

# Quality Management System

ZYQ Testing Laboratory  
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Date Prepared:  
April 03, 2017

Please note that this Quality Management System (QM) was originated on         . Any changes made after this date will be reflected on a later revision date indicated on the bottom of each respective page.

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## Organization and Organizational Policies

### Organization

Legal Name:

[Redacted]  
[Redacted]

Corporate Office Address:

[Redacted]

Phone:

[Redacted]

Local office:

[Redacted]

Phone:

[Redacted]

Chief Executive Officer /

[Redacted]

President /

[Redacted]

Vice President /

[Redacted]

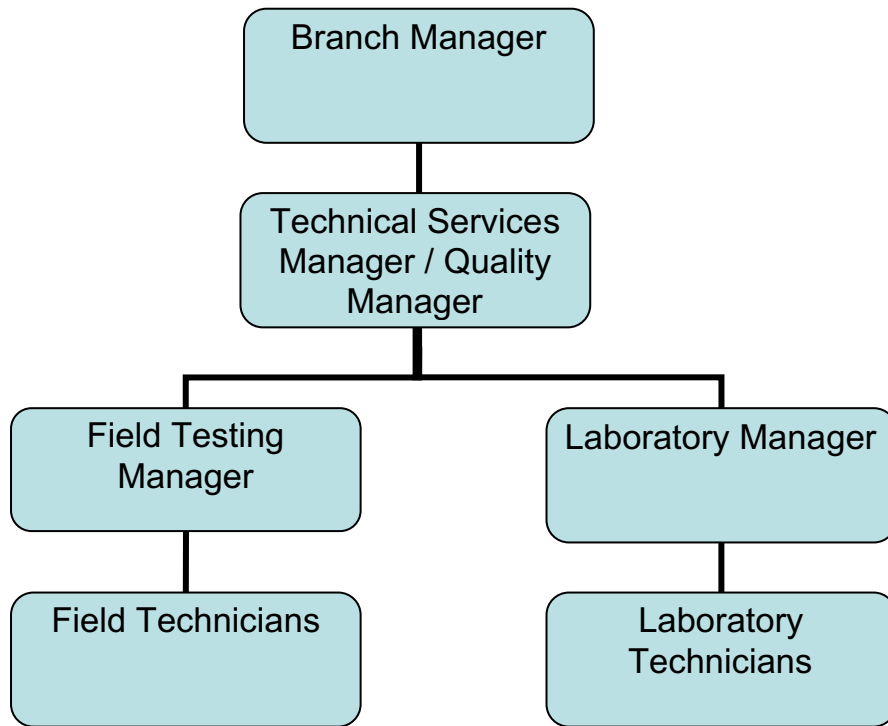
Secretary /

[Redacted]

Treasurer /

[Redacted]

## Organization Chart



### Quality Policy Statement:


# Staff

Management Structure: Laboratory name  
Location

CEO / President	
Branch Manager	
Technical Services Manager	
Field Testing Manager	
Field Technicians	
Laboratory Manager	
Lab Technician	

# Position Descriptions

## Branch Manager / Senior Engineer

### Requirements for Branch Manager / Senior Engineer

The Senior Engineer position requires the following qualifications:

- Registered professional engineer with at least      years experience in inspecting and testing of materials and construction.
- Must be familiar with and be able to use laboratory test results for engineering analysis and recommendations.
- Must be a motivated individual with excellent oral and written communication skills.
- Must be able to manage several projects and personalities simultaneously with a positive, effective attitude.
- Must have a proven record in business development. Must develop, manage and execute marketing plans.
- Must be able to recruit new staff and cultivate and grow existing, capable, energetic engineering staff into profitable project managers and client-servers.

The Branch Manager / Senior Engineer supervises the Technical Services Manager.

The Branch Manager / Senior Engineer reports directly to the President.

