



QUALITY ASSURANCE PROGRAM (QAP)

County of Stanislaus

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 frequently 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.

MATERIALS LABORATORY

The County will use their own materials laboratory or a private consultant materials laboratory to perform AT on Federal-aid and all other public works 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 Materials Reference Laboratory (AMRL)
 - b. Cement and Concrete Reference Laboratory (CCRL)
 - c. Caltrans' Reference Samples Program (RSP)
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.

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 California Test Methods (Caltrans) or a nationally recognized standard (i.e., AASHTO, ASTM, etc.) as specified in the contract specifications.

Sample locations and frequencies shall be in accordance with the contract specifications. If not so specified in the contract specifications, samples may be taken at the locations and frequencies as shown in **-Attachment #1 (Appendix A, “Acceptance Sampling and Testing Frequencies)**, as material changes dictate, and/or at the discretion of the County. Random sampling and testing may be requested at the discretion of the County. Additional sampling and testing shall be performed prior to use at the project site if material sources change.

INDEPENDENT ASSURANCE PROGRAM (IAP)

IAP shall be provided by personnel from Caltrans, the County’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 may be performed on every type of materials test required for the project. Proficiency tests may 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 County. IAP samples and tests are not to be used for determining compliance with contract requirements. Compliance with contract requirements is determined only by AT.

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 email, fax or telephone.

TESTING OF MANUFACTURED MATERIALS

During the Design phase of the project, the Project Engineer may submit a "Source Inspection Request" see Attachment #6 to the County, consultant, or Caltrans 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 B). All certificates of compliance shall conform to the requirements of the contract specifications, for examples see Attachment #4 (Appendix C)

Should the County request Caltrans to conduct the source inspection, and the request is accepted, all sampling, testing, and acceptance of manufactured and prefabricated materials will be performed by Caltrans' Office of Materials Engineering and Testing Services.

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.

PROJECT CERTIFICATION

Upon completion of a Federal-aid project, a "Materials Certificate" shall be completed by the Resident Engineer. The County 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 County's construction records. The Resident Engineer in charge of the construction function for the County 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 # 5 for an example (Appendix D)

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. For 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.

When two or more projects are being furnished with 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.

APPROVED BY:



Matt Machado, Director
Stanislaus County Public Works

7/6/15
Date

58093 6/30/16
(CE# and Expiration Date)

Appendix A - 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 Concrete

Materials to be Sampled or Tested	Sample Size	Recommended 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.
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.
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 150 cu. yd. for structural concrete ¹ . One test per 500 cu. yd. otherwise	ASTM C172, C685 CT 539 AASHTO T141, M157	This describes a method to sample freshly-mixed concrete.

¹ Concrete with a Plan Design Strength greater than 2,500psi.

Appendix A (continued)

Materials to be Sampled or Tested	Sample Size	Recommended Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Freshly-Mixed Concrete (Testing)	Approx. 150 lb/ (or 1 cu. ft.) near mixer discharge.	Perform slump testing at a minimum of one test per 150 cu. yd. for structural concrete. One test per 500 cu. yd. otherwise	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	When utilizing a mix design with air entraining admixture, perform test at a minimum of one test per 150 cu. yd. for structural concrete. One test per 500 cu. yd. otherwise	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	Perform slump testing at a minimum of one test per 150 cu. yd. for structural concrete. One test per 500 cu. yd. otherwise	ASTM C138 CT 518 AASHTO T121	This test determines the unit weight of freshly mixed concrete.
Freshly-Mixed Concrete (Testing)	Approx. 150 lb/ (or 1 cu. ft.) near mixer discharge	Fabricate at least one set of cylinders per project. Test for compressive strength at least once for each 150 cu. yd. for structural concrete. One test per 500 cu. yd. otherwise	ASTM C39 CT 521 AASHTO T22	This test is used to fabricate concrete cylinders for determination of compressive strength, when needed.
Freshly-Mixed Concrete (Testing)	Approximately 210 lb. of concrete are needed to fabricate three concrete beams.	One sample set for every 150 cu. yd. of structural concrete.	ASTM C78 CT 523 AASHTO T97 & T23	This test is used to determine the flexural strength of simple concrete beams in third-point loading

Portland Cement Concrete

Appendix A (continued)

Soils and Aggregate

Materials to be Sampled or Tested	Sample Size	Recommended Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Aggregate (Sampling)	One 50-lb. sample	Take 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	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	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	Test at least one sample per project.	CT 227	This test determines the cleanness of coarse aggregate.
Coarse Aggregate (Testing)	One 50-lb. sample	Test at least one sample per project.	ASTM C127 CT 206 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	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	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	Test at least one sample per project.	ASTM 1140 CT 117 AASHTO T11	This test determines the gradation for materials finer than the No. 200 sieve (by washing method).

