SECTION 12 – CONTRACTOR QUALITY CONTROL PROGRAM (FAA 100)

12-1 GENERAL

The Contractor shall perform all work required by the plans and specifications for providing a Contractor Quality Control Program in accordance with the Standard Specifications, except as specified otherwise in FAA Specification Section 100, as included and modified hereafter, and as shown on the Plans.

SECTION 100
CONTRACTOR QUALITY CONTROL PROGRAM

100-01 GENERAL. *When the specification requires a Contractor Quality Control Program, the Contractor shall establish, provide, and maintain an effective Quality Control Program that details the methods and procedures that will be taken to assure that all materials and completed construction required by this contract conform to contract plans, technical specifications and other requirements, whether manufactured by the Contractor, or procured from subcontractors or vendors. Although guidelines are established and certain minimum requirements are specified herein and elsewhere in the contract technical specifications, the Contractor shall assume full responsibility for accomplishing the stated purpose.*

The intent of this section is to enable the Contractor to establish a necessary level of control that will:

a. *Adequately provide for the production of acceptable quality materials.*

b. *Provide sufficient information to assure both the Contractor and the Engineer that the specification requirements can be met.*

c. *Allow the Contractor as much latitude as possible to develop his or her own standard of control.*

The Contractor shall be prepared to discuss and present, at the preconstruction conference, his/her understanding of the quality control requirements. The Contractor shall not begin any construction or production of materials to be incorporated into the completed work until the Quality Control Program has been reviewed by the Engineer. No partial payment will be made for materials subject to specific quality control requirements until the Quality Control Program has been reviewed.

The quality control requirements contained in this section and elsewhere in the contract technical specifications are in addition to and separate from the

acceptance testing requirements. Acceptance testing requirements are the responsibility of the Engineer.

100-02 DESCRIPTION OF PROGRAM.

a. General Description. *The Contractor shall establish a Quality Control Program to perform inspection and testing of all items of work required by the technical specifications, including those performed by subcontractors. This Quality Control Program shall ensure conformance to applicable specifications and plans with respect to materials, workmanship, construction, finish, and functional performance. The Quality Control Program shall be effective for control of all construction work performed under this Contract and shall specifically include surveillance and tests required by the technical specifications, in addition to other requirements of this section and any other activities deemed necessary by the Contractor to establish an effective level of quality control.*

b. Quality Control Program. *The Contractor shall describe the Quality Control Program in a written document that shall be reviewed by the Engineer prior to the start of any production, construction, or off-site fabrication. The written Quality Control Program shall be submitted to the Engineer for review at least 7 calendar days before the pre-construction conference.*

The Quality Control Program shall be organized to address, as a minimum, the following items:

1. *Quality control organization;*

2. *Project progress schedule;*

3. *Submittals schedule;*

4. *Inspection requirements;*

5. *Quality control testing plan;*

6. *Documentation of quality control activities; and*

7. *Requirements for corrective action when quality control and/or acceptance criteria are not met.*

The Contractor is encouraged to add any additional elements to the Quality Control Program that he/she deems necessary to adequately control all production and/or construction processes required by this contract.

100-03 QUALITY CONTROL ORGANIZATION. *The Contractor Quality Control Program shall be implemented by the establishment of a separate quality control organization. An organizational chart shall be developed to show all quality control personnel and how these personnel integrate with other management/production and construction functions and personnel.*

The organizational chart shall identify all quality control staff by name and function, and shall indicate the total staff required to implement all elements of the Quality Control Program, including inspection and testing for each item of work. If necessary, different technicians can be utilized for specific inspection and testing functions for different items of work. If an outside organization or independent testing laboratory is used for implementation of all or part of the Quality Control Program, the personnel assigned shall be subject to the qualification requirements of paragraph 100-03a and 100-03b. The organizational chart shall indicate which personnel are Contractor employees and which are provided by an outside organization.

The quality control organization shall consist of the following minimum personnel:

a. Program Administrator. *The Program Administrator shall be a full-time employee of the Contractor, or a consultant engaged by the Contractor. The Program Administrator shall have a minimum of 5 years of experience in airport and/or highway construction and shall have had prior quality control experience on a project of comparable size and scope as the contract.*

Professional licenses and certificates along with four (4) references shall be provided for work on projects completed within the past ten (10) years. Resumes must be submitted for review and approval for the proposed Program Administrator(s).