## **Technical Services Manager / Quality Manager**

### **Requirements for Technical Services Manager**

The Technical Services Manager position requires the following qualifications:

- Registered professional engineer with at least [redacted] years experience in inspecting and testing of materials and construction.
- Must be familiar with and be able to use laboratory test results for engineering analysis and recommendations.
- Must be familiar with AASHTO, ASTM and DOT standards for testing and inspection.
- Must be a motivated individual with excellent oral and written communication skills.
- Must be able to manage several projects and personalities simultaneously with a positive, effective attitude.
- Must be able to recruit new staff and cultivate and grow existing, capable, energetic engineering staff into profitable project managers and client-servers.

The Technical Services Manager supervises the Laboratory and Field Testing Manager in the performing of his duties of materials testing and inspection.

The Technical Services Manager reports directly to the Branch Manager.

The Technical Services Manager has overall responsibility for the technical operations of the laboratory.

The Laboratory Manager or Senior Testing Technician will serve as the Technical Service Manager in His/Her absence.

## Laboratory Manager/Senior Testing Technician

### Requirements for Laboratory Manager

The Lab Manager position requires the following qualifications:

- Must have at least [redacted] years experience performing various asphalt, earthwork, concrete, masonry, cement, and aggregate testing, both in the field and in the laboratory. Should also have Inspection experience with batch plants and field placements.
- Must be thoroughly familiar with AASHTO, ASTM and DOT procedures and specifications. Must be qualified by governing authority (AASHTO, ASTM and/or DOT) for specific tests.
- Must be a motivated individual with excellent oral and written communication skills.

The Lab Manager supervises engineering testing technicians involved in performing lab and field testing, and reviews their reports prior to being forwarded to the Senior Engineer for final review and signature.

The Lab Manager is supervised by the Technical Services Manager.

The Lab Manager is responsible for determining whether the Quality Management System activities are being implemented by the laboratory staff.

The Lab Manager will serve as the Technical Services Manager in the event of His/Her absence.



## **Field Testing Manager**

### **Requirements for Field Testing Manager**

The Field Testing Manager position requires the following qualifications:

- Must have at least [redacted] years experience performing various asphalt, earthwork, concrete, masonry, cement, and aggregate testing, both in the field and in the laboratory. Should also have Inspection experience with batch plants and field placements.
- Must be thoroughly familiar with AASHTO, ASTM and DOT procedures and specifications. Must be qualified by governing authority (AASHTO, ASTM and/or DOT) for specific tests.
- Must be a motivated individual with excellent oral and written communication skills.

The Field Testing Manager supervises field testing technicians involved in performing lab and field testing, and reviews their reports prior to being forwarded to the Senior Engineer for final review and signature.

The Field Testing Manager is supervised by the Technical Services Manager.

## **Testing / Field Technician**

### **Requirements for Testing / Field Technician**

The Testing / Field Technician position requires the following qualifications:

- Must be thoroughly familiar with AASHTO, ASTM and DOT procedures and specifications. Must maintain certifications by governing authority (AASHTO, ASTM and/or DOT) for specific tests.
- Adequate mathematical skills, ability to pass written exam.
- Adequate oral and written communication skills.
- If the job requires solo work assignments outside the office, then a valid Florida driver's license is required.
- Flexibility to work outside normal business hours as required.

The Testing / Field Technician is supervised by the Laboratory Manager.

## **Testing / Laboratory Technician**

### **Requirements for Testing / Laboratory Technician**

The Testing / laboratory Technician position requires the following qualifications:

- Must be thoroughly familiar with AASHTO, ASTM and DOT procedures and specifications. Must maintain certifications by governing authority (AASHTO, ASTM and/or DOT) for specific tests.
- Adequate mathematical skills, ability to pass written exam.
- Adequate oral and written communication skills.
- If the job requires solo work assignments outside the office, then a valid Florida driver's license is required.
- Flexibility to work outside normal business hours as required.

The Testing / Laboratory Technician is supervised by the Laboratory Manager.

# Biographies

## Branch Manager / Senior Engineer

Name: [Redacted]

Title: Branch Manager / Senior Engineer

Certifications: [Redacted]  
[Redacted]  
[Redacted]  
[Redacted]  
[Redacted]

General Duties: General duties include overseeing the lab technicians to ensure that lab procedures are being correctly followed and all equipment calibrations are kept up to date.

