charges
Form CEM-4903, Contract Change Order Memorandum
Form CEM-5101, Request for Payment for Materials on Hand
Form CEM-6001, Project Record - Estimate Request
Form CEM-6002, Contract Administration System (CAS) Report Requests
Form CEM-6003, Progress Pay - Estimate Project Initiation or Update
Form CEM-6004, Contract Transactions Input
Form CEM-6201, Notice of Potential Claim
Form CEM-6201 A, Initial Notice of Potential Claim
Form CEM-6201B, Supplemental Notice of Potential Claim
Form CEM-6201C, Full and Final Documentation of Potential Claim
Form CEM-6202, Disputes Review Board (DRB) Establishment
Form CEM-6203, Dispute Review Board (DRB) Update Report
Form CEM-6204, Dispute Review Board (DRB) Issue Report
Form CEM-6205, Dispute Review Board (DRB) Completion Report
Form CEM-6301, Contract Acceptance
Form CEM-9001, Construction Manual Proposed Change

Section 1 Project Records and Reports

5-101 Forms Used For Contract Administration

5-101A General

One of the duties of the resident engineer is to keep accurate and complete records of the work. This section includes a list of forms used in administering a construction project and maintaining records. Use forms not related directly to contract administration, such as personnel documents and accounting forms, in accordance with instructions contained in other Caltrans manuals.

The Division of Construction issues new or revised construction forms. All Division of Construction forms have a prefix of CEM and a number that is related to the form's uniform filing system category. If an existing form no longer meets the need that it was designed for, use the following procedure to implement a change:

- Complete Form CEM-9001, "Construction Manual Proposed Change", and send it to the Division of Construction forms coordinator. Explain the reason for the proposed change and attach a draft of the proposed revised form.
- The Division of Construction will review the proposed change and make a decision regarding any future revision.

Not all forms issued by the Office of Materials Engineering and Testing Services (METS) are listed in this manual. If a test method includes a specific form, contact METS.

A list of forms issued by the Division of Structure Construction is shown in Volume I, Section 16 of the *Bridge Construction Records and Procedures Manual*.

5-101B Construction Forms

Order construction forms by stock number from district warehouses or stockrooms. Forms without stock numbers may be found on the Caltrans Electronic Form System's (CEFS) Intranet web site: <http://adsc.caltrans.ca.gov/CEFS/>. The appendix to the *Construction Manual* (manual) contains samples of the construction forms.

Following is a list and descriptions of the Division of Construction forms:

Form CEM-0101, Resident Engineer's Report of Assignment

When assigned to a new project, the resident engineer must use Form CEM-0101, "Resident Engineer's Report of Assignment." This provides contact information. Distribute copies of the report according to instructions on the form and any district instructions.

It is not necessary or desirable to hold the form until all information is available. Submit partial information with a note that a supplemental form will follow.

Section 1 Project Records and Reports

5-101 Forms Used For Contract Administration

Form CEM-0501, Relief from Maintenance

The resident engineer uses Form CEM-0501, “Relief from Maintenance,” to recommend that the contractor be relieved from maintenance and responsibility in accordance with Section 7-1.15, “Relief from Maintenance and Responsibility,” of the *Standard Specifications*. For more information see Section 3-709, “Relief from Maintenance and Responsibility,” of this manual.

Form CEM-0601, Construction Safety Report

The resident engineer or the project safety coordinator uses Form CEM-0601, “Construction Safety Report,” to document monthly project safety reviews.

Form CEM-0602, Project Safety Program Statement

The resident engineer uses Form CEM-0602, “Project Safety Program Statement,” to list the Code of Safe Practices which apply to the project. This form may also be used to designate an employee as the project safety coordinator.

Form CEM-0603, Major Construction Incident Notification

The resident engineer uses Form CEM-0603, “Major Construction Incident Notification,” to report major construction incidents. Instructions for use are included on the back of the form.

Form CEM-1101, Documents Bond of State Highway Oversight Projects

The local agency and Caltrans project manager complete Form CEM -1101, “Documents Bond of State Highway Oversight Projects.” The project manager submits the form to the encroachment permits unit as part of the local agencies encroachment application approval process. For details on the use of this form, see Section 4-101, “Projects with Documents Bond,” of the *Caltrans Oversight Engineer Field Guidelines*.

Form CEM-1201, Subcontracting Request (Stock # 7541-3514-7)

The contractor submits Form CEM-1201, “Subcontracting Request.” The resident engineer uses the form to calculate the percentage of work to be performed by the contractor. Section 2-08, “Prosecution and Progress,” of this manual describes the procedures. The resident engineer must approve this form before the contractor can begin on the applicable subcontracted work. Before approval, verify that subcontractors are not on the Debarred Contractors list on the Division of Construction’s web site.

Form CEM-1202, Contractor Action Request - Change of Name/Address - Assignment of Contract Monies

The contractor submits Form CEM-1202, “Change of Name/Address -Assignment of Contract Monies,” to the resident engineer to request a change in the contractors name, address or assignment of monies due or to become due the contractor under the contract in accordance with Section 8-1.02, “Assignment,” of the *Standard Specifications*.

Form CEM-1203, Contractor Action Request - Assignment of Contract Performance

The original contractor or the contractor’s surety submits Form CEM-1203, “Assignment of Contract Performance,” to the resident engineers in accordance with Section 8-1.02, “Assignment,” of the *Standard Specifications*.

Form CEM-2001, National Pollution Discharge Elimination System Annual Certification

The resident engineer uses Form CEM-2001, “National Pollution Discharge Elimination System Annual Certification,” to file the annual storm water permit certification by July 1 of each year. See Chapter 7, “Environmental,” for details on the storm water permit certification.

Form CEM-2002, Notification of Construction (NOC)

The resident engineer, with the assistance of the district construction storm water coordinator, fills out Form CEM-2002, “Notification of Construction (NOC)”. The Caltrans National Pollutant Discharge Elimination System Permit requires Caltrans to submit the notification to the Regional Water Control Board. Instructions are included on the back of the form.

Form CEM-2003, Notification of Completion of Construction (NCC)

Submits Form CEM-2003, “Notification of Completion of Construction (NCC),” for projects requiring a storm water pollution prevention plan to the Regional Water Quality Control Board upon completion of construction. Usually, the resident engineer submits the notification. However, districts may elect to have the storm water coordinator, project manager, construction engineer, or other responsible staff submit this form. This form is not required for water pollution control plan projects. Directions are on the back of the form.

Form CEM-2025, Solid Waste Disposal and Recycling Report

The contractor completes and certifies the information reported on Form CEM-2025, “Solid Waste Disposal and Recycling Report.” The resident engineer reviews all reports submitted by the contractor for accuracy. The resident engineer submits the approved form directly to the district recycling coordinator and a copy of the statewide recycle coordinator in headquarters Division of Design. The use of this form is described in Section 5-008, “Solid Waste Disposal and Recycling Reporting,” of this manual.

Form CEM-2101, COZEEP Daily Report

Jointly, The California Highway Patrol and Caltrans use Form CEM-2101, “COZEEP Daily Report,” to report highway patrol resources used for the Construction Zone Enhanced Enforcement Program. Chapter 2, “Safety and Traffic,” of this manual describes the use of Form CEM-2101.

Form CEM-2102, COZEEP/MAZEEP Task Order

The resident engineer uses Form CEM-2102, “COZEEP/MAZEEP Task Order,” to request highway patrol support for the Construction Zone Enhanced Enforcement Program. The use of this form is described in Section 2, “Safety and Traffic,” of this manual.

Form CEM-2103, COZEEP/MAZEEP Cancellation Form

The resident engineer uses Form CEM-2103, “COZEEP/MAZEEP Cancellation Form,” to cancel any previously requested highway patrol support for the Construction Zone Enhanced Enforcement Program. The use of this form is described in Section 2, “Safety and Traffic,” of this manual.

*Form CEM-2401, Substitution Report for Disadvantaged Business Enterprise/
Disabled Veteran Business Enterprise*

The contractor fills out Form CEM-2401, “Substitution Report for Disadvantaged Business Enterprise/Disabled Veteran Business Enterprise.” The resident engineer uses the form to approve disadvantaged business enterprise (DBE) subcontractor substitutions. For more information on substituting subcontractors refer to Sections 3-8, “Prosecution and Progress,” and 8-3, “Disadvantaged Business,” of this manual.

*Form CEM-2402(F), Final Report- Utilization of Disadvantaged Business
Enterprises (DBE), First - Tier Subcontractors (Federally
Funded Projects)*

The contractor fills out and certifies Form CEM-2402(F), “Final Report- Utilization of Disadvantaged Business Enterprises (DBE), First - Tier Subcontractors (Federally Funded Projects).” The resident engineer verifies the form. It describes work performed and materials provided by disadvantaged business enterprise subcontractors. See Section 8-3, “Disadvantaged Business,” of this manual for details.

*Form CEM-2402(S), Final Report - Utilization of Disabled Veteran Business
Enterprises (DVBE) State Funded Projects*

The contractor fills out and certifies Form CEM-2402(S), “Final Report - Utilization of Disabled Veteran Business Enterprises (DVBE) State Funded Projects.” The resident engineer verifies the form. It describes work performed and materials provided by disabled veteran business enterprise subcontractors on state funded projects. See Section 8-3, “Disadvantaged Business,” of this manual for details.

