

CONTRACTOR CONCRETE QUALITY CONTROL & ADMINISTRATION PLAN

ROADWAY REHABILITATION

PW-7018 CITY OF DETROIT MAJOR ROADS

WAYNE COUNTY, MICHIGAN

PROJECT ENGINEER: City of Detroit

July 7, 2020

see comments on page 9 & 14 of the
submittal



**DRISENGA &
ASSOCIATES, INC.**

Engineering · Surveying · Testing

D&A Project # 2020525.4A



**Contractor Concrete Quality Control & Administration Plan
ROADWAY REHABILITATION**

TABLE OF CONTENTS

	<u>Page</u>
Introduction	1
Duties and Responsibilities	2
Test Procedures	5
Test Procedures – Patching, P-NC	7
Contractor Specifics	8
Concrete Supplier Specifics	9
Deficiencies Reporting	10
Corrective Action	11

ATTACHMENT A - Organization Chart

ATTACHMENT B - Daily Concrete Field Report

ATTACHMENT C - Equipment Calibration

ATTACHMENT D - McCoig Materials Submittals (Westside Concrete)

ATTACHMENT E - Corrective Action Report



INTRODUCTION

Driesenga & Associates, Inc. (D&A) has developed this plan on behalf of Westside Concrete to provide contractor quality control testing services for roadway rehabilitation in Wayne County, Michigan (Detroit PW-7018). This plan was developed in order to satisfy the Special Provision Requirements for Quality Control and Acceptance of Portland Cement Concrete (For Local Agency Projects Only) Special Provision 12SP-604A-09 (FHWA Approved 6/14/18).

It is our intent to utilize this plan as a guide for field forces to assure that all work performed on this project conforms to the requirements of the Plans, Specifications, and Special Provision. This plan is to set policy and procedure for all persons with quality control impact, to follow and utilize as a normal and necessary part of their duties to ensure the quality control requirements of the project are met and maintained.



DUTIES AND RESPONSIBILITIES

SUPPLIERS AND SUBCONTRACTORS

Westside Concrete has retained the following suppliers/subcontractors for this project (detailed contact information is included on the Organization Chart in Attachment A):

- McCoig Materials (Concrete Supplier – Westside Concrete)
- D&A (Concrete QC Testing & Administration)

QUALITY CONTROL PLAN ADMINISTRATOR

The Quality Control Plan Administrator for the overall project will be Dennis Snyder. Mr. Snyder is certified as a Level II Concrete Technician by the Michigan Concrete Association. He is employed by D&A, and will work closely with Westside Concrete, their subcontractors and applicable concrete supplier QC personnel to ensure the Quality Control procedures outlined in this plan are properly followed. Training/certification programs carried by Mr. Snyder include the following:

- Michigan Concrete Association Field Testing Technician Levels I & II (exp. 4/15/21); Concrete Construction Inspector; ACI Concrete Strength Testing Technician (exp. 12/20/21); Michigan Concrete Association Super Air Meter Training; Michigan Certified Aggregate Technician Level II (exp. 3/31/22); Troxler Radiological Safety and Nuclear Gauge Operation; Michigan Certified Density Control Technician (exp. 1/31/22); Michigan Certified Bituminous Paving Operations Technician.

Mr. Snyder's duties will include the following:

- A. Implementation of the Quality Control Plan.
- B. Monitor testing procedures to assure conformance with project testing requirements.
- C. Coordinate and monitor the work of the Quality Control Technicians.
- D. Communicate with Westside Concrete, their subcontractors and applicable concrete supplier QC personnel regarding any quality related issues.
- E. Distribute the Quality Control Plan to all persons that have an effect on the quality of the work performed.
- F. Document any deficiencies, implement corrective procedures to resolve the deficiencies, and implement procedures to prevent a reoccurrence of the deficiencies.
- G. Submit daily carbon copy Quality Control Test & Corrective Action reports on site to the project engineer's representative (example of daily report provided in Attachment B).
- H. Distribute compression strength results to the Department's Engineer in a timely matter following compression strength testing.



QUALITY CONTROL TECHNICIANS

The Quality Control Technicians that may be involved with this project are all employed by D&A, and include the following (hard copy certifications available upon request):

Corey Sears:	Michigan Concrete Association Field Testing Technician Level I (exp. 4/15/22)/Concrete Construction Inspector; ACI Concrete Strength Testing Technician (exp. 5/23/22); Michigan Certified Aggregate Technician (exp. 4/30/21); Troxler Radiological Safety and Nuclear Gauge Operation; Michigan Certified Density Control Technician (exp. 4/30/20).
Joe Kennedy:	Michigan Concrete Association Field Testing Technician Level I (exp. 4/15/22)/Concrete Construction Inspector; Michigan Concrete Association Super Air Meter Training.
Jon Morris:	Michigan Concrete Association Field Testing Technician Level I (exp. 4/15/20)/Concrete Construction Inspector; ACI Concrete Strength Testing Technician (exp. 12/20/21); Michigan Concrete Association Super Air Meter Training; Michigan Certified Aggregate Technician (exp. 2/28/22); Troxler Radiological Safety and Nuclear Gauge Operation; Michigan Certified Density Control Technician (exp. 3/21/22).
Chris Lossie:	Michigan Concrete Association Field Testing Technician Level I (exp. 4/15/22)/Concrete Construction Inspector; ACI Concrete Strength Testing Technician (exp. 12/20/21); Michigan Certified Aggregate Technician (exp. 4/30/22); Troxler Radiological Safety and Nuclear Gauge Operation; Michigan Certified Density Control Technician (exp. 2/28/22).
Cody Butler:	Michigan Concrete Association Field Testing Technician Level I (exp. 4/15/21)/Concrete Construction Inspector; Michigan Certified Aggregate Technician (exp. 5/31/22); Troxler Radiological Safety and Nuclear Gauge Operation; Michigan Certified Density Control Technician (exp. 5/31/23).
Eric Morris:	Michigan Concrete Association Field Testing Technician Level I (exp. 4/15/20)/Concrete Construction Inspector.
Doug Burch:	Michigan Concrete Association Field Testing Technician Level I & II (exp. 4/15/23)/Concrete Construction Inspector; Michigan Concrete Association Super Air Meter Training; Troxler Radiological Safety and Nuclear Gauge Operation; Michigan Certified Density Control Technician; Level II Michigan Certified Aggregate Technician (exp. 4/30/24).
Ben VanDyke:	Associates Degrees in Building Construction Technology/Civil Engineering Technology, Ferris State University; Michigan Concrete Association Field Testing Technician Level I & II (exp. 4/15/23)/Concrete Construction Inspector; Michigan Concrete Association Super Air Meter Training; Level II Michigan Certified Aggregate Technician (exp. 5/31/24); Troxler Radiological Safety and Nuclear Gauge Operation; Michigan Certified Density Control Technician (exp. 3/31/24); Michigan Certified Bituminous Laboratory Technician (exp. 3/31/20).

NOTE: *If personnel other than the above listed technicians arrive to perform testing on the project site, the technician will have all applicable certification information with him/her for review by the engineer's representative.*



The duties of the technicians will include the following:

- Assure conformance to the Quality Control Program.
- Immediately report deficient work to the Quality Control Plan Administrator.
- Prepare a Daily Inspection Report.
- Inspect all materials delivered to the project site.
- Perform all quality control tests required by the contract at the given frequency rates.
- Report all tests performed on-site to the project foreman and/or the Project Engineer in a timely manner.
- Follow the guidelines of the Quality Control Program.



TEST PROCEDURES

TEST METHODS

The following test methods will be followed by the Quality Control Technicians:

- | | | |
|-----|-----------|--|
| 1. | ASTM C31 | Making and Curing Concrete Test Specimens in the Field |
| 2. | ASTM C39 | Compressive Strength of Cylindrical Concrete Specimens |
| 3. | ASTM C78 | Flexural Strength of Concrete Using Simple Beam w/ Third Pt. Load |
| 4. | ASTM C138 | Unit Weight, Yield and Air Content (Gravimetric) of Concrete |
| 5. | ASTM C143 | Slump of Hydraulic Cement Concrete |
| 6. | ASTM C172 | Sampling Freshly Mixed Concrete |
| 7. | ASTM C173 | Air Content of Freshly Mixed Concrete by the Volumetric Method |
| 8. | ASTM C231 | Air Content of Freshly Mixed Concrete by the Pressure Method |
| 9. | ASTM C293 | Flexural Strength of Concrete Using Simple Beam w/ Center Pt. Load |
| 10. | MTM 205 | Consolidation Method of Concrete Cylinder Test Specimens |
| 11. | MTM 207 | Michigan Test Method for Testing Concrete |

EQUIPMENT/CALIBRATION

All field technicians will be equipped with a concrete thermometer, unit weight bucket, platform scale, slump cone, air meter (pressure), plastic 6" x 12" or 4" x 8" cylinder molds (dependent on aggregate size), and fiberglass or steel beam molds (when applicable). All equipment will be kept clean and in good working condition. The air meters are cleaned and calibrated annually, either in-house or by the manufacturer, and the meters are verified at minimum every 3 months in-house with a known standard to ensure accurate test results are recorded. The platform scales are calibrated annually by a qualified third party. Calibration stickers are placed on the equipment showing the date of calibration. See Attachment C for calibration procedures.

SAMPLING/TESTING

The first truck on-site for each day's pour or separate mix design will be tested for air, slump, temperature and unit weight to verify that it is in accordance with project specifications. Correlation between QA & QC will also be performed to verify temperature within 2.0 degrees and air content within 0.8% correlation. If correlation exceeds the specified, a project independent 3rd party will verify. Out of range equipment will be calibrated on-site or replaced. No concrete will be placed until test results are satisfactory to the specifications. Testing will continue with these tests performed hourly at a minimum as well as monitoring the random tests that will be required to mold compressive strength cylinders. The Quality Control Technician will also perform QC sampling and testing of the fresh concrete for air content loss (slipform or pumped), for verification that less than 1.5 percent air content is lost between chute discharge and point of placement (see corrective action for req. frequency). With exception to correlation and single load placements, the QC sampling and testing will be random and independent from the Department's QA sampling and testing. For single load placements, QC will have the ability to make any adjustments necessary prior to QA acceptance testing.



DAILY PRODUCTION LOT SIZES

A lot will not include more than one grade of concrete. Lots will not be compiled if the concrete is the same grade but having different JMFs with different specified slump or air content. Lots will only be compiled based on the exact JMF for the grade of concrete. Lot size will consist of one lot for each pour per day for critical and non-critical concrete. The sampling rate will be one sample (sublot) per 50 cubic yards, with a minimum of one sampling (sublot) for each day of production. Each day of production will be a separate lot regardless of samples cast during the day. One sublot will justify a single lot when applicable based on daily production. Samples will be randomly collected within the designated yardage quantity and field tests will be performed. If field tests for slump, air content, and temperature are within project specifications, two (2) QC cylinders per 50 cyd of production will be made and properly stored on-site for a minimum of 8 hours after final set before transporting to our laboratory for final curing and compressive strength testing. If field tests are not within project specifications, corrective action will be performed (see corrective action). Testing, handling, protection, initial curing and transportation will be performed in accordance to AASHTO T23 & ASTM C31. *When daily production is projected to exceed 250 cyd, random sampling will be performed by QC personnel and a total of 5 sets of cylinders will be cast for the day's production.*

CYLINDER/BEAM TESTING

Adequate protection of the test cylinders and beams will be provided for initial curing in the field. Insulated coolers that are capable of being padlocked, maintaining adequate protection and proper initial curing environment (filled with water in warm weather applications) will be provided to the Department's representative.

Once initial curing has been completed, QC test cylinders will be transported to D&A's laboratory located at 3760 Carpenter Road, Ypsilanti, Michigan, where they will be removed from the plastic molds and properly labeled with the pour date and project location. The cylinders will be placed in a temperature-controlled cure tank for final curing in accordance with ASTM C511. The QC cylinders will be tested for compressive strength by MCA certified personnel at D&A's laboratory. The compression machine is calibrated on an annual basis by an independent third party (proof of calibration for D&A's compression machine is included in Attachment C).



EARLY STRENGTH TEST METHODS

Early strength test methods will be utilized to monitor construction equipment loading and early open to traffic and regular traffic per MDOT Standard Specifications for Construction subsections 104.11, 601.03H and 701.03D. Early strength QC cylinders or beams will be cast at the request of the contractor. For structure concrete, 6" x 12" or 4" x 8" cylinders (dependent on aggregate size), will be cast for determination of in-place strength. For pavement concrete, beam molds will be cast for determination of open-to-traffic. Beams will be cured in a manner to accurately represent the application (sprayed with curing compound, under blankets, cover with plastic or buried in sand, etc.). Early break QC cylinders will be molded and cured in a manner to accurately represent the application. Methods used to cure the cylinders will consist of covering with insulated blankets or placing them on-site in a cure box (cold weather) and covering with wet burlap in a shaded location or unsubmerged in a water tub (hot-weather). The Engineer or Department's representative will be given the opportunity to witness the early breaks at D&A's laboratory or flexural strength testing of beams at the project site. Flexural strength results will be verbally relayed to the Department's site representative and documented on MDOT's 1160 form to be filed with the Concrete Field Test Report for the applicable day. Also, if requested, the early break QC cylinders/beams will be left on-site for the Department's representative to collect and test in Department's laboratory or for flexural strength at the project site. In conjunction with the compression machine, the beam breaker is calibrated on an annual basis by an independent third party (proof of calibration for D&A's compression machine and beam breaker are included in Attachment C).

TEST PROCEDURES – PATCHING (P-NC)

(When Applicable)

All field technicians will be equipped with a concrete thermometer, unit weight bucket, platform scale, slump cone, air meter (pressure), and plastic beam molds (a minimum of 6 beam molds will be provided at the start of each day's pour). Testing will be performed hourly for verification of conformance to the approved JMF. Beams will typically be cast on the final load, dependent on daily quantity whether beams will also be cast during production. The test beams will be placed and cured along with the application for initial curing in the field. Once initial curing has been completed, flexural strength testing will be performed by D&A personnel at the project site. Calibration of D&A's beam breaker is performed annually and a sticker will be located on the machine to verify the applicable information.



CONTRACTOR SPECIFICS & RESPONSIBILITIES

SCHEDULING

Contractor will be responsible for coordination and scheduling within 24 hours of placements to provide adequate mobilization time of QC and QA personnel.

PLACEMENT METHODS

Dependent on application, concrete will be placed by either concrete bucket, pump truck or discarded directly from the chute of the concrete truck.

Structure consolidation will be performed manually with concrete vibrators by qualified personnel with extensive training in consolidation methods. When applicable, the contractor will monitor and continuously verify the consolidation rate of the paving equipment either by manual check or equipment gauge.

Depth checks will be performed by the contractor at a rate and frequency per specifications.

Reinforcing steel and dowel bar placement (when applicable) will be monitored by the contractor and verified by the Department's personnel.

Finishing and curing procedures will be performed by the contractor in accordance with:

- Curb & Gutter, Spillway, Valley Gutter – 802.03.F, 802.03.H & 602.03.M
- Sidewalk, Sidewalk Ramps & Driveways– 602.03.H, 602.03.M & 602.03.T & 803.03.C
- Pavement & Pavement w/ Integral Curb – 602.03H, 602.03M

Ride Quality Control – Not applicable to this portion of the project.

HOT WEATHER/COLD WEATHER CONSIDERATIONS

Hot and cold weather construction provisions will be performed by the applicable contractor in accordance with MDOT standard specification 602.03T, 603.03.B, 706.03, 802.03I.

COLD - Methods implemented to protect the concrete from freezing may include varying the time of placement, covering the concrete with plastic or insulated blankets. If the local average minimum temperature in the next 10 consecutive days is forecast to be below 40 degrees Fahrenheit, a revised QC plan will be submitted for the Engineer's approval to address the changes in materials, batching and mixing processes, construction methods, curing, and protection of the in-situ concrete to ensure that the quality of the concrete will not be compromised by cold weather. **HOT** - Methods implemented may include one or more of the following: varying the time of placement, watering of the stockpiles, use of a water chiller and the introduction of ice or dry ice into the water tank of the concrete plant. Suspension will occur if temperature cannot be controlled.



CONCRETE SUPPLIER SPECIFICS

Attachment D contains the following information for the applicable concrete suppliers:

- Concrete Mix Designs & JMFs
- Verification for Non-Deleterious Alkali-Silica Reactivity
- Aggregate Stockpile Management Procedures
- Individual and Combined Aggregate Targets (when applicable)
- Concrete Plant Specifics
- Concrete Production Facilities Inspections and Certifications
- Raw Materials Certificates
- Mixing Time & Transportation

Not Included



DEFICIENCIES REPORTING

When test results indicate that concrete does not comply with the project Special Provisions or approved concrete JMF, immediate notification will be provided to the Contractor, Concrete Supplier, and Project Engineer. Deficient concrete will not be accepted by the Quality Control Technician. When a load that has been tested as part of the QC does not meet specifications, field corrective action will be performed. The next truckload will be sampled and tested for temperature, slump and air content to determine if batch plant adjustments are necessary. If adjustments are necessary, corrective action will be taken by the supplier to make any adjustments necessary to accommodate project specifications. If the load cannot be adjusted to project specifications within the allowed timeframe, concrete will be rejected by the Quality Control Technician. D&A personnel will be in close contact with the QC staff of the concrete supplier to ensure that all necessary adjustments are made prior to continued batching. All corrective action taken will be documented on the form included in Attachment E.

TABLE 1

ACTION & SPECIFICATION LIMITS – DAILY PRODUCTION

Quality Characteristic	Action Limits	Specification Limits
Air Content (%)	<6.0 or >8.0	<5.5 or >8.5
*Air Content Suspension/Rejection Limit (%)		<5.0 or >9.0
Air Content Loss (%)	>1.0	Greater than 1.5
Concrete Temperature (°F)	<50 or >85 @ placement	<45 or >90 @ placement
Slump MAX (inches)	0.5” less than JMF MAX	Per Approved JMF
Aggregate Gradation	JMF Zone Boundary	Operating Zone Boundary

**QA sampled results between 5.0% to 5.4% and 8.75% to 9.0% will be accepted and placed without any adjustments. Penalties will be enforced with these results per Table 4 on page 18 of the Special Provision. QA sampled results below 5.0% and exceeding 9.0% will be rejected by QC upon notification from QA and operations will be suspended until following loads verify adequate corrective action. QC will generate consistency with appropriate adjustments maintaining the air content within a range of 5.5% to 8.5%.*



CORRECTIVE ACTION

AIR CONTENT

If the tested air content in the concrete is outside the Action Limits stated in Table 1, the Quality Control Technician will immediately notify the supplier's QC staff or plant operator so that the plant operator may decide if adjustments to the quantity of air entrainment admixture are necessary. Air content testing will be performed on the subsequent load to verify and ensure that adjustments are satisfactory and remain within the Action Limits.

If the air content is below the Specification Limits stated in Table 1, the Quality Control Technician will immediately notify the supplier's QC staff or plant operator so that the amount of air entrainment admixture can be adjusted at the production plant accordingly. The tested load will be adjusted with additional air entrainment and remixed on-site prior to being retested for verification and acceptance prior to placement. If continued adjustments are made on-site due to continued low air content test results, and the air content cannot be adjusted to within the Specification Limits prior to the maximum acceptable time between batching and discharging has expired, the load will be rejected.

If the air content is above the Specification Limits stated in Table 1, the Quality Control Technician will immediately notify the supplier's QC staff or plant operator so that the amount of air entrainment admixture can be adjusted at the production plant accordingly. Placement will be halted until adjustments are made at the production plant and additional testing on the subsequent load verifies that the air content is within the Specification Limits. The load containing the concrete with air content exceeding the Specification Limits will be retested periodically prior to the maximum acceptable time between batching and discharging has expired. If the air content on the load in question falls within the Specification Limits, the concrete will be placed. If the air content fails to fall within the Specification Limits, or if the maximum acceptable time has been exceeded, the load will be rejected.

The Quality Control Technician will perform QC sampling and testing of the fresh concrete for air content loss (slipform or pumped) under the following circumstances: at a minimum frequency of daily, whenever the concrete pump is relocated (where applicable), or whenever there is a significant change in boom angle of the concrete pump during placement. Concrete



will be sampled and tested on a representative haul unit immediately after discharge, prior to the paver or placement in the pump hopper (where applicable). The same haul unit will be sampled and tested again after the paver has passed, or after discharge from the pump (where applicable). If the difference in measured air content between the two test locations for the same concrete is greater than 1.5 percent air content by volume of concrete, the Quality Control Technician will immediately notify the pump/paver operator, supplier's QC staff or plant operator along with the Contractor and Engineer, and work will be suspended while the problem is assessed. Work will continue when all necessary adjustments are made to the operation and the tested air loss is below 1.5 percent.

