DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
MATERIALS ENGINEERING TESTING SERVICES AND GEOTECHNICAL SERVICES
OFFICE OF MATERIALS MANAGEMENT & INDEPENDENT ASSURANCE
TRANSPORTATION LABORATORY-MS 5
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Expiration Date: ***02/10/2030*** **Status:** ***In Compliance***

A. Document Originator

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Approved by: **Kevin Jorgensen CE# 77243 (Exp 06/30/2025)**

The document will be reviewed for compliance to California Department of Transportation, Local Assistance Procedures Manual Section 16.11 (Jan. 2025 Revision) and Federal Highway Administration, 23 CFR 637.

B. Document Reviewed

ITEM NO.	DESCRIPTION
1	The Quality Assurance Program (QAP) for the City of Manteca, dated December 2024, was submitted on February 10, 2025 by Kevin Jorgensen, the Director of Engineering for the City of Manteca.

C. Notes

ITEM NO.	DESCRIPTION
1	**This Document Has Been Found To Be In Compliance with Caltrans Requirements.**
2	**Acceptance Testing**: will be performed by the city's materials laboratory or consultant materials laboratory.
3	**Sampling and Testing Frequency:** will be done per contract specifications, or as described in Attachment #1 of the QAP Manual.
4	**Independent Assurance Program:** will be done by City of Manteca personnel or consultant, and Caltrans (as applicable).
4.1	Per section 16.11 of the LAPM, Caltrans assistance is required for IA function when using California Test Methods.
5	Caltrans District 10 Local Assistance must be notified if there is any change or deviation from this QAP.

D. Reviewer

Name & Title: Benjamin Martinez / Caltrans, METS, IA - South

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02/12/2025

QUALITY ASSURANCE PROGRAM

December 2024

City of Manteca
Engineering Department
1001 West Center Street
Manteca, CA 95337

APPROVED BY:

Kevin Jorgensen II, PE R.C.E. 77243 Exp. 06/30/2025
Director of Engineering/City Engineer
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QUALITY ASSURANCE PROGRAM (QAP)
City of Manteca

Section 1. Introduction

The purpose of this program is to provide assurance that the materials incorporated into the construction projects are in conformance with the contract specifications. This program should be updated every five years or more frequent if there are changes of the testing frequencies or to the tests themselves. To accomplish this purpose, the following terms and definitions will be used:

DEFINITION OF TERMS

- Acceptance Testing (AT) – Sampling and testing, or inspection, to determine the degree of compliance with contract requirements.
- Independent Assurance Program (IAP) – Verification that AT is being performed correctly by qualified testers and laboratories.
- Quality Assurance Program (QAP) – A sampling and testing program that will provide assurance that the materials and workmanship incorporated into the construction project are in conformance with the contract specifications. The main elements of a QAP are the AT, and IAP.
- Source Inspection – AT of manufactured and prefabricated materials at locations other than the job site, generally at the manufactured location.

Section 2. Variations for Projects on or off the State Highway System

The requirements of a QAP depend on whether the project is on or off the State Highway System (SHS).

For projects on the SHS, the City of Manteca (City) will follow the California Department of Transportation (Caltrans) QAP detailed in the following manuals and guides:

- Caltrans Construction Manual
- Construction Manual Supplement for Local Agency Resident Engineers
- Local Agency Structure Representative Guidelines
- Independent Assurance Manual

For projects off the SHS, the City will follow this QAP document.

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Section 3. Materials Acceptance Program

ACCEPTANCE TESTING (AT)

AT will be performed by a materials laboratory certified to perform the required tests. The tests results will be used to ensure that all materials incorporated into the project are in compliance with the contract specifications.

Testing methods will be in accordance with the CT Methods or a national recognized standard (i.e., AASHTO, ASTM, etc.) as specified in the contract specifications.

Sample locations and frequencies may be in accordance with the contract specifications. If not so specified in the contract specifications, samples shall be taken at the locations and frequencies as shown in Attachment #1 (Appendix D, "Acceptance Sampling and Testing Frequencies" of the QAP Manual).

REPORTING ACCEPTANCE TESTING RESULTS

The following are time periods for reporting material test results to the Resident Engineer:

- When the aggregate is sampled at material plants, test results for Sieve Analysis, Sand Equivalent and Cleanness Value should be submitted to the Resident Engineer within 24 hours after sampling.
- When materials are sampled at the job site, test results for compaction and maximum density should be submitted to the Resident Engineer within 24 hours after sampling.
- When soils and aggregates are sampled at the job site:
  (1) Test results for Sieve Analysis, Sand Equivalent and Cleanness Value should be submitted to the Resident Engineer within 72 hours after sampling.
  (2) Test results for "R" Value and asphalt concrete extraction should be submitted to the Resident Engineer within 96 hours after sampling.

When sampling products such as Portland Cement Concrete (PCC), cement-treated base (CTB), hot mix asphalt (HMA), and other such materials; the time of such sampling shall be varied with respect to the time of the day insofar as possible, in order to avoid a predictable sampling routine. The reporting of AT results, if not performed by the Resident Engineer's staff, shall be done on an expedited basis such as by fax or telephone.

The Resident Engineer (RE) must obtain test data and results from the lab in a timely manner and keep records of all samples and tests in the project files. The RE must keep a test results summary log for each test method performed more than once. Use Exhibit 16-Z2: Acceptance Testing Results Summary Log or a similar form, see Attachment 2.

TESTING OF MANUFACTURED MATERIALS

During the Design phase of the project, the Project Engineer may submit a "Source Inspection Request" to the City or consultant for inspection and testing of manufactured and prefabricated materials by their materials laboratory. A list of materials that can be typically accepted on the basis of certificates of compliance during construction is found in Attachment #3 (Appendix F of the QAP Manual). All certificates of compliance shall conform to the requirements of the contract specifications, for examples see Attachment #4 (Appendix J of the QAP Manual).

For Federal-aid projects on the National Highway System (NHS), Caltrans will assist in certifying the materials laboratory, and the acceptance samplers and testers. For Federal-aid projects off the NHS, Caltrans may be able to assist in certifying the materials laboratory, and the acceptance samplers and testers.

ACCEPTANCE OF MANUFACTURED OR FABRICATED MATERIALS

The acceptance of manufactured and fabricated materials is most frequently based on one of the following 3 methods:

1. Source Inspection

Source inspection is the inspection, sampling, and testing of manufactured and prefabricated materials at locations other than the job site. It is most commonly performed on materials involving structural integrity or safety to the public, such as precast pre-stressed concrete members, structural steel, and poles for electrical systems. The purpose is to ensure that structural materials comply with contract requirements regarding raw materials, fabrication processes, personnel certification, and in-process quality control testing.

The RE must inspect the material upon arrival to be sure it meets the requirements of the specifications and is undamaged by shipping and handling. The RE must obtain and file the source inspectors report in the project files.

2. Materials Accepted on the Basis of Authorized Materials List

For contracts using the Caltrans Standard Specifications, the RE must verify the materials furnished are shown on the appropriate authorized materials list before the material is used on the project. Materials shown on the authorized materials list may also require a certificate of compliance or sampling and testing for acceptance.