*Form CEM-2403(F), Disadvantaged Business Enterprises (DBE) Certification
Status Change*

The contractor fills out and certifies Form CEM-2403(F), “Disadvantaged Business Enterprises (DBE) Certification Status Change.” The resident engineer uses this form to verify the actual dollar amount paid to DBE subcontractors on federally funded projects that have a change in certification status during the course of the contract. See Section 8-3, “Disadvantaged Business,” of this manual for details.

Form CEM-2404(F), Monthly DBE Trucking Verification

The contractor must submit Form CEM-2404(F), “Monthly DBE Trucking Verification,” before the 15th of each month. It lists the dollar amount paid to the DBE trucking companies for truck work performed by DBE certified truckers and for any fees or commissions for non-DBE truckers utilized each month on the project. Instructions for filling out this form are on the back of the form.

Form CEM-2501, Fringe Benefit Statement

The contractor completes Form CEM-2501, “Fringe Benefit Statement,” for labor compliance purposes. See Section 8-1, “Labor Compliance,” of this manual for more information.

Form CEM-2502, Contractor/Subcontractor Payroll

When it is requested, furnish “Form CEM-2502, Contractor/Subcontractor Payroll,” to the contractor. It is used to fulfill the payroll submittal requirements of the contract. See Section 8-1, “Labor Compliance,” of this manual for more information.

Form CEM-2503, Statement of Compliance

The contractor may use Form CEM-2503, “Statement of Compliance,” for the required statement of compliance with payroll submittals. See Section 8-1, “Labor Compliance,” of this manual for more information.

Form CEM-2504, Employee Interview: Labor Compliance/EEO
(Stock # 7541-3512-3)

Use Form CEM-2504, “Employee Interview: Labor Compliance/EEO,” to record information from interviews of contractors’ employees. Directions to interviewer are on the back of the form. See Section 8-1, “Labor Compliance,” of this manual for more information.

Form CEM-2504 (Spanish), Entrevista de Empleado: Labor Compliance/EEO

Same as above. Form printed in Spanish.

Form CEM-2505, Owner - Operator Listing Statement of Compliance

If they do not include this data on their certified payrolls, contractors may use Form CEM-2505, “Owner - Operator Listing Statement of Compliance,” for reporting payments made to owner-operators. See Section 8-1, “Labor Compliance,” of this manual for more information.

Form CEM-2506, Labor Compliance – Wage Violation

The district labor compliance officer uses Form CEM-2506, “Labor Compliance – Wage Violation,” to document labor compliance wage violations. See Section 8-1, “Labor Compliance,” of this manual for more information.

Form CEM-2507, Labor Violation: Case Summary

The district labor compliance officer uses Form CEM-2507, “Labor Violation: Case Summary,” in conjunction with Form CEM-2506 to summarize labor violation cases. See Section 8-1, “Labor Compliance,” of this manual for more information.

Form CEM-2508, Contractor’s Payroll Source Document Review

The district labor compliance officer uses Form CEM-2508, “Contractor’s Payroll Source Document Review” to document the verification of the contractors’ payroll source document review. See Section 8-1, “Labor Compliance,” of this manual for more information.

Form CEM-2509, Checklist – Source Document Review

The district labor compliance officer uses Form CEM-2509, “Checklist – Source Document Review,” during the contractor’s payroll source document review. See Section 8-1, “Labor Compliance,” of this manual for more information.

Form CEM-2601, Construction Progress Chart

The resident engineer maintains Form CEM-2601, “Construction Progress Chart,” for each project. See Section 3-8, “Prosecution and Progress,” of this manual for details.

Form CEM-2701, Weekly Statement of Working Days (Stock # 7541-3528-7)

The resident engineer uses Form CEM-2701, “Weekly Statement of Working Days,” to track contract time on construction contracts. The back of the form and Section 3-8, “Prosecution and Progress,” of this manual contain instructions for filling out the weekly statement of working days.

Form CEM-2702, Overrun in Contract Time

The Division of Construction uses Form CEM-2702, “Overrun in Contract Time,” to approve “director days.” For more information see Section 3-8, “Prosecution and Progress,” of this manual.

Form CEM-3101, Notice of Materials to Be Used (Stock # 7541-3511-1)

The contractor must use Form CEM-3101, “Notice of Materials to Be Used,” to list all materials to be used on the project. See Section 6-2, “Acceptance of Manufactured Material and Sampling Methods,” of this manual for details on the use of this form. Instructions to the contractor are on the back of the form.

Form CEM-3501, AC Production/Placement Checklist

Resident engineers and assistant resident engineers may use Form CEM-3501, “AC Production/Placement Checklist,” to identify asphalt concrete paving problems.

Form CEM-3701, Test Result Summary

Resident engineers may use Form CEM-3701, “Test Result Summary” to summarize acceptance tests on each material. See Category 37, “Initial Tests and Acceptance Tests,” in Section 5-102, “Organization of Project Documents,” of this manual for details.

Form CEM-3702, Relative Compaction Summary

Resident engineers may use Form CEM-3702, “Relative Compaction Summary,” to summarize compaction test results in the same manner that Form CEM-3701 is used for other tests.

Form CEM-4101, Materials Release Summary

Resident engineers use Form CEM-4101, “Materials Release Summary,” to summarize the materials released by METS and materials inspected at the job site.

Form CEM-4102, Material Inspected and Released on Job

Resident engineers use Form CEM-4102, “Material Inspected and Released on Job,” to list certain materials that may arrive on the job site without a Form TL-0029, “Report of Inspection of Material.” See Section 6-3, “Field Tests,” of this manual for details.

Form CEM-4202, Material Plant Safety Checklist

The materials plant inspector uses Form CEM-4202, “Material Plant Safety Checklist,” when checking a materials plant for safety.

Form CEM-4204, California Test 109 Sticker

The district weights and measures coordinator affixes Form CEM-4204, “California Test 109 Sticker” to each scale tested in accordance with California Test 109. Obtain the form from the Division of Construction weights and measures coordinator. Sample form not in appendix. See Section 3-903E, “Weighing and Metering Procedures,” of this manual for details.

Form CEM-4501, Resident Engineer’s Daily Report/Assistant Resident Engineer’s Daily Report (Stock # 7541-3506-1)

The resident engineer and the assistant resident engineers use Form CEM-4501, “Resident Engineer’s Daily Report/Assistant Resident Engineer’s Daily Report,” to record project activities daily. For more information see Section 5-0, “Conduct of the Work,” of this manual.

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Form CEM-4601, Assistant Resident Engineer's Daily Report
(Stock # 7541-3504-6)

Assistant resident engineers use Form CEM-4601, "Assistant Resident Engineer's Daily Report," to record daily individual contract item activity. It is also used to record extra work activity and to verify contractors' personnel listed on payrolls. For more information see Section 5-0, "Conduct of the Work," of this manual.

Form CEM-4701, Drainage System Summary (Stock # 7541-3521-2)

Resident engineers and assistant resident engineers use Form CEM-4701, "Drainage System Summary," to record progress and summarize activity on drainage contract items. See category 47, "Drainage Systems," in Section 5-102, "Organization of Project Documents," of this manual for details.

Form CEM-4801, Quantity Calculations (Stock # 7541-3520-0)

Resident engineers and assistant resident engineers use Form CEM-4801, "Quantity Calculations," for the basic source document for most contract item quantity calculations.

Form CEM-4900, Contract Change Order (Stock # 7541-3501-0)

Resident engineers use Form CEM-4900, "Contract Change Order," for contract change orders. See Section 5-3, "Contract Change Orders," of this manual for information about contract change orders.

Form CEM-4901, Contract Change Order Input (Stock # 7541-3516-2)

Resident engineers and assistant resident engineers use Form CEM-4901, "Contract Change Order Input," to input contract change orders for the project record and estimate data. See Section 5-103D, "Contract Change Orders," of this manual for details.

Form CEM-4902, Extra Work Bill (Short Form) (Stock # 7541-3500-8)

Contractors use Form CEM-4902, "Extra Work Bill (Short Form)," for billing extra work. Details for use are on the back of the form and are also included in Section 5-103E, "Extra Work Billing," of this manual. The resident engineer may approve contractor-designed forms. With prior approval from the Division of Construction, the contractor may submit extra work bill data on a computer report identical to Form CEM-4902 for all Caltrans projects.

Form CEM 4902A, Extra Work Bill - Title Page (Stock # 7541-3496-7)

Contractors use Form CEM 4902A, "Extra Work Bill - Title Page," for billing extra work. It is the first page of the 4-part extra work bill. It identifies the project, contract change order number, method of payment and performer of work. This form also provides for manual calculation of the bill. Details for use are on the back of the form and are also included in Section 5-103E, "Extra Work Billing," of this manual. The resident engineer may approve contractor-designed forms. With prior approval from the Division of Construction, the contractor may submit extra work bill data on a computer report identical to Form CEM-4902A for all Caltrans projects.

Form CEM-4902B, Extra Work Bill - Labor Charges (Stock # 7541-3497-9)

Contractors use Form CEM-4902B, "Extra Work Bill - Labor Charges," for billing extra work. It is used to enter labor charges and other expense subject to labor markup. This form is used with CEM-4902A, "Extra Work Bill Title Page." Details for use are on the back of the form and are also included in Section 5-

103E, “Extra Work Billing,” of this manual. The resident engineer may approve contractor-designed forms. With prior approval from the Division of Construction, the contractor may submit extra work bill data on a computer report identical to Form CEM-4902B for all Caltrans projects.