Suspend work if air content is < 5.0 or > 9.0 percent after pump or paver, regardless of the air content loss.

SLUMP

If the tested slump in the concrete is outside the Action Limits stated in Table 1, the Quality Control Technician will immediately notify the supplier's QC staff or plant operator so that the plant operator may decide if adjustments of the quantity of water content is necessary. Slump testing will be performed on the subsequent load to verify and ensure that adjustments are satisfactory and remain within the Action Limits.

If the slump is below the Specification Limits stated in Table 1, the Quality Control Technician will immediately notify the supplier's QC staff or plant operator so that the amount of water content and other proportions can be adjusted at the production plant accordingly, ensuring no changes to the water/cement ratio. Adjustments will not be made on-site if concrete has already been placed. If no concrete has been placed, the tested load will be adjusted with additional water only once and remixed on-site prior to being retested for verification and acceptance prior to placement. If the slump cannot be adjusted to within the Specification Limits prior to the maximum acceptable time between batching and discharging has expired, the load will be rejected.

If the tested slump is above the Specification Limits stated in Table 1, the load will be rejected. Quality Control Technician will immediately notify the supplier's QC staff or plant operator so that the amount of water can be adjusted at the production plant accordingly. Placement will be halted until adjustments are made at the production plant and additional testing on the subsequent loads verifies that the slump is within the Specification Limits.



TEMPERATURE

If the tested temperature in the concrete is outside the Action Limits stated in Table 1, the Quality Control Technician will immediately notify the supplier's QC staff or plant operator so that the plant operator may decide if an adjustment to the temperature of the mix water is necessary (by whatever means capable by the supplier).

If the tested temperature is outside of the Specification Limits stated in Table 1, the load will be rejected. Quality Control Technician will immediately notify the supplier's QC staff or plant operator and work will be suspended until corrective adjustments are made to bring the concrete temperature to within the Specification Limits.

AGGREGATE – *See concrete supplier submittal for detailed info when applicable*

Sampling and testing of aggregate as part of QC for Optimized Aggregate Gradations for Portland Concrete Cement will be performed by a Michigan Certified Aggregate Technician (MCAT) in accordance with section 3.13 of the MQAPM. Aggregate will be sampled and tested by the supplier, a consultant hired by the supplier, or if applicable, the Quality Control Technician. Aggregates will be tested, at a minimum, prior to initial startup, during stockpiling and randomly during each day of production.

If the tested gradations are outside the Action Limits Boundary stated in the Supplier's submittal for Aggregate Blending, the applicable MCAT will immediately notify the supplier's QC staff so that they may decide if adjustments to the proportions in the combined aggregate are necessary.

If the tested gradations are outside the Operating Zone Boundary stated in the Supplier's submittal for Aggregate Blending, the applicable MCAT will immediately notify the supplier's QC staff and production will be suspended. A MCA Level II certified technician from the supplier will need to adjust the proportions in the combined aggregate and a new production gradation will be established to verify that corrective actions were successful and the combined gradation falls within the Action Limits Boundary. The new production gradation will be submitted to the Engineer for approval prior to resuming production.

ATTACHMENT A
• ORGANIZATION CHART •

ORGANIZATION CHART

Dennis Snyder—Contractor QC Administrator

DRIESENKA & ASSOCIATES, INC.

3760 Carpenter Road
Ypsilanti, MI 48197
Phone: (734) 368-9483
Mobile: (616) 432-7472
denniss@driesenga.com

WESTSIDE CONCRETE CO.

Kamil Jumaa

Mobile: (313) 364-0876
rwestsideconcrete@comcast.net

Driesenga & Associates, Inc.

Additional Contacts

Adam Peterson
Phone: (616) 396-0255
adam@driesenga.com
James Henning, P.E.
Phone: (616) 396-0255
jimh@driesenga.com

MCCOIG MATERIALS

Dwayne Chesterfield-Technical Serv.

Mobile: (734) 478-9886

Joe Yaklin—Technical Services

Mobile: (586)-634-0350

Springwells—Detroit Plant #2

John White—Batch Operations

Phone: (586) 738-1918

Koenig Plant #1

Chris Davis—Batch Operations

Phone: (313) 368-1133

Driesenga & Associates, Inc.

Field Technicians

Corey Sears
Joe Kennedy
Jon Morris
Chris Lossie
Cody Butler
Eric Morris
Doug Burch
Ben VanDyke

ATTACHMENT B

- **DAILY CONCRETE FIELD TEST REPORT •**
- **MDOT 1160 REPORT OF MODULUS OF RUPTURE •**



**DRIESENKA &
ASSOCIATES, INC.**

Engineering • Surveying • Testing

**3760 Carpenter Road
Ypsilanti, Michigan 48197
Ph. (734) 368-9483 • Fax (269) 353-7836
www.driesenga.com**

CONCRETE FIELD TEST REPORT

CLIENT:	D&A PROJECT NO.:	DATE:
PROJECT:	INSPECTOR:	
CONTRACTOR:	CONTROL SECTION/MDOT JOB NO.:	
CONCRETE SUPPLIER & CITY:	PROJECT ENGINEER:	
WEATHER: A.M. P.M.	TAG NUMBERS:	

Pour Description: _____

Mix Design: _____ Quantity Placed (yd³): _____ Lot Number: _____ Sublot: _____

Grade of Concrete: _____ Batch Quantity (yd³): _____ Pour Start: _____ Pour End: _____

FIELD TEST RESULTS

Truck No.	Ticket #	Batch Time	Start	Empty	Slump (in)	Air Temp. (°F)	Conc. Temp. (°F)	Air Content (%)	Unit Wt. (pcf)	Yield	No. of Cylinders

REMARKS

REPORT OF MODULUS OF RUPTURE

2003
SPECIFICATIONS

NOTE: 2 BEAMS = 1 STRENGTH TEST

DISTRIBUTION: ORIGINAL - Project Engineer

BEAM CURING SYMBOLS:
D - Damp Sand
W - Immersed in Water
X - Explain in Remarks

PROJECT ENGINEER		PROJECT CONTROL ID		PROJECT NO.		CONCRETE SOURCE												
CONTRACTOR				CONSULTANT														
BEAM I.D. NO.	DATE CAST	DATE TESTED	AGE (DAYS)	SLUMP inches	% AIR	TEMP F °		CURE METHOD	LENGTH BROKEN BEAM inches	BEAM WIDTH	BEAM DEPTH	FACTOR	LOAD APPLIED (lbs)	MODULUS OF RUPTURE	P/F %	AVG.	DESIGN STRENGTH	TEST BY
						CONC.	AIR											
REMARKS																		
PROJECT ENGINEER										PROJECT ENGINEER								

ATTACHMENT C

• EQUIPMENT CALIBRATION •

Report and Certificate of Calibration



www.Cal-Cert.com

Toll Free
800-356-4662

Address
6709 SE Lake Road
Milwaukie, OR 97222

Local
503-654-9620



Report #: 12245-50755-2047 **Customer PO#:**
Customer Name: Driesenga & Associates
Customer Address: 12330 James Street, Suite H80
City: Holland **State:** MI **Zip:** 49424
Contact: Jim Henning
Service Address: 3760 Carpenter Road Ypsilanti, MI 48197

Calibration Standards

8-00290C / 00223 Load Cell Revere SN: K728891B Cal: 09/25/2019 Due: 09/30/2020 Vendor: Cal-Cert Range: 23883.00 - 600,000 lbf Report #: 10828-93158-1595
8-00513 Straight Edge Humboldt SN: 00513 Cal: 09/23/2019 Due: 09/30/2020 Vendor: Cal-Cert Range: 18 Inches Report #: 10828-32595-1947
8-01095C / 01127 Load Cell Tovey Engineering SN: 114643A Cal: 09/27/2019 Due: 09/30/2020 Vendor: Cal-Cert Range: 1143.00 - 50,000 lbf Report #: 10828-57157-1595
8-01197 Thermo-Hygrometer Comark SN: 06210350033 Cal: 10/03/2019 Due: 10/31/2020 Vendor: Cal-Cert Range: 99 %RH 122 °F
8-01241 Feeler Gage Precision Brands SN: 98158 19119 Cal: 09/23/2019 Due: 09/30/2020 Vendor: Cal-Cert Range: 0.001 Inches Report #: 10828-57526-1947

Instrument Data

Calibration Date:	January 15, 2020	Reference:	ASTM E4-16
Recommended Due Date:	January 15, 2021	Cal-Cert Procedure:	CP-001
Calibration Frequency:	12 Months	Indicating System:	Digital
Manufacturer:	ELE International, Inc.	Temperature:	62.7 °F
Type:	Testing Machine	Humidity:	57% RH
Model Number:	36-0660/02	Cal Factor:	None
Serial #:	00-04	Asset Number:	None
Capacity:	250,000 lbf.	Service Location:	Service Address
Tolerance:	±1% of Applied Load	As Found:	Pass
Method of Calibration:	Follow the Force	As Left:	Pass

Machine Inspection/Service: As Found

Spherical Seat appears to move freely:	Acceptable	Pump Oil Level Check:	Acceptable
Spherical Seat appears cleaned, tightened and lubricated:	Acceptable	Piston Retraction Check:	Acceptable
Springs, Safety Brackets, Holding Stem Inspection:	Acceptable	Hydraulic System Leak Check:	Acceptable

Machine Inspection/Service: As Left

Spherical Seat appears to move freely:	Acceptable	Pump Oil Level Check:	Acceptable
Spherical Seat cleaned, tightened and lubricated:	Acceptable	Piston Retraction Check:	Acceptable
Springs, Safety Brackets, Holding Stem Inspection:	Acceptable	Hydraulic System Leak Check:	Acceptable

Platen Inspection:

Upper Platen S/N:	UP 00-04	Upper Platen Planeness Inspection:	Acceptable	Plane<0.001
Lower Platen S/N:	LP 00-04	Lower Platen Planeness Inspection:	Acceptable	Plane<0.001

Calibration Data:

Instrument Range:		2500 to 237500 lbf.		Range Resolution:		10 lbf.		Mode Verified: Compression			
Unit Under Test Reading	Standard Reading As Found	As Found Percentage Error	Standard Verification 1	Error	Percentage Error	Standard Verification 2	Error	Percentage Error	Algebraic Difference	Expanded Uncertainty lbf.	
0	0	0.00%	0	0	0.00%	0	0	0.00%	0.00%	0	
2500	2498	-0.08%	2498	-2	-0.08%	2502	2	0.08%	-0.16%	59.19	
5000	4997	-0.06%	4997	-3	-0.06%	4999	-1	-0.02%	-0.04%	59.52	
10000	9991	-0.09%	9991	-9	-0.09%	10005	5	0.05%	-0.14%	39.85	
15000	14993	-0.05%	14993	-7	-0.05%	15018	18	0.12%	-0.17%	62.41	
20000	20001	0.01%	20001	1	0.01%	20008	8	0.04%	-0.04%	69.81	
25000	25009	0.04%	25009	9	0.04%	25010	10	0.04%	0.00%	76.15	
50000	50130	0.26%	50130	130	0.26%	50120	120	0.24%	0.02%	83.21	
100000	100360	0.36%	100360	360	0.36%	100340	340	0.34%	0.02%	283.76	
150000	150670	0.45%	150670	670	0.45%	150660	660	0.44%	0.01%	235.65	
200000	200510	0.26%	200510	510	0.26%	200630	630	0.32%	-0.06%	378.72	
237500	237820	0.13%	237820	320	0.13%	237810	310	0.13%	0.00%	421.44	
0	0	0.00%	0	0	0.00%	0	0	0.00%	0.00%	0	

Maximum Error Percentage: 0.45%

Manufacturer: ELE International, Inc.

Type: Testing Machine

Serial #: 00-04

Remarks:

All force measurement standards utilized in this calibration are temperature compensated.

**We sincerely thank you for your business. Please call us at 503-654-9620 for all your sales and calibration needs.
Cleaning and preventative maintenance were performed as part of this service.**

**Cal-Cert is accredited by A2LA under Calibration Laboratory Code #4986.01.
A2LA is recognized under the ILAC mutual recognition agreement (MRA).**

This certificate is hereby issued that the above instrument was tested for accuracy with calibrated standards traceable to the National Institute of Standards and Technology (NIST). The information provided on this form complies with the data gathering and reporting requirements of ISO/IEC 17025 and ANSI/NCSL Z540.1, and meets the requirements of all applicable references and Cal-Cert procedures listed above.

Any stated measurement uncertainty includes the uncertainty of the Calibration standards used, combined with the uncertainty of the measurement process using the RSS method with a $k=2$ for an approximate 95% level of confidence. The calibration process meets or exceeds a ratio of 4:1 unless otherwise stated.

All tolerances were derived from the applicable standards and pass/fail determination is based on those tolerances. The customer determined any recommended due dates indicated on the certificate.

This report shall not be reproduced except in full, without written approval from Cal-Cert.

Service Engineer: Garnett Thorpe

Date: January 15, 2020

Technical Manager: Marshall Doyle

Signature: 

Report and Certificate of Calibration



www.Cal-Cert.com



Toll Free
800-356-4662

Address
6709 SE Lake Road
Milwaukie, OR 97222

Local
503-654-9620

Report #: 12245-38035-2047 **Customer PO#:**
Customer Name: Driesenga & Associates
Customer Address: 12330 James Street, Suite H80
City: Holland **State:** MI **Zip:** 49424
Contact: Jim Henning
Service Address: 3760 Carpenter Road Ypsilanti, MI 48197

Calibration Standards

8-00561C / 01127 / Load Cell / Revere / SN: 70116857 / Cal: 09/27/2019 / Due: 09/30/2020 / Vendor: Cal-Cert / Range: 216.00 - 5,000 lbf / Report #: 10828-32597-1595
8-01197 / Thermo-Hygrometer / Comark / SN: 06210350033 / Cal: 10/03/2019 / Due: 10/31/2020 / Vendor: Cal-Cert / Range: 99 %RH 122 °F

Instrument Data

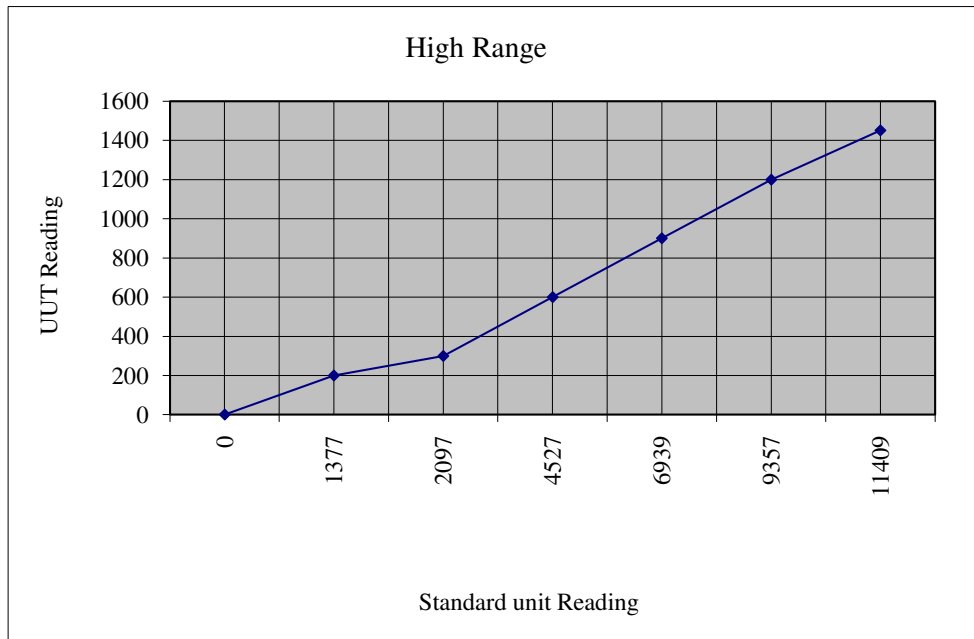
Calibration Date:	January 15, 2020	Reference:	ASTM E-4
Calibration Due Date:	January 15, 2021	Cal-Cert Procedure:	CP-001
Calibration Frequency:	12 Months	Indicating System:	Gauge
Manufacturer:	GeoTest	Temperature:	61 °F
Model Number:	Unknown	Humidity:	62% RH
Type:	Machine Beam Tester	Cal Factor:	None
Serial #:	B-3	Asset #:	None
Capacity:	1,500 PSI	Service Location:	Service Address
Resolution:	10 PSI	As Found:	Pass
		As Left:	Pass

	Range	Mode
Instrument Range: 1,500	Resolution: 7.465	Verified: Compression

High Range

UUT Reading PSI	As Found Reading Lbf.	Verification Reading #1 Lbf.	Verification Reading #2 Lbf.	Average Readings Lbf.
0	0	0	0	0
200	1366	1366	1388	1377
300	2093	2093	2100	2097
600	4519	4519	4534	4527
900	6938	6938	6939	6939
1200	9345	9345	9368	9357
1450	11370	11370	11447	11409

Expanded Uncertainty ± 0.8510 Lbf.

**Remarks:**

We sincerely thank you for your business. Please call us at 503-654-9620 for all your sales and calibration needs.
Cleaning and preventative maintenance were performed as part of this service.

Cal-Cert is accredited by A2LA under Calibration Laboratory Code #4986.01.
A2LA is recognized under the ILAC mutual recognition agreement (MRA).

This certificate is hereby issued that the above instrument was tested for accuracy with calibrated standards traceable to the National Institute of Standards and Technology (NIST). The information provided on this form complies with the data gathering and reporting requirements of ISO/IEC 17025 and ANSI/NCSL Z540.1, and meets the requirements of all applicable references and Cal-Cert procedures listed above.

Any stated measurement uncertainty includes the uncertainty of the Calibration standards used, combined with the uncertainty of the measurement process using the RSS method with a $k=2$ for an approximate 95% level of confidence. The calibration process meets or exceeds a ratio of 4:1 unless otherwise stated.

All tolerances were derived from the applicable standards and pass/fail determination is based on those tolerances. The customer determined any recommended due dates indicated on the certificate.

This report shall not be reproduced except in full, without written approval from Cal-Cert.

Service Engineer:

Garnett Thorpe

Date:

January 15, 2020

Technical Manager:

Marshall Doyle

Signature:

Report and Certificate of Calibration



www.Cal-Cert.com

Toll Free
800-356-4662

Address
6709 SE Lake Road
Milwaukie, OR 97222

Local
503-654-9620



Report #: 12245-52160-2047 **Customer PO#:**
Customer Name: Driesenga & Associates
Customer Address: 12330 James Street, Suite H80
City: Holland **State:** MI **Zip:** 49424
Contact: Jim Henning
Service Address: 3760 Carpenter Road Ypsilanti, MI 48197

Calibration Standards

8-01095C / 01127 / Load Cell / Tovey Engineering / SN: 114643A / Cal: 09/27/2019 / Due: 09/30/2020 / Vendor: Cal-Cert / Range: 1143.00 - 50,000 lbf / Report #: 10828-57157-1595
8-01197 / Thermo-Hygrometer / Comark / SN: 06210350033 / Cal: 10/03/2019 / Due: 10/31/2020 / Vendor: Cal-Cert / Range: 99 %RH 122 °F

Instrument Data

Calibration Date:	January 15, 2020	Reference:	ASTM E-4
Recommended Due Date:	January 15, 2021	Cal-Cert Procedure:	CP-001
Calibration Frequency:	12 Months	Indicating System:	Gauge
Manufacturer:	Humboldt	Temperature:	61.4 °F
Type:	Testing Machine	Humidity:	60% RH
Model Number:	Unknown	Cal Factor:	None
Serial #:	449	Asset #:	None
Capacity:	15,000 lbf.	Service Location:	Service Address
Tolerance:	±1% of Applied Load	As Found:	PASS
		As Left:	PASS

Spherical Seat appears to move freely:	N/A	Pump Oil Level Check:	N/A
Spherical Seat appears cleaned, tightened and lubricated:	N/A	Piston Retraction Check:	N/A
Springs, Safety Brackets, Holding Stem Inspection:	N/A	Hydraulic System Leak Check:	N/A

Spherical Seat appears to move freely:	N/A	Pump Oil Level Check:	N/A
Spherical Seat cleaned, tightened and lubricated:	N/A	Piston Retraction Check:	N/A
Springs, Safety Brackets, Holding Stem Inspection:	N/A	Hydraulic System Leak Check:	N/A

Upper Platen S/N:	N/A	Upper Platen Planeness Inspection:	N/A	Plane<0.001
Lower Platen S/N:	N/A	Lower Platen Planeness Inspection:	N/A	Plane<0.001

Calibration Data

Instrument Range: 15,000 lbf.			Range Resolution: 200 lbf.			Mode Verified:		Compression	
Unit Under Test Reading lbf.	As Found lbf.	As Found Percentage Error	Verification Reading #1 lbf.	Error lbf.	Percentage Error	Verification Reading #2 lbf.	Error lbf.	Percentage Error	Algebraic Difference
0	0	0.00%	0	0	0.00%	0	0	0.00%	0.00%
2000	1994	-0.30%	1999	-1	-0.05%	1997	-3	-0.15%	0.10%
3000	2972	-0.93%	2978	-22	-0.73%	2988	-12	-0.40%	-0.33%
6000	5948	-0.87%	5955	-45	-0.75%	5979	-21	-0.35%	-0.40%
9000	8944	-0.62%	8956	-44	-0.49%	8973	-27	-0.30%	-0.19%
12000	11975	-0.21%	11998	-2	-0.02%	11969	-31	-0.26%	0.24%
14250	14228	-0.15%	14261	11	0.08%	14216	-34	-0.24%	0.32%
0	0	0.00%	0	0	0.00%	0	0	0.00%	0.00%

Expanded Uncertainty ± 305.621 lbf.