3. Materials Accepted by Certificate of Compliance

Materials for which the contractor must submit a Certificate of Compliance (COC) per the respective project specifications are shown on Attachment 5, Exhibit 16-T1: Materials Requiring a Certificate of Compliance Per the Caltrans Standards Specifications. The manufacturer of the products, materials, or assemblies must sign the COC and state that the included materials and workmanship conform in all respects to the project specifications. The RE is responsible for ensuring that a COC is furnished with each lot of these materials delivered to the work site.

The COC must be furnished before the material is incorporated into the work and include:

- Project number
- Certified material lot number matching lot tags affixed or stenciled to the released materials
- Manufacturer's signature
- A statement that the material complies with the specifications of the contract

All materials accepted on the basis of a signed COC must be documented in the inspector's daily reports. Inspect the material upon arrival to be sure it meets the requirements of the specifications and is undamaged by shipping and handling before accepting.

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Manufactured products, materials, or assemblies used on the basis of a COC may be sampled again at the job site and tested at any time during the life of the contract. Items found not in conformance with contract requirements must be rejected whether in place or not.

A COC for each item must be kept in the RE's file.

Materials Requiring a Buy America Certification

Iron and steel, manufactured products, and construction materials permanently incorporated into the project must comply with Buy America requirements per 23 CFR 635.410 and Section 70914 of the Build America, Buy America (BABA) Act. All steel and iron products must be delivered with a COC stating all manufacturing processes involved in the production of the products occurred within the United States. These processes include:

- Rolling
- Drilling
- Extruding
- Coating
- Machining
- Welding
- Bending
- Smelting
- Grinding

In addition to the COC requirements mentioned earlier in this section, a Buy America COC must also include the mill markings or heat numbers. All manufacturing processes for construction materials as defined in 2 CFR 184.6 must occur in the United States. Contractors must provide certificates of compliance with each project delivery for all construction materials used for the projects. Manufacturer's certificate of compliance must identify where the construction material was manufactured and attest specifically to 2 CFR 184.6. Minor additions of articles, materials, supplies, or binding agents to these construction materials do not change the categorization of the construction material.

The Buy America requirements apply to the entire construction contract if any federal-aid money has been authorized for any phase of the project, not just the construction phase.

Buy America does not apply to temporary materials not permanently incorporated into the project such as temporary steel used in falsework, sheet piling, or shoring. Buy America requirement does not apply to recycled steel nor pig iron and processed, pelletized, and reduced iron ore manufactured outside the United States. A minimal use of foreign iron and steel is allowed provided that the total cost of iron and steel products as delivered to the project site is less than $2,500 or 0.1 percent of the total contract amount, whichever is greater. The City must track the amount of incorporated foreign steel and iron as the work proceeds to ensure that the minimal use threshold amount is not exceeded at any point in the contract. Once the cumulative value reaches the minimum threshold limit, then all additional installed materials must be of domestic origin. Supporting documentation for this minimal use must be on file in the project records (i.e., invoices, including the cost of transportation).

Failure to comply with Buy America provisions will result in the loss of federal funding for not only the applicable contract items, but likely will result in the loss of all federal funding authorized for the construction phase of the project.

Acceptance of Minor Quantities of Materials without Testing

Relatively minor quantities of construction materials may be accepted without testing provided the following 3 conditions are met:

1. Visual examination of the material is performed.
2. The manufacturer or supplier has recently furnished similar materials found to be satisfactory using normal sampling and testing requirements.
3. The manufacturer (or supplier in the case of HMA or concrete) provides certification that the material furnished complies with the contract specifications.

The following list suggests approximate maximum quantities of materials that may be accepted under the conditions indicated above:

- Aggregates other than for use in Portland Cement Concrete; not to exceed 100 tons per day nor more than 500 tons per project
- Bituminous mixtures (includes HMA); not to exceed 50 tons per day (sample at Engineer's discretion if project total is less than 500 tons)
- Bituminous material (includes Asphalt); not to exceed 100 gallons per project

Section 4. Independent Assurance Program

INDEPENDENT ASSURANCE PROGRAM (IAP)

IAP shall be provided by personnel from Caltrans, the City's certified materials laboratory, or consultant's certified materials laboratory. IAP will be used to verify that sampling and testing procedures are being performed properly and that all testing equipment is in good condition and properly calibrated.

IAP personnel shall be certified in all required testing procedures, as part of IAP, and shall not be involved in any aspect of AT.

IAP shall be performed on every type of materials test required for the project. Proficiency tests shall be performed on Sieve Analysis, Sand Equivalent, and Cleanness Value tests. All other types of IAP shall be witness tests.

Poor correlation between acceptance tester's results and other test results may indicate probable deficiencies with the acceptance sampling and testing procedures. In cases of unresolved discrepancies, a complete review of AT shall be performed by IAP personnel, or an independent materials laboratory chosen by the City. IAP samples and tests are not to be used for determining compliance with contract requirements. Compliance with contract requirements is determined only by AT.

MATERIALS LABORATORY

The City will use their own materials laboratory or a private consultant materials laboratory to perform AT on Federal-aid and other designated projects. The materials laboratory shall be under the responsible management of a California registered Engineer with experience in sampling, inspection and testing of construction materials. The Engineer shall certify the results of all tests performed by laboratory personnel under the Engineer's supervision. The materials laboratory shall contain certified test

equipment capable of performing the tests conforming to the provisions of this QAP. The materials laboratory used shall provide documentation that the laboratory complies with the following procedures:

1. Correlation Testing Program – The materials laboratory shall be a participant in one or more of the following testing programs:
   a. AASHTO re:source [formerly Materials Reference Laboratory (AMRL)]
   b. Cement and Concrete Reference Laboratory (CCRL)
   c. Caltrans' Reference Samples Program (RSP)

   All laboratories which use Caltrans' test methods (CTMs) must participate in the Caltrans Reference Sample Program. Upon request, if CTMs are being used, Caltrans Materials Engineers will qualify City's (or consultant's) laboratories. Caltrans IA staff will issue Form TL-0113: Caltrans Accredited Laboratory Inspection Report valid for one year. Those laboratories which do not use Caltrans test methods must participate in the AASHTO re:source and CCRL programs to fulfill proficiency sample testing program requirements.

2. Certification of Personnel – The materials laboratory shall employ personnel who are certified by one or more of the following:
   a. Caltrans District Materials Engineer
   b. Nationally recognized non-Caltrans organizations such as the American Concrete Institute, Asphalt, National Institute of Certification of Engineering Technologies, etc.
   c. Other recognized organizations approved by the State of California and/or Recognized by local governments or private associations.

3. Laboratory and Testing Equipment – The materials laboratory shall only use laboratory and testing equipment that is in good working order. All such equipment shall be calibrated at least once each year. All testing equipment must be calibrated by impartial means using devices of accuracy traceable to the National Institute of Standards and Technology. A decal shall be firmly affixed to each piece of equipment showing the date of the last calibration. All testing equipment calibration decals shall be checked as part of the IAP.