Additional qualifications for the Program Administrator shall include at least 1 of the following requirements:

(1) *Licensed Professional Civil Engineer with five (5) years of airport grading and drainage, field and laboratory testing, and Quality Control experience acceptable to the Engineer.*

(2) *A certified Engineer-in-Training with eight (8) years experience in airport grading and drainage, field and laboratory testing, and quality control experience acceptable to the Engineer.*

(3) *An individual with thirteen (13) years of airport paving experience acceptable to the Engineer and Certified at NICET level IV in an approved field.*

(4) *Construction materials technician certified at Level III by the National Institute for Certification in Engineering Technologies (NICET).*

(5) *Highway materials technician certified at Level III by NICET.*

(6) *Highway construction technician certified at Level III by NICET.*

(7) *A NICET certified engineering technician in Civil Engineering Technology with 5 years of highway and/or airport paving experience acceptable to the Engineer*

The Program Administrator shall have full authority to institute any and all actions necessary for the successful implementation of the Quality Control Program to ensure compliance with the contract plans and technical specifications. The Program Administrator will fully cooperate and will work closely with the Construction Manager and LAWA to implement adjustments as needed to the Quality Control Program, and to the adjustments to the number of Quality Control Technicians and Inspectors. The Program Administrator's sole responsibility shall be restricted to the supervision, and implementation the Contractor's Quality Control Program.

***b. Quality Control Technicians and Inspectors**. A sufficient number of quality control technicians necessary to adequately implement the Quality Control Program shall be provided. These personnel shall be either engineers, engineering technicians, or experienced craftsman with qualifications in the appropriate field equivalent to NICET Level II or higher construction materials technician or highway construction technician and shall have a minimum of four (4) years of experience in their area of expertise.*

Certification at an equivalent level, by a state or nationally recognized organization will be acceptable in lieu of NICET certification. The Quality Control technicians and inspectors shall report directly to the Program Administrator and shall perform the following functions:

***(1)** Inspection of all materials, construction, plant, and equipment for conformance to the technical specifications, and as required by Section 100-06.*

(2) *Performance of all quality control tests as required by the technical specifications and Section 100-07.*

Certification at an equivalent level, by a state or nationally recognized organization will be acceptable in lieu of NICET certification.

c. Staffing Levels. *The Contractor shall provide sufficient qualified quality control personnel to monitor each work activity at all times. Where material is being produced in a plant for incorporation into the work, separate plant and field technicians shall be provided at each plant and field placement location. The scheduling and coordinating of all inspection and testing must match the type and pace of work activity. The Quality Control Program shall state where different technicians will be required for different work elements.*

A testing and inspection technician is required at all times that any work is being performed by the prime contractor, and any subcontractor. If a construction activity is found to have an unacceptable level of quality control technicians or inspectors, the activity may be suspended until an approved level of quality control directed is provided. LAWA may also elect to place their quality acceptance personnel in the quality control role in lieu of suspending the work. In this event, the Contractor will be notified immediately. LAWA will track their time and materials, and all costs associated with this will be deducted from the Contractors earned amounts.

Each week the Contractor shall submit to the Engineer, the number of Quality Control technicians and inspectors anticipated for the following two (2) weeks for each work activity. The Engineer shall review the number of Quality Control personnel required for the work.

d. Minimum Testing Equipment*. The Quality Control Technicians shall be equipped with, but not limited to the following test equipment:*

1. *Calibrated Sand cone equipment (sand cone, jar, plate, and calibrated sand.)*
2. *Calibrated Speedy Moisture Gauges with Reagents.*
3. *Calibrated scales (No. 4 and ¾-inch screens for rock percentage).*
4. *Equipment to dig sand cone holes. (large spoon, screwdriver, soft brush and hammer).*
5. *Concrete testing equipment meeting required specifications (slump cone, slump plate, 5/8”-inch diameter rod, 3/8-inch diameter rod a large and a small scoop).*
6. *One Point Proctor Equipment. (4-inch diameter mold, 5-pound and 10-pound proctor hammer and a family of curves chart).*
7. *Wheel Barrows.*
8. *Shovels.*

9. *Sample bags and buckets.*
10. *Calibrated Nuclear Density Gauges.*
11. *Voltmeter, ampere meter and meters to identify live electrical circuits.*

100-04 PROJECT PROGRESS SCHEDULE. *See specification Section 19, Contractor's Construction Schedule and Reports.*