Form CEM-4902C, Extra Work Bill - Equipment Charges (Stock # 7541-3498-1)

Contractors use Form CEM-4902C, “Extra Work Bill - Equipment Charges,” for billing extra work. It is used to enter equipment charges to the extra work bill. This form is used with CEM-4902A, “Extra Work Bill - Title Page.” Details for use are on the back of the form and are also included in Section 5-103E, “Extra Work Billing,” of this manual. The resident engineer may approve contractor-designed forms. With prior approval from the Division of Construction, the contractor may submit extra work bill data on a computer report identical to Form CEM-4902C for all Caltrans projects.

Form CEM-4902D, Extra Work Bill - Material Charges (Stock # 7541-3499-3)

Contractors use Form CEM-4902D, “Extra Work Bill - Material Charges,” for billing extra work. It is used to enter material charges to the extra work bill. This form is used with CEM-4902A, “Extra Work Bill - Title Page.” Details for use are on the back of the form and are also included in Section 5-103E, “Extra Work Billing,” of this manual. The resident engineer may approve contractor-designed forms. With prior approval from the Division of Construction, the contractor may submit extra work bill data on a computer report identical to Form CEM-4902D for all Caltrans projects.

Form CEM-4903, Contract Change Order Memorandum (Stock # 7541-3544-0)

Resident engineers use Form CEM-4903, “Contract Change Order Memorandum” in conjunction with Form CEM-4900, “Contract Change Order,” to report the necessary engineering and administrative data relative to the change. See Section 5-3, “Contract Change Orders,” of this manual for details.

Form CEM-5101, Request for Payment for Materials on Hand
(Stock # 7541-3522-4)

Contractors use Form CEM-5101, “Request for Payment for Materials on Hand,” to request payment for materials on hand. Instructions for the form and administrative procedures are covered in Section 3-9, “Measurement and Payment,” of this manual.

Form CEM-6001, Project Record - Estimate Request

The resident engineer uses Form CEM-6001, “Project Record - Estimate Request,” to request that an estimate be run. See Section 5-103F (1), “Procedure,” of this manual for details.

Form CEM-6002, Contract Administration System (CAS) - Report Requests

Use Form CEM-6002, “Contract Administration System (CAS) - Report Requests,” to obtain reports available from the contract administration system. See Section 5-103, “The Contract Administration System (CAS),” of this manual for details.

Form CEM-6003, Progress Pay - Estimate Project Initiation or Update

Use Form CEM-6003, “Progress Pay - Estimate Project Initiation or Update,” to add new information or to change information in the contract administration system. For details see Section 5-103B, “Project Initiation and Update,” of this manual.

Form CEM-6004, Contract Transactions Input (Stock # 7541-3515-0)

Use Form CEM-6004, “Contract Transactions Input,” to input estimate data into the contract administration system for the project record and estimate. See Section 5-103C, “Contract Transactions,” of this manual for details.

Form CEM-6201, Notice of Potential Claim

Contractors use Form CEM-6201, “Notice of Potential Claim,” to submit notices of potential claims to the resident engineer. For details on the use of this form see Section 5-4, “Disputes,” of this manual.

Form CEM-6201A, Initial Notice of Potential Claim

Contractors use Form CEM-6201A, “Initial Notice of Potential Claim,” to submit an early notice of a potential claim issue. For details on the use of this form, see Section 5-4, “Disputes,” of this manual.

Form CEM-6201B, Supplemental Notice of Potential Claim

Contractors use Form CEM-6201B, “Supplemental Notice of Potential Claim,” to submit a detailed description along with the necessary attachments of the nature, circumstances, and estimated costs of a potential claim as a follow up to Form CEM-6201A, “Initial Notice of Potential Claim.”

Form CEM-6201C, Full and Final Documentation of Potential Claim

Contractors use Form CEM-6201C, “Full and Final Documentation of Potential Claim,” to submit a complete documentation of a potential claim after completion of the work for which Forms CEM-6201A and CEM-6201B have been submitted. For details on the use of this form, see Section 5-4, “Disputes,” of this manual.

Form CEM-6202, Disputes Review Board (DRB) Establishment

Resident engineers complete and submit Form CEM-6202, “Disputes Review Board (DRB) Establishment Report,” to the Division of Construction after the initial DRB meeting has been held. For details on the use of this form, see Section 5-4, “Disputes,” of this manual.

Form CEM-6203, Dispute Review Board (DRB) Update Report

Resident engineers complete and submit Form CEM-6203, “Disputes Review Board (DRB) Update Report,” to the Division of Construction yearly beginning on the anniversary of the contract first working day. For details on the use of this form, see Section 5-4, “Disputes,” of this manual.

Form CEM-6204, Dispute Review Board (DRB) Issue Report

Resident engineers complete and submit Form CEM-6204, “Disputes Review Board (DRB) Issue Report,” to the Division of Construction when Caltrans has sent a response to DRB recommendation and the contractor’s response has been received or has been accepted by default. For details on the use of this form see Section 5-4, “Disputes,” of this manual.

Form CEM-6205, Dispute Review Board (DRB) Completion Report

Resident engineers complete and submit Form CEM-6205, “Disputes Review Board (DRB) Completion Report,” to the Division of Construction 30 days after receipt of the contractor’s exceptions to the proposed final estimate. For details on the use of this form see Section 5-4, “Disputes,” of this manual.

Form CEM-6301, Contract Acceptance

Resident engineers use Form CEM-6301, “Contract Acceptance,” to document acceptance and the various quantities delivered by the contract. Instructions are on the back of the form. For details on the use of this form see Section 3-710, “Acceptance of Contract,” of this manual.

Form CEM-9001 Construction Manual Proposed Change

Caltrans personnel may use Form CEM-9001 “Construction Manual Proposed Change,” to submit a proposed change to the *Construction Manual*. Forms should be sent to the Division of Construction.

5-101C Office of Materials Engineering and Testing Services Forms (METS)

Order METS forms by stock number from district warehouses or stockrooms. Find forms without stock numbers on the Caltrans Electronic Form System’s (CEFS) Intranet web site: <http://adsc.caltrans.ca.gov/CEFS/>. The appendix of this manual contains samples the forms that are generated in construction. Forms without stock numbers can also be obtained by contacting METS.

Form TL-0028, Notice of Materials to be Inspected

METS uses Form TL-0028, “Notice of Materials to be Inspected,” to assign inspection duties. METS sends copies of these assignment forms to the resident engineer. Sample form not in appendix.

Form TL-0029, Report of Inspection of Material (Stock # 7541-6001-2)

METS will complete Form TL-0029, “Report of Inspection of Material,” to confirm the inspection of material to which the inspector has attached inspection release tags or other means of identification. METS mails the report to the resident engineer, who will compare it with inspection tags or markings on delivered materials. Sample form not in appendix.

Form TL-0101, Sample Identification Card

Use Form TL-0101, “Sample Identification Card,” to submit samples to METS or district materials laboratories for testing materials other than field samples of concrete (compressive strength) and cement samples.

Form TL-0502, Field Sample of Portland Cement Concrete Sample Card
(Stock #7541-6018-8)

Use Form TL-0502, “Field Sample of Portland Cement Concrete Sample Card,” to submit compressive strength samples of concrete. Refer to Section 6-3, “Field Tests,” for details on marking of samples.

Form MR-0518, Job Cement Samples Record (Stock # 7541-6019-0)

Use Form MR-0518, “Job Cement Samples Record,” to submit cement samples for testing. Instructions for the use of this form are found in Section 6-2, “Acceptance of Manufactured Material and Sampling Methods,” of this manual.

Form TL-0608, Notice of Materials to be Furnished

METS uses Form TL-0608, “Notice of Materials to be Furnished,” to notify the manufacturer that a METS inspector has been assigned to inspect a specific item. See Section 6-2, “Acceptance of Manufactured Material and Sampling Methods,” of this manual for more details. Sample form not in appendix.



Form TL-0624, Inspection Release Tag

When a METS Inspector has inspected material, the inspector will attach Form TL-0624, “Inspection Release Tag,” with lot numbers, inspector’s initials, and date of inspection. For materials where it is not practicable to attach tags, the inspector will mark lot numbers on the material in lieu of attaching the tags. Sample form not in appendix.

Form TL-0649, Inspector’s Report of Material on Hand

METS uses Form TL-0649, “Inspector’s Report of Material on Hand,” to verify that material has been inspected and is in acceptable condition. See Section 3-9, “Measurement and Payment,” of this manual for details. Sample form not in appendix.

Form TL-3096, Pavement Core Record

The district materials unit uses Form TL-3096, “Pavement Core Record,” to record the data on cores that are taken to determine pavement thickness. See Section 4-40, “Portland Cement Concrete Pavement,” of this manual for details. Sample form not in appendix.

Form TL-6037, Fabrication Progress Report

DMETS uses Form TL-6037, “Fabrication Progress Report,” to notify resident engineers of progress being made on fabrication of various items. See Section 3-9, “Measurement and Payment,” for details. Sample form not in appendix.