Manufacturer: Humboldt

Type: Testing Machine

Serial #: 449

Remarks:

**We sincerely thank you for your business. Please call us at 503-654-9620 for all your sales and calibration needs.
Cleaning and preventative maintenance were performed as part of this service.**

**Cal-Cert is accredited by A2LA under Calibration Laboratory Code #4986.01.
A2LA is recognized under the ILAC mutual recognition agreement (MRA).**

This certificate is hereby issued that the above instrument was tested for accuracy with calibrated standards traceable to the National Institute of Standards and Technology (NIST). The information provided on this form complies with the data gathering and reporting requirements of ISO/IEC 17025 and ANSI/NC SL Z540.1, and meets the requirements of all applicable references and Cal-Cert procedures listed above.

Any stated measurement uncertainty includes the uncertainty of the Calibration standards used, combined with the uncertainty of the measurement process using the RSS method with a k=2 for an approximate 95% level of confidence. The calibration process meets or exceeds a ratio of 4:1 unless otherwise stated.

All tolerances were derived from the applicable standards and pass/fail determination is based on those tolerances. The customer determined any recommended due dates indicated on the certificate.

This report shall not be reproduced except in full, without written approval from Cal-Cert.

Service Engineer:

Garnett Thorpe

Date:

January 15, 2020

Technical Manager:

Marshall Doyle

Signature:

Mr Doyle

Report and Certificate of Calibration



www.Cal-Cert.com

Toll Free
800-356-1662

Address
6709 SE Lake Road
Milwaukie, OR 97222

Local
503-654-9620



Report #: 12245-62704-2047 **Customer PO#:**
Customer Name: Driesenga & Associates
Customer Address: 12330 James Street, Suite H80
City: Holland **State:** MI **Zip:** 49424
Contact: Jim Henning
Service Address: 3760 Carpenter Road Ypsilanti, MI 48197

Calibration Standards

8-00411 Weight Unknown SN: 00411 Cal: 06/19/2018 Due: 06/30/2020 Vendor: Colorado Dept of Ag Report #: 18-230A
8-00412 Weight Troemner SN: 5845 Cal: 06/20/2018 Due: 06/30/2020 Vendor: Colorado Dept of Ag Report #: 18-230B
8-01197 Thermo-Hygrometer Comark SN: 06210350033 Cal: 10/03/2019 Due: 10/31/2020 Vendor: Cal-Cert Range: 99 %RH 122 °F

Instrument Data

Calibration Date:	January 15, 2020	Reference:	ASTM E-898
Calibration Due Date:	January 15, 2021	Cal-Cert Procedure:	CP-002
Calibration Frequency:	12 Months	Indicating System:	Digital
Manufacturer:	Intelligent Industries	Temperature:	62.8 °F
Model Number:	PC-10001	Humidity:	52% RH
Type:	Digital Balance	Asset #:	None
Serial #:	170719008	Service Location:	Service Address
Scale Capacity:	10,000 grams	As Found:	PASS
		As Left:	PASS

Scale Linear Test							
Instrument Range:				Resolution:			
10000.0 grams				0.1 grams			
Calibration Standard grams	As Found UUT grams	As Found Error grams	As Left UUT grams	As Left Error grams	As Left % of Error	Tolerance (As Left) Allowable Error	
						Error	Condition
0.0	0.0	0.0	0.0	0.0	0.000	0.0	PASS
1000.0	999.7	-0.3	1000.0	0.0	0.000	1.0	PASS
2000.0	1999.4	-0.6	2000.0	0.0	0.000	2.0	PASS
3000.0	2999.2	-0.8	2999.9	-0.1	-0.003	3.0	PASS
4000.0	3999.0	-1.0	3999.9	-0.1	-0.002	4.0	PASS
5000.0	4998.8	-1.2	4999.8	-0.2	-0.004	5.0	PASS
6000.0	5998.5	-1.5	5999.8	-0.2	-0.003	6.0	PASS
7000.0	6998.3	-1.7	6999.8	-0.2	-0.003	7.0	PASS
8000.0	7997.7	-2.3	7999.8	-0.2	-0.002	8.0	PASS
9000.0	8997.5	-2.5	8999.7	-0.3	-0.003	9.0	PASS
10000.0	9997.5	-2.5	9999.7	-0.3	-0.003	10.0	PASS
5000.0	4998.8	-1.2	4999.8	-0.2	-0.004	5.0	PASS
0.0	0.0	0.0	0.0	0.0	0.000	0.0	PASS

Expanded Uncertainty± 0.3899 grams

FUNCTIONAL CHECKS					
OFF CENTER LOAD:		HYSTERESIS: Load Increments		REPEATABILITY:	
Loading position	5000.0	Test Weight Applied. % of load	Readings	Test Weight Applied	5000.0
Right	4998.9	0%	0.0	1st	4998.8
Left	4998.9	(R1) 50%	4999.8	2nd	4998.9
Front	4999.0	100%	9999.7	3rd	4998.8
Back	4998.7	(R2) 50%	4999.8	4th	4998.8
As Left	PASS	0%	0.0	5th	4998.8
Tolerance		As Left	PASS	As Left	PASS
Deviation of lowest and highest reading within 0.1%		Tolerance The Difference of R1 and R2 must be within 0.1%		Tolerance Deviation of lowest and highest reading within 0.1%	

Remarks:

We sincerely thank you for your business. Please call us at 503-654-9620 for all your sales and calibration needs.
Cleaning and preventative maintenance were performed as part of this service.

Cal-Cert is accredited by A2LA under Calibration Laboratory Code #4986.01.
A2LA is recognized under the ILAC mutual recognition agreement (MRA).

This certificate is hereby issued that the above instrument was tested for accuracy with calibrated standards traceable to the National Institute of Standards and Technology (NIST). The information provided on this form complies with the data gathering and reporting requirements of ISO/IEC 17025 and ANSI/NCSL Z540.1, and meets the requirements of all applicable references and Cal-Cert procedures listed above.

Any stated measurement uncertainty includes the uncertainty of the Calibration standards used, combined with the uncertainty of the measurement process using the RSS method with a k=2 for an approximate 95% level of confidence. The calibration process meets or exceeds a ratio of 4:1 unless otherwise stated.

All tolerances were derived from the applicable standards and pass/fail determination is based on those tolerances. The customer determined any recommended due dates indicated on the certificate.

This report shall not be reproduced except in full, without written approval from Cal-Cert.

Service Engineer:

Garnett Thorpe

Date:

January 15, 2020

Technical Manager:

Marshall Doyle

Signature:

McDoyle

REPORT#: 12245-62704-2047

Report and Certificate of Calibration



www.Cal-Cert.com

Toll Free
800-356-1662

Address
6709 SE Lake Road
Milwaukie, OR 97222

Local
503-654-9620



Report #: 12245-50760-2047 **Customer PO#:**
Customer Name: Driesenga & Associates
Customer Address: 12330 James Street, Suite H80
City: Holland **State:** MI **Zip:** 49424
Contact: Jim Henning
Service Address: 3760 Carpenter Road Ypsilanti, MI 48197

Calibration Standards

8-00411 Weight Unknown SN: 00411 Cal: 06/19/2018 Due: 06/30/2020 Vendor: Colorado Dept of Ag Report #: 18-230A
8-00412 Weight Troemner SN: 5845 Cal: 06/20/2018 Due: 06/30/2020 Vendor: Colorado Dept of Ag Report #: 18-230B
8-01197 Thermo-Hygrometer Comark SN: 06210350033 Cal: 10/03/2019 Due: 10/31/2020 Vendor: Cal-Cert Range: 99 %RH 122 °F

Instrument Data

Calibration Date:	January 15, 2020	Reference:	ASTM E-898
Calibration Due Date:	January 15, 2021	Cal-Cert Procedure:	CP-002
Calibration Frequency:	12 Months	Indicating System:	Digital
Manufacturer:	Ohaus	Temperature:	61 °F
Model Number:	C11P75	Humidity:	43% RH
Type:	Digital Balance	Asset #:	None
Serial #:	0636218JAT	Service Location:	Service Address
Scale Capacity:	75 Kg.	As Found:	PASS
		As Left:	PASS

Scale Linear Test							
Instrument Range:				Resolution:			
75.00 Kg.				0.01 Kg.			
Calibration Standard Kg.	As Found UUT Kg.	As Found Error Kg.	As Left UUT Kg.	As Left Error Kg.	As Left % of Error	Tolerance (As Left) Allowable Error	
						Error	Condition
0.00	0.00	0.00	0.00	0.00	0.000	0.00	PASS
7.50	7.50	0.00	7.50	0.00	0.000	0.01	PASS
15.00	15.00	0.00	15.00	0.00	0.000	0.02	PASS
22.50	22.50	0.00	22.50	0.00	0.000	0.02	PASS
30.00	30.00	0.00	30.00	0.00	0.000	0.03	PASS
37.50	37.50	0.00	37.50	0.00	0.000	0.04	PASS
45.00	45.00	0.00	45.00	0.00	0.000	0.05	PASS
52.50	52.50	0.00	52.50	0.00	0.000	0.05	PASS
60.00	60.00	0.00	60.00	0.00	0.000	0.06	PASS
67.50	67.50	0.00	67.50	0.00	0.000	0.07	PASS
75.00	75.00	0.00	75.00	0.00	0.000	0.08	PASS
37.50	37.50	0.00	37.50	0.00	0.000	0.04	PASS
0.00	0.00	0.00	0.00	0.00	0.000	0.00	PASS

Expanded Uncertainty± 0.0351 Kg.

FUNCTIONAL CHECKS					
OFF CENTER LOAD:		HYSTERESIS: Load Increments		REPEATABILITY:	
Loading position	37.50	Test Weight Applied. % of load	Readings	Test Weight Applied	37.50
Right	37.50	0%	0.00	1st	37.50
Left	37.50	(R1) 50%	37.50	2nd	37.50
Front	37.50	100%	75.00	3rd	37.50
Back	37.50	(R2) 50%	37.50	4th	37.50
As Left	PASS	0%	0.00	5th	37.50
Tolerance Deviation of lowest and highest reading within 0.1%		As Left	PASS	As Left	PASS
		Tolerance The Difference of R1 and R2 must be within 0.1%		Tolerance Deviation of lowest and highest reading within 0.1%	

Remarks:

--

We sincerely thank you for your business. Please call us at 503-654-9620 for all your sales and calibration needs.
Cleaning and preventative maintenance were performed as part of this service.

Cal-Cert is accredited by A2LA under Calibration Laboratory Code #4986.01.
A2LA is recognized under the ILAC mutual recognition agreement (MRA).

This certificate is hereby issued that the above instrument was tested for accuracy with calibrated standards traceable to the National Institute of Standards and Technology (NIST). The information provided on this form complies with the data gathering and reporting requirements of ISO/IEC 17025 and ANSI/NCSL Z540.1, and meets the requirements of all applicable references and Cal-Cert procedures listed above.

Any stated measurement uncertainty includes the uncertainty of the Calibration standards used, combined with the uncertainty of the measurement process using the RSS method with a k=2 for an approximate 95% level of confidence. The calibration process meets or exceeds a ratio of 4:1 unless otherwise stated.

All tolerances were derived from the applicable standards and pass/fail determination is based on those tolerances. The customer determined any recommended due dates indicated on the certificate.

This report shall not be reproduced except in full, without written approval from Cal-Cert.

Service Engineer:

Garnett Thorpe

Date:

January 15, 2020

Technical Manager:

Marshall Doyle

Signature:

REPORT#: 12245-50760-2047

Report and Certificate of Calibration



www.Cal-Cert.com

Toll Free
800-356-1662

Address
6709 SE Lake Road
Milwaukie, OR 97222

Local
503-654-9620



Report #: 12245-50762-2047 **Customer PO#:**
Customer Name: Driesenga & Associates
Customer Address: 12330 James Street, Suite H80
City: Holland **State:** MI **Zip:** 49424
Contact: Jim Henning
Service Address: 3760 Carpenter Road Ypsilanti, MI 48197

Calibration Standards

8-00411 Weight Unknown SN: 00411 Cal: 06/19/2018 Due: 06/30/2020 Vendor: Colorado Dept of Ag Report #: 18-230A
8-00412 Weight Troemner SN: 5845 Cal: 06/20/2018 Due: 06/30/2020 Vendor: Colorado Dept of Ag Report #: 18-230B
8-01197 Thermo-Hygrometer Comark SN: 06210350033 Cal: 10/03/2019 Due: 10/31/2020 Vendor: Cal-Cert Range: 99 %RH 122 °F

Instrument Data

Calibration Date:	January 15, 2020	Reference:	ASTM E-898
Calibration Due Date:	January 15, 2021	Cal-Cert Procedure:	CP-002
Calibration Frequency:	12 Months	Indicating System:	Digital
Manufacturer:	Ohaus	Temperature:	61.1 °F
Model Number:	C11P75	Humidity:	44% RH
Type:	Digital Balance	Asset #:	None
Serial #:	0623901JMR	Service Location:	Service Address
Scale Capacity:	75 Kg.	As Found:	PASS
		As Left:	PASS

Scale Linear Test							
Instrument Range:			Resolution:				
75.00 Kg.			0.01 Kg.				
Calibration Standard Kg.	As Found UUT Kg.	As Found Error Kg.	As Left UUT Kg.	As Left Error Kg.	As Left % of Error	Tolerance (As Left) Allowable Error	
						Error	Condition
0.00	0.00	0.00	0.00	0.00	0.000	0.00	PASS
7.50	7.50	0.00	7.50	0.00	0.000	0.01	PASS
15.00	15.00	0.00	15.00	0.00	0.000	0.02	PASS
22.50	22.50	0.00	22.50	0.00	0.000	0.02	PASS
30.00	30.00	0.00	30.00	0.00	0.000	0.03	PASS
37.50	37.50	0.00	37.50	0.00	0.000	0.04	PASS
45.00	45.00	0.00	45.00	0.00	0.000	0.05	PASS
52.50	52.50	0.00	52.50	0.00	0.000	0.05	PASS
60.00	60.00	0.00	60.00	0.00	0.000	0.06	PASS
67.50	67.50	0.00	67.50	0.00	0.000	0.07	PASS
75.00	75.00	0.00	75.00	0.00	0.000	0.08	PASS
37.50	37.50	0.00	37.50	0.00	0.000	0.04	PASS
0.00	0.00	0.00	0.00	0.00	0.000	0.00	PASS

Expanded Uncertainty± 0.0351 Kg.

FUNCTIONAL CHECKS					
OFF CENTER LOAD:		HYSTERESIS: Load Increments		REPEATABILITY:	
Loading position	37.50	Test Weight Applied. % of load	Readings	Test Weight Applied	37.50
Right	37.49	0%	0.00	1st	37.50
Left	37.50	(R1) 50%	37.50	2nd	37.50
Front	37.49	100%	75.00	3rd	37.50
Back	37.49	(R2) 50%	37.50	4th	37.50
As Left	PASS	0%	0.00	5th	37.50
Tolerance Deviation of lowest and highest reading within 0.1%		As Left	PASS	As Left	PASS
		Tolerance The Difference of R1 and R2 must be within 0.1%		Tolerance Deviation of lowest and highest reading within 0.1%	

Remarks:

--

We sincerely thank you for your business. Please call us at 503-654-9620 for all your sales and calibration needs.
Cleaning and preventative maintenance were performed as part of this service.

Cal-Cert is accredited by A2LA under Calibration Laboratory Code #4986.01.
A2LA is recognized under the ILAC mutual recognition agreement (MRA).

This certificate is hereby issued that the above instrument was tested for accuracy with calibrated standards traceable to the National Institute of Standards and Technology (NIST). The information provided on this form complies with the data gathering and reporting requirements of ISO/IEC 17025 and ANSI/NCSL Z540.1, and meets the requirements of all applicable references and Cal-Cert procedures listed above.

Any stated measurement uncertainty includes the uncertainty of the Calibration standards used, combined with the uncertainty of the measurement process using the RSS method with a k=2 for an approximate 95% level of confidence. The calibration process meets or exceeds a ratio of 4:1 unless otherwise stated.

All tolerances were derived from the applicable standards and pass/fail determination is based on those tolerances. The customer determined any recommended due dates indicated on the certificate.

This report shall not be reproduced except in full, without written approval from Cal-Cert.

Service Engineer:

Garnett Thorpe

Date:

January 15, 2020

Technical Manager:

Marshall Doyle

Signature:

REPORT#: 12245-50762-2047

Report and Certificate of Calibration



www.Cal-Cert.com

Toll Free
800-356-1662

Address
6709 SE Lake Road
Milwaukie, OR 97222

Local
503-654-9620



Report #: 12245-62705-2047 **Customer PO#:**
Customer Name: Driesenga & Associates
Customer Address: 12330 James Street, Suite H80
City: Holland **State:** MI **Zip:** 49424
Contact: Jim Henning
Service Address: 3760 Carpenter Road Ypsilanti, MI 48197

Calibration Standards

8-00411 Weight Unknown SN: 00411 Cal: 06/19/2018 Due: 06/30/2020 Vendor: Colorado Dept of Ag Report #: 18-230A
8-00412 Weight Troemner SN: 5845 Cal: 06/20/2018 Due: 06/30/2020 Vendor: Colorado Dept of Ag Report #: 18-230B
8-01197 Thermo-Hygrometer Comark SN: 06210350033 Cal: 10/03/2019 Due: 10/31/2020 Vendor: Cal-Cert Range: 99 %RH 122 °F

Instrument Data

Calibration Date:	January 15, 2020	Reference:	ASTM E-898
Calibration Due Date:	January 15, 2021	Cal-Cert Procedure:	CP-002
Calibration Frequency:	12 Months	Indicating System:	Digital
Manufacturer:	Ohaus	Temperature:	61.9 °F
Model Number:	C11P75	Humidity:	46% RH
Type:	Digital Balance	Asset #:	None
Serial #:	0601372JBQ	Service Location:	Service Address
Scale Capacity:	75 Kg.	As Found:	PASS
		As Left:	PASS

Scale Linear Test							
Instrument Range:			Resolution:				
75.00 Kg.			0.01 Kg.				
Calibration Standard Kg.	As Found UUT Kg.	As Found Error Kg.	As Left UUT Kg.	As Left Error Kg.	As Left % of Error	Tolerance (As Left) Allowable Error	
						Error	Condition
0.00	0.00	0.00	0.00	0.00	0.000	0.00	PASS
7.50	7.50	0.00	7.50	0.00	0.000	0.01	PASS
15.00	15.00	0.00	15.00	0.00	0.000	0.02	PASS
22.50	22.50	0.00	22.50	0.00	0.000	0.02	PASS
30.00	30.00	0.00	30.00	0.00	0.000	0.03	PASS
37.50	37.50	0.00	37.50	0.00	0.000	0.04	PASS
45.00	45.00	0.00	45.00	0.00	0.000	0.05	PASS
52.50	52.50	0.00	52.50	0.00	0.000	0.05	PASS
60.00	60.00	0.00	60.00	0.00	0.000	0.06	PASS
67.50	67.50	0.00	67.50	0.00	0.000	0.07	PASS
75.00	75.00	0.00	75.00	0.00	0.000	0.08	PASS
37.50	37.50	0.00	37.50	0.00	0.000	0.04	PASS
0.00	0.00	0.00	0.00	0.00	0.000	0.00	PASS

Expanded Uncertainty± 0.0351 Kg.