Appendix A (continued)

Soils and Aggregates

Materials to be Sampled or Tested	Sample Size	Recommended Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Soils and Aggregates (Testing)	One 50-lb. sample	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	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 100-lb. sample	Sample and test for each material present.	ASTM D1557 (A-D) CT 216 ² AASHTO T272	This test determines maximum density and moisture content of soils and aggregates.
Soils and Aggregates (Testing)	At least one random location for every 2,500 sq. ft.	Test a minimum of one random location for every 2,500 sq. ft.	ASTM D6938 CT 231 AASHTO T238-T239	This test determines in-place density and moisture content using nuclear gauges.

Asphalt Binder

Materials to be Sampled or Tested	Sample Size	Recommended Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Asphalt Binder (Sampling)	One 0.5-gal. sample placed in a clean, sealed can.	If the product is accepted based on a Certificate of Compliance, testing is not required. If not accepted by Certificate of Compliance, sample once per job at the asphalt plant.	CT 125 ASTM D979 AASHTO T168, 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.	If the product is accepted based on a Certificate of Compliance, testing is not required. If not accepted by Certificate of Compliance, sample once per job at the asphalt plant.	ASTM D92, D117 AASHTO T48	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.	If the product is accepted based on a Certificate of Compliance, testing is not required. If not accepted by Certificate of Compliance, sample once per job at the asphalt plant.	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.	If the product is accepted based on a Certificate of Compliance, testing is not required. If not accepted by Certificate of Compliance, sample once per job at the asphalt plant.	ASTM D2042 AASHTO T44	This test determines the solubility of asphalt material in trichloroethylene.

² Refer to CT 216/231 Standard for Sample Collection and Testing Requirements

Appendix A (continued)

Asphalt Binder

Materials to be Sampled or Tested	Sample Size	Recommended Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Asphalt Binder (Testing)	One 0.5-gal. sample placed in a clean, sealed can.	If the product is accepted based on a Certificate of Compliance, testing is not required. If not accepted by Certificate of Compliance, sample once per job at the asphalt plant.	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.	If the product is accepted based on a Certificate of Compliance, testing is not required. If not accepted by Certificate of Compliance, sample once per job at the asphalt plant.	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.	If the product is accepted based on a Certificate of Compliance, testing is not required. If not accepted by Certificate of Compliance, sample once per job at the asphalt plant.	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.	If the product is accepted based on a Certificate of Compliance, testing is not required. If not accepted by Certificate of Compliance, sample once per job at the asphalt plant.	ASTM D2170 AASHTO T201	This test determines the kinematic viscosity of asphalt @275 degrees F(Centistoke).
Asphalt Binder (Testing)	One 0.5-gal. sample placed in a clean, sealed can.	If the product is accepted based on a Certificate of Compliance, testing is not required. If not accepted by Certificate of Compliance, sample once per job at the asphalt plant.	ASTM D36 AASHTO T53	This test determines the softening point of asphalt.

Asphalt Emulsified

Materials to be Sampled or Tested	Sample Size	Recommended Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Emulsified Asphalt (Sampling)	One 0.5-gal. sample placed in a clean, sealed can.	If the product is accepted based on a Certificate of Compliance, testing is not required. If not accepted by Certificate of Compliance, sample once per job at the asphalt plant.	ASTM D140, D979 CT 125 AASHTO T40, 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.	If the product is accepted based on a Certificate of Compliance, testing is not required. If not accepted by Certificate of Compliance, sample once per job at the asphalt plant.	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.	If the product is accepted based on a Certificate of Compliance, testing is not required. If not accepted by Certificate of Compliance, sample once per job at the asphalt plant.	ASTM D244 AASHTO T59	This test determines the weight per gallon of emulsified asphalt.

Appendix A (continued)

Asphalt Emulsified

Materials to be Sampled or Tested	Sample Size	Recommended Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Emulsified Asphalt (Testing)	One 0.5-gal. sample placed in a clean, sealed can.	If the product is accepted based on a Certificate of Compliance, testing is not required. If not accepted by Certificate of Compliance, sample once per job at the asphalt plant.	ASTM D244 CT 330 AASHTO T59	This test determines the residue @ 325 degrees F evaporation of emulsified asphalt.
Emulsified Asphalt (Testing)	One 0.5-gal. sample placed in a clean, sealed can.	If the product is accepted based on a Certificate of Compliance, testing is not required. If not accepted by Certificate of Compliance, sample once per job at the asphalt plant.	ASTM D4402 AASHTO T201	This test determines the Brookfield viscosity.
Emulsified Asphalt (Testing)	One 0.5-gal. sample placed in a clean, sealed can.	If the product is accepted based on a Certificate of Compliance, testing is not required. If not accepted by Certificate of Compliance, sample once per job at the asphalt plant.	ASTM D88 AASHTO T72	This test determines the Saybolt- Furol viscosity of emulsified asphalt @ 77 degrees F (seconds).

Hot Mix Asphalt (HMA)

Materials to be Sampled or Tested	Sample Size	Recommended Sampling/Testing Frequency	Typical Test Methods	Description or Comments
HMA-Mix (Sampling)	Obtain one 30-lb. sample each day of production	Obtain one sample at the plant for each 5,000 tons of HMA placed.	ASTM D75, D140, D979 CT 125 AASHTO T40, T168	This test describes the procedure to sample the HMA.
HMA-Mix (Testing)	Obtain one 150-lb. sample	Perform one test for each mix design at least once per project if project requires more than 100 tons. Sample and test for each 5,000 tons placed. If mix is not used for a period of greater than 2 weeks, perform additional sampling and testing when material use resumes.	ASTM D1188 CT 308 or ASTM D2041 CT 309, AASHTO T246, T247	This test determines the maximum density HMA.
HMA-Mix (Testing)	Obtain one 150-lb. sample	Perform one test for each mix design at least once per project if project requires more than 100 tons. Sample and test for each 5,000 tons placed. If mix is not used for a period of greater than 2 weeks, perform additional sampling and testing when material use resumes.	ASTM D2172, D2172 (Method B) CT 379, CT 382	This test determines the oil content of HMA.
HMA-Mix (Testing)	Obtain one 150-lb. sample	Perform one test for each mix design at least once per project if project requires more than 100 tons. Sample and test for each 5,000 tons placed. If mix is not used for a period of greater	ASTM D1560, D1561 CT 366 AASHTO T246, T247	This test determines the stabilometer value (S-Value) of HMA.



		than 2 weeks, perform additional sampling and testing when material use resumes.	T246, T247	
HMA-Aggregates (Testing)	Obtain one 150-lb. sample (combined)	Perform one test for each mix design at least once per project if project requires more than 100 tons. Sample and test for each 5,000 tons placed. If mix is not used for a period of greater than 2 weeks, perform additional sampling and testing when material use resumes.	ASTM D422, C136, CT 202	This test determines the sieve analysis of the HMA aggregates. 1 sample/bin –Batch 1 sample combined-Continuous
HMA-Aggregates (Testing)	Obtain one 150-lb. sample	Perform one test for each mix design at least once per project if project requires more than 100 tons. Sample and test for each 5,000 tons placed. If mix is not used for a period of greater than 2 weeks, perform additional sampling and testing when material use resumes.	ASTM D2419 CT 217 AASHTO T246, T247	This test determines the sand equivalencies of the HMA aggregates.
HMA-Cores (Testing)	4" x 8" cores	Take one 4" x 8" core for every 500 ft of paved roadway. Core sampling may be waived at the discretion of the County.	ASTM D1188,D1560, D1561,D5361 CT 304 AASHTO T246, T247	This test determines the field density of core samples.
HMA-Cores (Testing)	Obtain one 30-lb. sample for each day of production	Obtain one sample for every five cores taken. Core sampling may be waived at the discretion of the County.	ASTM D1188,D1560, D1561,D5361 CT 304 AASHTO T246, T247	This test determines the laboratory density and relative compaction of asphalt concrete.
HMA-Cores (Testing)	4" x 8" cores	Obtain one sample for every five cores taken. Core sampling may be waived at the discretion of the County.	ASTM D2726, D1188, D5361	This test determines the specific gravity of compacted bituminous mixture dense- graded or non-absorptive.

Appendix A (continued)

Hot Mix Asphalt (HMA)

Materials to be Sampled or Tested	Sample Size	Recommended Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Geotextile Fabric (Placed Under the Asphalt Concrete) (Testing)	One 12 ft. x 3 ft. sample	If the product is accepted based on a Certificate of Compliance, testing is not required. If not accepted by Certificate of Compliance, obtain one sample per job.	ASTM D4632 AASHTO M288	This test determines the weight per sq. yd. and grabs strength of geotextile fabrics.
HMA (Testing)	Random test location	Test a minimum of one random location for every 2,500 sq. ft.	ASTM D6938 CT 375	This test determines the nuclear field density of in-place asphalt concrete.

Slurry Seals

Materials to be Sampled or Tested	Sample Size	Recommended Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Slurry Seals (Sample)	One 0.5 gal. sample in a clean, dry plastic container.	Obtain one sample per truck	ASTM D979 CT 125 AASHTO T40, 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.
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).
Slurry Seals (Testing & Calibration)		Calibrate all trucks to be used on project prior to project start.	CT 109	Calibration of Slurry Trucks

Appendix A (continued)

Steel

Materials to be Sampled or Tested	Sample Size	Recommended 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 prestressed 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.



Appendix B - 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
Cement/Flyash
Air Entrainment/Admixtures
Water Reducers/Set Retarders
Asphalt Binder
Emulsified Asphalt
GeoTextile Stabilization Fabric

* If Caltrans Standard Specifications 2010 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 C.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. 5/03) #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 <u>XYZ CEMENT CO.</u>	MILL LOCATION <u>MIDLAND, CALIFORNIA</u>
TYPE <u>II MODIFIED</u>	

CHEMICAL ADMIXTURE	
1. BRAND <u>ABC ADMIXTURE</u>	MANUFACTURER <u>XYZ SUPPLIER</u>
TYPE <u>WATER REDUCER</u>	
2. BRAND	MANUFACTURER
TYPE	

CHECK BOX IF A CHEMICAL ADMIXTURE WAS NOT USED

MINERAL ADMIXTURE	
MANUFACTURER <u>POZZ. INC.</u>	CLASS <u>F</u>

CHECK BOX IF A MINERAL ADMIXTURE WAS NOT USED

DELIVERY DATE (Ready-Mix) <u>7/7/07</u>	DATES OF FABRICATION (Precast)
--	--------------------------------

LIST PRODUCTS TO WHICH CERTIFICATE APPLIES. (Show size and in. R. 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



Appendix C.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 .



Appendix D - 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 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
Resident Engineer (Print Name)

Bill Sanders
Resident Engineer (Signature)

7/7/07
(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 D (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



**SAMPLE COVER MEMO
SOURCE INSPECTION REQUEST
FROM LOCAL AGENCY to
CALTRANS' DISTRICT LOCAL ASSISTANCE ENGINEER
(Prepared By Applicant On Applicant Letterhead)**

To: (name)
Caltrans' District Local Assistance Engineer
Caltrans' Local Assistance Office
(district office address)

Date:

Federal-aid Project Number: (if one has been assigned)

Project Description:

Project Location:

Subject: *(Source Inspection for Project Name, County)*

We are requesting that Caltrans provide Source Inspection (reimbursed) services for the above mentioned project. We understand we are responsible for paying for this service provided for by the State. Listed below are the materials for which we are requesting Caltrans' Source Inspection (reimbursed) services.

Materials that will require source inspection: _____

Justification for request: (Based on the requirements in Section 16.14 under "Source Inspection")

Any question you might have about the above materials should be directed to: _____, at (phone #) _____

Approved:

(Applicant Representative Name)

District Local Assistance Engineer

(Title)

(Date)



(Local agency, name & address)