100-05 SUBMITTALS SCHEDULE. *See Standard Specifications.*

100-06 INSPECTION REQUIREMENTS. *Quality control inspection functions shall be organized to provide inspections for all definable features of work, as detailed below. All inspections shall be documented by the Contractor as specified by Section 100-08.*

Prior to the start of construction work under each separate specification section, where a change in construction operation is contemplated by the Contractor, and prior to a new subcontractor starting work, a coordination meeting will be held with the Engineer, Quality Control Administrator COLA, and LAWA. Other attendance shall include supervisory, safety and Quality Control representatives of all applicable subcontractors. The Engineer will chair the meeting. The purpose of the meeting is to ensure the Contractor's personnel have no misunderstandings regarding the Quality Control procedures as well as the technical requirements of the Contract. The following items shall be presented during the meeting.

a. *Inspections shall be performed daily to ensure continuing compliance with contract requirements until completion of the particular feature of work. These shall include the following minimum requirements:*

1. *Contract requirements and specifications.*
2. *Shop drawings, certifications, submittals and as-built drawings that may apply.*
3. *Testing and inspection program and procedures.*
4. *Contractor's Quality Control Program.*
5. *Familiarity and proficiency of the contractor's and subcontractor's work force to perform the operation to the required workmanship standards.*
6. *Safety and Aircraft Operational Area restrictions to be observed.*
7. *Any other preparatory steps dependent on the particular operation.*
8. *The Contractor's means and methods for performing the work.*

b. Inspections shall be performed continuously during each prime contractor and subcontractor work shifts to ensure continuing compliance with contract requirements until completion of the particular feature of work. These inspections shall include the following minimum requirements:

b. During plant operation for material production, quality control test results and periodic inspections shall be utilized to ensure the quality of aggregates and other mix components, and to adjust and control mix proportioning to meet the approved mix design and other requirements of the technical specifications. All equipment utilized in proportioning and mixing shall be inspected to ensure its proper operating condition. The Quality Control Program shall detail how these and other quality control functions will be accomplished and utilized.

***c.** During field operations, quality control test results and periodic inspections shall be utilized to ensure the quality of all materials and workmanship. All equipment utilized in placing, finishing, and compacting shall be inspected to ensure its proper operating condition and to ensure that all such operations are in conformance to the technical specifications and are within the plan dimensions, lines, grades, and tolerances specified. The Program shall document how these and other quality control functions will be accomplished and utilized.*

***100-07 QUALITY CONTROL TESTING PLAN.** As a part of the overall Quality Control Program, the Contractor shall implement a quality control testing plan, as required by the technical specifications. The testing plan shall include the minimum tests and test frequencies required by each technical specification Item, as well as any additional quality control tests that the Contractor deems necessary to adequately control production and/or construction processes.*

The testing plan can be developed in a spreadsheet fashion and shall, as a minimum, include the following:

- ***a.*** *Specification item number (e.g., P-401);*
- ***b.*** *Item description (e.g., Plant Mix Bituminous Pavements);*
- ***c.*** *Test type (e.g., gradation, grade, asphalt content);*
- ***d.*** *Test standard (e.g., ASTM or AASHTO test number, as applicable);*
- ***e.*** *Test frequency (e.g., as required by technical specifications or minimum frequency when requirements are not stated);*
- ***f.*** *Responsibility (e.g., plant technician); and*
- ***g.*** *Control requirements (e.g., target, permissible deviations).*
- ***h.*** *The staff required to complete the tests.*

The testing plan shall contain a statistically-based procedure of random sampling for acquiring test samples in accordance with ASTM D 3665. The Engineer shall be provided the opportunity to witness quality control sampling and testing.

All quality control test results shall be documented by the Contractor as required by Section 100-08.

100-08 DOCUMENTATION. *The Contractor shall maintain current quality control records of all inspections and tests performed. These records shall include factual evidence that the required inspections or tests have been performed, including type and number of inspections or tests involved; results of inspections or tests; nature of defects, deviations, causes for rejection, etc.; proposed remedial action; and corrective actions taken.*

These records must cover both conforming and defective or deficient features, and must include a statement that all supplies and materials incorporated in the work are in full compliance with the terms of the contract. Legible copies of these records shall be furnished to the Engineer daily. The records shall cover all work placed subsequent to the previously furnished records and shall be verified and signed by the Contractor's Program Administrator.

Specific Contractor quality control records required for the contract shall include, but are not necessarily limited to, the following records:

a. Daily Inspection Reports. *Each Contractor quality control technician shall maintain a daily log of all inspections performed for both Contractor and subcontractor operations on a form acceptable to the Engineer. These technician's daily reports shall provide factual evidence that continuous quality control inspections have been performed and shall, as a minimum, include the following:*

(1) *Technical specification item number and description;*
(2) *Compliance with approved submittals;*
(3) *Proper storage of materials and equipment;*
(4) *Proper operation of all equipment;*
(5) *Adherence to plans and technical specifications;*
(6) *Review of quality control tests; and*
(7) *Safety inspection.*

The daily inspection reports shall identify the type of operation or activity, equipment utilized, location by station and offset, inspections conducted, times and results of inspections, location and nature of defects found, causes for rejection, and remedial or corrective actions taken or proposed.

The daily inspection reports shall be signed by the Quality Control technician and the Program Administrator. The Engineer shall be provided with one (I) legible copy of each inspection report for each shift, on the work day following the shift of record.

b. Daily Test Reports. *The Contractor shall be responsible for establishing a system that will record all quality control test results. Daily test reports shall document the following information:*

(1) *Technical specification item number and description;*
(2) *Test designation;*
(3) *Location;*
(4) *Date of test;*
(5) *Control requirements;*
(6) *Test results;*
(7) *Causes for rejection;*
(8) *Recommended remedial actions; and*
(9) *Retests.*

Test results from each day's work period shall be submitted to the Engineer prior to the start of the next day's work period. When required by the technical specifications, the Contractor shall maintain statistical quality control charts. The daily test reports shall be signed by the responsible quality control technician and the Program Administrator.

100-09 CORRECTIVE ACTION REQUIREMENTS. *The Quality Control Program shall indicate the appropriate action to be taken when a process is deemed, or believed, to be out of control (out of tolerance) and detail what action will be taken to bring the process into control. The requirements for corrective action shall include both general requirements for operation of the Quality Control Program as a whole, and for individual items of work contained in the technical specifications.*

The Quality Control Program shall detail how the results of quality control inspections and tests will be used for determining the need for corrective action and shall contain clear sets of rules to gauge when a process is out of control and the type of correction to be taken to regain process control.

When applicable or required by the technical specifications, the Contractor shall establish and utilize statistical quality control charts for individual quality control tests. The requirements for corrective action shall be linked to the control charts.

100-10 SURVEILLANCE BY THE ENGINEER. *All items of material and equipment shall be subject to surveillance by the Engineer at the point of production, manufacture or shipment to determine if the Contractor, producer, manufacturer or shipper maintains an adequate quality control system in conformance with the requirements detailed herein and the applicable technical specifications and plans. In addition, all items of materials, equipment and work*

in place shall be subject to surveillance by the Engineer at the site for the same purpose.

Surveillance by the Engineer does not relieve the Contractor of performing quality control inspections of either on-site or off-site Contractor's or subcontractor's work.

100-11 NONCOMPLIANCE.

a. Notification. *The Engineer will notify the Contractor of any noncompliance with any of the foregoing requirements. The Contractor shall, after receipt of such notice, immediately take corrective action. Any notice, when delivered by the Engineer or his authorized representative to the Contractor or his authorized representative at the site of the work, shall be considered sufficient notice.*

b. Noncompliance*. In cases where Quality Control activities do not comply with either the Contractor's Quality Control Program or the contract provisions, or where the Contractor fails to properly operate and maintain an effective Quality Control Program, as determined by the Engineer and LAWA, the Engineer or LAWA may:*

(1) *Order the Contractor to replace ineffective or unqualified quality control personnel or subcontractors.*

(2) *Order the Contractor to stop operations until appropriate corrective actions is taken.*

(3) *Elect to place Quality Acceptance personnel in the quality control role in lieu of suspending the work and charge the Contractor .*

END OF SECTION 100

12-2 METHOD OF MEASUREMENT

All costs associated with work described in this section shall be considered incidental to other bid items, and there shall be no separate payment.

12-3 BASIS OF PAYMENT

Payment will be made at the contract unit price for trenching, bare counterpoise wire and duct bank or conduit, installed by the Contractor and accepted by the Engineer. This price shall be full compensation for furnishing all materials and for all preparation and installation of these materials, and for all labor, equipment, tools, and incidentals, including ground rods and ground connectors and trench marking tape, necessary to complete this item

END OF SECTION 12