FUNCTIONAL CHECKS					
OFF CENTER LOAD:		HYSTERESIS: Load Increments		REPEATABILITY:	
Loading position	37.50	Test Weight Applied. % of load	Readings	Test Weight Applied	37.50
Right	37.50	0%	0.00	1st	37.50
Left	37.50	(R1) 50%	37.50	2nd	37.50
Front	37.50	100%	75.00	3rd	37.50
Back	37.50	(R2) 50%	37.50	4th	37.50
As Left	PASS	0%	0.00	5th	37.50
Tolerance Deviation of lowest and highest reading within 0.1%		As Left	PASS	As Left	PASS
		Tolerance The Difference of R1 and R2 must be within 0.1%		Tolerance Deviation of lowest and highest reading within 0.1%	

Remarks:

--

We sincerely thank you for your business. Please call us at 503-654-9620 for all your sales and calibration needs.
Cleaning and preventative maintenance were performed as part of this service.

Cal-Cert is accredited by A2LA under Calibration Laboratory Code #4986.01.
A2LA is recognized under the ILAC mutual recognition agreement (MRA).

This certificate is hereby issued that the above instrument was tested for accuracy with calibrated standards traceable to the National Institute of Standards and Technology (NIST). The information provided on this form complies with the data gathering and reporting requirements of ISO/IEC 17025 and ANSI/NCSL Z540.1, and meets the requirements of all applicable references and Cal-Cert procedures listed above.

Any stated measurement uncertainty includes the uncertainty of the Calibration standards used, combined with the uncertainty of the measurement process using the RSS method with a k=2 for an approximate 95% level of confidence. The calibration process meets or exceeds a ratio of 4:1 unless otherwise stated.

All tolerances were derived from the applicable standards and pass/fail determination is based on those tolerances. The customer determined any recommended due dates indicated on the certificate.

This report shall not be reproduced except in full, without written approval from Cal-Cert.

Service Engineer:

Garnett Thorpe

Date:

January 15, 2020

Technical Manager:

Marshall Doyle

Signature:

REPORT#: 12245-62705-2047

Report and Certificate of Calibration



www.Cal-Cert.com

Toll Free
800-356-1662

Address
6709 SE Lake Road
Milwaukie, OR 97222

Local
503-654-9620



Report #: 12245-63110-2047 **Customer PO#:**
Customer Name: Driesenga & Associates
Customer Address: 12330 James Street, Suite H80
City: Holland **State:** MI **Zip:** 49424
Contact: Jim Henning
Service Address: 3760 Carpenter Road Ypsilanti, MI 48197

Calibration Standards

8-00411 Weight Unknown SN: 00411 Cal: 06/19/2018 Due: 06/30/2020 Vendor: Colorado Dept of Ag Report #: 18-230A
8-00412 Weight Troemner SN: 5845 Cal: 06/20/2018 Due: 06/30/2020 Vendor: Colorado Dept of Ag Report #: 18-230B
8-01197 Thermo-Hygrometer Comark SN: 06210350033 Cal: 10/03/2019 Due: 10/31/2020 Vendor: Cal-Cert Range: 99 %RH 122 °F

Instrument Data

Calibration Date:	January 15, 2020	Reference:	ASTM E-898
Calibration Due Date:	January 15, 2021	Cal-Cert Procedure:	CP-002
Calibration Frequency:	12 Months	Indicating System:	Digital
Manufacturer:	Ohaus	Temperature:	62.5 °F
Model Number:	C11P75	Humidity:	50% RH
Type:	Digital Balance	Asset #:	None
Serial #:	8338523313	Service Location:	Service Address
Scale Capacity:	75 Kg.	As Found:	PASS
		As Left:	PASS

Scale Linear Test							
Instrument Range: 75.00 Kg.				Resolution: 0.01 Kg.			
Calibration Standard Kg.	As Found UUT Kg.	As Found Error Kg.	As Left UUT Kg.	As Left Error Kg.	As Left % of Error	Tolerance (As Left) Allowable Error	
						Error	Condition
0.00	0.00	0.00	0.00	0.00	0.000	0.00	PASS
7.50	7.50	0.00	7.50	0.00	0.000	0.01	PASS
15.00	15.00	0.00	15.00	0.00	0.000	0.02	PASS
22.50	22.50	0.00	22.50	0.00	0.000	0.02	PASS
30.00	30.00	0.00	30.00	0.00	0.000	0.03	PASS
37.50	37.50	0.00	37.50	0.00	0.000	0.04	PASS
45.00	45.00	0.00	45.00	0.00	0.000	0.05	PASS
52.50	52.50	0.00	52.50	0.00	0.000	0.05	PASS
60.00	60.00	0.00	60.00	0.00	0.000	0.06	PASS
67.50	67.50	0.00	67.50	0.00	0.000	0.07	PASS
75.00	75.00	0.00	75.00	0.00	0.000	0.08	PASS
37.50	37.50	0.00	37.50	0.00	0.000	0.04	PASS
0.00	0.00	0.00	0.00	0.00	0.000	0.00	PASS

Expanded Uncertainty± 0.0351 Kg.

FUNCTIONAL CHECKS					
OFF CENTER LOAD:		HYSTERESIS: Load Increments		REPEATABILITY:	
Loading position	37.50	Test Weight Applied. % of load	Readings	Test Weight Applied	37.50
Right	37.49	0%	0.00	1st	37.50
Left	37.49	(R1) 50%	37.50	2nd	37.50
Front	37.50	100%	75.00	3rd	37.50
Back	37.50	(R2) 50%	37.50	4th	37.50
As Left	PASS	0%	0.00	5th	37.50
Tolerance Deviation of lowest and highest reading within 0.1%		As Left	PASS	As Left	PASS
		Tolerance The Difference of R1 and R2 must be within 0.1%		Tolerance Deviation of lowest and highest reading within 0.1%	

Remarks:

--

We sincerely thank you for your business. Please call us at 503-654-9620 for all your sales and calibration needs.
Cleaning and preventative maintenance were performed as part of this service.

Cal-Cert is accredited by A2LA under Calibration Laboratory Code #4986.01.
A2LA is recognized under the ILAC mutual recognition agreement (MRA).

This certificate is hereby issued that the above instrument was tested for accuracy with calibrated standards traceable to the National Institute of Standards and Technology (NIST). The information provided on this form complies with the data gathering and reporting requirements of ISO/IEC 17025 and ANSI/NCSL Z540.1, and meets the requirements of all applicable references and Cal-Cert procedures listed above.

Any stated measurement uncertainty includes the uncertainty of the Calibration standards used, combined with the uncertainty of the measurement process using the RSS method with a k=2 for an approximate 95% level of confidence. The calibration process meets or exceeds a ratio of 4:1 unless otherwise stated.

All tolerances were derived from the applicable standards and pass/fail determination is based on those tolerances. The customer determined any recommended due dates indicated on the certificate.

This report shall not be reproduced except in full, without written approval from Cal-Cert.

Service Engineer:

Garnett Thorpe

Date:

January 15, 2020

Technical Manager:

Marshall Doyle

Signature:

REPORT#: 12245-63110-2047

Report and Certificate of Calibration



www.Cal-Cert.com

Toll Free
800-356-1662

Address
6709 SE Lake Road
Milwaukie, OR 97222

Local
503-654-9620



Report #: 12245-63111-2047 **Customer PO#:**
Customer Name: Driesenga & Associates
Customer Address: 12330 James Street, Suite H80
City: Holland **State:** MI **Zip:** 49424
Contact: Jim Henning
Service Address: 3760 Carpenter Road Ypsilanti, MI 48197

Calibration Standards

8-00411 Weight Unknown SN: 00411 Cal: 06/19/2018 Due: 06/30/2020 Vendor: Colorado Dept of Ag Report #: 18-230A
8-00412 Weight Troemner SN: 5845 Cal: 06/20/2018 Due: 06/30/2020 Vendor: Colorado Dept of Ag Report #: 18-230B
8-01197 Thermo-Hygrometer Comark SN: 06210350033 Cal: 10/03/2019 Due: 10/31/2020 Vendor: Cal-Cert Range: 99 %RH 122 °F

Instrument Data

Calibration Date:	January 15, 2020	Reference:	ASTM E-898
Calibration Due Date:	January 15, 2021	Cal-Cert Procedure:	CP-002
Calibration Frequency:	12 Months	Indicating System:	Digital
Manufacturer:	Ohaus	Temperature:	62.5 °F
Model Number:	C11P75	Humidity:	50% RH
Type:	Digital Balance	Asset #:	None
Serial #:	8338523076	Service Location:	Service Address
Scale Capacity:	75 Kg.	As Found:	PASS
		As Left:	PASS

Scale Linear Test							
Instrument Range:			Resolution:				
75.00 Kg.			0.01 Kg.				
Calibration Standard Kg.	As Found UUT Kg.	As Found Error Kg.	As Left UUT Kg.	As Left Error Kg.	As Left % of Error	Tolerance (As Left) Allowable Error	
						Error	Condition
0.00	0.00	0.00	0.00	0.00	0.000	0.00	PASS
7.50	7.50	0.00	7.50	0.00	0.000	0.01	PASS
15.00	15.00	0.00	15.00	0.00	0.000	0.02	PASS
22.50	22.50	0.00	22.50	0.00	0.000	0.02	PASS
30.00	29.98	-0.02	30.00	0.00	0.000	0.03	PASS
37.50	37.48	-0.02	37.50	0.00	0.000	0.04	PASS
45.00	44.98	-0.02	45.00	0.00	0.000	0.05	PASS
52.50	52.48	-0.02	52.50	0.00	0.000	0.05	PASS
60.00	59.98	-0.02	60.00	0.00	0.000	0.06	PASS
67.50	67.48	-0.02	67.50	0.00	0.000	0.07	PASS
75.00	74.98	-0.02	75.00	0.00	0.000	0.08	PASS
37.50	37.48	-0.02	37.50	0.00	0.000	0.04	PASS
0.00	0.00	0.00	0.00	0.00	0.000	0.00	PASS

Expanded Uncertainty± 0.0351 Kg.

FUNCTIONAL CHECKS					
OFF CENTER LOAD:		HYSTERESIS: Load Increments		REPEATABILITY:	
Loading position	37.50	Test Weight Applied. % of load	Readings	Test Weight Applied	37.50
Right	37.50	0%	0.00	1st	37.50
Left	37.50	(R1) 50%	37.50	2nd	37.50
Front	37.50	100%	75.00	3rd	37.50
Back	37.50	(R2) 50%	37.50	4th	37.50
As Left	PASS	0%	0.00	5th	37.50
Tolerance Deviation of lowest and highest reading within 0.1%		As Left	PASS	As Left	PASS
		Tolerance The Difference of R1 and R2 must be within 0.1%		Tolerance Deviation of lowest and highest reading within 0.1%	

Remarks:

--

We sincerely thank you for your business. Please call us at 503-654-9620 for all your sales and calibration needs.
Cleaning and preventative maintenance were performed as part of this service.

Cal-Cert is accredited by A2LA under Calibration Laboratory Code #4986.01.
A2LA is recognized under the ILAC mutual recognition agreement (MRA).

This certificate is hereby issued that the above instrument was tested for accuracy with calibrated standards traceable to the National Institute of Standards and Technology (NIST). The information provided on this form complies with the data gathering and reporting requirements of ISO/IEC 17025 and ANSI/NCSL Z540.1, and meets the requirements of all applicable references and Cal-Cert procedures listed above.

Any stated measurement uncertainty includes the uncertainty of the Calibration standards used, combined with the uncertainty of the measurement process using the RSS method with a k=2 for an approximate 95% level of confidence. The calibration process meets or exceeds a ratio of 4:1 unless otherwise stated.

All tolerances were derived from the applicable standards and pass/fail determination is based on those tolerances. The customer determined any recommended due dates indicated on the certificate.

This report shall not be reproduced except in full, without written approval from Cal-Cert.

Service Engineer:

Garnett Thorpe

Date:

January 15, 2020

Technical Manager:

Marshall Doyle

Signature:

REPORT#: 12245-63111-2047

Report and Certificate of Calibration



www.Cal-Cert.com

Toll Free
800-356-1662

Address
6709 SE Lake Road
Milwaukie, OR 97222

Local
503-654-9620



Report #: 12245-99481-2047 **Customer PO#:**
Customer Name: Driesenga & Associates
Customer Address: 12330 James Street, Suite H80
City: Holland **State:** MI **Zip:** 49424
Contact: Jim Henning
Service Address: 3760 Carpenter Road Ypsilanti, MI 48197

Calibration Standards

8-00411 Weight Unknown SN: 00411 Cal: 06/19/2018 Due: 06/30/2020 Vendor: Colorado Dept of Ag Report #: 18-230A
8-00412 Weight Troemner SN: 5845 Cal: 06/20/2018 Due: 06/30/2020 Vendor: Colorado Dept of Ag Report #: 18-230B
8-01197 Thermo-Hygrometer Comark SN: 06210350033 Cal: 10/03/2019 Due: 10/31/2020 Vendor: Cal-Cert Range: 99 %RH 122 °F

Instrument Data

Calibration Date:	January 15, 2020	Reference:	ASTM E-898
Calibration Due Date:	January 15, 2021	Cal-Cert Procedure:	CP-002
Calibration Frequency:	12 Months	Indicating System:	Digital
Manufacturer:	Ohaus	Temperature:	62.6 °F
Model Number:	C11P75	Humidity:	50% RH
Type:	Digital Balance	Asset #:	None
Serial #:	8340123102	Service Location:	Service Address
Scale Capacity:	75 Kg.	As Found:	PASS
		As Left:	PASS

Scale Linear Test							
Instrument Range:				Resolution:			
75.00 Kg.				0.01 Kg.			
Calibration Standard Kg.	As Found UUT Kg.	As Found Error Kg.	As Left UUT Kg.	As Left Error Kg.	As Left % of Error	Tolerance (As Left) Allowable Error	
						Error	Condition
0.00	0.00	0.00	0.00	0.00	0.000	0.00	PASS
7.50	7.50	0.00	7.50	0.00	0.000	0.01	PASS
15.00	15.00	0.00	15.00	0.00	0.000	0.02	PASS
22.50	22.50	0.00	22.50	0.00	0.000	0.02	PASS
30.00	30.00	0.00	30.00	0.00	0.000	0.03	PASS
37.50	37.50	0.00	37.50	0.00	0.000	0.04	PASS
45.00	45.00	0.00	45.00	0.00	0.000	0.05	PASS
52.50	52.50	0.00	52.50	0.00	0.000	0.05	PASS
60.00	60.00	0.00	60.00	0.00	0.000	0.06	PASS
67.50	67.50	0.00	67.50	0.00	0.000	0.07	PASS
75.00	75.00	0.00	75.00	0.00	0.000	0.08	PASS
37.50	37.50	0.00	37.50	0.00	0.000	0.04	PASS
0.00	0.00	0.00	0.00	0.00	0.000	0.00	PASS

Expanded Uncertainty± 0.0351 Kg.

FUNCTIONAL CHECKS					
OFF CENTER LOAD:		HYSTERESIS: Load Increments		REPEATABILITY:	
Loading position	37.50	Test Weight Applied. % of load	Readings	Test Weight Applied	37.50
Right	37.50	0%	0.00	1st	37.50
Left	37.50	(R1) 50%	37.50	2nd	37.50
Front	37.50	100%	75.00	3rd	37.50
Back	37.50	(R2) 50%	37.50	4th	37.50
As Left	PASS	0%	0.00	5th	37.50
Tolerance Deviation of lowest and highest reading within 0.1%		As Left	PASS	As Left	PASS
		Tolerance The Difference of R1 and R2 must be within 0.1%		Tolerance Deviation of lowest and highest reading within 0.1%	

Remarks:

--

We sincerely thank you for your business. Please call us at 503-654-9620 for all your sales and calibration needs.
Cleaning and preventative maintenance were performed as part of this service.

Cal-Cert is accredited by A2LA under Calibration Laboratory Code #4986.01.
A2LA is recognized under the ILAC mutual recognition agreement (MRA).

This certificate is hereby issued that the above instrument was tested for accuracy with calibrated standards traceable to the National Institute of Standards and Technology (NIST). The information provided on this form complies with the data gathering and reporting requirements of ISO/IEC 17025 and ANSI/NCSL Z540.1, and meets the requirements of all applicable references and Cal-Cert procedures listed above.

Any stated measurement uncertainty includes the uncertainty of the Calibration standards used, combined with the uncertainty of the measurement process using the RSS method with a k=2 for an approximate 95% level of confidence. The calibration process meets or exceeds a ratio of 4:1 unless otherwise stated.

All tolerances were derived from the applicable standards and pass/fail determination is based on those tolerances. The customer determined any recommended due dates indicated on the certificate.

This report shall not be reproduced except in full, without written approval from Cal-Cert.

Service Engineer:

Garnett Thorpe

Date:

January 15, 2020

Technical Manager:

Marshall Doyle

Signature:

REPORT#: 12245-99481-2047

Report and Certificate of Calibration



www.Cal-Cert.com

Toll Free
800-356-1662

Address
6709 SE Lake Road
Milwaukie, OR 97222

Local
503-654-9620



Report #: 12245-99482-2047 **Customer PO#:**
Customer Name: Driesenga & Associates
Customer Address: 12330 James Street, Suite H80
City: Holland **State:** MI **Zip:** 49424
Contact: Jim Henning
Service Address: 3760 Carpenter Road Ypsilanti, MI 48197

Calibration Standards

8-00411 Weight Unknown SN: 00411 Cal: 06/19/2018 Due: 06/30/2020 Vendor: Colorado Dept of Ag Report #: 18-230A
8-00412 Weight Troemner SN: 5845 Cal: 06/20/2018 Due: 06/30/2020 Vendor: Colorado Dept of Ag Report #: 18-230B
8-01197 Thermo-Hygrometer Comark SN: 06210350033 Cal: 10/03/2019 Due: 10/31/2020 Vendor: Cal-Cert Range: 99 %RH 122 °F

Instrument Data

Calibration Date:	January 15, 2020	Reference:	ASTM E-898
Calibration Due Date:	January 15, 2021	Cal-Cert Procedure:	CP-002
Calibration Frequency:	12 Months	Indicating System:	Digital
Manufacturer:	Ohaus	Temperature:	62.6 °F
Model Number:	C11P75	Humidity:	51% RH
Type:	Digital Balance	Asset #:	None
Serial #:	8340123098	Service Location:	Service Address
Scale Capacity:	75 Kg.	As Found:	PASS
		As Left:	PASS

Scale Linear Test							
Instrument Range:				Resolution:			
75.00 Kg.				0.01 Kg.			
Calibration Standard Kg.	As Found UUT Kg.	As Found Error Kg.	As Left UUT Kg.	As Left Error Kg.	As Left % of Error	Tolerance (As Left) Allowable Error	
						Error	Condition
0.00	0.00	0.00	0.00	0.00	0.000	0.00	PASS
7.50	7.50	0.00	7.50	0.00	0.000	0.01	PASS
15.00	15.00	0.00	15.00	0.00	0.000	0.02	PASS
22.50	22.50	0.00	22.50	0.00	0.000	0.02	PASS
30.00	30.00	0.00	30.00	0.00	0.000	0.03	PASS
37.50	37.50	0.00	37.50	0.00	0.000	0.04	PASS
45.00	45.00	0.00	45.00	0.00	0.000	0.05	PASS
52.50	52.50	0.00	52.50	0.00	0.000	0.05	PASS
60.00	60.00	0.00	60.00	0.00	0.000	0.06	PASS
67.50	67.50	0.00	67.50	0.00	0.000	0.07	PASS
75.00	75.00	0.00	75.00	0.00	0.000	0.08	PASS
37.50	37.50	0.00	37.50	0.00	0.000	0.04	PASS
0.00	0.00	0.00	0.00	0.00	0.000	0.00	PASS

Expanded Uncertainty± 0.0351 Kg.

FUNCTIONAL CHECKS					
OFF CENTER LOAD:		HYSTERESIS: Load Increments		REPEATABILITY:	
Loading position	37.50	Test Weight Applied. % of load	Readings	Test Weight Applied	37.50
Right	37.50	0%	0.00	1st	37.50
Left	37.50	(R1) 50%	37.50	2nd	37.50
Front	37.50	100%	75.00	3rd	37.50
Back	37.50	(R2) 50%	37.50	4th	37.50
As Left	PASS	0%	0.00	5th	37.50
Tolerance Deviation of lowest and highest reading within 0.1%		As Left	PASS	As Left	PASS
		Tolerance The Difference of R1 and R2 must be within 0.1%		Tolerance Deviation of lowest and highest reading within 0.1%	

Remarks:

--

We sincerely thank you for your business. Please call us at 503-654-9620 for all your sales and calibration needs.
Cleaning and preventative maintenance were performed as part of this service.

