



# QUALITY ASSURANCE PROGRAM (QAP)

## City of Gilroy

### DEPARTMENT OF PUBLIC WORKS

**The purpose of this program is to provide assurance that the materials incorporated into each construction project conform to the contract specifications.**

- This QAP shall be *updated* every **five** years, minimum.
- This QAP shall be updated if changes are made such to the test methods or to the testing sampling and frequencies.
- This QAP is incomplete without Attachments 1 through 3.

Approved By:



Date:

*Daryl Jordan*

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Daryl Jordan, Director of Public Works

## TABLE OF CONTENTS

1. VARIATIONS FOR PROJECTS ON OR OFF THE STATE HIGHWAY SYSTEM.....	3
2. DEFINITION OF TERMS.....	3
3. MATERIALS ACCEPTANCE PROGRAM.....	3
4. INDEPENDENT ASSURANCE PROGRAM.....	8
5. RESIDENT ENGINEER’S CERTIFICATION OF PROJECT MATERIALS .....	9
6. PROJECT QAP RECORDS.....	9
7. ATTACHMENTS.....	10

## 1. VARIATIONS FOR PROJECTS ON OR OFF THE STATE HIGHWAY SYSTEM

For projects OFF the State Highway System, follow the QA procedures outlined in this document.

For projects ON the State Highway System, follow the QA procedures outlined in the following manuals and guides:

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

In addition, the current Caltrans Standard Specifications (CTSS) and Plans must be part of the Plans, Specifications and Estimate (PS&E). Test methods used must be as specified in the CTSS and special provisions.

## 2. DEFINITION OF TERMS

- 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 Materials Acceptance Program (MAP) and the Independent Assurance Program (IAP).
- Materials Acceptance Program (MAP) – Sampling, testing, inspection, and certification of project materials to determine the degree of compliance with the contract specifications. Materials shall be accepted by one or more of the following methods, as allowed for in this document and the contract specifications: Acceptance Testing (AT), Manufacturer’s Certification of Compliance, Source Inspection, or field inspection.
- Independent Assurance Program (IAP) – A program that verifies that AT is being performed correctly by certified testers using qualified laboratories and calibrated equipment.
- Acceptance Testing (AT) – Testing of project materials to determine compliance with the contract specification criteria.
- Certificate of Compliance – A signed document from the materials manufacturer committing that the delivered goods meet the contract specifications.
- Source Inspection – Sampling, testing, and/or inspection of manufactured or prefabricated structural materials at a location other than the job site, generally at the manufactured location.

## 3. MATERIALS ACCEPTANCE PROGRAM

Material incorporated into the work shall be accepted by one or more of the following methods, as specified in the contract specifications and this document:

- Field Sampling and Acceptance Testing
- Source Inspection and Testing

- Manufacturer's Certificate of Compliance (with attachments if required)
- Visual Inspection (for minor quantities)

**FIELD SAMPLING AND ACCEPTANCE TESTING:**

***General:***

- Acceptance sampling and testing shall be performed by certified materials personnel.
- Acceptance testing will be performed utilizing accredited materials laboratories and properly calibrated equipment.
- Certifications and accreditations shall be specific to the tests being performed.
- A material testing results log shall be maintained for any test method performed more than once on a project.
- Test results for materials incorporated into the work shall be in compliance with the contract specifications.
- Actions taken regarding material with failing test results shall be fully documented, including details documenting remove/replace, rework/re-test, and deduction/CCO.
- Justification shall be provided for any failing material allowed to remain in place.

***Acceptance Sampling and Testing Locations and Frequencies:***

- Sample and testing locations and frequencies shall be in accordance with the contract specifications.
- If not specified in the contract documents, sampling and testing locations and frequencies shall be as shown in Attachment 1, *Sampling and Testing Frequency Tables for Projects Off the State Highway System*.
- When sampling products such as Portland cement concrete, cement-treated base, hot mix asphalt, or similar materials; sampling shall be varied with respect to the time of the day, insofar as possible, in order to *avoid a predictable sampling routine*.