Supervision Exercised / Received: Periodic Inspection of lab paperwork, and equipment. Lab is subjected to yearly reference testing and / or inspection by CMEC and DOT.

Formal Education: [Redacted]

Experience: [Redacted]

**Technical Services Manager / Quality Manager**

Name: [Redacted]

Title: Technical Services Manager / Quality Manager

Certifications: [Redacted]  
[Redacted]  
[Redacted]  
[Redacted]

General Duties: This individual acts as technical services manager / quality manager of the laboratory. General duties include periodic testing of materials, overseeing the lab and technicians to ensure that lab procedures are being correctly followed and all equipment calibrations are kept up to date whenever the lab manager is either unavailable or unable to perform these duties. This is to ensure that the Quality System Manual stays current and up to date in the event that unforeseen circumstances prevent the Laboratory Manager from performing these duties.

Supervision Exercised / Received: Supervised by the senior engineer.

Formal Education: [Redacted]

Experience: [Redacted]

**Lab Manager**

Name: [Redacted]

Title: Lab Manager

Certifications: [Redacted]  
[Redacted]  
[Redacted]  
[Redacted]

General Duties: General duties include periodic testing of construction materials, overseeing the lab and technicians to ensure that lab procedures are being correctly followed and all equipment calibrations are kept up to date. This individual acts as technical manager in the event that the technical services manager is unavailable.

Supervision Exercised / Received: Supervised by Technical Services Manager. Conducts training and evaluations of the laboratory staff at [Redacted] month intervals.

Formal Education: [Redacted]

Experience: [Redacted]

## Field Testing Manager

Name: [REDACTED]

Title: Field Testing Manager

Certifications: [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

General Duties: General duties include periodic testing of construction materials, overseeing the field technicians to ensure that field testing procedures are being correctly followed and all equipment calibrations are kept up to date whenever the lab manager is either unavailable or unable to perform these duties.

Supervision Exercised / Received: Supervised by Technical Services Manager. Conducts training and evaluations of the field staff at [REDACTED] month intervals.

Formal Education: [REDACTED]

Experience: [REDACTED]

## Testing / Field Technicians

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

Title: Testing / Field Technician

Certifications: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

General Duties: General duties include periodic testing of construction materials. May be asked to perform equipment calibrations and checks by the Laboratory or Field Testing Manager.

Supervision Exercised / Received: Supervised by Laboratory or Field Testing Manager. Receives training and annual reviews from the Laboratory or Field Testing Manager.

Formal Education: \_\_\_\_\_

Experience: \_\_\_\_\_



**Testing / Laboratory Technicians**

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

Title: Testing / Laboratory Technician

Certifications: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

General Duties: General duties include periodic testing of construction materials. May be asked to perform equipment calibrations and checks by the Laboratory or Field Testing Manager.

Supervision Exercised / Received: Supervised by Laboratory or Field Testing Manager. Receives training and annual reviews from the Laboratory or Field Testing Manager.

Formal Education: \_\_\_\_\_

Experience: \_\_\_\_\_

## **STAFF TRAINING PROGRAM FOR TESTING TECHNICIANS**

The Laboratory Manager and Field Testing Manager are responsible for implementing the training programs and maintaining records. The training records shall be retained in the Materials Testing Laboratory office.

The following procedure shall be followed for each test:

1. The trainee is given a copy of the test method he/she is to perform.
2. The trainee studies the procedure, test report form, equipment and calculations to become familiar with the test.
3. The Laboratory Manager or Field Testing Manager will first demonstrate the procedure and calculations for each test.
4. The trainee should repeat the test procedure until proficiency is demonstrated.
5. The Laboratory Manager or Field Testing Manger will observe the trainee demonstrate the procedure, and acknowledge his ability to perform the test. The acknowledgement is recorded and included in the trainee's training record.
6. All technicians are required to perform CMEC proficiency sample tests.

## **METHOD FOR REVIEWING TECHNICIAN COMPETENCY**

The Laboratory Manager and Field Testing Manager are responsible for evaluating the testing / field technician's competency at least once every [redacted] months by requiring each technician to demonstrate his ability to perform the AASHTO, ASTM, and/or DOT test procedures for which they have been trained to perform.

For each technician, the Manager shall record the test demonstrated, the date of the demonstration, and the results of the evaluation. The Laboratory Manager or Field Testing Manager shall date each entry on the evaluation record.

If an unsatisfactory result is recorded for a specific test, the Manager shall review all observed deviations from the standard test method with the testing technician, observe the technician re-demonstrate the procedure and record the results as stated above.

## Technician Training / Evaluation Record

<b>Technician Training / Evaluation Record</b>					
Technician: _____					
Test Method	Initial Training	Competency Evaluation	Evaluated by:	Date	Comments

## **Internal Audit Procedure**

The Lab Manager shall review the following records, reports, and associated documentation every [redacted] months to assure that the established quality procedures are being followed:

1. Quality Management System policies and procedures, including document control
  2. Previous Internal Audit findings and corrective actions
  3. Management Review findings and corrective actions
  4. Customer complaints and corrective actions
  5. Records retention
  6. Test records and reports
  7. Proficiency Sample Reports
  8. Equipment inventory
  9. Equipment calibration, standardization, check and maintenance lists and records
  10. Technician Training Records
  11. Technician Competency Evaluation Records
1. Records, reports, corrective actions, etc. are reviewed to ensure completeness and conformance to the requirements of R18 and any other applicable quality management system standards to ensure that established policies and procedures are being followed. Such documentation is also checked to ensure a minimum of 5 years retention. Access to AASHTO and ASTM standards is also evaluated.
  2. Quality management system policies and procedures are reviewed to ensure conformance to the requirements of R18 and any other applicable quality management system standards.
  3. Interviews with applicable staff shall be included with the audit to ensure that policies and procedures accurately reflect current practices.
  4. The results of the internal audit shall be recorded on Internal Audit Check Sheet.
  5. After each [redacted] month review the lab manager will discuss any deficiencies noted with the appropriate staff to make sure all corrective actions are taken. All documents reviewed and the Internal Audit Check Sheets are filed in this QMS.

## **Subcontracting**

On occasions, services are required that are beyond the capabilities of this laboratory. When this occurs, a qualified laboratory shall be selected to perform the required tests. This selected laboratory shall be accredited through a nationally recognized accreditation authority.

The companies providing the calibration services shall be reviewed prior to performing the work. The calibration agency shall provide examples of the calibrations they will be performing. The agency shall provide certificates of their calibration equipment.

## Internal Audit Checklist

Are records and corrective actions complete?

1. Previous Internal Audit Finding? ..... \_\_\_\_\_
2. Customer Complaints? ..... \_\_\_\_\_
3. Records Retention? ..... \_\_\_\_\_
4. Equipment Inventory List? ..... \_\_\_\_\_
5. Equipment Calibration, Standardization, Check and Maintenance  
Records? ..... \_\_\_\_\_
6. Test Records and Reports? ..... \_\_\_\_\_
7. Proficiency Sample Reports? ..... \_\_\_\_\_
8. On-Site Inspection Reports? ..... \_\_\_\_\_
9. Technician Training Records? ..... \_\_\_\_\_
10. Technician Competency Evaluation Records? ..... \_\_\_\_\_

Reviewed by: \_\_\_\_\_

Date: \_\_\_\_\_

## Management Review

The laboratory's top management shall review and discuss the laboratory's QMS policies, procedures and records at planned intervals not exceeding 12 months. The purpose of the review is to ensure the continuing suitability and effectiveness of the QMS in satisfying the relevant requirements, including those specified in R18, and to introduce any necessary changes or improvements. At a minimum, the following information shall be included in the management review:

1. Summary of follow-up actions from the previous management review,
2. Results of internal audits,
3. Results of external inspections,
4. Results of proficiency sample testing,
5. Status of corrective actions,
6. Changes in volume and type of work,
7. Personnel staffing changes and training needs,
8. Updates to QMS policies and procedures,
9. Complaints.