Cal-Cert is accredited by A2LA under Calibration Laboratory Code #4986.01.
A2LA is recognized under the ILAC mutual recognition agreement (MRA).

This certificate is hereby issued that the above instrument was tested for accuracy with calibrated standards traceable to the National Institute of Standards and Technology (NIST). The information provided on this form complies with the data gathering and reporting requirements of ISO/IEC 17025 and ANSI/NCSL Z540.1, and meets the requirements of all applicable references and Cal-Cert procedures listed above.

Any stated measurement uncertainty includes the uncertainty of the Calibration standards used, combined with the uncertainty of the measurement process using the RSS method with a k=2 for an approximate 95% level of confidence. The calibration process meets or exceeds a ratio of 4:1 unless otherwise stated.

All tolerances were derived from the applicable standards and pass/fail determination is based on those tolerances. The customer determined any recommended due dates indicated on the certificate.

This report shall not be reproduced except in full, without written approval from Cal-Cert.

Service Engineer:

Garnett Thorpe

Date:

January 15, 2020

Technical Manager:

Marshall Doyle

Signature:

REPORT#: 12245-99482-2047

Report and Certificate of Calibration



www.Cal-Cert.com

Toll Free
800-356-1662

Address
6709 SE Lake Road
Milwaukie, OR 97222

Local
503-654-9620



Report #: 12245-99483-2047 **Customer PO#:**
Customer Name: Driesenga & Associates
Customer Address: 12330 James Street, Suite H80
City: Holland **State:** MI **Zip:** 49424
Contact: Jim Henning
Service Address: 3760 Carpenter Road Ypsilanti, MI 48197

Calibration Standards

8-00411 Weight Unknown SN: 00411 Cal: 06/19/2018 Due: 06/30/2020 Vendor: Colorado Dept of Ag Report #: 18-230A
8-00412 Weight Troemner SN: 5845 Cal: 06/20/2018 Due: 06/30/2020 Vendor: Colorado Dept of Ag Report #: 18-230B
8-01197 Thermo-Hygrometer Comark SN: 06210350033 Cal: 10/03/2019 Due: 10/31/2020 Vendor: Cal-Cert Range: 99 %RH 122 °F

Instrument Data

Calibration Date:	January 15, 2020	Reference:	ASTM E-898
Calibration Due Date:	January 15, 2021	Cal-Cert Procedure:	CP-002
Calibration Frequency:	12 Months	Indicating System:	Digital
Manufacturer:	Ohaus	Temperature:	62.6 °F
Model Number:	C11P75	Humidity:	51% RH
Type:	Digital Balance	Asset #:	None
Serial #:	8340123101	Service Location:	Service Address
Scale Capacity:	75 Kg.	As Found:	PASS
		As Left:	PASS

Scale Linear Test							
Instrument Range:			Resolution:				
75.00 Kg.			0.01 Kg.				
Calibration Standard Kg.	As Found UUT Kg.	As Found Error Kg.	As Left UUT Kg.	As Left Error Kg.	As Left % of Error	Tolerance (As Left) Allowable Error	
						Error	Condition
0.00	0.00	0.00	0.00	0.00	0.000	0.00	PASS
7.50	7.50	0.00	7.50	0.00	0.000	0.01	PASS
15.00	15.00	0.00	15.00	0.00	0.000	0.02	PASS
22.50	22.50	0.00	22.50	0.00	0.000	0.02	PASS
30.00	29.98	-0.02	30.00	0.00	0.000	0.03	PASS
37.50	37.48	-0.02	37.50	0.00	0.000	0.04	PASS
45.00	44.97	-0.03	45.00	0.00	0.000	0.05	PASS
52.50	52.47	-0.03	52.50	0.00	0.000	0.05	PASS
60.00	59.97	-0.03	60.00	0.00	0.000	0.06	PASS
67.50	67.47	-0.03	67.50	0.00	0.000	0.07	PASS
75.00	74.96	-0.04	75.00	0.00	0.000	0.08	PASS
37.50	37.48	-0.02	37.50	0.00	0.000	0.04	PASS
0.00	0.00	0.00	0.00	0.00	0.000	0.00	PASS

Expanded Uncertainty± 0.0351 Kg.

FUNCTIONAL CHECKS					
OFF CENTER LOAD:		HYSTERESIS: Load Increments		REPEATABILITY:	
Loading position	37.50	Test Weight Applied. % of load	Readings	Test Weight Applied	37.50
Right	37.49	0%	0.00	1st	37.50
Left	37.49	(R1) 50%	37.50	2nd	37.50
Front	37.49	100%	75.00	3rd	37.50
Back	37.50	(R2) 50%	37.50	4th	37.50
As Left	PASS	0%	0.00	5th	37.50
Tolerance Deviation of lowest and highest reading within 0.1%		As Left	PASS	As Left	PASS
		Tolerance The Difference of R1 and R2 must be within 0.1%		Tolerance Deviation of lowest and highest reading within 0.1%	

Remarks:

--

We sincerely thank you for your business. Please call us at 503-654-9620 for all your sales and calibration needs.
Cleaning and preventative maintenance were performed as part of this service.

Cal-Cert is accredited by A2LA under Calibration Laboratory Code #4986.01.
A2LA is recognized under the ILAC mutual recognition agreement (MRA).

This certificate is hereby issued that the above instrument was tested for accuracy with calibrated standards traceable to the National Institute of Standards and Technology (NIST). The information provided on this form complies with the data gathering and reporting requirements of ISO/IEC 17025 and ANSI/NCSL Z540.1, and meets the requirements of all applicable references and Cal-Cert procedures listed above.

Any stated measurement uncertainty includes the uncertainty of the Calibration standards used, combined with the uncertainty of the measurement process using the RSS method with a k=2 for an approximate 95% level of confidence. The calibration process meets or exceeds a ratio of 4:1 unless otherwise stated.

All tolerances were derived from the applicable standards and pass/fail determination is based on those tolerances. The customer determined any recommended due dates indicated on the certificate.

This report shall not be reproduced except in full, without written approval from Cal-Cert.

Service Engineer:

Garnett Thorpe

Date:

January 15, 2020

Technical Manager:

Marshall Doyle

Signature:

REPORT#: 12245-99483-2047

Report and Certificate of Calibration



www.Cal-Cert.com

Toll Free
800-356-1662

Address
6709 SE Lake Road
Milwaukie, OR 97222

Local
503-654-9620



Report #: 12245-99484-2047 **Customer PO#:**
Customer Name: Driesenga & Associates
Customer Address: 12330 James Street, Suite H80
City: Holland **State:** MI **Zip:** 49424
Contact: Jim Henning
Service Address: 3760 Carpenter Road Ypsilanti, MI 48197

Calibration Standards

8-00411 Weight Unknown SN: 00411 Cal: 06/19/2018 Due: 06/30/2020 Vendor: Colorado Dept of Ag Report #: 18-230A
8-00412 Weight Troemner SN: 5845 Cal: 06/20/2018 Due: 06/30/2020 Vendor: Colorado Dept of Ag Report #: 18-230B
8-01197 Thermo-Hygrometer Comark SN: 06210350033 Cal: 10/03/2019 Due: 10/31/2020 Vendor: Cal-Cert Range: 99 %RH 122 °F

Instrument Data

Calibration Date:	January 15, 2020	Reference:	ASTM E-898
Calibration Due Date:	January 15, 2021	Cal-Cert Procedure:	CP-002
Calibration Frequency:	12 Months	Indicating System:	Digital
Manufacturer:	Ohaus	Temperature:	62.6 °F
Model Number:	C11P75	Humidity:	51% RH
Type:	Digital Balance	Asset #:	None
Serial #:	8340123099	Service Location:	Service Address
Scale Capacity:	75 Kg.	As Found:	PASS
		As Left:	PASS

Scale Linear Test							
Instrument Range:				Resolution:			
75.00 Kg.				0.01 Kg.			
Calibration Standard Kg.	As Found UUT Kg.	As Found Error Kg.	As Left UUT Kg.	As Left Error Kg.	As Left % of Error	Tolerance (As Left) Allowable Error	
						Error	Condition
0.00	0.00	0.00	0.00	0.00	0.000	0.00	PASS
7.50	7.50	0.00	7.50	0.00	0.000	0.01	PASS
15.00	15.00	0.00	15.00	0.00	0.000	0.02	PASS
22.50	22.50	0.00	22.50	0.00	0.000	0.02	PASS
30.00	30.00	0.00	30.00	0.00	0.000	0.03	PASS
37.50	37.50	0.00	37.50	0.00	0.000	0.04	PASS
45.00	45.00	0.00	45.00	0.00	0.000	0.05	PASS
52.50	52.50	0.00	52.50	0.00	0.000	0.05	PASS
60.00	60.00	0.00	60.00	0.00	0.000	0.06	PASS
67.50	67.50	0.00	67.50	0.00	0.000	0.07	PASS
75.00	75.00	0.00	75.00	0.00	0.000	0.08	PASS
37.50	37.50	0.00	37.50	0.00	0.000	0.04	PASS
0.00	0.00	0.00	0.00	0.00	0.000	0.00	PASS

Expanded Uncertainty± 0.0414 Kg.

FUNCTIONAL CHECKS					
OFF CENTER LOAD:		HYSTERESIS: Load Increments		REPEATABILITY:	
Loading position	37.50	Test Weight Applied. % of load	Readings	Test Weight Applied	37.50
Right	37.50	0%	0.00	1st	37.49
Left	37.50	(R1) 50%	37.50	2nd	37.50
Front	37.50	100%	75.00	3rd	37.49
Back	37.50	(R2) 50%	37.50	4th	37.50
As Left	PASS	0%	0.00	5th	37.50
Tolerance		As Left	PASS	As Left	PASS
Deviation of lowest and highest reading within 0.1%		Tolerance The Difference of R1 and R2 must be within 0.1%		Tolerance Deviation of lowest and highest reading within 0.1%	

Remarks:

--

We sincerely thank you for your business. Please call us at 503-654-9620 for all your sales and calibration needs.
Cleaning and preventative maintenance were performed as part of this service.

Cal-Cert is accredited by A2LA under Calibration Laboratory Code #4986.01.
A2LA is recognized under the ILAC mutual recognition agreement (MRA).

This certificate is hereby issued that the above instrument was tested for accuracy with calibrated standards traceable to the National Institute of Standards and Technology (NIST). The information provided on this form complies with the data gathering and reporting requirements of ISO/IEC 17025 and ANSI/NCSL Z540.1, and meets the requirements of all applicable references and Cal-Cert procedures listed above.

Any stated measurement uncertainty includes the uncertainty of the Calibration standards used, combined with the uncertainty of the measurement process using the RSS method with a k=2 for an approximate 95% level of confidence. The calibration process meets or exceeds a ratio of 4:1 unless otherwise stated.

All tolerances were derived from the applicable standards and pass/fail determination is based on those tolerances. The customer determined any recommended due dates indicated on the certificate.

This report shall not be reproduced except in full, without written approval from Cal-Cert.

Service Engineer:

Garnett Thorpe

Date:

January 15, 2020

Technical Manager:

Marshall Doyle

Signature:

REPORT#: 12245-99484-2047

Report and Certificate of Calibration



www.Cal-Cert.com

Toll Free
800-356-1662

Address
6709 SE Lake Road
Milwaukie, OR 97222

Local
503-654-9620



Report #: 12245-99485-2047 **Customer PO#:**
Customer Name: Driesenga & Associates
Customer Address: 12330 James Street, Suite H80
City: Holland **State:** MI **Zip:** 49424
Contact: Jim Henning
Service Address: 3760 Carpenter Road Ypsilanti, MI 48197

Calibration Standards

8-00411 Weight Unknown SN: 00411 Cal: 06/19/2018 Due: 06/30/2020 Vendor: Colorado Dept of Ag Report #: 18-230A
8-00412 Weight Troemner SN: 5845 Cal: 06/20/2018 Due: 06/30/2020 Vendor: Colorado Dept of Ag Report #: 18-230B
8-01197 Thermo-Hygrometer Comark SN: 06210350033 Cal: 10/03/2019 Due: 10/31/2020 Vendor: Cal-Cert Range: 99 %RH 122 °F

Instrument Data

Calibration Date:	January 15, 2020	Reference:	ASTM E-898
Calibration Due Date:	January 15, 2021	Cal-Cert Procedure:	CP-002
Calibration Frequency:	12 Months	Indicating System:	Digital
Manufacturer:	Ohaus	Temperature:	62.6 °F
Model Number:	C11P75	Humidity:	51% RH
Type:	Digital Balance	Asset #:	None
Serial #:	8340123100	Service Location:	Service Address
Scale Capacity:	75 Kg.	As Found:	PASS
		As Left:	PASS

Scale Linear Test							
Instrument Range:				Resolution:			
75.00 Kg.				0.01 Kg.			
Calibration Standard Kg.	As Found UUT Kg.	As Found Error Kg.	As Left UUT Kg.	As Left Error Kg.	As Left % of Error	Tolerance (As Left) Allowable Error	
						Error	Condition
0.00	0.00	0.00	0.00	0.00	0.000	0.00	PASS
7.50	7.50	0.00	7.50	0.00	0.000	0.01	PASS
15.00	15.00	0.00	15.00	0.00	0.000	0.02	PASS
22.50	22.50	0.00	22.50	0.00	0.000	0.02	PASS
30.00	30.00	0.00	30.00	0.00	0.000	0.03	PASS
37.50	37.50	0.00	37.50	0.00	0.000	0.04	PASS
45.00	45.00	0.00	45.00	0.00	0.000	0.05	PASS
52.50	52.50	0.00	52.50	0.00	0.000	0.05	PASS
60.00	60.00	0.00	60.00	0.00	0.000	0.06	PASS
67.50	67.50	0.00	67.50	0.00	0.000	0.07	PASS
75.00	75.00	0.00	75.00	0.00	0.000	0.08	PASS
37.50	37.50	0.00	37.50	0.00	0.000	0.04	PASS
0.00	0.00	0.00	0.00	0.00	0.000	0.00	PASS

Expanded Uncertainty± 0.0351 Kg.

FUNCTIONAL CHECKS					
OFF CENTER LOAD:		HYSTERESIS: Load Increments		REPEATABILITY:	
Loading position	37.50	Test Weight Applied. % of load	Readings	Test Weight Applied	37.50
Right	37.48	0%	0.00	1st	37.50
Left	37.49	(R1) 50%	37.50	2nd	37.50
Front	37.48	100%	75.00	3rd	37.50
Back	37.50	(R2) 50%	37.50	4th	37.50
As Left	PASS	0%	0.00	5th	37.50
Tolerance		As Left	PASS	As Left	PASS
Deviation of lowest and highest reading within 0.1%		Tolerance The Difference of R1 and R2 must be within 0.1%		Tolerance Deviation of lowest and highest reading within 0.1%	

Remarks:

We sincerely thank you for your business. Please call us at 503-654-9620 for all your sales and calibration needs.
Cleaning and preventative maintenance were performed as part of this service.

Cal-Cert is accredited by A2LA under Calibration Laboratory Code #4986.01.
A2LA is recognized under the ILAC mutual recognition agreement (MRA).

This certificate is hereby issued that the above instrument was tested for accuracy with calibrated standards traceable to the National Institute of Standards and Technology (NIST). The information provided on this form complies with the data gathering and reporting requirements of ISO/IEC 17025 and ANSI/NCSL Z540.1, and meets the requirements of all applicable references and Cal-Cert procedures listed above.

Any stated measurement uncertainty includes the uncertainty of the Calibration standards used, combined with the uncertainty of the measurement process using the RSS method with a k=2 for an approximate 95% level of confidence. The calibration process meets or exceeds a ratio of 4:1 unless otherwise stated.

All tolerances were derived from the applicable standards and pass/fail determination is based on those tolerances. The customer determined any recommended due dates indicated on the certificate.

This report shall not be reproduced except in full, without written approval from Cal-Cert.

Service Engineer:

Garnett Thorpe

Date:

January 15, 2020

Technical Manager:

Marshall Doyle

Signature:

REPORT#: 12245-99485-2047

ATTACHMENT D
• MCCOIG MATERIALS SUBMITTALS •
WESTSIDE CONCRETE



McCoig Materials

PO Box 6349,
Plymouth, MI 48170

July 6th, 2020

Westside Concrete
P.O. Box 183368
Shelby Twp., MI 48318
Attn: Mr. Kamil Jumaa

Re: PW-7018 City of Detroit Major Roads

We submit herewith the following concrete mixture(s) for the above referenced project:

Mix Code	Description
P1-SW	3500 PSI AE MDOT Grade P1 - 3" Slump - 7 MILE PLANT
P1-SM	3500 PSI AE MDOT Grade P1 + MR - 6" Slump - 7 MILE PLANT
P1-SW-B2	3500 PSI AE MDOT Grade P1 - 3" Slump - SPRINGWELLS PLANT
P1-SM-B2	3500 PSI AE MDOT Grade P1 + MR - 6" Slump - SPRINGWELLS PLANT

The above has been designed in accordance with MDOT 2012 Standard Specifications for Construction and/or the project specifications and in reference to ACI 318-08, Chapter 5 - (Concrete Quality), and ACI standard deviation/overdesign requirements. These materials will meet the noted criterion when handled, placed, cured and tested in accordance with current ASTM and ACI standards and recommended practices. Please refer to the attached concrete mix document(s) for further detail.

In accordance with ACI 301-05, ASTM C94-05, we hereby request to receive concrete test results that pertain to this project from the testing laboratory of record for the purposes of quality assurance, the information can be forwarded to QC@mccoig.biz.

Forward this submittal in it's entirety to the proper individuals for approval and field reference. A written response on the status of this submittal is required and appreciated. If no response is received and a concrete order is placed for the above referenced project than that order shall be considered the approval of this submittal.

Please do not hesitate to contact the CSR if you have any questions or concerns regarding the submitted mixtures, or if we may be of additional service.

Respectfully submitted,

Jesse Schram
QC Technician
McCoig Materials, LLC

cc:

This form applies only to the project listed below and is not transferable to other projects
DISTRIBUTION: ORIGINAL – Project Engineer **COPIES** – Contractor, Lansing CFS, Region, Inspector

CONTROL SECTION	JOB NUMBER	PROJECT LOCATION PW-7018 City of Detroit Major Roads	PROJECT ENGINEER City of Detroit	
CONCRETE SUPPLIER McCoig Materials		PLANT LOCATION Detroit, MI		PLANT NUMBER M-11
GRADE OF CONCRETE P1	PSI REQUIREMENT 3500	MIX DESIGN NUMBER P1-SW	INTENDED USE (S) Pavement & Curb	CONTRACTOR QC PLAN Y ☐ SUBMITTED? (MDOT use only) N ☐
PRIME / SUBCONTRACTOR(S) Westside Concrete / All Subcontractors				
STANDARD SPEC DATE 01/01/12		QC/QA SPECIAL PROVISION DATE 06/14/18	JMF EFFECTIVE DATE 07/06/20	AGG. CORRECTION 0.2%

MATERIAL DESIGN SOURCES AND PROPERTIES

COARSE AGGREGATE		INTERMEDIATE AGGREGATE		FINE AGGREGATE	
Aggregate Type	Limestone	Aggregate Type		Source Name	Spring Mill
Source Name	Carmeuse -Port In	Source Name		MDOT Source No.	47-003
MDOT Source No.	75-005	MDOT Source No.		MDOT Series Class	2NS
MDOT Series Class	6AA	MDOT Series Class		Specific Gravity (Bulk Dry)*	2.61
Specific Gravity (Bulk Dry)*	2.67	Specific Gravity (Bulk Dry)*		Specific Gravity (Bulk SSD) optional	2.64
Specific Gravity (Bulk SSD) optional	2.68	Specific Gravity (Bulk SSD) optional		Absorption	1.1%
Absorption	0.53%	Absorption		Fineness Modulus (FM)	2.82
Unit Weight (Dry Rodded) DR or	97.0	Unit Weight (Dry Rodded) DR or			
Unit Weight (Dry Loose) DL	91.0	Unit Weight (Dry Loose) DL			
Percent Crushed	100%	Percent Crushed			
MDOT Freeze-Thaw (F-T) Dilation	0.008	MDOT Freeze-Thaw (F-T) Dilation			
Specific Gravity (Bulk Dry) of F-T	2.67	Specific Gravity (Bulk Dry) of F-T			
Sample*		Sample*			
Date of MDOT Freeze-Thaw Report	08/22/18	Date of MDOT Freeze-Thaw Report			

* If the bulk dry specific gravity is more than 0.04 less than the bulk dry specific gravity of the most recently tested freeze-thaw sample, the aggregate will be considered to have changed characteristics and be required to have a new freeze-thaw test conducted prior to the use on Department projects.