Plants producing construction materials such as HMA, concrete, cement-treated bases, lean concrete bases, etc. must have a current CEM-4204: Material Plant Quality Program Acceptance Sticker or California Test 109: Method for Testing of Material Production Plants approval. This ensures the accuracy and suitability of the scales and meters used to proportion materials and is important to the uniformity and quality of the material. The Material Plant Quality Program can be found at https://dot.ca.gov/programs/construction/material-plant-quality-program.

Section 5. Project Completion

PROJECT CERTIFICATION

Upon completion of a Federal-aid project, a "Materials Certificate" shall be completed by the Resident Engineer. The City shall include a "Materials Certificate" in the Report of Expenditures submitted to the Caltrans District Director, Attention: District Local Assistance Engineer. A copy of the "Materials Certificate" shall also be included in the City's construction records. The Resident Engineer in charge of the construction function for the City shall sign the certificate. All materials incorporated into the work which did not conform to specifications must be explained and justified on the "Materials Certification",

including changes by virtue of contract change orders. See Attachment #6 for an example (Appendix K of the QAP Manual).

RECORDS

All material records of samples and tests, material releases and certificates of compliance for the construction project shall be incorporated into the Resident Engineer's project file. If a Federal-aid project:

- The files shall be organized as described in Section 16.8 "Project Files" of the Local Assistance Procedures Manual.
- It is recommended that the complete project file be available at a single location for inspection by Caltrans and Federal Highway Administration (FHWA) personnel.
- The project files shall be available for at least three years following the date of final project voucher.
- The use of a "Log Summary," as shown in Attachment 7, Appendix H of the QAP Manual, facilitates reviews of material sampling and testing by Caltrans and FHWA, and assists the Resident Engineer in tracking the frequency of testing.

When two or more projects are being furnished identical materials simultaneously from the same plant, it is not necessary to take separate samples or perform separate tests for each project; however, copies of the test reports are to be provided for each of the projects to complete the records.

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Appendix D - Acceptance Sampling and Testing Frequencies

Note: It may be desirable to sample and store some materials. If warranted, testing can be performed at a later date.

Portland Cement (Hydraulic Cement)

Materials to be Sampled or Tested	Sample Size	Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Cement/fly ash **(Sampling only)**	8-lb. sample	If possible, take a least one sample per job, even if the material is accepted based on a Certificate of Compliance.	ASTM D75, C494 CT 125 AASHTO T127, M85, M295	Standard for sampling hydraulic cement or fly ash.
Cement **(Testing Only)**	8-lb. sample	If the product is accepted based on a Certificate of Compliance, testing is not required. If the product is not accepted using a Certificate of Compliance, test at least once per job.	ASTM C109 CT 515 AASHTO T106	If testing appears warranted, fabricate six 2-in. mortar cubes using the Portland (or hydraulic cement). Test for compressive strength.

Portland Cement Concrete (Hydraulic Cement Concrete)

Materials to be Sampled or Tested	Sample Size	Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Aggregate for Hydraulic Cement Concrete **(Sampling & Testing)**	50-lb. sample	Take one aggregate sample for each 1000 cu. yd. of PCC/HCC concrete. Test at least one sample per job.	ASTM D75 CT 125 AASHTO M6, T2, M80	Sample aggregate from belt or hopper (random basis).
Water **(Sampling & Testing)**	Take a two-quart sample using a clean plastic jug (with lining) and sealed lid. Sample at the point of use.	If the water is clean with no record of chlorides or sulfates greater than 1%, no testing is required. If the water is dirty do not use it. Test only when the chloride or sulfates are suspected to be greater than 1%.	CT 405, CT 422, CT 417 AASHTO R23	If testing appears warranted, test for chlorides and sulfates.

Appendix D (continued)

Portland Cement Concrete (Hydraulic Cement Concrete) – Continued

Materials to be Sampled or Tested	Sample Size	Sampling/Testing Frequency	Typical Test Methods	Description of Comments
Air Entraining Admixtures **(Sampling & Testing)**	Take a one-quart sample using a clean, lined can or plastic bottle, if liquid. If powder, take a 2.5 lb. sample.	If the product is accepted based on a Certificate of Compliance, testing is not required. Take one sample per job. Prior to sampling, check with Caltrans (METS) for acceptable brands and dosage rates.	ASTM C233 AASHTO M154, T157, C260	If testing appears warranted, test for sulfates and chlorides Admixtures with sulfates and chlorides greater than 1% should not be used.
Water Reducers or Set Retarders **(Sampling & Testing)**	If liquid, take a 1-qt. sample using a clean plastic can. If powder, take a 2.5 lb. sample.	If the product is accepted based on a Certificate of Compliance, no testing is required. If not, test once per job. Prior to using this product, please check with Caltrans (METS) for acceptable brands and dosage rates.	ASTM C494 AASHTO M194	If testing appears warranted, test for sulfates and chlorides. Admixtures with sulfates and chlorides greater than 1% should not be used.
Freshly-Mixed Concrete **(Sampling)**	Approx. 150lb. (or 1 cu. ft.) near mixer discharge.	When tests are required, take at least one sample for each 500 to 1000 cu. yd. of PCC/HCC.	ASTM C172, C685 CT 539 AASHTO T141, M157	This describes a method to sample freshly-mixed concrete.
Freshly-Mixed Concrete **(Testing)**	Approx. 150 lb/ (or 1 cu. ft.) near mixer discharge.	On projects with 500 cu. yd., or more, test at least one sample per job.	ASTM C143 AASHTO T119	This test determines the slump of the freshly-mixed concrete.
Freshly-Mixed Concrete **(Testing)**	Approx. 150 lb/ (or 1 cu. ft.) near mixer discharge	On projects with 500 cu. yd., or more, test at least one sample per job.	ASTM C360 CT 533	This test determines the ball penetration of the freshly-mixed concrete.
Freshly-Mixed Concrete **(Testing)**	Approx. 150 lb/ (or 1 cu. ft.) near mixer discharge	On projects with 500 cu. yd., or more, test at least one sample per job.	ASTM C231 CT 504 AASHTO T152	This test determines the air content of freshly-mixed concrete (pressure method).
Freshly-Mixed Concrete **(Testing)**	Approx. 150 lb/ (or 1 cu. ft.) near mixer discharge	On projects with 500 cu. yd., or more, test at least one sample per job.	ASTM C138 CT 518 AASHTO T121	This test determines the unit weight of freshly mixed concrete.