Results of management reviews, including the actions that arise from them, shall be recorded.

Note: Management review is a "big picture" examination of the laboratory's QMS and performance over the past year.

# Management Review Record

Date:

Attendees:

1. Summary of follow-up actions from the previous management review:
2. Updates to QMS policies and procedures:
3. Results of internal audits:
4. Results of external inspections:
5. Results of proficiency sample testing:
6. Status of corrective actions:
7. Changes in volume and type of work:
8. Personnel staffing changes and training needs:
9. Complaints:



## **Procedure for Handling Customer Complaints**

Upon receipt of a customer complaint the following actions shall be taken:

1. The Lab Manager shall be notified.
2. The Lab Manager contacts the source of the complaint to verify the specifics of the complaint and establish a resolution date (if necessary)
3. The Lab Manager shall review all specific technical data and all calculations shall be checked for accuracy.
4. The technician or technicians performing the tests are consulted by the Lab Manager to discuss the specific circumstances.
5. The Lab Manager shall formulate an appropriate reply to the complainer.
6. Prepare a Diagnostic and Corrective Action Report summarizing the action taken.

## **Corrective Action Procedure**

1. The Lab Manager is responsible for implementing corrective action when nonconforming work or departures from policies and procedures have been discovered. The Lab Manager shall begin an investigation to determine the root cause of the problem.
2. The corrective action procedure shall be implemented for nonconformities in the following areas: internal audits; management reviews; customer complaints; equipment calibrations, standardizations, and checks; external assessments; and proficiency sample testing.
3. The Lab Manager shall prepare a Diagnostic and Corrective Action Report summarizing the action taken. Records of corrective action shall be maintained.

## Diagnostic and Corrective Action Report

<b>Test Procedure:</b>	<b>Date:</b>
------------------------	--------------

<b>Non-Conformity Description:</b>
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<b>Immediate Action</b> <i>taken to prevent this nonconformity from affecting test results</i>
--

--

<b>Root Cause Analysis</b>
----------------------------

<i>What are the reason(s) that allowed the nonconformity to happen:</i>

<i>What improvements to the quality management system can be implemented to prevent a similar finding:</i>

<b>Planned Monitoring Activities</b> <i>to check the effective implementation of the improvements identified above:</i>
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--

<b>Made By:</b>	<b>Approved By:</b>	<b>Date:</b>

# Records Retention

## Quality Management System Records:

### Retention:

Records pertaining to external assessments, internal audits, management reviews, proficiency sample testing, test technician training and evaluation, personnel, test data and reports, customer complaints, corrective actions, and equipment calibration, standardization, check, maintenance activities shall be retained by the laboratory for a minimum of five years.

### Storage:

These records shall be stored in the Quality Manager's office.

### Disposal:

The records will be disposed of by shredding after the specified retention period.

## Sample Management

### **Identification:**

Each sample will be marked with date and job number if applicable.

### **Storage:**

Samples will be stored in accordance with all applicable ASTM specifications.

### **Retention:**

Samples with acceptable test results are generally discarded when testing is completed. Samples with failing test results are retained until review of the results is complete. At that time the decision is made to retain or discard the sample.

### **Disposal:**

All materials are to be disposed of in a safe and non-hazardous manner.

# Equipment Inventory

<b>Equipment</b>	<b>Manufacturer</b>	<b>Model #</b>	<b>Serial #</b>	<b>Date in Service</b>

# Equipment Calibration / Standardization / Check / Maintenance Policies and Procedures

## General Policies:

1. Required equipment used shall be calibrated at specific intervals following the general procedures below.
2. Newly acquired equipment without manufacturer's certification and equipment that has not been calibrated or checked because it has not been in service shall be calibrated or checked before being placed in service.
3. When any of the equipment has been overloaded, mishandled, giving suspect test results, or is not meeting specification tolerances, the lab manager will remove the test equipment and tag it for repair. The test equipment must be repaired to meet specification tolerances, and then calibrated prior to returning to service.

## General Procedures:

1. The Lab Manager will maintain a record on each piece of equipment requiring calibration, standardization, checks, and maintenance. The record for each piece of equipment shall contain dated, detailed records of calibration, standardization, checks, and maintenance performed. These records will be kept in the Quality System Manual in the Lab Manager's office.
2. The Lab Manger will keep a schedule **on the lab wall / in microsoft outlook / in monthly folders** for each month of the year, which contains a list of equipment to be calibrated, standardized, checked, and maintained that month.
3. The Lab Manager will review all equipment calibration, standardization, check, and maintenance records.
4. In-house equipment calibration, standardization, check, and maintenance procedures are found in the Quality System Manual. AASHTO and ASTM calibration procedures are provided in reference manuals.
5. The in-house equipment used to calibrate, standardize or check test equipment, such as a traceable thermometer, shall have a certificate included in this Quality System Manual.

## Reference Standards:

1. The reference standards used for performing any in-house calibrations or standardizations shall be sent out for calibration at least once every      years. The reference standards shall be calibrated by a calibration agency meeting the requirements of ISO/IEC 17025. The calibration record shall include estimates of measurement uncertainty.

# Equipment Calibration / Check / Maintenance Schedule

<b>Equipment</b>	<b>Calibration / Check / Maintenance Interval</b>	<b>Calibration / Check Procedure</b>

# Test Records and Reports

## Test Records and Reports

### Preparing Sample Log:

Each sample brought into the lab for testing is recorded in a logbook maintained by the active technician or the Lab Manager. The following is recorded for each sample.

1. Sample number (this is assigned sequentially to each line of the log book).
2. (Name) contract number.
3. Description of the material.
4. Supplier of the material.
5. Location from which the sample was taken.
6. Name of person(s) who sampled the material.
7. Date of sampling.
8. Date the sample was received in the materials laboratory.
9. The date testing was completed.
10. The name of the testing technician.

### Preparing and Checking Test Reports:

Test reports are recorded on standard worksheets by the testing technician and are submitted to Lab Manager for review. The worksheets are kept on file by date and log number. The testing technician accepts responsibility for the correctness for the form.

### Amending Reports:

When a report must be amended, a report form shall be filled out indicating the amended test results; the report status field "amended" on the report form shall be checked; the comment section on the report form shall state the reason for the amended report; the amended report shall be attached to the original report and processed in the normal manner, and the amended report shall be filed with the original report.

### Test Records and Retention:

The original test worksheets are kept on file for a minimum of 5 years, and then purged.



## **Participation in Proficiency Sample Testing**

**Participation:** Lab participates in yearly proficiency sample testing by CMEC.

### **Identifying Poor Test Results:**

Any test result that falls outside of the acceptable limits.

### **Procedures to Follow When Poor Results Occur:**

1. Check the report submitted for correct data entry.
2. Check that the data transferred from the worksheet to the report was correct.
3. Check the calculations on the worksheet.
4. Check the equipment used to perform the test meets spec.
5. Repair or replace equipment if necessary.
6. Evaluate the technician that performed the test.
7. Prepare a Diagnostic and Corrective Action Report summarizing the results of the investigation and any corrective action taken.

## Participation in External On-Site Inspections

**Participation:** Lab is inspected yearly by CMEC and DOT

### **Procedures to Follow When Deficiencies are Reported:**

(Apparatus Deficiencies)

1. Determine if equipment meets specification requirements.
2. If equipment is found to be defective take necessary steps to repair or replace it.
3. Prepare a Diagnostic and Corrective Action Report summarizing the results of the investigation and any corrective actions taken.

(Procedural Deficiencies)

1. Review the procedural deficiency with the technician that performed the test.
2. Observe the technician perform the test properly.
3. Prepare a Diagnostic and Corrective Action Report summarizing the results of the investigation and any corrective actions taken.

(Quality System Deficiencies)

1. The Lab Manager reviews the deficiencies cited by the evaluator with the responsible technician.
2. Corrective actions are taken.
3. Prepare a Diagnostic and Corrective Action Report summarizing the results of the investigation and the corrective actions taken.