CEMENTITIOUS		ADMIXTURES	
Cement Source / Plant	Lafarge - Alpena, MI	Air Entrainment	BASF-Master Air AE 200-0AE-BA
Cement Type	I/II Low Alkali	Water Reducer	Premiere - OptiFlo 50 - 0WRA-PR
Cement Specific Gravity	3.15	Water Reducer	-
Fly Ash Source (distributor & plant)	-	Water Reducer	-
Fly Ash Class	-	Accelerator	-
Fly Ash Specific Gravity	-	Other	-
Slag Cement Source	Lafarge - South Chicago, IL	(Indicate Source & Product name with ticket code)	
Slag Cement Grade	100		
Slag Cement Specific Gravity	2.90	TYPE OF MIX WINTER/SUMMER	All Year
Other	-		

MIX PROPORTIONS

Volume of Coarse Aggregate (DR)	68%	Design Slump	3"
Coarse Aggregate Weight (Dry)	1769 (SSD 1780)	Specified Slump	0 - 3"
Intermediate Aggregate Weight (Dry)	-	Design Air %	6.5%
Fine Aggregate Weight (Dry)	1335 (SSD 1350)	Specified Air %	5.5% - 8.5%
Portland Cement Weight	342	PSI minimum required	3500
Fly Ash Weight	-	Total Cementitious	526
Fly Ash Percent of Cementitious	-	Yield cu/ft	27.0 +/- 0.3
Slag Cement Weight	184		
Slag Cement Percent of Cementitious	35%		
Total Water Weight	263		
Net Water Weight	237		
WC (as designed)	.45		
Air Entrainment (dosage)	1.0 oz/cwt		
Water Reducer (dosage)	3 - 5 oz/cwt		
Other (dosage)	-		

I certify that all applicable standard test methods have been followed verifying the mix design and JMF:

Jesse Schram
Digitally signed by Jesse Schram
DN: cn=Jesse Schram, o=McCoig Materials LLC,
ou=QC Technician, email=jschram@mccoig.biz, c=US
Date: 2018.04.18 11:21:31 -04'00'

MCA Level II Expiration Date: 04/15/22

Date: 07/06/20

STRENGTH PERFORMANCE REPORT

McCoig Laboratory
12100 Wayne road
Romulus, Michigan 48174
Tel: 734-893-1215

Mix : P1-SW - MDOT P1 S35 WRA
Period : 09 May 2019 **To** 21 Nov 2019

Number of Tests	6	Specified Strength	3500	28 Day	Compressive Test
Average Strength	6080	Corrected CofV	0	ACI Running Average of 3 Criteria	Yes
Required Strength	4700	Standard Deviation	0	ACI Standard Deviation Criteria	Yes

	Air Content %	Slump in	Concrete Temp deg F	Density Test lb/ft3	Strength28 Day psi
Count	6	6	6	6	6
Average	6.17	3.00	68	144.6	6080
STDEV	0.51	0.55	8	1.3	630
COV%	8.2	18.3	11.8	0.9	10.3
Range Min	5.50	2.50	57	143.2	5380
Range Max	6.90	4.00	78	146.4	6790

Date	Sample	Air Content %	Slump in	Concrete Temp deg F	Air Temp deg F	Density Test lb/ft3	Strength28 Day psi
11/21/2019	15119123	5.50	3.00	67	36	143.5	6750
11/4/2019	2194923	6.30	3.00	57	45	146.4	6790
9/17/2019	2191706	6.90	3.00	78	65	143.9	5650
9/4/2019	19000796	6.00	2.50	72	70	144.7	5560
6/24/2019	15115029	6.50	4.00	72	71	143.2	5380
5/9/2019	1202839	5.80	2.50	60	59	145.6	6350

**MDOT Verification Method 2:
28 day breaks are an average of
2 or more cylinders**

JOB MIX FORMULA (JMF)
CONCRETE FIELD COMMUNICATION

This form applies only to the project listed below and is not transferable to other projects
DISTRIBUTION: ORIGINAL – Project Engineer **COPIES** – Contractor, Lansing CFS, Region, Inspector

CONTROL SECTION	JOB NUMBER	PROJECT LOCATION PW-7018 City of Detroit Major Roads	PROJECT ENGINEER City of Detroit
CONCRETE SUPPLIER McCoig Materials	PLANT LOCATION Detroit, MI		PLANT NUMBER M-11
GRADE OF CONCRETE P1	PSI REQUIREMENT 3500	MIX DESIGN NUMBER P1-SM	INTENDED USE (S) Pavement / Sidewalks
PRIME / SUBCONTRACTOR(S) Westside Concrete / All Subcontractors		CONTRACTOR QC PLAN Y ☐ SUBMITTED? (MDOT use only) N ☐	
STANDARD SPEC DATE 01/01/12	QC/QA SPECIAL PROVISION DATE 06/14/18	JMF EFFECTIVE DATE 07/06/20	AGG. CORRECTION 0.2%

MATERIAL DESIGN SOURCES AND PROPERTIES

COARSE AGGREGATE		INTERMEDIATE AGGREGATE		FINE AGGREGATE	
Aggregate Type	Limestone	Aggregate Type	-	Source Name	Spring Mill
Source Name	Carmeuse -Port In	Source Name	-	MDOT Source No.	47-003
MDOT Source No.	75-005	MDOT Source No.	-	MDOT Series Class	2NS
MDOT Series Class	6AA	MDOT Series Class	-	Specific Gravity (Bulk Dry)*	2.61
Specific Gravity (Bulk Dry)*	2.67	Specific Gravity (Bulk Dry)*	-	Specific Gravity (Bulk SSD) optional	2.64
Specific Gravity (Bulk SSD) optional	2.68	Specific Gravity (Bulk SSD) optional	-	Absorption	1.1%
Absorption	0.53%	Absorption	-	Fineness Modulus (FM)	2.82
Unit Weight (Dry Rodded) DR or	97	Unit Weight (Dry Rodded) DR or	-		
Unit Weight (Dry Loose) DL	91.0	Unit Weight (Dry Loose) DL	-		
Percent Crushed	100%	Percent Crushed	-		
MDOT Freeze-Thaw (F-T) Dilation	0.008	MDOT Freeze-Thaw (F-T) Dilation	-		
Specific Gravity (Bulk Dry) of F-T	2.67	Specific Gravity (Bulk Dry) of F-T	-		
Sample*		Sample*			
Date of MDOT Freeze-Thaw Report	08/22/18	Date of MDOT Freeze-Thaw Report			

* If the bulk dry specific gravity is more than 0.04 less than the bulk dry specific gravity of the most recently tested freeze-thaw sample, the aggregate will be considered to have changed characteristics and be required to have a new freeze-thaw test conducted prior to the use on Department projects.

CEMENTITIOUS		ADMIXTURES	
Cement Source / Plant	Lafarge - Alpena, MI	Air Entrainment	BASF-Master Air AE 200-0AE-BA
Cement Type	I/II Low Alkali	Water Reducer	Premiere - OptiFlo MR-0MRLI-PR
Cement Specific Gravity	3.15	Water Reducer	-
Fly Ash Source (distributor & plant)	-	Water Reducer	-
Fly Ash Class	-	Accelerator	-
Fly Ash Specific Gravity	-	Other	-
Slag Cement Source	Lafarge - South Chicago, IL	(Indicate Source & Product name with ticket code)	
Slag Cement Grade	100		
Slag Cement Specific Gravity	2.90	TYPE OF MIX WINTER/SUMMER	All Year
Other	-		

MIX PROPORTIONS

Volume of Coarse Aggregate (DR)	68%	Design Slump	5"
Coarse Aggregate Weight (Dry)	1769 (SSD 1780)	Specified Slump	0 - 6"
Intermediate Aggregate Weight (Dry)	-	Design Air %	6.5%
Fine Aggregate Weight (Dry)	1335 (SSD 1350)	Specified Air %	5.5% - 8.5%
Portland Cement Weight	342	PSI minimum required	3500
Fly Ash Weight	-	Total Cementitious	526
Fly Ash Percent of Cementitious	-	Yield cu/ft	27.0 +/- 0.3
Slag Cement Weight	184		
Slag Cement Percent of Cementitious	35%		
Total Water Weight	263		
Net Water Weight	237		
WC (as designed)	0.45		
Air Entrainment (dosage)	1.0 oz/cwt		
Water Reducer (dosage)	5 - 12 oz/cwt		
Other (dosage)	-		

I certify that all applicable standard test methods have been followed verifying the mix design and JMF:

Jesse Schram
Digitally signed by Jesse Schram
DN: cn=Jesse Schram, o=McCoig Materials LLC,
ou=QC Technician, email=jschram@mccoig.biz, c=US
Date: 2018.04.18 11:21:31 -04'00'

MCA Level II Expiration Date: 04/15/22

Date: 07/06/20

STRENGTH PERFORMANCE REPORT

McCoig Laboratory
12100 Wayne road
Romulus, Michigan 48174
Tel: 734-893-1215

Mix : P1-SM - MDOT P1 S35 MR
Period : 22 Aug 2019 **To** 20 May 2020

Number of Tests	5	Specified Strength	3500	28 Day	Compressive Test
Average Strength	6020	Corrected CofV	0	ACI Running Average of 3 Criteria	Yes
Required Strength	4700	Standard Deviation	0	ACI Standard Deviation Criteria	Yes

	Air Content %	Slump in	Concrete Temp deg F	Density Test lb/ft3	Strength28 Day psi
Count	5	5	5	5	5
Average	6.52	4.45	72	143.9	6020
STDEV	0.52	0.76	9	0.9	500
COV%	8.0	17.0	12.4	0.6	8.3
Range Min	6.00	3.75	60	143.0	5320
Range Max	7.20	5.50	80	145.4	6600

Date	Sample	Air Content %	Slump in	Concrete Temp deg F	Air Temp deg F	Density Test lb/ft3	Strength28 Day psi
5/20/2020	477	7.20	4.00	60	54	143.0	5320
10/10/2019	15118091	6.60	3.75	65	53	143.7	5780
9/18/2019	6105417	6.00	5.00	75	57	143.5	6370
8/28/2019	19000790	6.80	5.50	79	77	145.4	6020
8/22/2019	2190323	6.00	4.00	80	66	144.0	6600

This form applies only to the project listed below and is not transferable to other projects
DISTRIBUTION: ORIGINAL – Project Engineer **COPIES** – Contractor, Lansing CFS, Region, Inspector

CONTROL SECTION	JOB NUMBER	PROJECT LOCATION PW-7018 City of Detroit Major Roads	PROJECT ENGINEER City of Detroit	
CONCRETE SUPPLIER McCoig Materials		PLANT LOCATION Detroit, MI		PLANT NUMBER M-40
GRADE OF CONCRETE P1	PSI REQUIREMENT 3500	MIX DESIGN NUMBER P1-SW-B2	INTENDED USE (S) Pavement & Curb	CONTRACTOR QC PLAN Y ☐ SUBMITTED? (MDOT use only) N ☐
PRIME / SUBCONTRACTOR(S) Westside Concrete / All Subcontractors				
STANDARD SPEC DATE 01/01/12		QC/QA SPECIAL PROVISION DATE 06/14/18	JMF EFFECTIVE DATE 07/06/20	AGG. CORRECTION 0.2%

MATERIAL DESIGN SOURCES AND PROPERTIES

COARSE AGGREGATE		INTERMEDIATE AGGREGATE		FINE AGGREGATE	
Aggregate Type	Limestone	Aggregate Type	-	Source Name	StoneCo - Burmeiste
Source Name	Carmeuse -Port In	Source Name	-	MDOT Source No.	81-093
MDOT Source No.	75-005	MDOT Source No.	-	MDOT Series Class	2NS
MDOT Series Class	6AA	MDOT Series Class	-	Specific Gravity (Bulk Dry)*	2.62
Specific Gravity (Bulk Dry)*	2.67	Specific Gravity (Bulk Dry)*	-	Specific Gravity (Bulk SSD) optional	2.65
Specific Gravity (Bulk SSD) optional	2.68	Specific Gravity (Bulk SSD) optional	-	Absorption	1.00%
Absorption	0.53%	Absorption	-	Fineness Modulus (FM)	2.83
Unit Weight (Dry Rodded) DR or	97.0	Unit Weight (Dry Rodded) DR or	-		
Unit Weight (Dry Loose) DL	91.0	Unit Weight (Dry Loose) DL	-		
Percent Crushed	100%	Percent Crushed	-		
MDOT Freeze-Thaw (F-T) Dilation	0.008	MDOT Freeze-Thaw (F-T) Dilation	-		
Specific Gravity (Bulk Dry) of F-T	2.67	Specific Gravity (Bulk Dry) of F-T	-		
Sample*		Sample*			
Date of MDOT Freeze-Thaw Report	08/22/18	Date of MDOT Freeze-Thaw Report			

* If the bulk dry specific gravity is more than 0.04 less than the bulk dry specific gravity of the most recently tested freeze-thaw sample, the aggregate will be considered to have changed characteristics and be required to have a new freeze-thaw test conducted prior to the use on Department projects.

CEMENTITIOUS		ADMIXTURES	
Cement Source / Plant	CRH - Mississauga, ON	Air Entrainment	BASF-Master Air AE 200-0AE-BA
Cement Type	I	Water Reducer	Premiere - OptiFlo 50 - 0WRA-PR
Cement Specific Gravity	3.15	Water Reducer	-
Fly Ash Source (distributer & plant)	-	Water Reducer	-
Fly Ash Class	-	Accelerator	-
Fly Ash Specific Gravity	-	Other	-
Slag Cement Source	Lafarge - South Chicago, IL	(Indicate Source & Product name with ticket code)	
Slag Cement Grade	100		
Slag Cement Specific Gravity	2.90	TYPE OF MIX WINTER/SUMMER	All Year
Other	-		

MIX PROPORTIONS

Volume of Coarse Aggregate (DR)	68%	Design Slump	3"
Coarse Aggregate Weight (Dry)	1769 (SSD 1780)	Specified Slump	0 - 3"
Intermediate Aggregate Weight (Dry)	-	Design Air %	6.5%
Fine Aggregate Weight (Dry)	1337 (SSD 1350)	Specified Air %	5.5% - 8.5%
Portland Cement Weight	342	PSI minimum required	3500
Fly Ash Weight	-	Total Cementitious	526
Fly Ash Percent of Cementitious	-	Yield cu/ft	27.0 +/- 0.3
Slag Cement Weight	184		
Slag Cement Percent of Cementitious	35%		
Total Water Weight	261		
Net Water Weight	237		
WC (as designed)	0.45		
Air Entrainment (dosage)	1.0 oz/cwt		
Water Reducer (dosage)	3-5 oz/cwt		
Other (dosage)	-		

I certify that all applicable standard test methods have been followed verifying the mix design and JMF:

Signature

Jesse Schram

Digitally signed by Jesse Schram
DN: cn=Jesse Schram, o=McCoig Materials LLC,
ou=QC Technician, email=jschram@mccoig.biz, c=US
Date: 2018.04.18 11:21:31 -04'00'

MCA Level II Expiration Date: 04/15/22

Date: 07/06/20

STRENGTH PERFORMANCE REPORT

McCoig Laboratory
12100 Wayne road 48174
Romulus, Michigan
Tel: 734-893-1215

Mix : P1-SW-B2 - MDOT P1 S35 WR
Period : 24 Apr 2019 **To** 27 Jun 2019

Number of Tests	5	Specified Strength	3500	28 Day	Compressive Test
Average Strength	5840	Corrected CofV	0	ACI Running Average of 3 Criteria	Yes
Required Strength	4700	Standard Deviation	0	ACI Standard Deviation Criteria	Yes

	Air Content %	Slump in	Concrete Temp deg F	Density Test lb/ft3	Strength28 Day psi
Count	5	5	5	5	5
Average	6.44	3.15	65	143.7	5840
STDEV	1.04	0.70	8	1.8	890
COV%	16.1	22.2	12.0	1.3	15.2
Range Min	5.50	2.50	55	140.9	5040
Range Max	7.80	4.00	76	145.6	7220

Date	Sample	Air Content %	Slump in	Concrete Temp deg F	Air Temp deg F	Density Test lb/ft3	Strength28 Day psi
6/27/2019	14125295	5.80	2.50	76	71	144.6	5790
5/20/2019	6100719	5.50	2.50	64	55	145.6	7220
5/16/2019	1203267	7.30	3.75	55	52	142.7	5040
5/10/2019	3049008	7.80	4.00	61	54	140.9	5100
4/24/2019	60997366	5.80	3.00	67	39	144.6	6050

**MDOT Verification Method 2:
28 day breaks are an average of
2 or more cylinders**

This form applies only to the project listed below and is not transferable to other projects
DISTRIBUTION: ORIGINAL – Project Engineer **COPIES** – Contractor, Lansing CFS, Region, Inspector

CONTROL SECTION	JOB NUMBER	PROJECT LOCATION PW-7018 City of Detroit Major Roads	PROJECT ENGINEER City of Detroit	
CONCRETE SUPPLIER McCoig Materials		PLANT LOCATION Detroit, MI		PLANT NUMBER M-40
GRADE OF CONCRETE P1	PSI REQUIREMENT 3500	MIX DESIGN NUMBER P1-SM-B2	INTENDED USE (S) Pavement & Sidewalks	CONTRACTOR QC PLAN Y ☐ SUBMITTED? (MDOT use only) N ☐
PRIME / SUBCONTRACTOR(S) Westside Concrete / All Subcontractors				
STANDARD SPEC DATE 01/01/12		QC/QA SPECIAL PROVISION DATE 06/14/18	JMF EFFECTIVE DATE 07/06/20	AGG. CORRECTION 0.2%

MATERIAL DESIGN SOURCES AND PROPERTIES

COARSE AGGREGATE		INTERMEDIATE AGGREGATE		FINE AGGREGATE	
Aggregate Type	Limestone	Aggregate Type	-	Source Name	StoneCo - Burmeiste
Source Name	Carmeuse -Port In	Source Name	-	MDOT Source No.	81-093
MDOT Source No.	75-005	MDOT Source No.	-	MDOT Series Class	2NS
MDOT Series Class	6AA	MDOT Series Class	-	Specific Gravity (Bulk Dry)*	2.62
Specific Gravity (Bulk Dry)*	2.67	Specific Gravity (Bulk Dry)*	-	Specific Gravity (Bulk SSD) optional	2.65
Specific Gravity (Bulk SSD) optional	2.68	Specific Gravity (Bulk SSD) optional	-	Absorption	1.00%
Absorption	0.53%	Absorption	-	Fineness Modulus (FM)	2.83
Unit Weight (Dry Rodded) DR or	97.0	Unit Weight (Dry Rodded) DR or	-		
Unit Weight (Dry Loose) DL	91.0	Unit Weight (Dry Loose) DL	-		
Percent Crushed	100%	Percent Crushed	-		
MDOT Freeze-Thaw (F-T) Dilation	0.008	MDOT Freeze-Thaw (F-T) Dilation	-		
Specific Gravity (Bulk Dry) of F-T	2.67	Specific Gravity (Bulk Dry) of F-T	-		
Sample*		Sample*			
Date of MDOT Freeze-Thaw Report	08/22/18	Date of MDOT Freeze-Thaw Report			

* If the bulk dry specific gravity is more than 0.04 less than the bulk dry specific gravity of the most recently tested freeze-thaw sample, the aggregate will be considered to have changed characteristics and be required to have a new freeze-thaw test conducted prior to the use on Department projects.