Appendix D (continued)

Portland Cement Concrete (Hydraulic Cement Concrete) – Continued

Materials to be Sampled or Tested	Sample Size	Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Freshly-Mixed Concrete **(Testing)**	Approx. 150 lb/ (or 1 cu. ft.) near mixer discharge	Fabricate at least two concrete cylinders per project. Test for compressive strength at least once for each 500 to 1,000 cu. yd. of structural concrete.	ASTM C39 CT 521 AASHTO T22	This test is used to fabricate 6" x 12" concrete cylinders. Compressive strengths are determined, when needed.
Freshly-Mixed Concrete **(Testing)**	Approximately 210 lb. of concrete are needed to fabricate three concrete beams.	One sample set for every 500 to 1,000 cu. yd. of concrete.	ASTM C78 CT 31 AASHTO T97 & T23	This test is used to determine the flexural strength of simple concrete beams in third-point loading

Soils and Aggregates

Materials to be Sampled or Tested	Sample Size	Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Aggregate (Sampling)	One 50-lb. sample	Take one sample for every 500 to 1,000 tons of materials. Test at least one sample per project.	ASTM D75 CT 125 AASHTO T2	This test describes the procedures to sample aggregate from the belt or hopper (random basis).
Fine Aggregates **(Testing)**	One 50-lb. sample	Take one sample for every 500 to 1,000 tons of materials. Test at least one sample per project.	ASTM C128 CT 208 AASHTO T84	This test determines the apparent specific gravity of fine aggregates for bituminous mixes, cement treated bases and aggregate bases.
Fine Aggregate **(Testing)**	One 50-lb. sample	Take one sample for every 500 to 1,000 tons of materials. Test at least one sample per project.	ASTM C128 CT 207 AASHTO T84	This test determines the bulk specific gravity (SSD) and the absorption of material passing the No. 4 sieve.
Coarse Aggregate **(Testing)**	One 50-lb. sample	Take one sample for every 500 to 1,000 tons of materials. Test at least one sample per project.	CT 206	This test determines the cleanness of coarse aggregate.

Appendix D (continued)

Soils and Aggregates - Continued

Materials to be Sampled or Tested	Sample Size	Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Coarse Aggregate **(Testing)**	One 50-lb. sample	Take one sample for every 500 to 1,000 tons of materials. Test at least one sample per project.	ASTM C127 CT 227 AASHTO T85	This test determines the specific gravity and absorption of coarse aggregate (material retained on the No. 4 sieve).
Soils and Aggregates **(Testing)**	One 50-lb. sample	Take one sample for every 500 to 1,000 tons of materials. Test at least one sample per project.	ASTM C136 CT 202 AASHTO T27	This test determines the gradation of soils and aggregates by sieve analysis.
Soils and Aggregates **(Testing)**	One 50-lb. sample	Take one sample for every 500 to 1,000 tons of materials. Test at least one sample per project.	ASTM D2419 CT 217 AASHTO T176	This test determines the Sand Equivalent of soils and aggregates.
Soils and Aggregates **(Testing)**	One 50-lb. sample	Take one sample for every 500 to 1,000 tons of materials. Test at least one sample per project.	ASTM C117 AASHTO T11	This test determines the gradation for materials finer that the No. 200 sieve (by washing method).
Soils and Aggregates **(Testing)**	One 50-lb. sample	Take one sample for every 500 to 1,000 tons of materials. Test at least one sample per project.	ASTM D3744 CT 229 AASHTO T210	This test determines the Durability Index of soils and aggregates.
Soils and Aggregates **(Testing)**	One 50-lb. sample	Take one sample for every 500 to 1,000 tons of materials. Test at least one sample per project.	ASTM D2844 CT 301 AASHTO T190	This test determines the Resistance Value (R-) and expansion pressure of compacted materials.
Soils and Aggregates **(Testing)**	One random location for every 2,500 sq. ft.	Take one sample for every 500 to 1,000 tons of materials. Test at least one sample per project.	ASTM D2922 CT 231 AASHTO T238	This test determines field densities using the nuclear gage.
Soils and Aggregates **(Testing)**	One random location for every 2,500 sq. ft.	Take one sample for every 500 to 1,000 tons of materials. Test at least one sample per project.	ASTM D3017 CT 231 AASHTO T239	This test determines the water content using the nuclear gage.

Appendix D (continued)

Asphalt Binder

Materials to be Sampled or Tested	Sample Size	Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Asphalt Binder **(Sampling)**	One 0.5-gal. sample placed in a clean, sealed can.	Sample once per job at the asphalt concrete plant.	CT 125 ASTM D 979 AASHTO T 168, T48	This procedure describes the proper method to sample the asphalt binder.
Asphalt Binder **(Testing)**	One 0.5-gal. sample placed in a clean, sealed can.	Sample once per job at the asphalt concrete plant.	ASTM D92, D117 AASHTO T 48	This test determines the flash point of the asphalt binder (by Cleveland open cup).
Asphalt Binder **(Testing)**	One 0.5-gal. sample placed in a clean, sealed can.	Obtain one sample at the asphalt concrete plant for each 1,000 tons of asphalt concrete placed.	ASTM D2872 & D92 CT 346 AASHTO T240 &T48	This test determines the rolling thin-film oven test (RTFO).
Asphalt Binder **(Testing)**	One 0.5-gal. sample placed in a clean, sealed can.	Obtain one sample at the asphalt concrete plant for each 1,000 tons of asphalt concrete placed.	ASTM D2042 AASHTO T44	This test determines the solubility of asphalt material in trichloroethylene.
Asphalt Binder **(Testing)**	One 0.5-gal. sample placed in a clean, sealed can.	Obtain one sample at the asphalt concrete plant for each 1,000 tons of asphalt concrete placed.	ASTM D2171 AASHTO T202	This test determines the dynamic viscosity, (absolute viscosity of asphalt @ 140 degrees F by the Vacuum Capillary Viscometer Poises).
Asphalt Binder **(Testing)**	One 0.5-gal. sample placed in a clean, sealed can.	Obtain one sample at the asphalt concrete plant for each 1,000 tons of asphalt concrete placed.	ASTM D5 AASHTO T49	This test determines the penetration of bituminous material @ 77 degrees F and percentage of original penetration from the residue.
Asphalt Binder **(Testing)**	One 0.5-gal. sample placed in a clean, sealed can.	Obtain one sample at the asphalt concrete plant for each 1,000 tons of asphalt concrete placed.	ASTM D113 AASHTO T51	This test determines the ductility of asphalt @ 77 degrees F.
Asphalt Binder **(Testing)**	One 0.5-gal. sample placed in a clean, sealed can.	Obtain one sample at the asphalt concrete plant for each 1,000 tons of asphalt concrete placed.	ASTM D2170 AASHTO T201	This test determines the kinematic viscosity of asphalt @275 degrees F (Centistoke).

Appendix D (continued)

Asphalt Binder - Continued

Materials to be Sampled or Tested	Sample Size	Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Asphalt Binder **(Testing)**	One 0.5-gal. sample placed in a clean, sealed can.	Obtain one sample at the asphalt concrete plant for each 1,000 tons of asphalt concrete placed.	ASTM D2171 AASHTO T202	This test determines the dynamic viscosity. (absolute viscosity of asphalt @ 140 degrees F by the Vacuum Capillary Viscometer Poises).
Asphalt Binder **(Testing)**	One 0.5-gal. sample placed in a clean, sealed can.	Obtain one sample at the asphalt concrete plant for each 1,000 tons of asphalt concrete placed.	ASTM D36 AASHTO T53	This test determines the softening point of asphalt.

Asphalt Emulsified

Materials to be Sampled or Tested	Sample Size	Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Emulsified Asphalt **(Sampling)**	One 0.5-gal. sample placed in a clean, sealed can.	Obtain one sample at the asphalt concrete plant for each 1,000 tons of asphalt concrete placed.	ASTM D140, D979 CT 125 AASHTO T 40, T168	This test describes the procedure to sample the emulsified asphalt.
Emulsified Asphalt **(Testing)**	One 0.5-gal. sample placed in a clean, sealed can.	Obtain one sample at the asphalt concrete plant for each 1,000 tons of asphalt concrete placed.	ASTM D244 AASHTO T59	This test determines the sieve retention of emulsified asphalt.
Emulsified Asphalt **(Testing)**	One 0.5-gal. sample placed in a clean, sealed can.	Obtain one sample at the asphalt concrete plant for each 1,000 tons of asphalt concrete placed.	ASTM D244 AASHTO T59	This test determines the weight per gallon of emulsified asphalt.
Emulsified Asphalt **(Testing)**	One 0.5-gal. sample placed in a clean, sealed can.	Obtain one sample at the asphalt concrete plant for each 1,000 tons of asphalt concrete placed.	ASTM D244 AASHTO T59	This test determines the penetration of the emulsified asphalt.
Emulsified Asphalt **(Testing)**	One 0.5-gal. sample placed in a clean, sealed can.	Obtain one sample at the asphalt concrete plant for each 1,000 tons of asphalt concrete placed.	ASTM D244 CT 330 AASHTO T59	This test determines the residue @ 325 degrees F evaporation of emulsified asphalt.

Appendix D (continued)

Asphalt Emulsified - Continued

Materials to be Sampled or Tested	Sample Size	Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Emulsified Asphalt **(Testing)**	One 0.5-gal. sample placed in a clean, sealed can.	Obtain one sample at the asphalt concrete plant for each 1,000 tons of asphalt concrete placed.	ASTM D4402 AASHTO T201	This test determines the Brookfield viscosity.
Emulsified Asphalt **(Testing)**	One 0.5-gal. sample placed in a clean, sealed can.	Obtain one sample at the asphalt concrete plant for each 1,000 tons of asphalt concrete placed.	ASTM D88 AASHTO T72	This test determines the Saybolt-Furol viscosity of emulsified asphalt @ 77 degrees F (seconds).

Hot Mix Asphalt (Asphalt Concrete) – Concrete

Materials to be Sampled or Tested	Sample Size	Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Asphalt Concrete **(Sampling)**	Obtain one 30-lb. sample each day of production	Obtain one sample at the asphalt concrete plant for each 5,000 tons of asphalt concrete placed.	ASTM D75, D140, D979 CT 125 AASHTO T 40, T168	This test describes the procedure to sample the asphalt concrete.
Asphalt Concrete **(Testing)**	4" x 8" cores	Take one 4" x 8" core for every 500 ft of paved roadway.	ASTM D1188, D1560, D1561, D5361 CT 304 AASHTO T246, T247	This test determines the field density of street samples.
Asphalt Concrete **(Testing)**	Obtain one 30-lb. sample for each day of production	Obtain one sample for every five cores taken.	ASTM D1188, D1560, D1561, D5361 CT 304 AASHTO T246, T247	This test determines the laboratory density and relative compaction of asphalt concrete.
Asphalt Concrete **(Testing)**	4" x 8" cores	Obtain one sample for every five cores taken.	ASTM D2726, D1188, D5361	This test determines the specific gravity of compacted bituminous mixture dense- graded or non-absorptive.

Appendix D (continued)

Hot Mix Asphalt (Asphalt Concrete) –Continued

Materials to be Sampled or Tested	Sample Size	Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Asphalt Concrete **(Testing)**	One 30-lb sample	Obtain one sample for every 1,000 tons of asphalt concrete.	ASTM D1559 AASHTO T245	This test determines the resistance to plastic flow of prepared mixes as determined by the Marshall Method.
Asphalt Concrete **(Testing)**	One 30-lb sample	Obtain one sample for every 1,000 tons of asphalt concrete.	ASTM C117, D2172 (use Method B) AASHTO T164	This test determines the screen analysis of aggregates recovered from asphalt materials.
Geotextile Fabric (Placed Under the Asphalt Concrete) **(Testing)**	One 12 ft. x 3 ft. sample	Obtain one sample per job.	ASTM D4632 AASHTO M288	This test determines the weight per sq. yd. and grabs strength of geotextile fabrics.
Asphalt Concrete **(Testing)**	Sample any test location (random basis)	Obtain one sample for every 1,000 tons of asphalt concrete.	ASTM D2950 CT 375	This test determines the nuclear field density of in-place asphalt concrete.
Asphalt Concrete **(Testing)**	One 10-lb sample	Obtain one sample during every day of production.	ASTM D1560, D1561 CT 366 AASHTO T246, T247	This test determines the stability value of asphalt concrete.
Slurry Seals **(Sample)**	One 0.5 gal. sample in a clean, dry plastic container.	Obtain one sample per truck	ASTM D979 CT 125 AASHTO T 40, T168	This test describes the procedure for sampling the slurry seal.
Aggregate for Slurry Seals **(Testing)**	One 30-lb. sample.	Obtain at least one sample per project from the belt or hopper or stockpile and test for Sand Equivalent	ASTM D2419 CT 217 AASHTO T176	This test determines the Sand Equivalent of aggregates.

Appendix D (continued)

Slurry Seals

Materials to be Sampled or Tested	Sample Size	Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Aggregate for Slurry Seals **(Testing)**	One 30-lb. sample.	Obtain at least one sample per project from the belt, hopper, or stockpile and test for sieve analysis of fine sand.	ASTM C117 AASHTO T11	This test determines the sieve analysis of fine sand (gradation of materials finer than No. 200 sieve by wash grading).
Slurry Seals **(Testing)**	One 0.5 gal. sample in a clean, dry plastic container.	Test one sample per project and test for Abrasion.	ASTM D3910	This test determines the Wet Track Abrasion Test (2) (WTAT).

Steel

Materials to be Sampled or Tested	Sample Size	Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Steel Strand **(Testing)**	Sample strand at various sizes.	This item may be accepted using a Certificate of Compliance. Sample and test at least two steel strands per job when a Certificate of Compliance is not used.	ASTM A370, A416, E328 AASHTO T244	This test determines the tensile strength of uncoated seven-wire stress-relieved strand for pre-stressed concrete.
Steel Rebar **(Testing)**	Sample rebar at various sizes.	This item may be accepted using a Certificate of Compliance. Sample and test at least two steel rebar per job when a Certificate of Compliance is not used.	ASTM A615, A370 AASHTO T244	This test determines the steel reinforcement bar tensile strength and bend capability.

Exhibit 16-Z2 Acceptance Testing Results Summary Log

Test Method Name: _____ **Test Method Number:** _____

Project Name: _____

Contract Number: _____

Test Number	Date Sampled	Name of Sampler or Tester		Production		Test Results			Remarks
		Tester Certification on file?	✔	Location (Stations, depths, etc)	Production Quantity Represented	Required Result	Actual Result	Pass/Fail	Include action taken for any failing test result; note test number of any retest.
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									

Appendix F - Construction Materials Accepted by a Certificate of Compliance *

Soil Amendment
Fiber
Mulch
Stabilizing Emulsion
Plastic Pipe
Lime
Reinforcing Steel
Structural Timber and Lumber
Treated Timber and Lumber
Timber and Lumber
Culvert and Drainage Pipe Joints
Reinforced Concrete Pipe
Corrugated Steel Pipe and Corrugated Steel Pipe Arches
Structural Metal Plate Pipe Arches and Pipe Arches
Perforated Steel Pipe
Polyvinyl Chloride Pipe and Polyethylene Tubing
Steel Entrance Tapers, Pipe Down drains, Reducers, Coupling Bands and Slip Joints
Aluminum Pipe (Entrance Tapers, Arches, Pipe Down drains, Reducers, Coupling Bands and Slip Joints)
Metal Target Plates
Electrical Conductors
Portland Cement
Minor Concrete
Waterstop

* If Caltrans Standard Specifications May 2006 is part of contract specifications.

Note: Usually these items are inspected at the site of manufacture or fabrication and reinspected after delivery to the job site.

Appendix J.1 - Example of a Vendor's Certificate of Compliance

No. 583408

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
VENDOR'S CERTIFICATE OF COMPLIANCE
MR-0543 (REV. 5/93) #CT-7541-6020-2

☐ PRECAST CONCRETE PRODUCTS OR ☒ SOUNDWALL

TO: BILL SYNDER

~~STATE HIGHWAY ENGINEER~~
RESIDENT ENGINEER – CITY OF FLATLAND

We certify that the portland cement, chemical and mineral admixtures contained in the material described below are brands stated and comply with specifications for:

CONTRACT NUMBER:	
CEMENT BRAND XYZ CEMENT CO. TYPE II MODIFIED	MILL LOCATION MIDLAND, CALIFORNIA
CHEMICAL ADMIXTURE	
1. BRAND ABC. ADMIXTURE TYPE WATER REDUCER	MANUFACTURER XYZ SUPPLIER
2. BRAND TYPE	MANUFACTURER
☐ CHECK BOX IF A CHEMICAL ADMIXTURE WAS NOT USED	
MINERAL ADMIXTURE	
MANUFACTURER POZZ. INC.	CLASS F
☐ CHECK BOX IF A MINERAL ADMIXTURE WAS NOT USED	
DELIVERY DATE (Ready Mix) 7/4/07	DATES OF FABRICATION (Precast)

LIST PRODUCTS TO WHICH CERTIFICATE APPLIES. *(Show size and lin. ft. of pipe, etc., delivery slip numbers for ready-mix.)*

Portland Cement
Flyash
Water Reducer

MANUFACTURER OF CONCRETE PRODUCTS A.E.B. READY MIX

By: AUTHORIZED REPRESENTATIVE SIGNATURE Joe Anderson

FHWA 1639 Original to Res. Engr. Retain Duplicate. OSP 01 55624

Appendix J.2 - Example of a Certificate of Compliance for Portland Cement (continued)

This is to certify that the

Portland Cement .

Supplied by ABC Cement Company complies with all requirements for Type II Portland Cement when tested in accordance with ASTM C - 494.

Local Agency Project No.
HP21L – 5055 – 111

Albert Howakowa
Quality Assurance Engineer
ABC Cement Company

Date: 07/07/07 .

Exhibit 16-T1: Materials Requiring a Certificate of Compliance per Caltrans Standard Specifications

Caltrans 2018 Standard Specifications	Material	Additional Info and/or Attachments Required*
6-1.04 BUY AMERICA		
6-1.04B	Crumb rubber	COC
6-1.04C	Steel and iron materials	COC + cert. mill test reports
11-2 WELDING QUALITY CONTROL		
11-2.03D	Welding	COC
12-3 TEMP. TRAFFIC CONTROL DEVICES		
12-3.03A(3)	Plastic traffic drums	COC
12-3.20A(3)	Type K temporary railing	COC
12-3.23A(3)	Attenuator	COC
12-3.32A(3)	Portable CMS	COC
13-2 WATER POLLUTION CONTROL PROGRAM		
13-9 TEMP. CONCRETE WASHOUTS		
13-9.01C	Fabric bags for gravel-filled bags	COC
	Plastic liner	COC
13-10 TEMP. LINEAR SEDIMENT BARRIERS		
13-10.01C	Fiber rolls	COC
	Silt fence fabrics	COC
	Sediment filter bags	COC
	Foam barriers	COC
	Fabric for gravel-filled bags	COC
16-2.03 TEMP. HIGH-VISIBILITY FENCES		
16-2.03A(3)	High-visibility fabric	COC
18 DUST PALLIATIVES		
18-1.01C	Dust suppressant	COC
	Dust control binders	COC
	Fibers	COC
20 LANDSCAPE		
20-2 IRRIGATION		
20-2.08A(3)	Polyethylene pipe	COC
	Plastic pipe supply line	COC

* For those materials requiring additional information on or with the COC, see specification.

Caltrans 2018 Standard Specifications	Material	Additional Info and/or Attachments Required*
20-3 PLANTING		
20-2.08A(3)	Sod	COC
	Soil amendment	COC
20-5 LANDSCAPE ELEMENTS		
20-5.03A(1)(c)	Filter fabric	COC + product data
20-5.03D(1)(c)	Solidifying emulsion	COC + product data & samples
20-5.04A(3)	Wood mulch	COC + sample & authorization
21-2 EROSION CONTROL WORK		
21-2.01C(1)	Straw	COC
	Weed-free straw	COC + cert. of quarantine
	Fiber	COC
	RECP	COC
	Fasteners	COC
	Hydraulically applied erosion control materials	Submit records
21-2.01C(2)	Compost	Submit reports
21-2.01C(3)	Seed	Submit reports
21-2.01C(4)	Tackifier	COC
	Bonded fiber matrix	COC
24 STABILIZED SOILS		
24-1.01C(1)	Stabilizing agent	COC + sample
24-3 CEMENT STABILIZED SOIL		
24-3.01C	Cement	COC + sample
36-2 BASE BOND BREAKER		
36-2.01C	Base bond breaker	COC
37 BITUMINOUS SEALS		
37-1.01C	Asphalt binder	COC + test results
	Asphalt emulsion	COC + test results
37-3 SLURRY SEALS AND MICRO-SURFACINGS		
37-3.01A(3)	Asphaltic emulsion	COC + samples & test results
	Polymer modified asphaltic emulsion	COC + samples & test results
	Micro-surfacing emulsion	COC + sample & test results
37-2.04 ASPHALT RUBBER BINDER CHIP SEALS		
37-2.04A(3)	Asphalt rubber binder ingredients	COC + permits & submittals

* For those materials requiring additional information on or with the COC, see specification.

Caltrans 2018 Standard Specifications	Material	Additional Info and/or Attachments Required*
37-5 PARKING AREA SEALS		
37-5.01C	Parking area seal material	COC + sample & test results
37-6 CRACK TREATMENTS		
37-6.01C	Crack treatment materials	COC or sample & test results
39-2 HOT MIX ASPHALT		
39-2.01A(3)(f)	Liquid antistrip	COC + sample & production data
39-2.03A(3)(c)	Crumb rubber modifier	COC + test results
	Asphalt modifier	COC + test results
39-2.05A(1)(c)	Asphaltic emulsion	COC + test results
40 CONCRETE PAVEMENT		
40-1.01C(2)	Tie bars	COC
	Splice couplers for threaded bars	COC
	Dowel bars	COC
	Tie bar baskets	COC
	Joint filler	COC
	Epoxy-powder coating	COC
41 EXISTING CONCRETE PAVEMENT		
41-5 JOINT SEALS		
41-5.01C	Liquid joint sealant	COC + SDS & instructions
	Backer rods	COC + SDS & instructions
	Compression joint seal	COC + SDS & instructions
	Lubricant adhesives	COC + SDS & instructions
41-10 DRILL AND BOND BARS		
41-10.01C	Tie bars	COC
	Dowel bars	COC
	Dowel bar lubricant	COC
	Chemical adhesive	COC
	Epoxy powder coating	COC
48-2 FALSEWORK		
48-2.01C(1)	Structural composite lumber	COC + submittals
49-2 DRIVEN PILING		
49-2.02A(3)(d)	Steel pipe piles	COC + tests & mill reports
49-2.03A(3)	Structural shape steel piling	COC + test reports

* For those materials requiring additional information on or with the COC, see specification.

Caltrans 2018 Standard Specifications	Material	Additional Info and/or Attachments Required*
51 CONCRETE STRUCTURES		
51-1.01C(3)	Bonding materials	COC or sample & authorization
51-2 JOINTS		
51-2.01A(3)	Polyethylene material for snowplow deflectors	COC
51-2.02B(1)(c)	Sealant	COC + test reports & samples
51-2.02C(1)(c)	Elastomeric joint seal	COC + test reports
	Lubricant-adhesive	COC + test reports
51-2.02D(1)(c)	Joint seal materials	COC + authorization
51-2.02E(1)(c)(iii)	Joint seal assembly materials	COC
51-2.02F(1)(c)(iv)	Material used in the joint seals	COC + test reports
51-2.04A(3)	Waterstop material	COC + a statement
51-3 BEARINGS		
51-3.02A(3)(c)	Elastomer for bearing pads	COC + test reports
51-4 PRECAST CONCRETE MEMBERS		
51-4.01C(1)	Concrete box culvert	COC
52 REINFORCEMENT		
52-1.01C(3)	Reinforcement (rebar)	COC + mill test report
52-2 EPOXY-COATED REINFORCEMENT		
52-2.02A(3)(c)	Epoxy-coated reinforcement	COC + submittals
	Patching material	COC + a statement
52-5.01C(4)	Headed bar reinforcement	COC + test reports
52-6 SPLICING		
52-6.01C(5)	Service or butt splice material	COC + submittals
54 WATERPROOFING		
54-3 PREFORMED MEMBRANE WATERPROOFING		
54-3.01C	Preformed membrane sheet	COC + report
54-5 DECK SEAL		
54-5.01C	Preformed membrane sheet	COC + report
57-2 WOOD STRUCTURES		
57-2.01A(3)	Timber and lumber	COC + report
	Glued laminated timbers/decking	COC
57-3 PLASTIC LUMBER STRUCTURES		
57-3.01C(1)	Plastic lumber	COC + test report & sample

* For those materials requiring additional information on or with the COC, see specification.

Caltrans 2018 Standard Specifications	Material	Additional Info and/or Attachments Required*
58-2 MASONRY BLOCK		
58-2.01C(7)	CMUs	COC
	Aggregate for grout	COC
	Grout	COC
59 STRUCTURAL STEEL COATINGS		
59-1.01C	Blast cleaning material	COC + SDS
59-5 THERMAL SPRAY COAT STRUCTURAL STEEL		
59-5.01C(1)	Wire feedstock	COC
60-3.04B POLYESTER CONCRETE OVERLAYS		
60-3.04B(1)(c)	Methacrylate resins	COC + samples & test report
	Polyester resins	COC + samples & test report
	Aggregates	COC + samples & test report
61-2 CULVERT AND DRAINAGE PIPE JOINTS		
61-2.01C	Joint systems	COC + test results & reports
	Couplers	COC
64 PLASTIC PIPE		
64-1.01C	Plastic pipe	COC + report
65-2 REINFORCED CONCRETE PIPE		
65-2.01C	RCP, direct design method	COC + report
66 CORRUGATED METAL PIPE		
66-1.01C	Corrugated steel materials	COC
	Corrugated aluminum materials	COC
67-3 METAL LINE PLATE PIPE		
67-3.01C	Metal liner plate pipe	COC + mill test reports
68 SUBSURFACE DRAINS		
68-1.01C	Subsurface drain	COC
68-2 UNDERDRAINS		
68-2.01C	Pipe	COC
	Tubing	COC
	Fittings	COC
68-7 GEOCOMPOSITE DRAIN SYSTEMS		
68-7.01C	Geocomposite drain	COC + flow capability graph

* For those materials requiring additional information on or with the COC, see specification.

Caltrans 2018 Standard Specifications	Material	Additional Info and/or Attachments Required*
69 OVERSIDE DRAINS		
69-1.01C	Steel pipe piles	COC
	Aluminum	COC
	Plastic	COC
70-6 GRATED LINE DRAINS		
70-6.01C	Grated line drains	COC + docu. & inspec. report
71-3.09 MACHINE SPIRAL WOUND PVC PIPELINERS		
71-3.09A(1)(c)	Reel of PVC strip	COC + report
72-16 GABIONS		
72-16.01C	Gabion basket	COC
	PVC coating	COC + identify
75-3 MISCELLANEOUS BRIDGE METAL		
75-3.01C(1)	Anchorage devices	COC
75-3.01C(2) BRIDGE DECK DRAINAGE SYSTEM		
75-3.01C(2)	Fiberglass pipe and fittings	COC
80-3 CHAIN LINK FENCES		
80-3.01C	Protective coating system	COC
	Posts and braces	COC + test results
81 MISCELLANEOUS TRAFFIC CONTROL DEVICES		
81-2 DELINEATORS		
81-2.01C	Metal target plates	COC
	Enamel coating	COC
81-3 PAVEMENT MARKERS		
81-3.01C	Pavement markers	COC
82 SIGNS AND MARKERS		
82-2 SIGN PANELS		
82-2.01C	Aluminum sheeting	COC
	Retroreflective sheeting	COC
	Screened-process colors	COC
	Nonreflective, opaque, black film	COC
	Protective overlay film	COC

* For those materials requiring additional information on or with the COC, see specification.

Caltrans 2018 Standard Specifications	Material	Additional Info and/or Attachments Required*
82-5 MARKERS		
82-5.01C	Metal target plates	COC
	Enamel coating	COC
	Retroreflective sheeting	COC
83-3 CONCRETE BARRIERS		
83-3.01C	Type 60K portable concrete barrier	COC or test reports
84-2 TRAFFIC STRIPES AND PAVEMENT MARKINGS		
84-2.01C	Thermoplastic	COC + autho., SDS & data sheet
	Paint	COC + autho., SDS & data sheet
	Glass beads	COC + autho., SDS & data sheet
	Thermoplastic primer	COC + test results
DIVISION X ELECTRICAL WORK		
86-1.01C(6)	Signal heads	COC + test data
	Visors	COC + test data
87-2 LIGHTING SYSTEMS		
87-2.01C	High mast lighting luminaires	COC + test data
90 CONCRETE		
90-1.01C(3)	Cementitious materials	COC + app. signature
	Blended cement	COC + app. signature
90-1.01C(4)	Admixture	COC + authorization
90-1.01C(5)	Curing compound	COC + test samples
90-2 MINOR CONCRETE		
90-2.01C	Minor concrete	COC + weighmaster cert
90-3 RAPID STRENGTH CONCRETE		
90-3.01C(3)	Aggregate	COC + certified weight
	Cementitious materials	COC + certified weight
	Admixtures	COC + certified weight
90-4 PRECAST CONCRETE		
90-4.01C(2) and 90-4.01D(2)(a)	Cementitious materials	COC + app. signature
	Precast members (each)	COC + app. signature
	Curing compound	COC + test samples
94 ASPHALTIC EMULSIONS		
94-1.01C	Asphaltic emulsion	COC + reports

* For those materials requiring additional information on or with the COC, see specification.

Caltrans 2018 Standard Specifications	Material	Additional Info and/or Attachments Required*
95 EPOXY		
95-1.01C	Epoxy	COC
96 GEOSYNTHETICS		
95-1.01C(1)	Geosynthetic	COC + test samples

* For those materials requiring additional information on or with the COC, see specification.

Appendix K - Examples of Materials Certificates/Exceptions (Signed by the Resident Engineer at the Completion of the Project)

Federal-aid Project No.: Project HP21L – 5055 – 111

Subject: Materials Certification

This is to certify that the results of the tests on acceptance samples indicate that the materials incorporated in the construction work and the construction operations controlled by sampling

[X] and testing were in conformity with the approved plans and specifications.

[ ] All materials exceptions to the plans and specifications on this project are noted below.

No exceptions were found to the plans and specifications on this project.

Bill Sanders	*Bill Sanders*	7/7/07
Resident Engineer (Print Name)	**Resident Engineer (Signature)**	**(Date)**

Note: The signed original of this certificate is placed in the Resident Engineer's project files and one copy is mailed to the DLAE and filed under "Report of Expenditures."

See the attachment (next page)

Appendix K (continued)

Attachments: Materials Exceptions (Acceptance Testing)

Type of Test	Description of Work	Total Tests Performed On the Project	Number of Failed Tests	Action Taken
Slump Test	**Concrete Sidewalk**	**8**	**1**	**When the measured slump exceeded the maximum limit, the entire concrete load was rejected.**
Sand Equivalent	**Aggregate for Structural Concrete**	**10**	**1**	**The tested S.E. was 70 and the contract compliance specification was 71 minimum. However, the concrete 28-day compressive strength was 4800 psi. The concrete was considered adequate and no materials deductions were taken.**
Compaction	**Sub grade Material**	**12**	**1**	**One failed test was noted. The failed area was watered and reworked. When this was completed, a retest was performed. The retest was acceptable.**
Compaction	**Hot Mix Asphalt**	**12**	**1**	**One failed area was noted. It was reworked and retested. The second test met specifications.**

Bill Sanders — Resident Engineer (Print Name)

Bill Sanders — Resident Engineer (Signature)

July 4, 2007 — Date

Appendix H - Example of a Log Summary Sheet

Subgrade Materials

Date	CT	Station	Elevation	Test Results	Minimum Spec.	Passed or Failed	Action Taken
5/15/07	231	1+ 00 (30' L)	99.00	93	90 or greater	Passed	N/A
5/16/07	231	1+ 50 (20' R)	100.50	94	90 or greater	Passed	N/A
5/17/07	231	2+ 25 (25' R)	101.00	96	90 or greater	Passed	N/A
5/18/07	231	1+ 50 (30' L)	101.50	95	95 or greater	Passed	N/A
5/19/07	231	2+ 50 (20' L)	102.00	92 *	95 or greater	Failed	See Note 1
5/19/07	231	2+ 50 (20' L)	102.00	95	95 or greater	Passed	N/A

CT 231 = Compaction (Nuclear Gage)

* Note 1: The Contractor used a water tank to dampen the soil surface at the failed subgrade location. Using a sheep's foot compactor, he reworked the subgrade (making at least 10 passes) from Station 2+ 00 to Station 3+ 00. After approximately 30 minutes, another compaction test was taken. This time the relative compaction was 95.

Aggregates and Base Materials

Date	CT	Station	Elevation	Test Results	Minimum Spec.	Passed or Failed	Action Taken
6/20/07	202	1+ 00 (10' R)	102.50	See data sheet	See data sheet	Passed	N/A
6/20/07	202	2+ 00 (20' L)	102.50	See data sheet	See data sheet	Passed	N/A
6/22/07	217	1+ 00 (10' R)	102.50	75	25 or greater	Passed	N/A
6/22/07	217	2+ 00 (20' L)	102.50	83	25 or greater	Passed	N/A
6/20/07	227	1+ 00 (20' R)	102.50	86	71 or greater	Passed	N/A
6/20/07	227	1+ 50 (20' L)	102.50	85	71 or greater	Passed	N/A
6/24/07	231	2+ 00 (20' R)	102.50	98	95 or greater	Passed	N/A
6/24/07	231	2+ 50 (20' L)	102.50	97	95 or greater	Passed	N/A

CT 202 = Sieve Analysis, CT 217 = Sand Equivalent, CT 227 = Cleanness Value,
CT 231 = Compaction (Nuclear Gage)

Appendix H (continued)

Hot Mix Asphalt

Date	CT	Station	Elevation	Test Results	Minimum Spec.	Passed or Failed	Action Taken
7/10/07	339	1+ 00 (10' R)	103.00	0.08 gal/ sq yd	0.05 -0.10 gal/sq yd	Passed	N/A
7/10/07	366	2+ 00 (20' L)	103.00	32	>23	Passed	N/A
7/10/07	366	1+ 00 (10' R)	103.00	41	>23	Passed	N/A
7/10/07	375	2+ 00 (20' L)	103.00	94	RC = 93 to 97	Passed	N/A
7/15/07	375	1+ 00 (20' R)	103.00	96	RC = 93 to 97	Passed	N/A
7/15/07	375	1+ 50 (20' L)	103.00	95	RC = 93 to 97	Passed	N/A

CT 339 = Distributor Spread Rate, CT 366 = Stabilometer Value
CT 375 = In-Place Density & Relative Compaction

Portland Cement Concrete

Date	CT	Station	Elevation	Test Results	Minimum Spec.	Passed or Failed	Action Taken
9/25/07	504	10 + 50 (50' R)	102.50	6.5%	>6.0%	Passed	N/A
9/25/07	533	12 + 50 (50' R)	102.50	1.5"	<2"	Passed	N/A
9/25/07	518	11 + 50 (50' R)	102.50	151 lb/cu ft	> 145 lb/cu ft	Passed	N/A
9/25/07	521	10 + 50 (50' R)	102.50	28 day = 4200 psi	>3800 psi	Passed	N/A
9/28/07	521	11 + 50 (50' R)	102.50	28 day = 4290 psi	>3800 psi	Passed	N/A
9/30/07	521	12 + 50 (50' R)	102.50	28 day = 4160 psi	>3800 psi	Passed	N/A

CT 504 = Air Content, CT 518 = Unit Weight, CT 521 = Compressive Strength,
CT 533 = Ball Penetration