5-101D Other State Forms

Following is a list of state forms used in contract administration that are not issued by the Division of Construction or METS.

Form DAS-1, Apprentice Agreement

Form DAS-1, “Apprentice Agreement,” provides evidence of registration of the contractor’s apprenticeship program (Sample form not in appendix). Contractors obtain Form DAS-1 from the *California Department of Industrial Relations, Division of Apprenticeship Standards*.

Form H-ESP-16, Request for Construction Staking (Stock #7541-4542-7)

The contractor uses Form H-ESP-16, “Request for Construction Staking,” to request construction staking. The resident engineer and the survey party chief add information to the request. It serves as a record of construction staking and any charges to the contractor for re-staking. For information on construction surveys and use of Form H-ESP-16, see Chapter 12, “Construction Surveys,” of the *Caltrans Surveys Manual*.

Form LA-16, Product, Material, or Method Report (For Highway Planting or Erosion Control)

Use Form LA-16, “Product, Material, or Method Report (For Highway Planting or Erosion Control),” to report new products, materials, or methods for erosion control and highway planting. Send the completed report to the district landscape architect and to the Landscape Architecture Program. See section 4-2001, “General,” of this manual for details.

Form LA-17, Report of Chemical Spray Operations

The contractor uses Form LA-17, “Report of Chemical Spray Operations,” to submit the required weekly pesticide application report. See Section 4-2003C (2), “Pesticides,” of this manual for details.

Form TR-0019, Notice of Change in Clearance or Bridge Weight Rating

Use Form TR-0019, “Notice of Change in Clearance or Bridge Weight Rating,” to report permanent changes to vertical or horizontal clearance for vehicular traffic or permanent changes in bridge permit ratings on divided roadways. See Section 3-705B, “Clearance and Bridge Permit Rating Changes (Permanent),” of this manual for details.

Form TR-0020, Notice of Change in Vertical or Horizontal Clearance

Use Form TR-0020, “Notice of Change in Vertical or Horizontal Clearance,” to report permanent changes to vertical or horizontal clearance for vehicular traffic. See Section 3-705B, “Clearance and Bridge Permit Rating Changes (Permanent),” of this manual for details.

Form TR-0029, Notice of Change in Clearance or Bridge Weight Rating

Use Form TR-0029, “Notice of Change in Clearance or Bridge Weight Rating,” to report permanent changes to vertical or horizontal clearance for vehicular traffic or permanent changes in bridge permit ratings on undivided roadways. See Section 3-705B, “Clearance and Bridge Permit Rating Changes (Permanent),” of this manual for details.

5-101E Federal Forms

Following is a list of some federal forms that are used in contract administration.

Form FHWA-47M Statement of Materials and Labor Used By Contractors On Highway Construction Involving Federal Funds

The contractor must submit Form FHWA-47M “Statement of Materials and Labor Used By Contractors On Highway Construction Involving Federal Funds,” on federal-aid contracts when the amount paid to the contractor is in excess of \$1,000,000. Instructions are on the back of the form. Sample form not in appendix. Obtain the form from the United States Department of Transportation, Federal Highway Administration’s web site: <http://www.fhwa.dot.gov/>

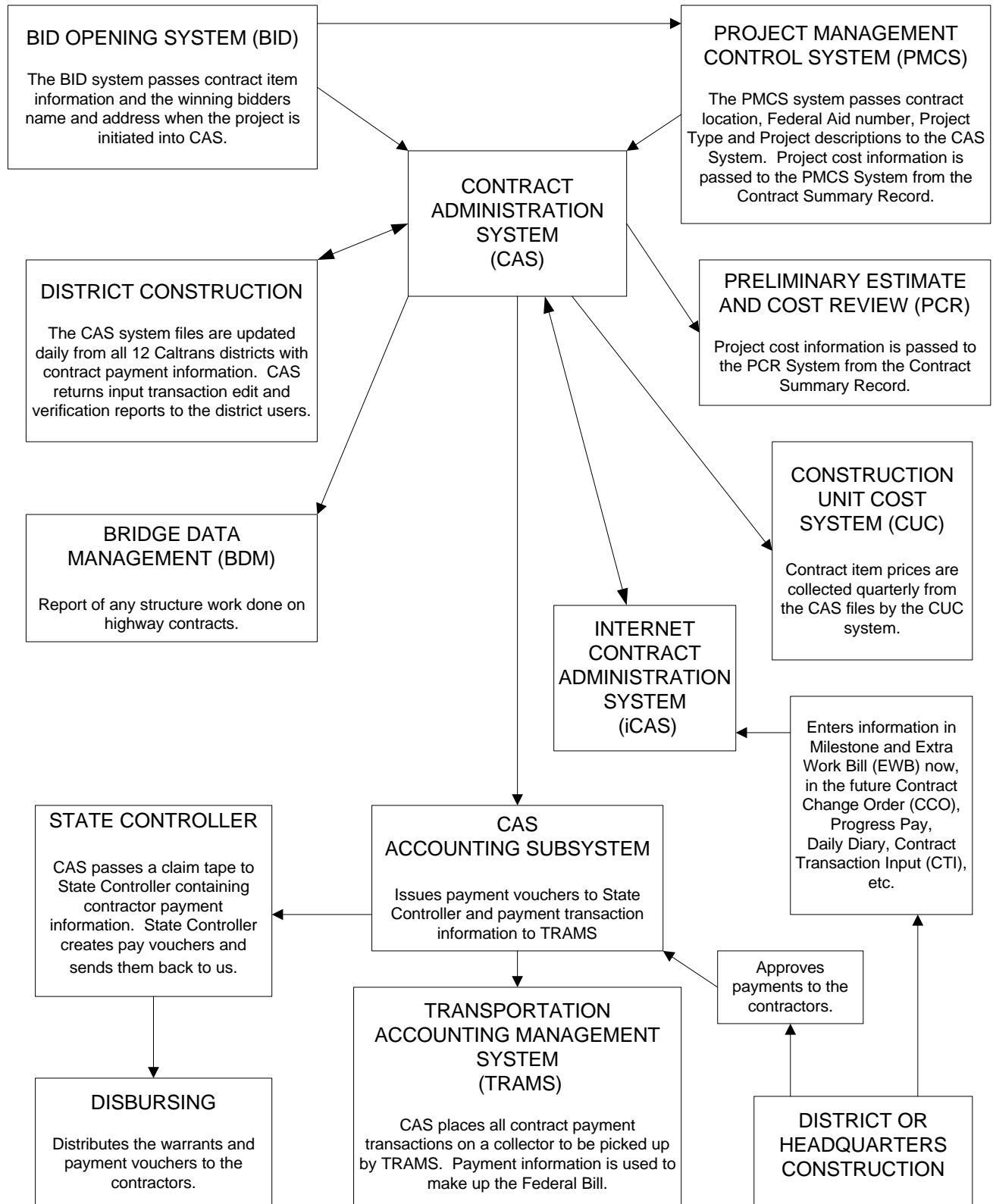
Form FHWA-1022 United States Department of Transportation Notice

The contractor must post Form FHWA-1022 “United States Department of Transportation Notice,” on each federal-aid highway project in one or more places where it is readily available to all personnel associated with the project. The resident engineer must also post the notice at the Caltrans field office. (Sample form not in appendix). Obtain the form from the United States Department of Transportation, Federal Highway Administration’s web site: <http://www.fhwa.dot.gov/>

Form FHWA-1391 Federal-Aid Highway Construction Contractors Annual EEO Report

The contractor must submit Form FHWA-1391 “Federal-Aid Highway Construction Contractors Annual EEO Report,” on all federal aid contracts over \$10,000. All subcontractors on federal aid projects whose subcontracts exceed \$10,000 must also submit the report. Contractors and subcontractors include project employment data for the last full week of July on the report. Sample form not in appendix. Obtain the form from the United States Department of Transportation, Federal Highway Administration’s web site: <http://www.fhwa.dot.gov/>

Table 5-1.1 Contract Administration System, Systems Interface



5-103B Project Initiation and Update

When Caltrans has determined the lowest responsible bidder, the Office of Office Engineer will transfer project data from the Bid Opening System to CAS. Usually, this data transfer will occur before awarding the contract and before determining the total allotment. When this information about the award and total allotment becomes available, the Division of Construction will then update the computer file (by adding to or changing existing information).

Immediately after the new contract information in the computer file has been transferred from the Bid Opening System, the data is available to the district for processing. The district must then update the file with district information such as the resident engineer's name and address, the bridge representative's name, and the project's password. To perform the update, the district uses Form CEM-6003, "Project Pay—Estimate Project Initiation or Update" which is explained in more detail under the heading "Filling Out Form CEM-6003," below.

The result of the district's file update will be a dummy Form CEM-6001, "Project Record-Estimate Request," and a contract contents report, which lists contract items. The form and report should be checked thoroughly and any discrepancies brought immediately to the attention of the Division of Construction progress pay coordinator.

During a contract's life, the contractor may request a local address change or a legal name style address change. The district must maintain the accuracy of local address information in CAS using Form CEM-6003, "Project Pay-Estimate Project Initiation or Update." The State Controller mails progress payment checks to the legal name style address. Only the Division of Construction's progress pay coordinator is authorized to make changes to the legal name style address from Form CEM-1202, "Contractor Action Request - Change of Name/Address-Assignment of Contract Monies," verified by the resident engineer with the Division of Construction field coordinators concurrence.