CEMENTITIOUS		ADMIXTURES	
Cement Source / Plant	CRH - Mississauga, ON	Air Entrainment	BASF-Master Air AE 200-0AE-BA
Cement Type	I	Water Reducer	Premiere - OptiFlo MR-0MRLI-PR
Cement Specific Gravity	3.15	Water Reducer	-
Fly Ash Source (distributor & plant)	-	Water Reducer	-
Fly Ash Class	-	Accelerator	-
Fly Ash Specific Gravity	-	Other	-
Slag Cement Source	Lafarge - South Chicago, IL	(Indicate Source & Product name with ticket code)	
Slag Cement Grade	100		
Slag Cement Specific Gravity	2.90	TYPE OF MIX WINTER/SUMMER	All Year
Other	-		

MIX PROPORTIONS

Volume of Coarse Aggregate (DR)	68%	Design Slump	5"
Coarse Aggregate Weight (Dry)	1769 (SSD 1780)	Specified Slump	0 - 6"
Intermediate Aggregate Weight (Dry)	-	Design Air %	6.5%
Fine Aggregate Weight (Dry)	1337 (SSD 1350)	Specified Air %	5.5% - 8.5%
Portland Cement Weight	342	PSI minimum required	3500
Fly Ash Weight	-	Total Cementitious	526
Fly Ash Percent of Cementitious	-	Yield cu/ft	27.0 +/- 0.3
Slag Cement Weight	184		
Slag Cement Percent of Cementitious	35%		
Total Water Weight	261		
Net Water Weight	237		
WC (as designed)	0.45		
Air Entrainment (dosage)	1.0 oz/cwt		
Water Reducer (dosage)	5-12 oz/cwt		
Other (dosage)	-		

I certify that all applicable standard test methods have been followed verifying the mix design and JMF:

Signature

Jesse Schram

Digitally signed by Jesse Schram
DN: cn=Jesse Schram, o=McCoig Materials LLC,
ou=QC Technician, email=jschram@mccoig.biz, c=US
Date: 2018.04.18 11:21:31 -04'00'

MCA Level II Expiration Date: 04/15/22

Date: 07/06/20

STRENGTH PERFORMANCE REPORT

McCoig Laboratory
12100 Wayne road 48174
Romulus, Michigan
Tel: 734-893-1215

Mix : P1-SM-B2 - MDOT P1 S35 MR
Period : 10 Jul 2019 **To** 15 Nov 2019

Number of Tests	6	Specified Strength	3500	28 Day	Compressive Test
Average Strength	5510	Corrected CofV	0	ACI Running Average of 3 Criteria	Yes
Required Strength	4700	Standard Deviation	0	ACI Standard Deviation Criteria	Yes

	Air Content %	Slump in	Concrete Temp deg F	Density Test lb/ft3	Strength28 Day psi
Count	6	6	6	6	6
Average	6.52	4.63	69	143.8	5510
STDEV	0.91	0.59	10	1.5	490
COV%	14.0	12.7	14.8	1.0	8.9
Range Min	5.60	4.00	56	141.3	4770
Range Max	8.00	5.50	81	145.6	6190

Date	Sample	Air Content %	Slump in	Concrete Temp deg F	Air Temp deg F	Density Test lb/ft3	Strength28 Day psi
11/15/2019	1216518	5.80	4.50	70	33	145.6	5860
10/23/2019	14130948	6.60	4.00	56	44	143.5	5480
10/15/2019	15118208	8.00	5.50	59	37	141.3	4770
10/8/2019	305339	7.10	4.75	67	58	144.9	5240
8/20/2019	1209906	5.60	5.00	81	76	143.2	5500
7/10/2019	6102536	6.00	4.00	79	75	144.0	6190

MDOT Verification Method 2:
28 day breaks are an average of 2
or more cylinders



McCoig Materials

PO Box 6349,
Plymouth, MI 48170

Re: ALL MDOT PROJECTS

Admixture General Certification

<u>Spec.# and Material Name</u>	<u>Manufacturer</u>	<u>Product Name</u>	<u>McCoig Ticket Code</u>
903.01 - Air Entraining Admix	BASF	MasterAir AE 200	0AE-BA
903.02 - Water Reducing Admix	Premiere	OptiFlo 50	0WRA-PR
903.02 - Water Reducing Admix	Premiere	OptiFlo MR	0MRLI-PR
903.04 - Concrete Accelerators	Premiere	NitroCast K	0NCAC-PR
903.02 - Water Reducing Retarding	Premiere	ProLong L	0STAB-PR

We certify that the above QPL materials indicated were provided and incorporated into the identified project.

Respectfully submitted,

Douglas Rousseau

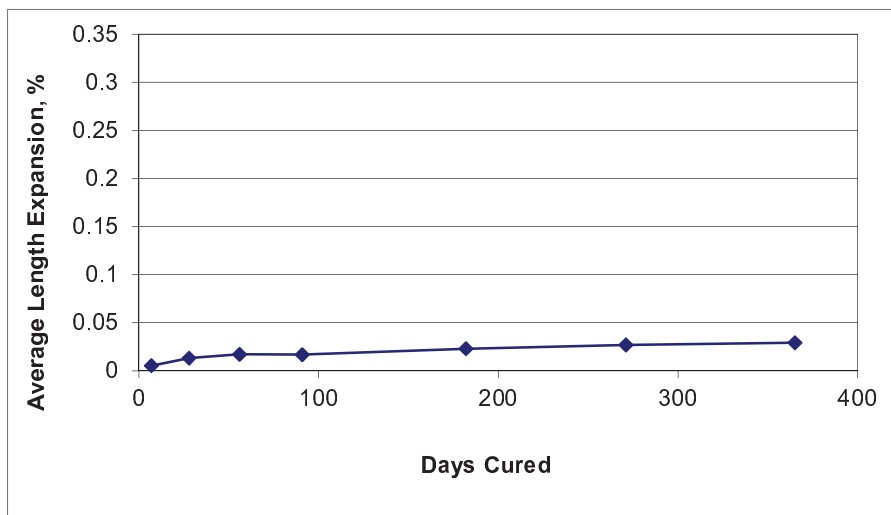
Doug Rousseau
QC / Testing Manager
McCoig Materials, LLC

cc:



Potential Alkali Reactivity of Aggregates ASTM C 1293

Project: Spring Mill Reclamation LLC Lab Testing Date: 06/28/19
Project No.: 79383 Prepared By: Ryan Wilk
Client: Spring Mill Reclamation LLC
Date Molded: 06/28/18 Location: EEH
Portland Cement: St. Mary's Type I Fine Aggregate: Spring Mill 2NS #47-003
Coarse Aggregate: 58-011



Date	Days Cured	Specimen			Average Expansion, %
		1	2	3	
07/05/18	7	0.004	0.005	0.007	0.0053
07/26/18	28	0.012	0.014	0.014	0.0133
08/23/18	56	0.016	0.018	0.018	0.0173
09/27/18	91	0.014	0.018	0.019	0.0168
12/27/18	182	0.020	0.023	0.026	0.0229
03/26/19	271	0.025	0.027	0.029	0.0271
06/28/19	365	0.028	0.028	0.032	0.0293

Notes: Aggregates that exceed 0.04% expansion at one year using this test criteria could be considered potentially reactive.

Remarks: I hereby certify that the above aggregate meets specification requirements for ASTM C1293.

Nick Atkins



DocuSign

Tested by: Ryan Wilk

Reviewed by: Nick Atkins

National Ready Mixed Concrete Association



Certificate of Conformance For Concrete Production Facilities

THIS IS TO CERTIFY THAT

Koenig Concrete Plant 1, Detroit, MI

McCoig Materials, LLC

MDOT Plant # M-11

has been inspected by the undersigned licensed professional engineer for conformance with the requirements of the *Check List for Ready Mixed Concrete Production Facilities*. As of the inspection date, the facilities met the requirements for production by

***Central Mixing with Automatic Batching and Recordings of
Cementitious Materials, Aggregate, Water, and Chemical Admixtures***



(Seal)

A handwritten signature in blue ink, likely of Ruben E. Ramos, written over a horizontal line.

Signature of Licensed Professional Engineer

March 17, 2020

Inspection Date

May 28, 2022

Certification Expiration Date

This company will maintain these facilities in compliance with the *Check List* requirements and will correct promptly any deficiencies which develop.

A handwritten signature in blue ink, likely of a company official, written over a horizontal line.

Signature of Company Official

MANAGER

Title of Company Official

NOTICE: The Check List indicates only that plant facilities are satisfactory for the production of concrete when properly operated. Conformance of the concrete itself with specification requirements must be verified by usual inspection methods in accordance with sales agreements.

This certificate is issued by the National Ready Mixed Concrete Association on verification that the production facility conforms to the requirements of the NRMCA Certification of Ready Mixed Concrete Production Facilities, QC3. Unauthorized reproduction or misuse of this certificate may result in legal action.

Plant ID #: 800714

Certification ID #: 25743

© 1965, 1992, 2001, 2002, 2006, 2007, 2012

National Ready Mixed Concrete Association 66 Canal Center Plaza, Suite 250 • Alexandria • Virginia 22314



PJLA
Calibration
Accreditation # 59303

METRO SCALE COMPANY, INC.
17670 ALLEN ROAD, MELVINDALE, MI 48122
PHONE: (313) 382-6190 FAX: (313) 382-6194

70531

SCALE CALIBRATION REPORT

TECHNICIAN: <i>Alvin L. Miller / Randy Ogden</i>		DATE: <i>3-3-20</i> Next Due:	
SCALE MFG: ALKON		CUSTOMER: KOENIG FUEL & SUPPLY CO.(SHIP	
MODEL NO: Spectrum		ADDRESS: 500 E. SEVEN MILE	
SERIAL NO: N/A2			
LOCATION: Agg Scale Plt. 1		DETROIT, MI 48203	
CAPACITY/RESOLUTION: 36,000 X 40 LB / 20 LB			
CONDITION PRIOR TO CALIBRATION: ☒ ACCEPTABLE ☐ NEEDS REPAIR - UNABLE TO CAL.			
UNITS OF MEASURE: ☐ POUNDS ☐ KG ☐ GRAMS ☐ OTHER:			
CALIBRATED TO HANDBOOK 44 TOLERANCE: ☐ YES ☐ NO ☐ LEGAL FOR TRADE			
APPLIED WEIGHT	TEST READING		SERIAL NUMBERS OF WEIGHTS USED:
	BEFORE	AFTER	
0 LB	0 LB	0 LB	0N76, 0N77, 0N78, 0N79, 0N7A, 22222 @ 1000 LB
2000LB	2000 LB	2000 LB	
4000LB	4000 LB	4000 LB	
6000LB	6000 LB	6000 LB	
12,000 LB	12,320 LB	12,320 LB	
18,000 LB	18,120 LB	18,120 LB	
24,000 LB	23,980 LB	23,980 LB	
30,000 LB	30,000 LB	30,000 LB	
36,000 LB	35,980 LB	35,980 LB	

COMMENTS:

SCALE OK FOR USE ☒ YES ☐ NO

NOTES:

1. SCALE TOLERANCE AS APPLIED TO NIST HANDBOOK 44 REQUIREMENTS.
2. DEVICES LISTED ON THIS SHEET WERE CHECKED AND CALIBRATED WITH WEIGHTS TRACEABLE TO SI THROUGH N.I.S.T. CERTIFICATIONS FOR TEST WEIGHTS ARE AVAILIABLE UPON REQUEST.
3. CALIBRATION COMPLIES WITH MSC INSTRUCTION QW 4.11.02, ISO IEC 17025:2005 AND WITH REFERENCE TO NIST HANDBOOK 44 WHERE APPLICABLE.
4. RESULTS OF THIS CALIBRATION RELATE ONLY TO THE ITEMS SPECIFIED ABOVE.
5. THIS REPORT IS NOT TO BE REPRODUCED EXCEPT IN FULL, WITHOUT WRITTEN PERMISSION OF MSC.
6. ALL CALIBRATIONS PERFORMED UNDER NORMAL WORKING ENVIORNMENTAL CONDITIONS UNLESS NOTED UNDER COMMENTS.
7. THE UNCERTAINTY CALCULATIONS ARE AVAILABLE UPON WRITTEN REQUEST FROM THE CUSTOMER.
8. END OF REPORT.



PJLA
Calibration
Accreditation # 59303

METRO SCALE COMPANY, INC.
17670 ALLEN ROAD, MELVINDALE, MI 48122
PHONE: (313) 382-6190 FAX: (313) 382-6194

70530

SCALE CALIBRATION REPORT

TECHNICIAN: <i>Alex Luthke / Cody Ogden</i>		DATE: <i>3-3-20</i> Next Due:	
SCALE MFG: ALKON		CUSTOMER: KOENIG FUEL & SUPPLY CO.(SHIP	
MODEL NO: Spectrum		ADDRESS: 500 E. SEVEN MILE	
SERIAL NO: N/A1			
LOCATION: Cement Scale Plt.1		DETROIT, MI 48203	
CAPACITY/RESOLUTION: 10,000 X 10 LB			
CONDITION PRIOR TO CALIBRATION: ☒ ACCEPTABLE ☐ NEEDS REPAIR - UNABLE TO CAL.			
UNITS OF MEASURE: ☐ POUNDS ☐ KG ☐ GRAMS ☐ OTHER:			
CALIBRATED TO HANDBOOK 44 TOLERANCE: ☐ YES ☐ NO ☐ LEGAL FOR TRADE			
APPLIED WEIGHT	TEST READING		SERIAL NUMBERS OF WEIGHTS USED:
	BEFORE	AFTER	
0 LB	<i>0lb</i>	<i>0lb</i>	<i>0N76, 0N77, 0N78, 0N79, 0N7A, 22222 @ 1000 lb</i>
2000LB	<i>2000lb</i>	<i>2000 lb</i>	
4000LB	<i>4000 lb</i>	<i>4000 lb</i>	
6000LB	<i>6000 lb</i>	<i>6000 lb</i>	
			Shift Test: Before L/C Cable/Indicator After
Position 1:			<i>NA</i>
Position 2:			1 2
Position 3:			
Position 4:			3 4

COMMENTS:

SCALE OK FOR USE ☒ YES ☐ NO

NOTES:

- SCALE TOLERANCE AS APPLIED TO NIST HANDBOOK 44 REQUIREMENTS.
- DEVICES LISTED ON THIS SHEET WERE CHECKED AND CALIBRATED WITH WEIGHTS TRACEABLE TO SI THROUGH N.I.S.T. CERTIFICATIONS FOR TEST WEIGHTS ARE AVAILABLE UPON REQUEST.
- CALIBRATION COMPLIES WITH MSC INSTRUCTION QW 4.11.02, ISO IEC 17025:2005 AND WITH REFERENCE TO NIST HANDBOOK 44 WHERE APPLICABLE.
- RESULTS OF THIS CALIBRATION RELATE ONLY TO THE ITEMS SPECIFIED ABOVE.
- THIS REPORT IS NOT TO BE REPRODUCED EXCEPT IN FULL, WITHOUT WRITTEN PERMISSION OF MSC.
- ALL CALIBRATIONS PERFORMED UNDER NORMAL WORKING ENVIRONMENTAL CONDITIONS UNLESS NOTED UNDER COMMENTS.
- THE UNCERTAINTY CALCULATIONS ARE AVAILABLE UPON WRITTEN REQUEST FROM THE CUSTOMER.
- END OF REPORT.

DISPENSER CALIBRATION

Premiere Concrete Admixtures
PO Box 277
Pioneer, Ohio 43554
(800) 503-3418



Seven Mile
McCoig Materials
500 E 7 Mile Rd
Detroit, MI 48203
United States

Date Of Certification	May 22, 2020
Certified By	Mike McKown

Dispenser Serial	Dispenser Product	Metered	Measured	Tol %
	Impede CNI	260	260	0%
McCoig 4	ConAir	52	52	0%
McCoig 4	OptiFlo 50	220	220	0%
McCoig 4	UltraFlo 2000	200	200	0%
McCoig 4	OptiFlo MR	305	305	0%
McCoig 4	ProLong L	100	100	0%
McCoig 4	NitroCast K	260	260	0%
McCoig 4	ConAir 260	50	50	0%
McCoig 4	PCA SRA	200	200	0%
	ConAir X	50	50	0%



McCoig Materials

Water Meter Accuracy Verification 55 Gallon Drum Calibration Sheet

90 Day Requirement for Volumetric Water Batching Devices per MDOT (sect 601.03 A. 1. a.)

Plant Information

Plant Name: Koenig
Plant Number: 1
MDOT Plant Number: M-11
Water Temperature: 75°F
Ambient Temperature: 75°F

Meter Type: Flow
Meter Brand name: Badger
Plant Meter No.: No. 1
Meter Serial No.:
Meter Setting: 0.304
Pulse Count: 1.0 Gallons

Date Information

Calibration Date: 5/23/2020
Next Calibration Date: 8/21/2020

Test 1

Metered Quantity 50 gallons
Meter Setting 0.304

Measure Quantity 50 gallons
Adjusted Setting Not Required

Test 2

Metered Quantity 50 gallons
Meter Setting 0.304

Measure Quantity 50 gallons
Adjusted Setting Not Required

Test 3

Metered Quantity 50 gallons
Meter Setting 0.304

Measure Quantity 50 gallons
Adjusted Setting Not Required

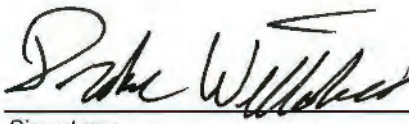
I certify the above information and test results are accurate.

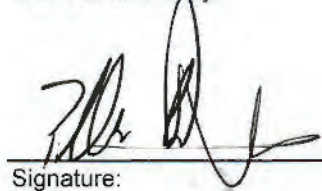
Drake Willobee

Test Performed By:

Robert Esch

Test Witnessed By:

 5-23-20
Signature: Date

 5/23/20
Signature: Date

BOWSER-MORNER, INC.

Delivery Address: 4518 Taylorsville Rd • Dayton, Ohio 45424 Mailing Address: P.O. Box 51 • Dayton, Ohio 45401

AASHTO/ISO 17025 Accredited • USACE Validated



LABORATORY REPORT

Report To: Stoneco
Attn.: Cyndy Brock
7555 Whiteford Rd.
Ottawa Lake, MI 49267

Report Date: 09/25/18
Job No.: 181058
Report No.: 018814A
No. of Pages: 3

Report On: Laboratory Determination of Alkali-Silica Reactivity (ASR)

Procedure: Length Change of Concrete Due to Alkali-Silica Reaction (ASTM C 1293)

Material and Source Information

Sample Identification: MDOT 2NS
Fine Aggregate Source: Burmeister; Pit #81-93
Coarse Aggregate Source: #57 crLS MMA Phillipsburg
Cement Source: Fairborn Cement Co.
Date Received: 08/25/17
Date Cast: 09/25/17

Results are summarized below and detailed on the attached data sheets.

Average Length Change, %		ASTM C 1293 Specification, %
56 Days:	0.012	---
90 Days:	0.017	---
180 Days:	0.018	---
270 Days:	0.023	---
365 Days:	0.025	0.040 Max.

Should you have any questions, or if we may be of further service, please contact me at (937) 236-8805, ext. 329.

Respectfully submitted,
BOWSER-MORNER, INC.