***Acceptance Test Methods:***

- The test methods used shall be *as specified in the contract documents*.
- For a material specified to comply with a property shown in the following tables, the Agency uses one of the corresponding tests (or the equivalent):

**Caltrans standard specifications**

<b>Test Property</b>	<b>Test</b>
Relative compaction	CT 216 or 231
Sand equivalent	CT 217
Resistance/R-value	CT 301
Grading /sieve analysis	CT 202
Durability index	CT 229
Cleanness Value	CT 227

Test methods equivalent to the tests listed above require prior written approval or other documented authorization by the City of Gilroy Public Works Director and/or the City of Gilroy (internal only) Project Manager.

**Acceptance Testing Laboratory:**

- Acceptance testing shall be performed as applicable, by one or more of the following:
  - Materials Laboratory specified by City of Gilroy Public Works
  - Consultant Materials Laboratory
  - Other (as specified and authorized by City of Gilroy Public Works)
- The materials lab 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 Laboratory shall be properly qualified.
- The Laboratory testing personnel shall be appropriately certified.
- Testing equipment shall be properly calibrated.
- Laboratories shall comply with Section 4, *Independent Assurance Program*, of this document.

**Reporting Acceptance Test Results:**

- The laboratory shall report test results to the RE as soon as possible by email or telephone.
- Copies of complete material test result reports, including data and calculation sheets, shall be provided to the *RE* in accordance with the following timetable:

**Timetable for Providing Full Test Results to the RE**

If the material is sampled...	And the test performed is...	Submit results to RE within...
At the material plant	Sieve Analysis, or Sand Equivalent (SE), or Cleanness Value (CV)	24 hours
At the job site	Compaction and/or maximum density	24 hours
	Sieve Analysis, or Sand Equivalent (SE), or Cleanness Value (CV)	72 hours
	R value, or Asphalt Extraction	96 hours

*Hours shown in this table may be reduced as required and/or specified by City of Gilroy Public Works Department via job specification, contract, or other written authorization.*

**Acceptance Testing Summary Logs**

- The RE shall maintain a testing summary log for each test method performed more than once on the project (CT 217, CT 202, etc.) and for each salient feature (structure backfill, subgrade, etc.).
- Attachment 2 (or equivalent), *Test Result Summary Log* form shall be used.

The Test Result Summary Log shall include, at minimum, the following:

- Name and ID Number of the Test Method Performed
- Date Tested
- Name of Tester
- Location
- Approximate Quantity of Material Represented by the Test
- Required Passing Result
- Actual Test Result
- Resolution of any Failing Results
- The RE shall use the log to track that:
  - Sampling is performed at the required frequencies;
  - Acceptance tests are performed at the required frequencies;
  - Tester certifications are current and on file; and
  - all failing tests have been mitigated and documented.

**SOURCE INSPECTION AND TESTING:**

- Some manufactured or prefabricated structural materials will be inspected or tested prior to arrival at the jobsite, generally at the manufacturer's location (a.k.a. source inspected.)

- Structural items categorized as "catastrophic consequences of failure" or "significant safety concern" may be source inspected. Materials that might be source inspected include structural steel, precast pre-stressed concrete girders and pilings; RCP greater than 60", joint seals, bearing pads, lighting and signal poles, sign structures, electrical items.
- The RE may reject source inspected material at the job site if deemed not acceptable, including:
  - Material damage in shipment or installation;
  - Defective material (source inspection is usually a random sampling and may not have checked 100% of the material.)
- The following materials laboratories will be used to perform source inspection and testing.
  - Laboratory specified by City of Gilroy Public Works
  - Consultant Materials Laboratory
  - Other (as specified and authorized by City of Gilroy Public Works)

**MANUFACTURER'S CERTIFICATES OF COMPLIANCE:**

***General:***

- Various manufactured materials may be accepted for incorporation into the work without sampling or testing based on a certificate from the manufacturer.
- Where required by the contract specifications, the contractor shall submit a certificate of compliance.
- Where required by the contract, the contractor shall attach test data or other documents to the certificate of compliance.
- The RE may perform sampling and testing on such materials at any time.
- Certificates of compliance shall:
  - Be submitted by the Contractor before the material is incorporated into the work;
  - Accompany the material to the job site;
  - Identify the lot (or heat) number for each lot delivered;
  - Include the contract number;
  - Include test data and other documents when required;
  - State that the material complies with the contract specifications; and
  - Be signed by the producer of the material.

***List of Materials Accepted by Certificate of Compliance:***

- This agency uses one of the following Standard Specifications: Caltrans 2010, Caltrans 2018, or the equivalent (as authorized by City of Gilroy).
- In accordance with the 2010 CTSS, the 2018 CTSS, or the equivalent Standard Specifications, the materials listed in Attachment 3 may be accepted by Certificate of Compliance.

- This list may be supplemented or amended by the contract Special Provisions or Technical Provisions.

**ACCEPTANCE OF MINOR QUANTITIES WITHOUT TESTING (VISUAL INSPECTION):**

Unless otherwise specified in the contract or by the City of Gilroy, visual inspection shall be used for acceptance. Larger or structural type projects shall all require acceptance testing as specified herein.

## 4. INDEPENDENT ASSURANCE PROGRAM

**GENERAL:**

- The IA program shall verify that:
  - Sampling and testing procedures are being performed correctly
  - All AT performed on the project uses qualified laboratory and certified testing personnel.
  - All testing equipment is in good condition and properly calibrated.
- A complete review of AT shall be performed by IA program personnel, or an independent materials laboratory chosen by the agency, when unresolved discrepancies related to poor correlation between acceptance tester's results and other test results occur.
- The IA program duties, including certification of testers and qualification of lab, shall be executed by:
  - Local Agency designated IA person (this person shall not perform any AT)
  - Caltrans (for CT test methods only)
  - Consultant (this consultant shall be different from AT consultant)
- IA shall be performed on every type of materials test required for the project.
- IA samples and tests shall *not* be used for determining compliance with contract requirements.

**LABORATORY QUALIFICATION:**

- The AT materials laboratory shall participate and comply with one or more of the following Correlation Testing Programs:
  - AASHTO Materials Reference Laboratory (AMRL)
  - Cement and Concrete Reference Laboratory (CCRL)
  - Caltrans' Reference Samples Program (RSP)
- The AT Laboratory qualification shall occur *annually*.
- A copy of the current laboratory qualification shall be kept in the project records.

**TESTER CERTIFICATION:**

- Sampling and testing personnel shall be certified for a maximum of two years by one or more of the following Personnel Certification Programs:



- CT Materials Engineer and/or CT METS IA Representative (for CT tests only)
  - American Concrete Institute
  - National Institute of Certification of Engineering Technologies
  - Other nationally recognized organization
  - City designated and qualified IA person (IA person may not perform AT)
  - A consultant lab qualified for such purposes.
- Proficiency tests shall be performed for testers to be certified on Sieve Analysis, Sand Equivalent, and Cleanness Value tests. All other types shall be witness tests.
  - A copy of each tester's current and applicable certifications shall be kept in the project files.

**EQUIPMENT CERTIFICATION CALIBRATION:**

- Laboratory testing equipment shall be:
  - Capable of performing the tests required.
  - Be in good working order.
  - Be calibrated at least once each year.
  - Be calibrated by impartial means using devices of accuracy traceable to the National Institute of Standards and Technology.
  - Have a decal firmly affixed to each piece of equipment showing the date of the last calibration.

## 5. RESIDENT ENGINEER’S CERTIFICATION OF PROJECT MATERIALS

- The RE shall complete and sign LAPM Exhibit 17-G, "Materials Certificate" of the Local Assistance Procedures Manual (LAPM), upon completion of a federal-aid project.
- The form shall *explain and justify* all materials incorporated into the work which did not conform to specifications, including changes by virtue of contract change orders.
- The form shall be filed in the project records.
- The form shall be included in the Report of Expenditures submitted to the Caltrans District Local Assistance Engineer.

## 6. PROJECT QAP RECORDS

- Each project shall have the quality assurance documents on file, organized, and indexed in the following categories:
  - Copy of Quality Assurance Plan
  - Certificate of Proficiency – Testers and Samplers (Exhibit 16-D)
  - Certificate of Qualification for Testing Laboratory. See Caltrans website: <https://dot.ca.gov/programs/engineering-services/independent-assurance-program>
  - Notice of Materials to be Used (Exhibit 16-I)
  - Acceptance Testing Summary Logs and Test Results

- Certificates of Compliance, including Buy American Certificates
- Source inspection records and reports.
- Materials Certification (Exhibit 17-G)
  
- All project records shall be available in a single location for inspection by auditors and reviewers:
  - At any time during the project
  - For three years following the date of final project voucher.

## 7. ATTACHMENTS

1. Sampling and Testing Frequency Table for Projects Off the State Highway System
2. Test Results Summary Log
3. Materials Requiring a Certificate of Compliance per 2018 Caltrans Standard Specifications

Attachment 1

Sampling and Testing Frequency Tables for Projects Off the State Highway System

**Sampling and Testing Frequency Table  
for projects OFF the State Highway System**

**HOT MIX ASPHALT (HMA) / ASPHALT CONCRETE (AC)**

Quality Characteristic	Test Method	Minimum Sampling and Testing Frequency	Location/Time of Sampling
Aggregate Gradation (Sieve)	CT 202	1 per 1000 tons or part thereof; min. 1 per day during production/placement of at least 300 tons per day	At plant per CT 125 (a)
Sand Equivalent	CT 217		
Asphalt Binder Content	CT 382		Loose mix behind paver per CT 125
In-Place Density and Relative Compaction (Nuclear)	Nuclear (b) CT 375 or ASTM D2950 (c)	1 per 1000 tons or part thereof; min. 1 per day during production/placement of at least 300 tons per day (b)	Random locations per CT 375 (c)
Theoretical Maximum Specific Gravity and Density (Rice)	CT 309	1 per day during production/ placement of at least 300 tons per day	Loose mix behind paver per CT 125
HMA Moisture Content	CT 226 or CT 370		
Stabilometer Value (d)	CT 366		
Asphalt Binder	Sample per Section 92	Sample 1 min. per day for production over 300 tons per day; see (f) regarding testing	At plant per CT 125
Smoothness	12-foot straightedge	As necessary to confirm contract compliance	Final pavement surface

- (a) Exact tonnage of sample location to be determined by Random Sampling Plans
- (b) Compaction determined by Nuclear Density Device. Core testing required if compaction fails the nuclear test.
- (c) Correlation between core densities and nuclear device required only if compaction fails the nuclear test.
- (d) Report the average of 3 tested briquettes from a single split source.
- (e) Use CT 309 to determine maximum theoretical density in lieu of CT 367 calculated maximum theoretical density.
- (f) No testing required unless warranted by concern; sample and store until completion of project.

**SUBGRADE (DISTURBED BASEMENT SOIL) OR EMBANKMENT**

Quality Characteristic	Test Method	Minimum Sampling and Testing Frequency	Location/Time of Sampling
Maximum Density and Relative Compaction	CT 216/CT 231	1 min. test per 5000sq. ft. under vehicle traveled way and shoulder; 1 min. test per 300 linear foot under sidewalk	Random locations as determined by the Engineer in place after compaction

**AGGREGATE BASES AND SUBBASES, IMPORTED BORROW**

Quality Characteristic	Test Method	Minimum Sampling and Testing Frequency	Location/Time of Sampling
Sieve Analysis	CT 202	1 min. test per material source	Sample from site stockpile/plant prior to placement Loose mix behind paver per CT 125
R-Value	CT 301		
Sand Equivalent	CT 217		
Maximum Density and Relative Compaction	CT 216/CT 231	1 min. test per 5000sq. ft.	Random locations as determined by the Engineer in place after compaction

**STRUCTURE BACKFILL, SELECT BACKFILL**

Quality Characteristic	Test Method	Minimum Sampling and Testing Frequency	Location/Time of Sampling
Sieve Analysis	CT 202	1 min. test per material source	Sample from site stockpile/plant prior to placement Loose mix behind paver per CT 125
R-Value	CT 301		
Sand Equivalent	CT 217		
Maximum Density and Relative Compaction	CT 216/CT 231	1 min. test per 2 vertical lifts of placement	Random locations as determined by the Engineer in place after compaction

**PORTLAND CEMENT CONCRETE (PCC) – STRUCTURAL AND SIGNAL/LIGHTING FOUNDATIONS**

<b>COARSE AGGREGATE</b>			
<b>Quality Characteristic</b>	<b>Test Method</b>	<b>Minimum Sampling and Testing Frequency</b>	<b>Location/Time of Sampling</b>
Sieve Analysis	CT 202	1 min. test per 500 cu ydsand per each material source; 1 min. test on smaller projects; if bridge, 1 min. set per separate pour per abutment/pier/deck.	Sample from site stockpile/plant prior to placement
Cleanness Value	CT 227		

**PORTLAND CEMENT CONCRETE (PCC) – STRUCTURAL AND SIGNAL/LIGHTING FOUNDATIONS**

<b>FINE AGGREGATE</b>			
<b>Quality Characteristic</b>	<b>Test Method</b>	<b>Minimum Sampling and Testing Frequency</b>	<b>Location/Time of Sampling</b>
Sieve Analysis	CT 202	1 min. test per 500 cu ydsand per each material source; 1 min. test on smaller projects; if bridge, 1 min. set per separate pour per abutment/pier/deck.	Sample from site stockpile/plant prior to placement
Sand Equivalent	CT 217		

**PORTLAND CEMENT CONCRETE (PCC) – STRUCTURAL AND SIGNAL/LIGHTING FOUNDATIONS**

<b>WET MIX</b>			
<b>Quality Characteristic</b>	<b>Test Method</b>	<b>Minimum Sampling and Testing Frequency</b>	<b>Location/Time of Sampling</b>
Slump/Penetration	CT 533	2 per day	Sample from truck/work site
Cylinders	CT 539/540	1 min. set of 3 per day; if bridge, 1 min. set per separate pour of abutment/pier/deck	

Attachment 2  
Test Result Summary Log

Test Result Summary Log

Test Method Name and Number: \_\_\_\_\_

Project Name: \_\_\_\_\_

Contract Number: \_\_\_\_\_

Test Number	Date Sampled	Name of Tester/Company		Production		Test Results			Remarks
		Tester Cert on File?	✓	Location (stations, depths, etc.)	Production Quantity Represented	Required Results	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									



### Attachment 3

For Addendum via reference, use one or more of the following:

- A. 2010 Caltrans Standard Specifications
- B. 2018 Caltrans Standard Specifications
- C. Equivalent as authorized by City of Gilroy via specification, contract, or other written authorization/approval

Exhibit 16-T1: Materials Requiring a Certificate of Compliance per 2018 Caltrans Standard Specifications

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

Caltrans 2018 Standard Specifications	Material	Additional Info and/or Attachments Required*
<b>20-3 PLANTING</b>		
20-2.08A(3)	Sod	COC
	Soil amendment	COC
<b>20-5 LANDSCAPE ELEMENTS</b>		
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
<b>21-2 EROSION CONTROL WORK</b>		
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
<b>24 STABILIZED SOILS</b>		
24-1.01C(1)	Stabilizing agent	COC + sample
<b>24-3 CEMENT STABILIZED SOIL</b>		
24-3.01C	Cement	COC + sample
<b>36-2 BASE BOND BREAKER</b>		
36-2.01C	Base bond breaker	COC
<b>37 BITUMINOUS SEALS</b>		
37-1.01C	Asphalt binder	COC + test results
	Asphalt emulsion	COC + test results
<b>37-3 SLURRY SEALS AND MICRO-SURFACINGS</b>		
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
<b>37-2.04 ASPHALT RUBBER BINDER CHIP SEALS</b>		
37-2.04A(3)	Asphalt rubber binder ingredients	COC + permits & submittals

Caltrans 2018 Standard Specifications	Material	Additional Info and/or Attachments Required*
<b>37-5 PARKING AREA SEALS</b>		
37-5.01C	Parking area seal material	COC + sample & test results
<b>37-6 CRACK TREATMENTS</b>		
37-6.01C	Crack treatment materials	COC or sample & test results
<b>39-2 HOT MIX ASPHALT</b>		
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
<b>40 CONCRETE PAVEMENT</b>		
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
<b>41 EXISTING CONCRETE PAVEMENT</b>		
<b>41-5 JOINT SEALS</b>		
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
<b>41-10 DRILL AND BOND BARS</b>		
41-10.01C	Tie bars	COC
	Dowel bars	COC
	Dowel bar lubricant	COC
	Chemical adhesive	COC
	Epoxy powder coating	COC
<b>48-2 FALSEWORK</b>		
48-2.01C(1)	Structural composite lumber	COC + submittals
<b>49-2 DRIVEN PILING</b>		
49-2.02A(3)(d)	Steel pipe piles	COC + tests & mill reports
49-2.03A(3)	Structural shape steel piling	COC + test reports

Caltrans 2018 Standard Specifications	Material	Additional Info and/or Attachments Required*
<b>51 CONCRETE STRUCTURES</b>		
51-1.01C(3)	Bonding materials	COC or sample & authorization
<b>51-2 JOINTS</b>		
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
<b>51-3 BEARINGS</b>		
51-3.02A(3)(c)	Elastomer for bearing pads	COC + test reports
<b>51-4 PRECAST CONCRETE MEMBERS</b>		
51-4.01C(1)	Concrete box culvert	COC
<b>52 REINFORCEMENT</b>		
52-1.01C(3)	Reinforcement (rebar)	COC + mill test report
<b>52-2 EPOXY-COATED REINFORCEMENT</b>		
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
<b>52-6 SPLICING</b>		
52-6.01C(5)	Service or butt splice material	COC + submittals
<b>54 WATERPROOFING</b>		
<b>54-3 PREFORMED MEMBRANE WATERPROOFING</b>		
54-3.01C	Prefomed membrane sheet	COC + report
<b>54-5 DECK SEAL</b>		
54-5.01C	Prefomed membrane sheet	COC + report
<b>57-2 WOOD STRUCTURES</b>		
57-2.01A(3)	Timber and lumber	COC + report
	Glued laminated timbers/decking	COC
<b>57-3 PLASTIC LUMBER STRUCTURES</b>		
57-3.01C(1)	Plastic lumber	COC + test report & sample

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

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

Caltrans 2018 Standard Specifications	Material	Additional Info and/or Attachments Required*
<b>82-5 MARKERS</b>		
82-5.01C	Metal target plates	COC
	Enamel coating	COC
	Retroreflective sheeting	COC
<b>83-3 CONCRETE BARRIERS</b>		
83-3.01C	Type 60K portable concrete barrier	COC or test reports
<b>84-2 TRAFFIC STRIPES AND PAVEMENT MARKINGS</b>		
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
<b>DIVISION X ELECTRICAL WORK</b>		
86-1.01C(6)	Signal heads	COC + test data
	Visors	COC + test data
<b>87-2 LIGHTING SYSTEMS</b>		
87-2.01C	High mast lighting luminaires	COC + test data
<b>90 CONCRETE</b>		
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
<b>90-2 MINOR CONCRETE</b>		
90-2.01C	Minor concrete	COC + weighmaster cert
<b>90-3 RAPID STRENGTH CONCRETE</b>		
90-3.01C(3)	Aggregate	COC + certified weight
	Cementitious materials	COC + certified weight
	Admixtures	COC + certified weight
<b>90-4 PRECAST CONCRETE</b>		
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
<b>94 ASPHALTIC EMULSIONS</b>		
94-1.01C	Asphaltic emulsion	COC + reports



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