5-103B (1) Completing Form CEM-6003, "Project Pay-Estimate Project Initiation or Update"

The purpose of Form CEM-6003 is to add new information, or to change information, in the computer file. The computer program will accept such changes only for contracts in your own district.

Except for the "Project Key," complete only the data fields that you wish to update. The computer program will ignore blank fields and will place the data from the completed fields in the file whether or not such information is already on file. Fields left blank on the input form do not change what is in the file.

Ensure the data you enter on the form conforms to these rules, listed by data field as follows:

5-103B (1a) Project Key

Enter the letter "U" under "FB," and in the remaining spaces, enter the district and contract number.

5-103B (1b) Card type C05 (each field is independent and can be updated separately)

For the following data fields under card type C05, do the following:

- Resident engineer's phone number.
- Responsible unit: The responsible unit may range from 501 to 545. Warning: Until this number is in the computer file, progress pay estimates cannot be processed.

- Date work started: Enter the date the contractor began work on the job site. If work has not begun, leave this field blank and submit an update when work begins.
- Estimated date for completion: Enter your best estimate, not the calculated completion date. When progress estimate requests are submitted, this date is updated.
- Password: Use of this feature is optional. Enter any combination of six characters. The characters may be alphabetic, numeric, or one of the following special characters: *, /, =, (,), +, -, @, #, %, &. Once established, this password is required when you file, among other things, contract item payments, using Form CEM-6004, "Contract Transactions Input." The password will restrict access to the computer files.
- Suspension or reactivation: If a contract is suspended, enter the date of suspension and "S" in the "SR" column. When the suspended contract is reactivated, enter the date of reactivation and "R" in the "SR" column. You only have 30 calendar days from the suspension or reactivation date to enter this information into the computer.
- Plant establishment: For projects requiring retentions be held at 5 percent for the contract's life, enter an "X" in the "PE" column.
- Begin construction date: Enter the date that contract time begins, usually 15 calendar days after the approval date. This is the date used to calculate the number of working days that determine satisfactory progress and the percent of time elapsed.

5-103B (1c) Card type C06 to C08

Resident engineer's mailing address: On the first line, enter the resident engineer's last name first, followed by a comma. Then enter a space and the first name, followed by a space and middle initial (SMITH, John C.). On the second and third lines, enter the mailing address of the construction field office. Warning: The computer program treats all three lines as a single "data field." If you need to change this field, you must reenter all three lines.

5-103B (1d) Card type C09 to C14

Only the Division of Construction progress pay coordinator can change the legal name style address in CAS.

To change the contractor's local address: Enter the contractor's name on line C09, and as necessary, continue the name on lines C10 through C12. Leave unused lines blank.

Enter the contractor's local address on lines C13 and C14. Also enter the contractor's local phone number on line C14.

Warning: You must enter the entire name and address each time you wish to update any or all of these lines. You cannot update a single line.

5-103B (1e) Card type C15

For the following data fields under card type C15, do the following:

- Structure representative's name: If the contract requires structure work, enter the structure representative's name even if it is the same name as the resident engineer's. Enter only the last name and first initial (SMITH, J.)
- Structure responsible unit: This unit is the source unit that the Office of Structure Construction uses to code its time sheet. The unit may range from 550 to 599.
- Original authorized amount for structure work: At the contract's start, the resident engineer and the structure representative must determine the initial value of the required structure work. This value should include any portion of the contract item for mobilization that will be claimed as structure work. Warning: If this amount is not on file, the Office of Structure Construction cannot obtain any reports for this contract.
- Structure mobilization percentage: Enter, to the nearest whole percent, the portion of the contract item for mobilization that will be claimed as structure work.
- Structure completion: Enter a "C" to indicate the completion of structure work.

5-103B (2) Processing

CAS analyzes the changes made to the computer file and does the following:

- CAS notes whether the district is updating the "Responsible Unit" field for the first time. If so, CAS prints a dummy Project Record-Estimate form and a Contract Contents Report.
- If this update is not the first update, CAS prints only the first page of the Contract Contents Report. CAS prints the dummy Project Record-Estimate form only if the contractor's name and address field has been changed.
- CAS also prints a listing of update requests, which is a summary report of all fields that have been updated in this run.

5-103C Contract Transactions

The majority of all data submitted to CAS will be contract transactions from the resident engineer on Form CEM-6004, "Contract Transactions Input." Contract transactions are divided into the following three categories:

- Contract item transactions: These consist of five types of transactions that refer to contract items.
- Miscellaneous transactions: These consist of four types of transactions to handle general project needs.
- Contract change order transactions: These consist of three types of transactions that refer to contract change orders.

The Contract Transaction Processing Module processes this total of 12 transaction types. Together with the services that the CCO and DEWR Processing Modules perform, these modules are sufficient to generate contract records that provide control of progress payments and track the financial status of the contract.

5-103C (1) Transaction Types

The following describes, by category, the 12 possible transaction types:

5-103C (1a) Contract Item Transactions

CAS provides five different ways to refer to a contract item in Form CEM-6004, “Contract Transactions Input.” Another way is by including the item as part of a contract change order. This will cause the approved quantity to be adjusted automatically. Thus, you do not have to account for status changes due to contract change orders. You can reference contract items through the following contract item transactions:

- **Contract item payment:** Make item payments by posting line entries to Form CEM-6004 in any random order. Indicate bridge items by entering “B” in the proper column. If you use the report entitled *Bridge Quantities by Structure*, you will also need to enter the structure number in accordance with instructions in Volume I, Section 6, of the *Bridge Construction Records and Procedures Manual*.
- **Contract item quantity balance:** You may adjust the authorized quantity if necessary by submitting quantity balances as line entries on Form CEM-6004. You might need to make this type of transaction for various reasons. For example, a need might exist because of an incorrect engineer’s estimate for a contract item that would have a major impact on the contingency balance. This transaction type adjusts the authorized final cost for your project, as we will show in our later discussion of progress pay estimates.
- **Contract item anticipated change:** This transaction’s purpose is to give the engineer a method to allocate project funds to a specific contract item based on knowledge of anticipated additional or decreased work. Such transactions affect the estimated final quantity for the item and also the estimated final cost for the project. The effect of these transactions is cumulative. If additional work is authorized by contract change order, a reversing entry is necessary.
- **Contract item final balance:** When work is completed on a contract item, you should enter this fact into the system. This entry will mark the item in the computer file as “Complete.” On all subsequent progress pay estimates, the authorized quantity and the estimated final quantity will default to the amount paid to date, thus automatically balancing out the item. Additional item payments may be made, and the system will continue to balance the contract items.
- **Contract item final balance (“Reopen”):** This transaction allows you to reverse the status of the contract item from “Complete” to “Active.” For example, you would use “Reopen” to change an incorrect entry that showed the item was complete.

5-103C (1b) Miscellaneous Transactions

The four transaction types listed below comprise “miscellaneous transactions,” the second category of contract transactions:

- **Anticipated change:** Use this transaction to record anticipated additional or decreased work when it is not possible or desirable to tie the anticipated change to a specific contract item or contract change order. These transactions are not cumulative and will affect the project’s estimated final cost only on the next progress pay estimate to be generated.
- **Material on hand payments:** These transactions are placed in the computer file, and their sum will appear on the next progress pay estimate that generates payment. For more information about materials on hand, see Section 3-9, “Measurement and Payment,” of this manual.
- **State-furnished materials allotment transfer:** Use this transaction to increase or decrease the value of the state-furnished materials allotment for your contract. The construction allotment will automatically adjust. To increase the state-furnished materials allotment, enter a positive number. (This type of entry will decrease the contingency balance.)
- **Total allotment changes:** Use this transaction to enter into the system any supplemental allotment that increases (or decreases) your contract’s total allotment. The total allotment in the computer file will adjust automatically as will the construction allotment. The construction allotment is defined as the total allotment less the state-furnished materials allotment.

5-103C (1c) Contract Change Order Transactions

The three transaction types listed below comprise “contract change order transactions,” the final category of contract transactions:

- **Contract change order anticipated change:** This transaction has the same effect as does the contract item anticipated change except that a contract change order is being changed.
- **Contract change order final balance:** This transaction has the same effect as does a contract item balance. When work on a contract change order is finished, mark it “Complete” by entering this transaction. As with contract items, additional extra work bills may be paid, and the system will continue to balance the contract change order.
- **Contract change order final balance (“Reopen”):** This transaction allows you to reverse the status of the contract change order from “Complete” to “Active.”

5-103C (2) Completing Form CEM-6004, “Contract Transactions Input”

The engineer will use Form CEM-6004 more often than any other form in CAS. Page 2 of the form provides instructions for completing it, and this section contains a completed sample of the form. See Example 5-1.2, “Contract Transaction Input.”

We cannot overemphasize the importance of legible entries that conform to the instructions for completing the form. Also, because of the high volume of transactions, make your entries on Form CEM-6004 as soon as the information becomes available. Partially filled pages are acceptable.

The sample form in this section shows some transactions. Note that leading zeros are not required in the numeric fields and that the plus sign is not required in the +/ - columns. The following instructions are for the fields common to all transactions:

- Enter the district, contract number, password (if used), and page number. When assigning a page number, be careful because duplicate numbers will cause all transactions on the page to be rejected. You must complete these fields.
- Enter the posting date.
- Enter the source document description. If the transaction type refers to a project source document, (for example, a calculation sheet or a scale sheet), enter into the form's description column an adequate description of the source document. The source document must cross reference to Form CEM-6004. Post the page number, line number, and posting date from Form CEM-6004 to the source document. See Example 5-1.1, "Quantity Calculation," for a typical source document.
- Note: The last six characters of the source document description can be the structure number if this item concerns structure work.
- Mark the structure field with the character "B" if this transaction concerns "structure work." Otherwise, leave the space blank. If you use the report entitled *Bridge Quantities by Structure*, you will also need to enter the structure number in accordance with the instructions in Volume I, Section 6, of the *Bridge Construction Records and Procedures Manual*.

The form's remaining fields are divided into two sections, "Contract Item Entries," and "All Other Entries." If you make any entry in one or more fields of one of the sections, all fields in the other section must be left blank. A single line entry cannot serve double duty.

5-103C (2a) Contract Item Entries

Each type of contract item transaction has its own format. Fill in the various fields as shown on page 2 of Form CEM-6004. The following are the rules for making contract item entries:

- Quantity balance transactions:
 1. Lump sum items cannot be quantity balanced. If you attempt to quantity balance them, the transaction will be rejected.
 2. If the quantity balance is greater than the bid quantity, a warning message is issued.
 3. If the value of the quantity balance exceeds \$100,000, a warning message is issued.
 4. The new authorized quantity is calculated. If it is negative, the transaction will be rejected.
 5. If the new authorized quantity is less than the total payment for the next estimate, a warning message is issued. Take appropriate action on this warning, such as estimating the final quantity and inputting the increase, covering the increase by change order, or requesting the computer to final balance the item. Such action is necessary to keep the project's status of funds current.

- For item final balance and item final balance ("Reopen"), the item status is set to "Complete," or "Active," respectively. The system does not check to see if the item is a lump sum item or a final pay item.
- Item anticipated quantity change:
 1. If the anticipated quantity change is greater than the bid quantity, a warning message is issued.
 2. If the value of the anticipated quantity change exceeds \$100,000, a warning message is issued.
 3. A new estimated final quantity is calculated. If this estimated final quantity is negative, a warning message is issued.
 4. If the new estimated final quantity is less than the total payment for the next estimate, a warning message is issued.
- Item payment:
 1. Any transactions for the item "Mobilization" are rejected.
 2. Any transactions for a void item will be rejected.
 3. If the payment quantity is greater than the bid quantity, a warning message is issued.
 4. If the value of the payment quantity exceeds \$100,000, a warning message is issued.
 5. The new total payment for the next estimate is calculated. If the total is negative, the transaction is rejected. (Negative transactions under "This Estimate" will be accepted.)
 6. If the contract item is a lump sum item and the total payment for the next estimate would exceed 100 percent, the transaction is rejected.
 7. If the contract item is not a lump sum item, the new total payment for the next estimate is compared to 125 percent of the bid quantity and the authorized quantity. Warning messages are issued if the total payment is more than one or both of these.

If the system issues any warning or rejection messages while it processes transactions for a contract item, the complete status of the item will be printed on the Contract Transactions Input Edit report before the system begins processing the next contract item. Use this printout to determine the reason the system issued the message.

- Percentages for lump sum quantity payments must be expressed as decimals. Only three decimal places are available. If 5 percent is to be paid, it must be entered as 0.050; (5.00 is 500 percent).

5-103C (2b) Miscellaneous Transactions

The following are the rules for making miscellaneous transactions:

- Anticipated changes:
 1. If the amount anticipated exceeds \$100,000, a warning message is issued.
 2. If the amount anticipated exceeds 10 percent of the construction allotment, a warning message is issued.

- Material on hand payments:
 1. If the amount exceeds \$100,000, a warning message is issued.
 2. If the amount is negative, a warning message is issued. (The system assumes that this is a correcting entry to a previous transaction accepted by the system and not yet processed for payment.)
 3. A total is calculated for payment for the next estimate. This is the sum of all transactions since the last estimate. If the total is negative, a warning message is issued.
- State-furnished materials allotment transfer:
 1. If the amount of the transfer exceeds \$100,000, a warning message is issued.
 2. A new total is calculated for the state-furnished materials allotment. If it is negative, the transaction is rejected.
- Total allotment changes:
 1. If the amount exceeds \$100,000, a warning message is issued.
 2. If the amount exceeds 10 percent of the total allotment, a warning message is issued.
 3. If the amount of the change is negative, a warning message is issued.
 4. A new total allotment is calculated. If the amount is negative, the transaction is rejected.
 5. If the new total allotment is less than the total paid to date on the last estimate, a warning message is issued.

5-103C (2c) Contract Change Order Transactions

The following are the rules for contract change order transactions:

- For the contract change order anticipated change, the new estimated final cost is computed for the contract change order and reported. The system does not do any checking.
- Contract change order final balance and final balance (“Reopen”):
 1. The contract change order status is set to “Complete,” or “Active,” respectively. The system does not do any checking.
 2. For a contract change order final balance (“Reopen”), the word “Reopen” must be left-justified.

5-103C (2d) General

The Contract Transactions Processing Module will sort your transactions into order, will edit each transaction for reasonableness and conformance to this manual, and will either accept or reject each transaction. From this processing, the system will issue a report entitled “Contract Transactions Input Edit.” This report will list the disposition of each line entry that you submitted. A comprehensive set of warning messages exists. Do not ignore warning messages on the report.

Do not use the same page and line numbers again.

You will find a summary on the last page of the Contract Transactions Input Edit report. The summary lists each Form CEM-6004 page that was processed and the numbers of transactions on that page that were accepted, for which warnings were issued, or that were rejected. Any missing line numbers on the page (breaks in the sequence of line numbers) will be printed. Use this list to ensure that all the transactions were entered into the system.

Examine the remainder of the report. You must respond to rejected entries and possibly to warnings.

5-103C (2e) Audit Trail

In any accounting procedure, it is necessary to link transactions to the specific source documents that generate the transactions. This linking is called an audit trail. Contract change orders and daily extra work reports carry unique identifying numbers that CAS uses in its processing. Here, a good audit trail is automatic. However, contract transactions are different since there is no automatic reference to a unique source document.

CAS provides methods of cross-reference. You are responsible for an adequate audit trail. Note that Form CEM-6004 is an intermediate document

6-102C (1) *Priority of Testing Samples*

Mark all Form TL-0101s, "Sample Identification Card," "Priority" or "Normal".

6-102C (1a) Priority

Use the "priority" designation for the first few samples of each construction material and all acceptance samples and tests of bituminous mixtures. Continue using the priority designation until the resident engineer has assurance that the material being produced is of consistent quality. Use the "priority" designation for all samples if the material being supplied is of questionable quality or if the operation or the source of the material changes.

Indicate if there is a preference for telephone, faxed, or e-mailed test results on Form TL-0101, along with the telephone number of the person who is to receive them.

6-102C (1b) Normal

For tests on samples from potential sources and for samples on materials entering the work after the resident engineer has assurance that the material is of consistent acceptable quality use the "normal" designation. Reports on tests with "normal" designations are distributed by mail.

6-102C (2) *Certification of Samplers and Testers*

All acceptance testers require certification. No tests or samples are to be taken on Caltrans projects unless the tester is certified in the test being performed.

Training and certification of samplers and testers is covered in detail in the *Independent Assurance Manual*.

6-102D Independent Assurance Sampling and Testing

Independent assurance sampling and testing is the responsibility of the district materials engineer. See the *Independent Assurance Manual* published by METS for details. The district materials unit keeps results of independent assurance samples and tests.

If any of the assurance tests fail, the tester will notify the resident engineer immediately by telephone.

6-102E Federal Highway Administration Samples and Tests

When the project includes federal funding, a representative of the Federal Highway Administration (FHWA) may select samples or sample locations. Label the sampling, directed by FHWA, "FHWA Check Samples," and send them to either the district materials laboratory or METS for testing. FHWA, the district materials engineer, and the resident engineer receive copies of test results for check samples.

6-102F Special Samples and Tests

Specific problems such as roadway failures, difficulty in achieving required densities, or inconsistent test results, may require special samples and tests. When such material problems are encountered, contact the district materials engineer. The district materials engineer may request help from the Division of Construction or METS. The unit that requests a research project will provide oversight for special investigations and sampling.

6-103 6-103 Acceptance Records

Acceptance Records

Keep records of all samples and tests in the project files as permanent job records. Materials incorporated into the project, represented by failing tests, must be documented in the project files also. For more information on procedures to follow in the case of failing tests refer to Section 3-6, “Control of Materials,” of this manual.

It is not necessary to secure separate samples for each project when two or more projects receive materials from the same source. File a copy of the test report with each project.

6-104 6-104 Test Result Summary

Test Result Summary

Monitor acceptance testing by using form CEM-3701, “Test Result Summary.” Corrective action or retesting failing tests must be noted in the “Remarks” column of the form.

6-105 6-105 Field Tested Material Sample Identification

Field Tested Material Sample Identification

Prepare Form TL-0101, “Sample Identification Card,” in accordance with the following details:

- Fill in every blank space with complete information, including the quantity and lot of the material sampled.
- Distribute copies as shown on the form on the same day the sample is shipped.
- The “Location of Source” must clearly indicate the place where the sample was obtained.
- For liquid asphalts, paving asphalts and asphaltic emulsions include the refinery designations and shipment number. This data is available from the Certificate of Compliance that accompanies the materials.
- For asphalt concrete samples, be sure to:
 1. Identify the plant producing the material.
 2. Include the type of mix and maximum size of aggregate represented by the sample.
 3. Under “Remarks,” include the grade and source of the bituminous binder contained in the sample.
 4. Under “Remarks,” record the percentage of bituminous binder designated by the engineer.
- Be sure that the Sample Identification Card indicates the use for which the material is intended so that the proper tests will be performed. This is especially important for electrical conductors, as the applicable specifications depend on where and how the conductor is to be used. Without this information, the testing engineer does not know what specification to use in determining compliance.
- Indicate whether it is intended to crush oversize material or if any special blends are contemplated for potential sources of aggregate testing.
- To protect the Sample Identification Card against moisture or stains, place it in an oil and waterproof envelope.

Forms Used For Contract Administration

Page No.

Division of Construction Forms

<i>Form CEM-0101, Resident Engineer's Report of Assignment.....</i>	<i>A-1.1</i>
<i>Form CEM-0501, Relief from Maintenance</i>	<i>A-1.2</i>
<i>Form CEM-0601, Construction Safety Report</i>	<i>A-1.3</i>
<i>Form CEM-0602, Project Safety Program Statement</i>	<i>A-1.4</i>
<i>Form CEM-0603, Major Construction Incident Notification.....</i>	<i>A-1.5</i>
<i>Form CEM-1101, Documents Bond of State Highway Oversight Projects.....</i>	<i>A-1.7</i>
<i>Form CEM-1201, Subcontracting Request</i>	<i>A-1.9</i>
<i>Form CEM-1202, Contractor Action Request - Change of Name/Address - Assignment of Contract Monies</i>	<i>A-1.9A</i>
<i>Form CEM-1203, Contractor Action Request - Assignment of Contract Monies.....</i>	<i>A-1.9B</i>
<i>Form CEM-2001, National Pollution Discharge Elimination System Annual Certification</i>	<i>A-1.11</i>
<i>Form CEM-2002, Notification of Construction (NOC).....</i>	<i>A-1.13</i>
<i>Form CEM-2003, Notification of Completion of Construction (NCC).....</i>	<i>A-1.17</i>
<i>Form CEM-2025, Solid Waste Disposal and Recycling Report.....</i>	<i>A-1.19</i>
<i>Form CEM-2101, COZEEP Daily Report</i>	<i>A-1.21</i>
<i>Form CEM-2102, COZEEP/MAZEEP Task Order.....</i>	<i>A-1.23</i>
<i>Form CEM-2103, COZEEP/MAZEEP Cancellation Form.....</i>	<i>A-1.25</i>
<i>Form CEM-2401, Substitution Report for Disadvantaged Business Enterprise/Disabled Veteran Business Enterprise.....</i>	<i>A-1.27</i>
<i>Form CEM-2402(F), Final Report- Utilization of Disadvantaged Business Enterprises (DBE), First - Tier Subcontractors (Federally Funded Projects).....</i>	<i>A-1.29</i>
<i>Form CEM-2402(S), Final Report - Utilization of Disabled Veteran Business Enterprises (DVBE) State Funded Projects.....</i>	<i>A-1.31</i>
<i>Form CEM-2403(F), Disadvantaged Business Enterprises (DBE) Certification Status Change</i>	<i>A-1.33</i>
<i>Form CEM-2404(F), Monthly DBE Trucking Verification</i>	<i>A-1.35</i>
<i>Form CEM-2501, Fringe Benefit Statement.....</i>	<i>A-1.37</i>
<i>Form CEM-2502, Contractor/Subcontractor Payroll</i>	<i>A-1.38</i>
<i>Form CEM-2503, Statement of Compliance.....</i>	<i>A-1.39</i>
<i>Form CEM-2504, Employee Interview: Labor Compliance/EEO.....</i>	<i>A-1.41</i>
<i>Form CEM-2504 (Spanish), Entrevista de Empleado: Labor Compliance/EEO.....</i>	<i>A-1.43</i>
<i>Form CEM-2505, Owner - Operator Listing Statement of Compliance</i>	<i>A-1.45</i>
<i>Form CEM-2506, Labor Compliance – Wage Violation</i>	<i>A-1.47</i>
<i>Form CEM-2507, Labor Violation: Case Summary.....</i>	<i>A-1.49</i>
<i>Form CEM-2508, Contractor's Payroll Source Document Review</i>	<i>A-1.51</i>
<i>Form CEM-2509, Checklist – Source Document Review.....</i>	<i>A-1.53</i>

<i>Form CEM-2601, Construction Progress Chart</i>	<i>A-1.55</i>
<i>Form CEM-2701, Weekly Statement of Working Days.....</i>	<i>A-1.57</i>
<i>Form CEM-2702, Overrun in Contract Time.....</i>	<i>A-1.59</i>
<i>Form CEM-3101, Notice of Materials to be Used.....</i>	<i>A-1.61</i>
<i>Form CEM-3501, AC Production/Placement Checklist</i>	<i>A-1.63</i>
<i>Form CEM-3701, Test Result Summary</i>	<i>A-1.65</i>
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<i>Form CEM-4102, Material Inspected and Released on Job.....</i>	<i>A-1.68</i>
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<i>Form CEM-4501, Resident Engineer's Daily Report/Assistant Resident</i>	
<i>Engineer's Daily Report</i>	<i>A-1.70</i>
<i>Form CEM-4601, Assistant Resident Engineer's Daily Report</i>	<i>A-1.71</i>
<i>Form CEM-4701, Drainage System Summary</i>	<i>A-1.73</i>
<i>Form CEM-4801, Quantity Calculations.....</i>	<i>A-1.75</i>
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<i>Form CEM-4902, Extra Work Bill (Short Form)</i>	<i>A-1.81</i>
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<i>Form CEM-4902B, Extra Work Bill - Labor Charges.....</i>	<i>A-1.85</i>
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<i>Form CEM-4902D, Extra Work Bill - Material Charges</i>	<i>A-1.89</i>
<i>Form CEM-4903, Contract Change Order Memorandum</i>	<i>A-1.91</i>
<i>Form CEM-5101, Request for Payment for Materials on Hand.....</i>	<i>A-1.93</i>
<i>Form CEM-6001, Project Record - Estimate Request.....</i>	<i>A-1.94</i>
<i>Form CEM-6002, Contract Administration System (CAS) –Report Requests.....</i>	<i>A-1.95</i>
<i>Form CEM-6003, Progress Pay - Estimate Project Initiation or Update.....</i>	<i>A-1.96</i>
<i>Form CEM-6004, Contract Transactions Input</i>	<i>A-1.97</i>
<i>Form CEM-6201, Notice of Potential Claim</i>	<i>A-1.99</i>
<i>Form CEM-6201A, Initial Notice of Potential Claim</i>	<i>A-1.101</i>
<i>Form CEM-6201B, Supplemental Notice of Potential Claim</i>	<i>A-1.103</i>
<i>Form CEM-6201C, Full and Final Documentation of Potential Claim</i>	<i>A-1.105</i>
<i>Form CEM-6202, Disputes Review Board (DRB) Establishment</i>	<i>A-1.107</i>
<i>Form CEM-6203, Dispute Review Board (DRB) Update Report</i>	<i>A-1.109</i>
<i>Form CEM-6204, Dispute Review Board (DRB) Issue Report</i>	<i>A-1.111</i>
<i>Form CEM-6205, Dispute Review Board (DRB) Completion Report</i>	<i>A-1.113</i>
<i>Form CEM-6301, Contract Acceptance</i>	<i>A-1.115</i>
<i>Form CEM-9001, Construction Manual Proposed Change.....</i>	<i>A-1.117</i>

Office of Materials Engineering and Testing Services Forms

<i>Form TL-0101, Sample Identification Card</i>	<i>A-1.118</i>
<i>Form TL-0502, Field Sample of Portland Cement Concrete Sample Card</i>	<i>A-1.119</i>
<i>Form MR-0518, Job Cement Samples Record.....</i>	<i>A-1.120</i>

Other State Forms

<i>Form LA-16, Product, Material, or Method Report (For Highway Planting or Erosion Control)</i>	<i>A-1.121</i>
<i>Form LA-17, Report of Chemical Spray Operations</i>	<i>A-1.122</i>
<i>Form TR-0019, Notice of Change in Clearance or Bridge Weight Rating.....</i>	<i>A-1.123</i>
<i>Form TR-0020, Notice of Change in Vertical or Horizontal Clearance</i>	<i>A-1.124</i>
<i>Form TR-0029, Notice of Change in Clearance or Bridge Weight Rating.....</i>	<i>A-1.125</i>

SUBCONTRACTOR (Name, Business Address, Phone)	BID ITEM NUMBER(S)	% OF BID ITEM SUBBED	CHECK IF: (See Categories Below)			DESCRIBE WORK WHEN LESS THAN 100% OF WORK IS SUBBED	\$ AMOUNT BASED ON BID \$ AMOUNT
			(1)	(2)	(3)		

I Certify That:

- | | |
|------------------------|------|
| CONTRACTOR'S SIGNATURE | DATE |
|------------------------|------|

1.	Total of bid items		\$
2.	Specialty items (previously requested)	\$	
3.	Specialty items (this request)	\$	
4.	Total (lines 2+3)	\$	
5.	Contractor must perform with own forces (lines 1 minus 4) x _____ %		\$
6.	Bid items previously subcontracted	\$	
7.	Bid items subcontracted (this request)	\$	
8.	Total (lines 6+7)	\$	
9.	Balance of work Contractor to perform (lines 1 minus 8)	\$	\$

COPY DISTRIBUTION: **Original** - Contractor **Green** - Resident Engineer **Canary** - Dist. Const Office/Labor Compliance Officer
 Pink - HQ Construction Program **Goldenrod** - Contractor's Information Conv



INSTRUCTIONS FOR COMPLETING SUBCONTRACTING REQUEST FORM

All First-tier subcontractors must be included on a subcontracting request.

Submit in accordance with Sections 8-1.01 of the Standard Specifications. Type or print requested information. Information copy (goldenrod) is to be retained by the contractor. Submit other copies to the project's Resident Engineer. After approval, the original will be returned to the contractor.

When an entire item is subcontracted, the value to be shown is the contractor's bid price.

When a portion of an item is subcontracted, describe the portion, and show the % of bid item and value.

THIS FORM IS NOT TO BE USED FOR SUBSTITUTIONS.

Prior submittal of a CP-CEM-1201 involving a replacement Subcontractor, submit a separate written request for approval to substitute a listed subcontractor. Section 4107 of the Government Code covers the conditions for substitution.

Submit a separate written request for approval of any DBE/DVBE substitution. Include appropriate backup information and state what efforts were made to accomplish the same dollar value of work by other certified DBE/DVBEs.

NOTE: For contractors who will be performing work on railroad property, it is necessary for the contractor to complete and submit the Certificate of Insurance (State Form DH-OS-A10A) naming the subcontractor as insured. ***No work will be allowed which involves encroachment on railroad property until the specified insurance has been approved.***

CONTRACTOR ACTION REQUEST - CHANGE OF NAME/ADDRESS - ASSIGNMENT OF CONTRACT MONIES

DATE OF REQUEST: _____

- One form per contract
- To change the contractor's name, as shown on the contract, fill out Section 1, 2 and 5.
- To change the contractor's address, as shown on the contract, fill out Sections 1, 3 and 5.
- To assign contract "Monies" to another contractor, fill out sections 1, 4 & 5.

- * Signature of contractor, and signature and stamp of notary public must be acknowledged here or as an attachment.

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CONTRACTOR ACTION REQUEST
Change of Name / Address • Assignment of Contract Monies

Approval Procedures

1. The contractor must submit one Form CEM-1202, "Contractor Action Request – Change of Name, Address or Assignment of Contract Monies" per job to the resident engineer.
2. Upon receipt of the CEM-1202, the resident engineer or delegate reviews the form for completeness of the following information, as applicable:
 - Caltrans contract EA
 - Current name, address and telephone number of the contractor
 - For a name change, the new name of the contractor
 - For an address change, the new address and telephone number
 - Name, address, telephone number and signature of contractor
 - Signature and stamp of a Notary Public verifying the signature of the contractor (or attach a notarized document)
 - Name, address and telephone number of assignee and assignee representative

3. If the resident engineer or delegate determines that the form is complete, the information is verbally confirmed by calling the contractor and the assignee, as applicable.

NOTE: In the case of a name change, the contractor's bonding, insurance and licensing status should be verified to ensure the entity continues to maintain appropriate bonding, insurance and licensing requirements.

4. If the CEM-1202 form is incomplete, the resident engineer returns it to the contractor with a written explanation of the deficiencies.
5. Upon verification of the information, the form is signed by the resident engineer and forwarded to the appropriate Division of Construction field coordinator (coordinator) for approval. The coordinator conducts a quality assurance review in coordination with the resident engineer, and upon concurrence, signs and forwards a copy of the form to the Division of Construction progress pay coordinator to update the system. The original form and documentation are retained at the district.
6. The Division of Construction progress pay coordinator enters the new information into the CAS database and forwards a copy of the form to the Division of Accounting. The Division of Construction progress pay coordinator may perform an independent assurance verification of requested change. This independent assurance process may involve contacting the assignor, assignee or surety for information validation.
7. Any questions concerning Form CEM-1202 should be referred to the project's resident engineer.

DIVISION OF CONSTRUCTION

JULY 1, 2005



CONTRACTOR ACTION REQUEST - ASSIGNMENT OF CONTRACT PERFORMANCE

CEM-1203 (NEW 10/2005)

INSTRUCTIONS

- One form per contract
- To assign contract performance, complete Sections 1 through 4.

DATE OF REQUEST: _____

NOTES

- All transactions require original signatures.
- Signature of contractor, assignee and surety representatives, and signature and stamp of notary public must be acknowledged here or as an attachment.

<div style="border: 1px solid black; padding: 5px;"> <p>SECTION 1</p> <p>ASSIGNMENT OF PERFORMANCE Assignor having contracted with the State of California Department of Transportation for the performance of below contract hereby assigns said contract performance and all payments becoming due there under to assignee as indicated herewith. Assignor shall remain responsible to the State of California, Department of Transportation to assure that its contractual obligations are satisfactorily completed.</p> <hr/> <p>CONTRACT INFORMATION (As Per Contract)</p> <p>Contract Number: _____</p> <p>Contractor: _____</p> <p>Address: _____</p> <p>Telephone: _____</p> <p>Representative: _____</p> <p>_____ Contractor Principal's or CEO's Signature Date</p> </div>	<div style="border: 1px solid black; padding: 5px;"> <p>SECTION 2</p> <p>ACCEPTANCE OF ASSIGNMENT Assignee hereby accepts said assignment and agrees to perform and complete said contract in accordance with the terms thereof. This assignment shall not be effective until the Director of the Department of Transportation has consented thereto in writing.</p> <p>Assignee: _____</p> <p>Address: _____</p> <p>Representative: _____</p> <p>Title: _____</p> <p>Telephone: _____</p> <p>_____ Assignee Representative's Signature Date</p> </div>
<div style="border: 1px solid black; padding: 5px;"> <p>SECTION 3</p> <p>NOTARY PUBLIC STAMP & SIGNATURE</p> <p>_____ Notary Public's Signature Date</p> </div>	<div style="border: 1px solid black; padding: 5px;"> <p>SECTION 4</p> <p>CONSENT OF SURETY As surety upon the performance bond and the payment bond (or labor and materials bond) given on behalf of assignor, principal and in favor of the State of California, obligee, on said contract hereby consents to the foregoing assignment and agrees that said bond shall continue in full force and effect and that surety's obligations under said bonds shall be in no way impaired or diminished by reason of said assignment.</p> <p>Bond Number: _____</p> <p>Surety Name: _____</p> <p>Representative: _____</p> <p>Title: _____</p> <p>_____ Surety Representative's Signature Date</p> </div>

- For Department use only -

<div style="border: 1px solid black; padding: 5px;"> <p>Resident Engineer Verification</p> <p>I certify that the above information has been reviewed and determined to be complete and accurate. Both assignor and assignee have been verbally contacted to confirm validity of the requested action.</p> <p>_____ Resident Engineer's Signature Date</p> <p>Division of Construction Field Coordinator's Concurrence</p> <p>_____ Division of Construction Field Coordinator's Signature Date</p> </div>	<div style="border: 1px solid black; padding: 5px;"> <p>Director, Department of Transportation Consent</p> <p>Director, Department of Transportation, acting by his undersigned authorized agent, consents to the foregoing assignment of performance of said contract upon the express condition that assignor and the surety on the contract bonds shall remain responsible to assure that its contractual obligations are satisfactorily completed.</p> <p>_____ Division of Construction Chief's Signature Date</p> <p>Contract Administration System Updated</p> <p>_____ Division of Construction Progress Pay Coordinator's Signature Date</p> </div>
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CONTRACTOR ACTION REQUEST - ASSIGNMENT OF CONTRACT PERFORMANCE

CEM-1203 (NEW 10/2005)

Approval Procedures

1. The contractor must submit one Form CEM-1203, "Contractor Action Request-Assignment of Contract Performance," per job to the resident engineer.
2. Upon receipt of a Form CEM-1203 the resident engineer or delegate reviews the form for completeness of the requested information.
3. If the form is incomplete, the resident engineer returns it to the contractor with a written explanation of the deficiencies.
4. Upon verification of the information, the form is signed by the resident engineer and forwarded to the appropriate Division of Construction field coordinator (coordinator) for approval. The coordinator conducts a quality assurance review in coordination with the resident engineer, and with concurrence, signs the form. The coordinator then obtains the Division of Construction chief's consent and forwards a copy of the form CEM-1203 to the Division of Construction's progress pay coordinator. The original form and documentation are retained at the district.
5. The Division of Construction progress pay coordinator enters the new information into the Contract Administration System database and forwards a copy of the form to the Division of Accounting.

Note: If this change involves a new surety, the contractor must submit original bonding documentation to the resident engineer as an attachment to this request.