Scott D. Ruhkamp, Supervisor
Special Projects Section
Construction Materials Laboratory

SDR/sdr
018814A
1-File
1-cbrock@stoneco.com

Report To: Stoneco
Sample ID: MDOT 2NS
Source: Burmeister; Pit #81-93

Job No.: 181058
Report No.: 018814A
Date Received: 08/25/17

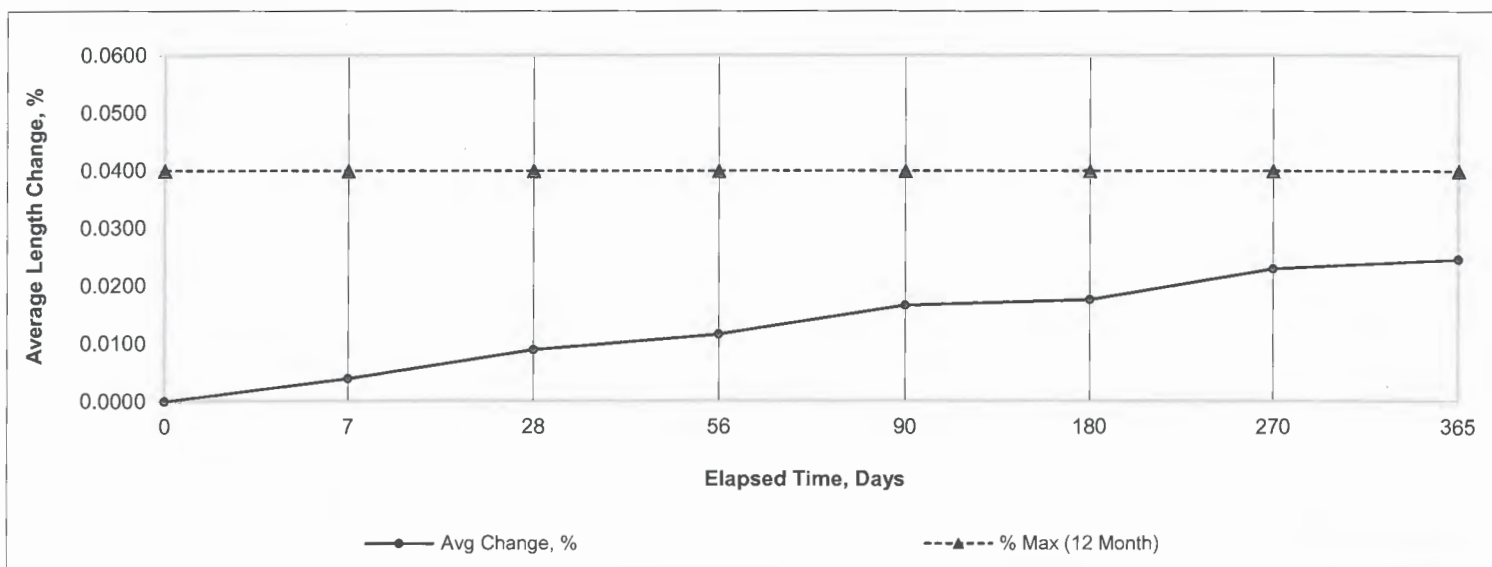
Concrete Mixture Summary				
Aggregates Used	Type	Source	Grading	
Coarse (Lab Standard)	#57 crLS	MMA Phillipsburg	Table 1, coarse	
Fine (Subject)	MDOT 2NS	Burmeister; Pit #81-93	Table 1, fine	
Cement Used	Source	Type	Na ₂ O Equiv., %	
Fairborn Cement Co.	Fairborn, OH	Portland Type I	0.8	
Pozzolan Used	Source	Type	Na ₂ O Equiv., %	
n/a	n/a	n/a	n/a	
Admixtures Used	Source	Type	Dosage Rate	
n/a	n/a	n/a	n/a	
Concrete Proportions, SSD, lbs/cubic yard				
Component	Source	Specific Gravity	Mass, lbs	Volume, cubic yard
Portland Cement	Fairborn Cement Co.*	3.15	708	3.60195
Water	BMI Standard	1.00	308	4.93590
#57 crLS	MMA Phillipsburg*	2.664	1781	10.71384
MDOT 2NS	Burmeister; Pit #81-93	2.640	1265	7.67895
Entrained Air, %:	n/a	n/a	2.7	0.72900
Total	n/a	n/a	4062	27.7
*The cement and coarse aggregate used in this test are BMI's laboratory standards and meet sections 7.1 and 7.2				
Sodium Hydroxide Added, %	W/Cm	Slump, inches	Air, %	
0.4	0.435	2 3/4	2.7	
Fresh Unit Weight, cubic yard	Mass Yield, %			
149.3	100.8			
Storage Containers				
6-gallon (23-liter) plastic pail with gamma seal lid conforming to ASTM C1293, sections 5.2.1 and 5.3.1				

Report To: Stoneco
Sample ID: MDOT 2NS
Source: Burmeister; Pit #81-93
Date Cast: 09/25/17

Job No.: 181058
Report No.: 018814A
Date Received: 08/25/17
Ref. Rod Length: 11.622118

Procedure: Length Change of Concrete Due to Alkali-Silica Reaction (ASTM C 1293)

Age, Days	ID	Reference Rod, inch	Specimen Readings, inch	Expansion, inch	Length Change, %	Avg, %
Initial 09/26/17	A	0.0000	-0.0057	11.6164	n/a	0.0000
	B	0.0000	0.0093	11.6314	n/a	
	C	0.0000	0.0096	11.6317	n/a	
7 10/03/17	A	0.0000	-0.0055	11.6166	0.0020	0.0040
	B	0.0000	0.0099	11.6320	0.0060	
	C	0.0000	0.0100	11.6321	0.0040	
28 10/24/17	A	0.0000	-0.0047	11.6174	0.0100	0.0090
	B	0.0000	0.0101	11.6322	0.0080	
	C	0.0000	0.0105	11.6326	0.0090	
56 11/21/17	A	0.0000	-0.0045	11.6176	0.0120	0.0117
	B	0.0000	0.0103	11.6324	0.0100	
	C	0.0000	0.0109	11.6330	0.0130	
90 12/26/17	A	0.0000	-0.0039	11.6182	0.0180	0.0167
	B	0.0000	0.0109	11.6330	0.0160	
	C	0.0000	0.0112	11.6333	0.0160	
180 03/27/18	A	0.0000	-0.0039	11.6182	0.0180	0.0177
	B	0.0000	0.0110	11.6331	0.0170	
	C	0.0000	0.0114	11.6335	0.0180	
270 06/26/18	A	0.0000	-0.0033	11.6188	0.0240	0.0230
	B	0.0000	0.0115	11.6336	0.0220	
	C	0.0000	0.0119	11.6340	0.0230	
365 09/25/18	A	0.0000	-0.0032	11.6189	0.0250	0.0247
	B	0.0000	0.0117	11.6338	0.0240	
	C	0.0000	0.0121	11.6342	0.0250	



National Ready Mixed Concrete Association



Certificate of Conformance For Concrete Production Facilities

THIS IS TO CERTIFY THAT

Detroit Plant 2, Detroit, MI

McCoig Materials, LLC

MDOT Plant #: M-40

has been inspected by the undersigned licensed professional engineer for conformance with the requirements of the *Check List for Ready Mixed Concrete Production Facilities*. As of the inspection date, the facilities met the requirements for production by

***Central Mixing with Automatic Batching and Recordings of
Cementitious Materials, Aggregate, Water, and Chemical Admixtures***



(Seal)

A handwritten signature in blue ink, likely of the professional engineer, written over a horizontal line.

Signature of Licensed Professional Engineer

March 14, 2019

Inspection Date

March 14, 2021

Certification Expiration Date

This company will maintain these facilities in compliance with the *Check List* requirements and will correct promptly any deficiencies which develop.

A handwritten signature in blue ink, likely of a company official, written over a horizontal line.

Signature of Company Official

MANAGER

Title of Company Official

NOTICE: The Check List indicates only that plant facilities are satisfactory for the production of concrete when properly operated. Conformance of the concrete itself with specification requirements must be verified by usual inspection methods in accordance with sales agreements.

This certificate is issued by the National Ready Mixed Concrete Association on verification that the production facility conforms to the requirements of the NRMCA Certification of Ready Mixed Concrete Production Facilities, QC3. Unauthorized reproduction or misuse of this certificate may result in legal action.

Plant ID #: 818491

Certification ID #: 24190

© 1965, 1992, 2001, 2002, 2006, 2007, 2012

National Ready Mixed Concrete Association 900 Spring Street • Silver Spring • Maryland 20910



PJLA
Calibration
Accreditation # 59303

METRO SCALE COMPANY, INC.
17670 ALLEN ROAD, MELVINDALE, MI 48122
PHONE: (313) 382-6190 FAX: (313) 382-6194

70554

SCALE CALIBRATION REPORT

TECHNICIAN: <i>Alan Luthi / Larry Ryden</i>	DATE: <i>3-10-20</i> Next Due:
SCALE MFG: ALKON	CUSTOMER: MC COIG CONCRETE(MAIN)
MODEL NO: Spectrum	ADDRESS: 1441 SPRINGWELLS COURT
SERIAL NO: N/A	
LOCATION: Agg Scale	DETROIT, MI 48209

CAPACITY/RESOLUTION: 40,000 X 40 LB

CONDITION PRIOR TO CALIBRATION: ☒ ACCEPTABLE ☐ NEEDS REPAIR - UNABLE TO CAL.

UNITS OF MEASURE: ☒ POUNDS ☐ KG ☐ GRAMS ☐ OTHER:

CALIBRATED TO HANDBOOK 44 TOLERANCE: ☐ YES ☐ NO ☐ LEGAL FOR TRADE

APPLIED WEIGHT	TEST READING		SERIAL NUMBERS OF WEIGHTS USED:			
	BEFORE	AFTER				
0 LB	<i>0LB</i>	<i>0LB</i>	<i>0N76, 0N77, 0N78, 0N79, 0N7A, 22222 @ 1000LB</i>			
2000LB	<i>2000LB</i>	<i>2000LB</i>				
4000LB	<i>4000LB</i>	<i>4000LB</i>				
6000LB	<i>6000LB</i>	<i>6000LB</i>				
<i>8040</i> 8000 LB	<i>8040LB</i>	<i>8040LB</i>				
<i>10,040</i> 10,000 LB	<i>10,040LB</i>	<i>10,040LB</i>				
16,000 LB	<i>16,000LB</i>	<i>16,000LB</i>				
22,000 LB	<i>22,000LB</i>	<i>22,000LB</i>				
28,000 LB	<i>28,000LB</i>	<i>28,000LB</i>				
36,000 LB	<i>36,000LB</i>	<i>36,000LB</i>				

Shift Test:	Before	L/C Cable/Indicator		After
Position 1:	<i>NA</i>	1	2	<i>NA</i>
Position 2:				
Position 3:				
Position 4:		3	4	

COMMENTS:

SCALE OK FOR USE ☒ YES ☐ NO

NOTES:

- SCALE TOLERANCE AS APPLIED TO NIST HANDBOOK 44 REQUIREMENTS.
- DEVICES LISTED ON THIS SHEET WERE CHECKED AND CALIBRATED WITH WEIGHTS TRACEABLE TO SI THROUGH N.I.S.T. CERTIFICATIONS FOR TEST WEIGHTS ARE AVAILABLE UPON REQUEST.
- CALIBRATION COMPLIES WITH MSC INSTRUCTION QW 4.11.02, ISO IEC 17025:2005 AND WITH REFERENCE TO NIST HANDBOOK 44 WHERE APPLICABLE.
- RESULTS OF THIS CALIBRATION RELATE ONLY TO THE ITEMS SPECIFIED ABOVE.
- THIS REPORT IS NOT TO BE REPRODUCED EXCEPT IN FULL, WITHOUT WRITTEN PERMISSION OF MSC.
- ALL CALIBRATIONS PERFORMED UNDER NORMAL WORKING ENVIRONMENTAL CONDITIONS UNLESS NOTED UNDER COMMENTS.
- THE UNCERTAINTY CALCULATIONS ARE AVAILABLE UPON WRITTEN REQUEST FROM THE CUSTOMER.
- END OF REPORT.



PJLA
Calibration
Accreditation # 59303

METRO SCALE COMPANY, INC.
17670 ALLEN ROAD, MELVINDALE, MI 48122
PHONE: (313) 382-6190 FAX: (313) 382-6194

70555

SCALE CALIBRATION REPORT

TECHNICIAN: <i>Alan Lullo / Leahy</i>		DATE: <i>3-10-20</i> Next Due:	
SCALE MFG: ALKON		CUSTOMER: MC COIG CONCRETE(MAIN)	
MODEL NO: Spectrum		ADDRESS: 1441 SPRINGWELLS COURT	
SERIAL NO: N/A			
LOCATION: Water Scale		DETROIT, MI 48209	
CAPACITY/RESOLUTION: 4000 X 2 LB			
CONDITION PRIOR TO CALIBRATION: ☒ ACCEPTABLE ☐ NEEDS REPAIR - UNABLE TO CAL.			
UNITS OF MEASURE: ☒ POUNDS ☐ KG ☐ GRAMS ☐ OTHER:			
CALIBRATED TO HANDBOOK 44 TOLERANCE: ☐ YES ☐ NO ☐ LEGAL FOR TRADE			
APPLIED WEIGHT	TEST READING		SERIAL NUMBERS OF WEIGHTS USED:
	BEFORE	AFTER	
0 LB	<i>0 LB</i>	<i>0 LB</i>	<i>2N76, 2N77, 2N78, 2N79 @ 1000 LB</i>
1000LB	<i>1000 LB</i>	<i>1000 LB</i>	
2000LB	<i>1996 LB</i>	<i>1998 LB</i>	Shift Test: Before <u>L/C Cable/Indicator</u> After
4000LB	<i>3992 LB</i>	<i>4000 LB</i>	Position 1: <i>N/A</i> 1 2 <i>N/A</i>
			Position 2: 3 4
			Position 3:
			Position 4:

COMMENTS:

SCALE OK FOR USE ☒ YES ☐ NO

NOTES:

1. SCALE TOLERANCE AS APPLIED TO NIST HANDBOOK 44 REQUIREMENTS.
2. DEVICES LISTED ON THIS SHEET WERE CHECKED AND CALIBRATED WITH WEIGHTS TRACEABLE TO SI THROUGH N.I.S.T. CERTIFICATIONS FOR TEST WEIGHTS ARE AVAILABLE UPON REQUEST.
3. CALIBRATION COMPLIES WITH MSC INSTRUCTION QW 4.11.02, ISO IEC 17025:2005 AND WITH REFERENCE TO NIST HANDBOOK 44 WHERE APPLICABLE.
4. RESULTS OF THIS CALIBRATION RELATE ONLY TO THE ITEMS SPECIFIED ABOVE.
5. THIS REPORT IS NOT TO BE REPRODUCED EXCEPT IN FULL, WITHOUT WRITTEN PERMISSION OF MSC.
6. ALL CALIBRATIONS PERFORMED UNDER NORMAL WORKING ENVIRONMENTAL CONDITIONS UNLESS NOTED UNDER COMMENTS.
7. THE UNCERTAINTY CALCULATIONS ARE AVAILABLE UPON WRITTEN REQUEST FROM THE CUSTOMER.
8. END OF REPORT.



PJLA
Calibration
Accreditation # 59303

METRO SCALE COMPANY, INC.
17670 ALLEN ROAD, MELVINDALE, MI 48122
PHONE: (313) 382-6190 FAX: (313) 382-6194

70556

SCALE CALIBRATION REPORT

TECHNICIAN: <i>Alan Laska / Candy Rader</i>		DATE: <i>3-10-21</i> Next Due:	
SCALE MFG: ALKON		CUSTOMER: MC COIG CONCRETE(MAIN)	
MODEL NO: Spectrum		ADDRESS: 1441 SPRINGWELLS COURT	
SERIAL NO: N/A			
LOCATION: Cement Scale		DETROIT, MI 48209	
CAPACITY/RESOLUTION: 10,000 X 10 LB			
CONDITION PRIOR TO CALIBRATION: ☒ ACCEPTABLE ☐ NEEDS REPAIR - UNABLE TO CAL.			
UNITS OF MEASURE: ☒ POUNDS ☐ KG ☐ GRAMS ☐ OTHER:			
CALIBRATED TO HANDBOOK 44 TOLERANCE: ☐ YES ☐ NO ☐ LEGAL FOR TRADE			
APPLIED WEIGHT	TEST READING		SERIAL NUMBERS OF WEIGHTS USED:
	BEFORE	AFTER	
0 LB	0 lb	0 lb	<i>ON76, ON77, ON78, ON79, ON7A, 22222 @ 1000LB</i>
2000LB	2000 lb	2000 lb	
4000LB	3990 lb	4000 lb	
6000LB	5980 lb	6000 lb	
			Shift Test: Before L/C Cable/Indicator After
			Position 1: <i>NA</i> 1 2 <i>NA</i>
			Position 2: 3 4
			Position 3:
			Position 4:

COMMENTS:

SCALE OK FOR USE ☒ YES ☐ NO

NOTES:

1. SCALE TOLERANCE AS APPLIED TO NIST HANDBOOK 44 REQUIREMENTS.
2. DEVICES LISTED ON THIS SHEET WERE CHECKED AND CALIBRATED WITH WEIGHTS TRACEABLE TO SI THROUGH N.I.S.T. CERTIFICATIONS FOR TEST WEIGHTS ARE AVAILIABLE UPON REQUEST.
3. CALIBRATION COMPLIES WITH MSC INSTRUCTION QW 4.11.02, ISO IEC 17025:2005 AND WITH REFERENCE TO NIST HANDBOOK 44 WHERE APPLICABLE.
4. RESULTS OF THIS CALIBRATION RELATE ONLY TO THE ITEMS SPECIFIED ABOVE.
5. THIS REPORT IS NOT TO BE REPRODUCED EXCEPT IN FULL, WITHOUT WRITTEN PERMISSION OF MSC.
6. ALL CALIBRATIONS PERFORMED UNDER NORMAL WORKING ENVIORNMENTAL CONDITIONS UNLESS NOTED UNDER COMMENTS.
7. THE UNCERTAINTY CALCULATIONS ARE AVAILABLE UPON WRITTEN REQUEST FROM THE CUSTOMER.
8. END OF REPORT.

DISPENSER CALIBRATION

Premiere Concrete Admixtures
PO Box 277
Pioneer, Ohio 43554
(800) 503-3418



Downtown/Springwells
McCoig Materials
1441 Springwells Ct
Detroit, MI 48209
United States

Date Of Certification	June 01, 2020
Certified By	Mike McKown

Dispenser Serial	Dispenser Product	Metered	Measured	Tol %
McCoig 1	ConAir 260	50	50	0%
McCoig 1	OptiFlo MR	320	320	0%
McCoig 1	OptiFlo 50	200	200	0%
McCoig 1	UltraFlo 2000	200	200	0%
McCoig 1	ProLong L	100	100	0%
McCoig 1	NitroCast K	256	256	0%
McCoig 1	Impede CNI	260	260	0%
McCoig 1	ConAir X	52	52	0%
McCoig 1	PCA SRA	200	200	0%

Certificate Signature

A handwritten signature in blue ink, appearing to read "Mike McKown", is written over a light blue rectangular background.

McCoig Materials, LLC

CONTRACTOR/PRODUCER AGGREGATE STOCKPILE MANAGEMENT PLAN

Submitted By:

McCoig Materials, LLC
12100 Wayne Road,
Romulus, MI 48174

McCoig Materials, LLC

MDOT – Stockpile Management Plan

The plan covers the procedures McCoig Materials intends to ensure compliance with MDOT for Portland Cement Concrete.

All McCoig Materials plants are MDOT qualified and NRMCA certified per ASTM C-94 Standards.

Aggregates utilized for MDOT projects are from approved manufactures for Coarse, Intermediate and 2NS aggregates. All aggregates will be delivered to the plants via gravel bulk haulers.

Material

Aggregates delivered to our production facilities are from the Approved Manufactures list with MDOT. Aggregates purchased from this list are produced with strict compliance with MDOT standards and testing according to the suppliers Quality Control Plan as submitted by them to MDOT for review and approval.

Supplier production and load out sample gradation analysis are provided weekly by supplier.

Project specifications will be followed to ensure the correct aggregate is being utilized per the project requirements. Specifically Absorption limits and Freeze thaw requirements will be strictly followed.

Stock Pile Management

Aggregates are stockpiled by loader or loaded directly into plant bins dependant on plant configuration.

Stockpiles shall be maintained to eliminate contamination from vehicle tracking.

Stockpiles shall be maintained in separate piles and/or bins.

All attempts will be employed to maintain aggregate moisture contents to SSD, provided it does not compromise mix uniformity due to excess moisture contents.

Handling and moving aggregates will be kept to a minimum to decrease the amount of material degradation occurring that will contribute to LBW.

Action & Suspension Limits:

<u>Quality Characteristic</u>	<u>Action Limits</u>	<u>Suspension Limits</u>
Coarseness Factor	< 50 or > 73	< 45 or > 75
Workability Factor	< 30 or > 38	< 28 or > 44

Corrective Action Limits

Action Limits will be monitored throughout the production process

Action limits are set at the operation boundary limits as established on Table 902-1 Grading Requirements chart as provided by MDOT.

The Contractor/Engineer will be notified whenever the process approaches an action limits.

Suspension of Work Limits

When and if the production gradation have resulted a value that is outside the operational limits as set by the chart provided by MDOT, production will cease and the following will be implemented to correct the gradation back within the action limits / operational boundaries lines.

Material causing values to exceed limits will be removed from production operations and stockpiled separately as to not be incorporated into production.

Stockpile to be investigated for segregation possibilities

Suppliers Load out reports to be reviewed for discrepancies

Supplier to be contacted and revise producing operations if gradations need to be altered and brought back within MDOT requirements.

ATTACHMENT E
• CORRECTIVE ACTION REPORT •



**DRIESENKA &
ASSOCIATES, INC.**

Engineering • Surveying • Testing

3760 Carpenter Road
Ypsilanti, Michigan 48197
Ph. (734) 368-9483 • Fax (269) 353-7836
www.driesenga.com

CORRECTIVE ACTION FORM

CONTRACTOR:	D&A PROJECT NO.:	DATE:
PROJECT:	QUALITY CONTROL TECHNICIAN:	
PROJECT ENGINEER:	CONTROL SECTION/MDOT JOB NO.:	

DESCRIPTION OF REASON FOR CORRECTIVE ACTION:

PROPOSED CORRECTIVE ACTION:

CORRECTIVE ACTION TAKEN & ACCEPTED:
