



Review Status: APPROVED AS NOTED

for MDOT by AECOM Great Lakes, Inc.
AECOM | 3950 Sparks Dr. SE | Grand Rapids, MI 49546

Reviewer: DPC

Date: 11/16/2020

Review is for general conformance with the design concept and contract documents. Markings or comments shall not be construed as relieving the Contractor from compliance with the contract documents nor departure therefrom. The Contractor remains responsible for details and accuracy, for confirming and correlating all quantities and dimensions, for selecting fabrication processes, for techniques of assembly and construction, and for performing the work in a safe manner. Markings or comments do not authorize work resulting in contract cost revisions unless stated in separate letter or work order from the Engineer.

CONCRETE QUALITY CONTROL PLAN

**Per Special Provision 12SP-604A-07 Local Agency dated 6-30-17
QUALITY CONTROL AND ACCEPTANCE OF PORTLAND
CEMENT CONCRETE
(FOR LOCAL AGENCY PROJECTS ONLY)**

Contract ID: PW 7023

**Project: Conner Street Repairs
Detroit, MI**

**Concrete Contractor:
Fort Wayne Contracting
And
Century Cement Company**

**Submitted By:
Construction Consulting & Testing, Inc.
Concrete QC Consultant**

Date: November 13, 2020

Contractor Administered Quality Control

General

This plan covers the scope of concrete QC for the project described herein. The QC Plan is developed with the intent is to identify the entities and their responsibilities as involved with the production, placement and quality control of concrete covered by special provision 12SP-604A-07. The content of the plan is formatted to follow the QC content guidelines of 12SP-604A-07.

The objective of the concrete QC Plan and its implementation is to insure that the concrete materials and placement for this project are in general accordance with applicable project concrete specifications.

This plan is written specifically for this project by Construction Consulting and Testing, Inc. for the implementation of the concrete QC program.

This plan shall be reviewed and enforced by the prime, subcontractors and suppliers involved with furnishing and placing concrete in general accordance with 12SP-604A-07.

A. Organization Chart

Concrete Contractor:

Fort Wayne Contracting
Chris Honore
313-368-3400

Century Cement
AJ Pighin
734-341-3523

Concrete Suppliers:

McCoig Materials
Josh Werner
734-216-4276

Concrete QA

MDOT/Consultant

Concrete QC

CCT
Mitch Forst
419-466-3255

B. QC Plan Administrator

Mitch D. Forst, P.E.
Construction Consulting & Testing, Inc.

Qualifications: Michigan P.E. # 56151
MCPA Level II Concrete – Exp. 4/15/2023

C. QC Testing Staff

The following individuals are ACI/MCPA Level I / Level II certified employees of CCT who have been identified as possible technicians for use on this project:

<u>Name</u>	<u>Expiration Date</u>	<u>Certification</u>
Mitch Forst	4-15-23	ACI/ MCA L-I/II
Jeff Mandell	4-15-23	ACI/ MCA L-I
Karl Spoores	4-15-23	ACI/MCA L-I
Mike Taylor	4-15-23	ACI/MCA L-I
Jake Kaiser	4-15-23	ACI/ MCA L-I
Ray McQueen	4-15-23	ACI/ MCA L-I
James Richardson	4-15-23	ACI/ MCA L-I

Ian Raginia	4/15/22	ACI/ MCA L-I
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Certifications are located in the Appendix. Note: for certs expiring in 2023 we are waiting on MCA to forward verification, ACI certs are in the appendix.

D. QC-Production Interaction

CCT will perform start up and QC testing on-site. In the event any load exceeds the applicable action limits, as defined in this QCP, CCT will notify the mix supplier to inform of specific test results. Mix adjustments will be the responsible of the mix supplier. Any material with parameters exceeding the suspension limits will not be placed on the project.

E. Coordination of Activities

All concrete pours will be scheduled by the project foreman or as assigned by the foreman. A minimum 24 hour notice will be provided to the Engineer for QA and CCT for QC.

Early cylinder breaks for form removal, loading or opening to traffic will be performed at CCT's lab at 35410 Mound Rd, Sterling Heights, MI. CCT will provide a minimum 24 hour notice to the Engineer or their assigned consultant for witnessing of breaks. Beam breaks will be witnessed in the field.

F. Documentation, Procedures & Submittals

JMF's: Mix design JMF's will be submitted to the concrete contractors from the concrete supplier. The prime/subcontractor will submit proposed JMF's to the project engineer for approval. JMF's approved for use will be submitted to the QC consultant. Approved JMF's that are intended for use on the project will be included in the appendix of this QCP.

Stockpile management plans and verification of mixes for non ASR will be submitted by the mix supplier to the QC consultant for inclusion in this QCP.

QC Test Results: CCT will perform on-site and laboratory testing in accordance with the following ASTM standards, as applicable. Documented QC records and test results will be forwarded to the prime/subcontractor and Engineer within 24 hours after the date of the pour and break date. Break reports will also be forwarded to the mix supplier. Samples of report formats are contained in the Appendix.

<u>ASTM</u>	<u>Description</u>
C31	Making, Curing, Storing, Transporting & Logging Cylinders
C33	Grading Concrete Aggregate
C39	Compressive Strength of Cylindrical Concrete Specimens
C40	Organic Impurities in Fine Agg. For Concrete
C138	Unit Weight, Yield and Gravimetric Air of Concrete
C143	Slump of Concrete
C172	Sampling Fresh Concrete
C173	Concrete Air Content by Volumetric Method (Rollometer)
C192	Making And Curing Concrete Test Specimens in the Laboratory
C231	Concrete Air Content by Pressure Method
C293	Flexural Strength of Concrete (Using Simple Beam With Center-Point Loading)
C803	Penetration Resistance of Hardened Concrete
C1064	Temperature of Freshly Mixed Hydraulic-Cement Concrete
C1077	Labs Testing Concrete & Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation
C1231	Use of Unbonded Caps in Determination of Compressive Strength of Hardened Concrete Cylinders

G. Project & Plant Specifics

PROJECT: Conner Ave concrete repairs, Detroit, Michigan.

Concrete Mixes and Use:

<u>Mix Type</u>	<u>Items</u>	<u>Est. Quantity (cyds)</u>	<u>Pay Method</u>
P1/PNC	Structure Adjustments	50	12SP-604A-07
P1/PNC	Sidewalks/Curb/Patches	300	12SP-604A-07

PLANT:

Mix supplied by McCoig Materials.

Estimated transported time may range from of 20-40 minutes pending traffic and pour/plant location.

H. Plant Certifications/Inspections

The current NRMCA plant certification has been submitted with the mix designs.

I. Testing Equipment Calibration

A complete list of equipment calibrations is contained in the Appendix.

J. Testing & Field Curing of QA & QC Specimens

Field testing of fresh concrete will conform to the applicable ASTM procedures identified in section F above. 4" x 8" cylinders will be used for compressive strength specimens; cylinders will be field cured to represent the curing of the concrete that they represent. Cylinders to be transported the lab for final curing within 24 to 48 hours of placement.

K. Stockpile Management

Stockpile management is a QC function performed by the supplier. The mix supplier has submitted the plan with the mix designs.

L. Corrective Action Plan:

This is a local agency project per 12SP-604A-07.

Note: This project does not contain PWL items.

The purchasing Contractor will be responsible for halting placement and/or rejecting concrete when the suspension or rejection limits are exceeded as defined herein. CCT will inform all applicable parties of all test results exceeding the Action Limits.

non-PWL mixtures will be controlled per table 2 of 12S-P604A-07:

<u>Quality Characteristic</u>	<u>Action Limits</u>	<u>Rejection Limits</u>	<u>Suspension Limits</u>
Air Content, %	< 5.7 or > 8.3	< 5.5 or > 8.5	< 5.0 or > 9.0
Conc Temp, F	< 50 or > 87 at plant	< 45 or > 90 at placement	< 45 or > 90 at placement
Slump, max (in)	½” below max. for 0-3” max. slump designs 1” below max for 4-6” max. slump designs	Max.allowable per mix design	Max.allowable per mix design

Action Limits Exceeded: In the event a QC or QA test indicates an air content/loss, slump, temperature or aggregate gradation (modified mixes only) is outside of the action limits, the QC technician will inform the QC Administrator, contractor, on-site inspector and the supplier to inform of the parameters and the supplier will make the corrective actions if deemed necessary. The actions of the supplier will be documented in the QC report. After any test exceeding the action limits, the following load will be tested to verify mix control.

Rejection Limits Exceeded: In the event a QC or QA indicates a rejection limit is exceeded, the placement of the load will be halted and the QC technician will inform the mix supplier, contractor, on-site inspector and QC Administrator. All adjustments to the mix will be made by the supplier. If the mix can be brought to within tolerance within the allowable time the mix will be placed, otherwise it will be rejected. Any mix adjustments will be made by the supplier and documented on the QC report. Whenever a rejection limit is exceeded, the following load will be tested for conformance.

Suspension Limits Exceeded: In the event a QC or QA indicates a suspension limit is exceeded, the placement of the load will be halted as well as production at the plant. The QC technician will inform the mix supplier, contractor, on-site inspector and QC Administrator. All adjustments to the mix will be made by the supplier and communicated to the Engineer’s on-site QA representatives. Production will resume when the Engineer’s representative grants approval. If the mix for the particular load that tested out of specification can be brought to within

tolerance within the allowable time the mix will be placed, otherwise it will be rejected. Any mix adjustments will be made by the supplier and documented on the QC report. Whenever a suspension limit is exceeded, the following 2 loads will be tested for conformance.

M. Mix Time and Transport

Minimum batch mixing time: 45 seconds (turbine/pan mixer) or 60 seconds (tilt drum) in central drum then transferred to truck mixer and a minimum of 70 revolutions and complete mixing for a dry batch facility.

Estimated batch to on-site time: 20-40 minutes pending on traffic and pour/plant location.

N. Placement and Consolidation Methods

Pavement/Walks/Curb: Mix will be placed from the dump/chute on to the grade or forms. Consolidation will be by machine vibrators, hand vibrator and/or agitation/leveling by come along, roller screed and/or float.

O. Air Content Stability

Testing for air loss after the concrete has gone through a concrete pump will be checked for each placement utilizing a concrete pump. If the loss exceeds 1.5% the production will be halted until corrective actions are taken to reduce the air loss to less than 1.5%. For concrete placed by pump, QA and QC cylinders shall be taken after being pumped.

If concrete is being placed by slipform machine, the air loss prior to and after the slipform machine will be tested once per week. If the loss exceeds 1.5% the production will be halted until corrective actions are taken to reduce the air loss to less than 1.5%. These samples will be taken from the chute going into the machine and after the concrete has been extruded from the machine.

P. Hot & Cold Weather Concreting

Hot weather: concrete operations will cease if the on-site concrete temperatures reach 90F. Concrete cure will be applied upon completion of finishing operations.

Cold weather: The majority of concrete placement on this project will not be affected by low ambient temperatures during placement or curing, as such, the standard temperature and weather limitations of MDOT Standard Specifications for Construction section 602.03 will be adhered to. If the local average minimum temperature in the next 10 consecutive days is forecast to be below 40 degrees F, a revised QC plan will be submitted, for the Engineer's approval, addressing, in detail, changes in materials, concrete batching and mixing processes, construction methods, curing, and protection of the in situ concrete to ensure that the necessary quality characteristics of the hardened concrete product will not be compromised as a result of the cold weather. The revised QC plan must be approved by the Engineer prior to cold weather concrete

Current forecast is such that the revised QC plan is required for cold weather.



placement.

Q. Control charts

Sample control charts are located in the Appendix.

R. Non-ASR Documentation

Information provided by mix supplier to the concrete contractor.

S. Mix Designs

Copies of mix designs identified for use on this project are listed below and contained in the Appendix.

Fort Wayne Contracting:

PNC – Mix ID #P-NC0M. Structure Adjustments.

Century Cement Company:

PNC – Mix ID #P-NC0M. Pavement.

P1 – Mix ID #P1-DET. Walks/Curb.

P1 – Mix ID #P1-DETM. Walks/Curb.

T. JMF Placement

See item S. above

U. Frequency of Sampling & Testing (Lot Size)

The first load or a minimum of one test per day of each mix type per day will be tested for plastic properties prior to placement. One set of concrete strength specimens will be cast for each day's placement.

It is proposed that each day's placement be considered a lot for pay factor determination per 12SP-604A-07 section d.3.

It is proposed that each day's lot be broken down into sublots as follows:

<u>Anticipated Daily Production per JMF</u>	<u>Sublot Size</u>
< 250 cyd's	Day's Placement Qty

QC Testing will be conducted as follows:

<u>Frequency</u>	<u>Fresh Concrete Properties</u>	<u>Concrete Strength Cylinders</u>
Daily Sublot Sample	Full Test	1 Set of Cylinders

V. Handling and protection of test specimens

Initial Curing of QC/QA Cylinders: The contractor will provide curing facilities to prevent extreme exposure during initial cure time. Initial cure time for QA and QC cylinders will be no less than 8 hours and no more than 48 hours. The engineer is responsible for transport of QA and CCT will be responsible for the QC cylinders.

W. Finish & Curing

Concrete items to receive trowel/float finish with broom/tine texture as applicable.

Spray cure will be applied where applicable. Roadway and structure concrete shall comply with MDOT CMS 602.03M and 706.03N, with the curing compound conforming with MDOT CMS 903.06/903.07.

X. Ride Quality

Not applicable.

END OF PLAN –APPENDIX ATTACHED.

TECHNICIAN CERTIFICATIONS

This is to certify that



Mitch Forst

has demonstrated knowledge and ability by
successfully completing the MCA certification
requirements and is hereby recognized as a

MCA Level II Advanced Concrete Technician

Date: **1/29/2020**

Examiner: **William Foster**

Expires: **4/15/2023**

This is to certify that



Mitch Forst

has demonstrated knowledge and ability by
successfully completing the MCA certification
requirements and is hereby recognized as a

Michigan Concrete Technician Level I

Date: **1/29/2020**

Examiner: **William Foster**

Expires: **4/15/2023**

ACI Concrete Field Testing Technician - Grade I

MITCHELL D FORST

Certification ID #00090165

Expires on: 01/29/2025

Verify at CheckACI.org



Certification

AMERICAN CONCRETE INSTITUTE

This is to certify that

KARL B SPOORES

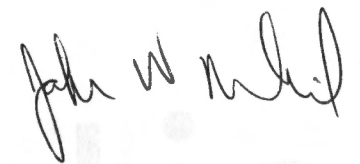
*has demonstrated knowledge and ability by
successfully completing the ACI Certification
requirements and is hereby recognized as an*

ACI Concrete Field Testing Technician - Grade I

Certified Date: 03/23/2017

Expires: 03/23/2022

Examiner of Record: William L Foster


ACI Managing Director of Certification

The Authenticity of this certification can be verified at www.ACICertification.org/verify

AMERICAN CONCRETE INSTITUTE

This is to certify that

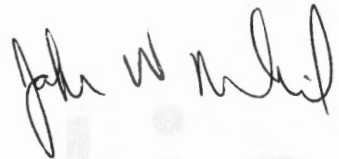
MICHAEL R TAYLOR

*has demonstrated knowledge and ability by
successfully completing the ACI Certification
requirements and is hereby recognized as an*

ACI Concrete Field Testing Technician - Grade I

Certified Date: 03/23/2017 **Expires:** 03/23/2022

Examiner of Record: William L Foster


ACI Managing Director of Certification

The Authenticity of this certification can be verified at www.ACICertification.org/verify



Verify A Certification

SEARCH RESULTS

Name: Mandell

Your search returned 4 records.

Mandell, Jeffrey A

ACI AGGREGATE TESTING TECHNICIAN - LEVEL 1

Expires: February 21, 2024

PERRYSBURG, OH 43551 United States

Mandell, Jeffrey A

ACI CONCRETE FIELD TESTING TECHNICIAN - GRADE I

Expires: February 27, 2025

PERRYSBURG, OH 43551 United States

Mandell, Jeffrey A

ACI CONCRETE LABORATORY TESTING TECHNICIAN - LEVEL 1

Expires: February 21, 2024

PERRYSBURG, OH 43551 United States

Mandell, Jeffrey A

ACI CONCRETE STRENGTH TESTING TECHNICIAN

Expires: February 21, 2024

PERRYSBURG, OH 43551 United States

Results Per Page 10 ▼



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[ACI Attends the Precast Show to Promote Concrete Field Testing Certification Programs](#)

March 25, 2020

[ACI Seeks Support in South Carolina](#)

March 19, 2020

[American Concrete Institute Announces ACI 318-19 Building Code On-Demand Course](#)

March 17, 2020

[Announcing ACI Virtual Committee Days Following](#)



This is to certify that

Jeff Mandell

has demonstrated knowledge and ability by
successfully completing the MCA certification
requirements and is hereby recognized as a

Michigan Concrete Technician Level I

Date: **2/27/2020**

Examiner: **William Foster**

Expires: **4/15/2023**



Verify A Certification

SEARCH RESULTS

Name: kaiser

Your search returned 1 record.

Kaiser, Jacob R

ACI CONCRETE FIELD TESTING TECHNICIAN - GRADE I

Expires: February 27, 2025

SYLVANIA, OH 43560 United States

Results Per Page 10 ▼



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March 19, 2020

[American Concrete Institute Announces ACI 318-19 Building Code On-Demand Course](#)

March 17, 2020

[Announcing ACI Virtual Committee Days Following](#)



This is to certify that

Jacob Kaiser

has demonstrated knowledge and ability by
successfully completing the MCA certification
requirements and is hereby recognized as a

Michigan Concrete Technician Level I

Date: 2/27/2020

Examiner: William Foster

Expires: 4/15/2023

Verify A Certification

SEARCH RESULTS

Name: Richardson

Your search returned 5 records.

James D Richardson

[ACI Concrete Field Testing Technician – Grade I](#)

Expires: April 18, 2023

Warren, MI 48088-6224 United States

Verify A Certification

SEARCH RESULTS

Name: mcqueen

Your search returned 1 record.

Raymond E Mcqueen II

[ACI Concrete Field Testing Technician – Grade I](#)

Expires: March 12, 2025

ST CLAIR SHORES, MI 48081 United States

This is to certify that

Ray McQueen

has demonstrated knowledge and ability by
successfully completing the MCA certification
requirements and is hereby recognized as a

Michigan Concrete Technician Level I

William Foster

Date: 3/12/2020

Examiner:

Expires: 4/15/2023

Michigan Concrete Association Certification Board of Examiners

Hereby certifies that on 3/12/2020

Ray McQueen

did, by written and performance examinations, complete the requirements for

Concrete Field Testing Technician Level I

This certification expires on 4/15/2023

MCA Certification Board of Examiners

Michigan Department of Transportation

ACI – Greater Michigan Chapter

ACI – West Michigan Chapter

Alpena Community College

Daniel L. DeGraaf

MCA Director of Technical Services/Training

Daniel L. DeGraaf

Executive Director-Daniel DeGraaf

William Foster

Examiner-William Foster



This is to certify that

Ian Raginia

has demonstrated knowledge and ability by
successfully completing the MCA certification
requirements and is hereby recognized as a

Michigan Concrete Technician Level I

Date: 4/18/2019

Examiner: William Foster

Expires: 4/15/2022

MIX DESIGN JMF'S



McCoig Materials

PO Box 6349,
Plymouth, MI 48170

November 11, 2020

Century Cement
12600 Sibley Rd
Riverview, MI 48193
Attn: AJ Pighens

Re: City of Detroit PW-7023 Conner Ave from Mack to Jefferson

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

<u>Mix Code</u>	<u>Description</u>
P1-DET	3500 PSI CITY OF DETROIT GRADE P1 PAVEMENT AND CURB
P1-DETM	3500 PSI CITY OF DETROIT GRADE P1 PAVEMENT AND CURB
P-NC0M	3500 PSI AE MDOT GRADE P-NC PATCHING + MR

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.

All mix designs and accompanying JMF's on the above mentioned project was designed by a MCA Michigan Level II technician and all applicable standard test methods have been followed in verifying the mix design and JMF.

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,

Chris Toth
Customer Service Representative
McCoig Materials, LLC

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 PW-7023	PROJECT LOCATION Conner Mack to Jefferson , Detroit	PROJECT ENGINEER City of Detroit	
CONCRETE SUPPLIER McCoig Materials		PLANT LOCATION Detroit, MI	PLANT NUMBER M-11 / M-24	
GRADE OF CONCRETE P1	PSI REQUIREMENT 3500	MIX DESIGN NUMBER P1-DET	INTENDED USE (S) Sidewalks	CONTRACTOR QC PLAN Y ☐ SUBMITTED? (MDOT use only) N ☐
PRIME / SUBCONTRACTOR(S) Century Cement / All Subcontractors				
STANDARD SPEC DATE 01/01/12		QC/QA SPECIAL PROVISION DATE 06/14/19	JMF EFFECTIVE DATE 11/11/20	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	-	Unit Weight (Dry Rodded) DR or	2.82
Unit Weight (Dry Rodded) DR or	97	Unit Weight (Dry Rodded) DR or	-	Fineness Modulus (FM)	
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 (distributer & plant)	-	Water Reducer	-
Fly Ash Class	-	Accelerator	-
Fly Ash Specific Gravity	-	Other	-
Slag Cement Source	-	(Indicate Source & Product name with ticket code)	
Slag Cement Grade	-		
Slag Cement Specific Gravity	-	TYPE OF MIX WINTER/SUMMER	All Year
Other	-		

MIX PROPORTIONS

Volume of Coarse Aggregate (DR)	69%	Design Slump	5"
Coarse Aggregate Weight (Dry)	1800 (SSD 1810)	Specified Slump	0 - 6"
Intermediate Aggregate Weight (Dry)	-	Design Air %	6.5%
Fine Aggregate Weight (Dry)	1216 (SSD 1230)	Specified Air %	5.5% - 8.5%
Portland Cement Weight	564	PSI minimum required	3500
Fly Ash Weight	-	Total Cementitious	564
Fly Ash Percent of Cementitious	-	Yield cu/ft	27.0 +/- 0.3
Slag Cement Weight	-		
Slag Cement Percent of Cementitious	-		
Total Water Weight	262		
Net Water Weight	254		
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: 11/11/20

STRENGTH PERFORMANCE REPORT

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

Mix : P1-DET - CITY OF DETROIT P1
Period : 17 Jan 2018 **To** 06 Jul 2020

Number of Tests	3	Specified Strength	3500	28 Day	Compressive Test
Average Strength	4620	Corrected CofV	0	ACI Running Average of 3 Criteria	Yes
Required Strength	4700	Standard Deviation	0	ACI Standard Deviation Criteria	No

	Air Content %	Slump in	Concrete Temp deg F	Density Test lb/ft3	Strength28 Day psi
Count	3	3	3	3	3
Average	6.97	3.42	73	143.8	4620
STDEV	0.67	0.52	8	2.0	1170
COV%	9.6	15.2	11.4	1.4	25.3
Range Min	6.40	3.00	64	141.8	3530
Range Max	7.70	4.00	80	145.8	5860

Date	Sample	Air Content %	Slump in	Concrete Temp deg F	Air Temp deg F	Density Test lb/ft3	Strength28 Day psi
7/6/2020	2203057	7.70	3.25	80	72	143.7	3530
6/12/2020	2201511	6.40	4.00	76	59	145.8	4480
1/17/2018	1179381	6.80	3.00	64	18	141.8	5860

**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 PW-7023	PROJECT LOCATION Conner Ave from Mack to Jefferson, Detroit	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-DETM	INTENDED USE (S) Sidewalks	CONTRACTOR QC PLAN Y ☐ SUBMITTED? (MDOT use only) N ☐

PRIME / SUBCONTRACTOR(S)
Century Cement / All Subcontractors

STANDARD SPEC DATE 01/01/12	QC/QA SPECIAL PROVISION DATE 06/14/19	JMF EFFECTIVE DATE 11/11/20	AGG. CORRECTION 0.2%
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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	-	Unit Weight (Dry Rodded) DR or	2.82
Unit Weight (Dry Rodded) DR or	97	Unit Weight (Dry Rodded) DR or	-	Fineness Modulus (FM)	
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-PR
Cement Type	I/II Low Alkali	Water Reducer	Premiere - OptiFlo MR-0MRLI-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	-	(Indicate Source & Product name with ticket code)	
Slag Cement Grade	-		
Slag Cement Specific Gravity	-	TYPE OF MIX WINTER/SUMMER	All Year
Other	-		

MIX PROPORTIONS

Volume of Coarse Aggregate (DR)	69%	Design Slump	5"
Coarse Aggregate Weight (Dry)	1800 (SSD 1810)	Specified Slump	0 - 6"
Intermediate Aggregate Weight (Dry)	-	Design Air %	6.5%
Fine Aggregate Weight (Dry)	1216 (SSD 1230)	Specified Air %	5.5% - 8.5%
Portland Cement Weight	564	PSI minimum required	3500
Fly Ash Weight	-	Total Cementitious	564
Fly Ash Percent of Cementitious	-	Yield cu/ft	27.0 +/- 0.3
Slag Cement Weight	-		
Slag Cement Percent of Cementitious	-		
Total Water Weight	262		
Net Water Weight	254		
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:

 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: 11/11/20

STRENGTH PERFORMANCE REPORT

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

Mix : P1-DETM - CITY OF DETROIT P1 MR
Period : 25 Jun 2019 **To** 05 Aug 2019

Number of Tests	5	Specified Strength	3500	28 Day	Compressive Test
Average Strength	5090	Corrected CofV	0	ACI Running Average of 3 Criteria	Yes
Required Strength	4700	Standard Deviation	0	ACI Standard Deviation Criteria	No

	Air Content %	Slump in	Concrete Temp deg F	Density Test lb/ft3	Strength28 Day psi
Count	5	5	5	5	5
Average	6.34	4.55	79	143.3	5090
STDEV	0.47	0.45	4	1.1	260
COV%	7.4	9.8	4.8	0.8	5.1
Range Min	5.70	4.00	75	141.5	4830
Range Max	6.80	5.00	83	144.2	5500

Date	Sample	Air Content %	Slump in	Concrete Temp deg F	Air Temp deg F	Density Test lb/ft3	Strength28 Day psi
8/5/2019	1208753	5.70	4.25	79	67	144.2	5140
7/30/2019	1208281	6.60	4.50	83	70	141.5	4930
7/24/2019	14126427	6.80	5.00	75	68	143.9	5060
7/18/2019	3050952	6.00	4.00	82	68	143.7	5500
6/25/2019	14125134	6.60	5.00	75	67	143.4	4830

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 PW-7023	PROJECT LOCATION Conner Ave From Mack to Jefferson Detroit	PROJECT ENGINEER City of Detroit	
CONCRETE SUPPLIER McCoig Materials		PLANT LOCATION Detroit, MI		PLANT NUMBER M-11
GRADE OF CONCRETE P-NC	PSI REQUIREMENT 3500	MIX DESIGN NUMBER P-NC0M	INTENDED USE (S) Pavement, Patches	CONTRACTOR QC PLAN Y ☐ SUBMITTED? (MDOT use only) N ☐
PRIME / SUBCONTRACTOR(S) Century Cement / All Sub-Contractors				
STANDARD SPEC DATE 01/01/12		QC/QA SPECIAL PROVISION DATE 06/14/19	JMF EFFECTIVE DATE 11/11/20	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 (distributer & plant)	-	Water Reducer	-
Fly Ash Class	-	Accelerator	-
Fly Ash Specific Gravity	-	Other	-
Slag Cement Source	-	(Indicate Source & Product name with ticket code)	
Slag Cement Grade	-		
Slag Cement Specific Gravity	-	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)	1167 (SSD 1180)	Specified Air %	5.5% - 8.5%
Portland Cement Weight	658	PSI minimum required	3500
Fly Ash Weight	-	Total Cementitious	658
Fly Ash Percent of Cementitious	-	Yield cu/ft	27.0 +/- 0.3
Slag Cement Weight	-		
Slag Cement Percent of Cementitious	-		
Total Water Weight	287		
Net Water Weight	263		
WC (as designed)	.40		
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: 11/11/20

STRENGTH PERFORMANCE REPORT

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

Mix : P-NC0M - MDOT P-NC W/ MR WO/NCA
Period : 05 Sep 2019 **To** 06 Mar 2020

Number of Tests	10	Specified Strength	3500	28 Day	Compressive Test
Average Strength	4810	Corrected CofV	0	ACI Running Average of 3 Criteria	Yes
Required Strength	4700	Standard Deviation	0	ACI Standard Deviation Criteria	Yes

Date	Sample	Air Content %	Concrete Temp deg F	Slump in	Strength28 Day psi
3/6/2020	2198497	7.00	64	5.25	4880
10/28/2019	1215241	6.00	68	4.50	5180
10/26/2019	3053991	7.50	67	5.75	4250
10/19/2019	1214623	7.10	70	6.00	4620
10/8/2019	1213720	6.80	78	5.50	4050
10/4/2019	2192863	5.80	71	4.50	5130
9/16/2019	19000803	6.00	80	6.00	4900
9/15/2019	2191622	5.60	80	5.00	5560
9/6/2019	1211051	7.20	74	5.75	4590
9/5/2019	6105014	7.50	83	5.50	4930



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

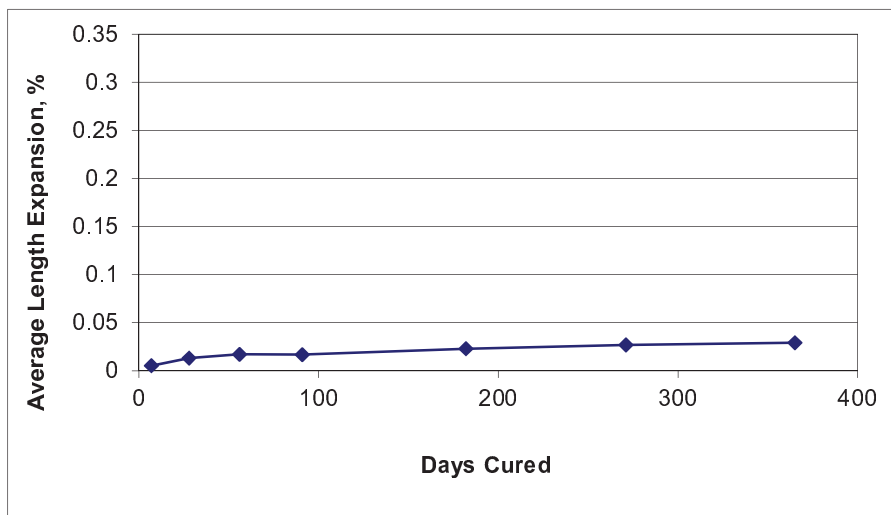
cc:

**SME**

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
 Location: EEH
 Date Molded: 06/28/18 Fine Aggregate: Spring Mill 2NS #47-003
 Portland Cement: St. Mary's Type I 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
Oct 2 2019 9:01 PM

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 the professional engineer, 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 black 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

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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

73345

SCALE CALIBRATION REPORT

TECHNICIAN: <u>Alex Lulla / Jeff Engism</u>		DATE: <u>9-3-20</u>		Next Due:	
SCALE MFG: <u>ALKON</u>		CUSTOMER: <u>KOENIG FUEL & SUPPLY CO.(SHIP</u>			
MODEL NO: <u>Spectrum</u>		ADDRESS: <u>500 E. SEVEN MILE</u>			
SERIAL NO: <u>N/A1</u>					
LOCATION: <u>Cement Scale Plt.1</u>		<u>DETROIT, MI 48203</u>			
CAPACITY/RESOLUTION: <u>10,000 X 10 LB</u>					
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	<u>0lb</u>	<u>0lb</u>	<u>0N76, 0N77, 0N7A, 22222, 104, 120 @ 1000Lb</u>		
2000LB	<u>2000Lb</u>	<u>2000Lb</u>			
4000LB	<u>4000Lb</u>	<u>4000Lb</u>			
6000LB	<u>6000Lb</u>	<u>6000Lb</u>	Shift Test: Before <u>L/C Cable/Indicator</u> After		
			Position 1:	<u>NA</u>	<u>NA</u>
			Position 2:		
			Position 3:		
			Position 4:		
				1	2
				3	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					



PJLA
Calibration
Accreditation # 59303

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

73346

SCALE CALIBRATION REPORT

TECHNICIAN: <i>Alvin Lulka / Jeff Ingison</i>	DATE: <i>9-3-20</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		
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		TOLERANCE: ☐ YES ☐ NO ☐ LEGAL		FOR TRADE		
	BEFORE	AFTER	SERIAL NUMBERS OF WEIGHTS USED:				
0 LB	0LB	0LB	0N76, 0N77, 0N7A, 22222, 10V, 120 @ 1000LB				
2000LB	2000LB	2000LB					
4000LB	4000LB	4000LB					
6000LB	6000LB	6000LB	Shift Test: Before		L/C Cable/Indicator	After	
12,000 LB	11980LB	11980LB	Position 1:	NA	1	2	NA
18,000 LB	18,000LB	18,000LB	Position 2:				
24,000 LB	24,160LB	24,160LB	Position 3:				
30,000 LB	30,100LB	30,100LB	Position 4:				
36,000 LB	35960LB	35,960LB			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	August 19, 2020
Certified By	Mike McKown

Dispenser Serial	Dispenser Product	Metered	Measured	Tol %
	Impede CNI	256	256	0%
McCoig 4	ConAir	22	22	0%
McCoig 4	OptiFlo 50	100	100	0%
McCoig 4	UltraFlo 2000	200	200	0%
McCoig 4	OptiFlo MR	265	265	0%
McCoig 4	ProLong L	120	120	0%
McCoig 4	NitroCast K	256	256	0%
Mccoig 4	ConAir 260	25	25	0%
Mccoig 4	PCA SRA	200	200	0%
D-?	ConAir X	30	30	0%

Certificate Signature

A handwritten signature in blue ink, appearing to read "Cody", is written over a large, light blue, stylized outline of the letter "C".



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	Meter Type:	Flow
Plant Number:	1	Meter Brand name:	Badger
MDOT Plant Number:	M-11	Plant Meter No.:	No. 1
Water Temperature:	120°F	Meter Serial No.:	
Ambient Temperature:	44°F	Meter Setting:	0.0413
		Pulse Count:	1.0 Gallons

Date Information

Calibration Date: 8/20/2020
Next Calibration Date: 11/18/2020

Test 1

Metered Quantity	50 gallons	Measure Quantity	50 gallons
Meter Setting	0.304	Adjusted Setting	Not Required

Test 2

Metered Quantity	50 gallons	Measure Quantity	50 gallons
Meter Setting	0.304	Adjusted Setting	Not Required

Test 3

Metered Quantity	50 gallons	Measure Quantity	50 gallons
Meter Setting	0.304	Adjusted Setting	Not Required

I certify the above information and test results are accurate.

Rob Esche

Test Performed By:

Chris Toth

Test Witnessed By:

Signature:

Date

8/20/2020

Signature:

Date

8/20/20

National Ready Mixed Concrete Association



Certificate of Conformance For Concrete Production Facilities

THIS IS TO CERTIFY THAT

Eastside Concrete Plant 14, Warren, MI

McCoig Materials, LLC

Plant # M-24

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

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



Signature of Licensed Professional Engineer

March 26, 2020

Inspection Date

May 14, 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.

Signature of Company Official

BUSINESS UNIT LEADER

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.

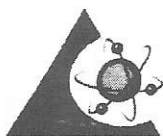
This certificate is issued by the National Ready Mixed Concrete Association on verification that the production facility conforms to the requirements of the NRMCA Certification of Ready Mixed Concrete Production Facilities, QC3. Unauthorized reproduction or misuse of this certificate may result in legal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

Plant ID #: 802699

Certification ID #: 25934

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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

73473

SCALE CALIBRATION REPORT

TECHNICIAN: ALEX LVLKO / MIKE LVLKO	DATE: 9-24-2020	Next Due:
SCALE MFG: ALKON	CUSTOMER: WARREN EASTSIDE CONCRETE(M	
MODEL NO: Spectrum	ADDRESS: 23055 GROESBECK HWY	
SERIAL NO: N/A1		
LOCATION: Cement Scale	WARREN, MI 48089	

CAPACITY/RESOLUTION: 10,000 X 5 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	0	105, 0N77, 104, 222 17, 116,
2000LB	2000	2000	115 @ 1000LB
4000LB	4000	4000	Shift Test: Before
6000LB	6005	6005	L/C Cable/Indicator After
			Position 1: NA
			Position 2:
			Position 3:
			Position 4:
			1
			2
			3
			4
			NA

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

73474

SCALE CALIBRATION REPORT

TECHNICIAN: ALEX LULKO (MIKE LULKO)		DATE: 9-24-2020		Next Due:		
SCALE MFG: ALKON		CUSTOMER: WARREN EASTSIDE CONCRETE (M)				
MODEL NO: Spectrum		ADDRESS: 23055 GROESBECK HWY				
SERIAL NO: N/A2						
LOCATION: Agg Scale		WARREN, MI 48089				
CAPACITY/RESOLUTION: 36,000 X 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	0	105, 0N77, 104, 22217, 116, 115 @ 1000 LB			
2000LB	2000	2000				
4000LB	4000	4000	Shift Test: Before L/C Cable/Indicator After			
6000LB	6000	6000	Position 1: NA	1	2	NA
12,000 LB	12000	12000	Position 2:			
18,000 LB	18000	18000	Position 3:	3	4	
24,000 LB	24000	24000	Position 4:			
30,000 LB	30000	30000				
36,000 LB	36020	36020				

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.

DISPENSER CALIBRATION

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



Eastside/Warren
McCoig Materials
23055 Groesbeck Hwy
Warren, MI 48089
United States

Date Of Certification	September 09, 2020
Certified By	Mike McKown

Dispenser Serial	Dispenser Product	Metered	Measured	Tol %
Plant 2	ConAir	39	39	0%
Plant 2	OptiFlo 50	225	225	0%
Plant 2	OptiFlo MR	305	305	0%
Plant 2	UltraFlo 2000	150	150	0%
Plant 2	ProLong L	100	100	0%
Plant 2	Impede CNI	256	256	0%
plant 2	NitroCast K	256	256	0%
NA	ConAir 260	30	30	0%

Certificate Signature

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



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:	Eastside	Meter Type:	Flow
Plant Number:	14	Meter Brand name:	Badger
MDOT Plant Number:	M-24	Plant Meter No.:	No. 1
Water Temperature:	62°F	Meter Serial No.:	123456
Ambient Temperature:	64°F	Meter Setting:	0.2445
		Pulse Count:	16 oz

Date Information

Calibration Date:	9/9/2020	Previous Calibration Date:	6/12/2020
Next Calibration Date:	12/9/2020		

Test 1

Metered Quantity	50 gallons	Measure Quantity	50 gallons
Meter Setting	0.2645	Adjusted Setting	Not Required

Test 2

Metered Quantity	50 gallons	Measure Quantity	50 gallons
Meter Setting	0.2645	Adjusted Setting	Not Required

Test 3

Metered Quantity	Not Required	Measure Quantity	Not Required
Meter Setting	Not Required	Adjusted Setting	Not Required

I certify the above information and test results are accurate, no adjustment to the meter was required at this time.

Joseph Smith

Test Performed By:

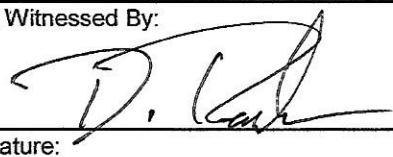


Signature:

Date

Duane Poucher

Test Witnessed By:

 9/9/20

Signature:

Date

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.

SAMPLE TEST REPORTS

TOLEDO OFFICE - 700 S. River Road * Waterville, Ohio 43566 * Ph.: (419) 878-7304
DETROIT OFFICE - 35410 Mound Rd. * Sterling Hts., Michigan 48310 * Ph.: (586) 795-2877

CONCRETE FIELD QA/QC INSPECTION REPORT

Project:				Mix Type:			Theo. Unit Weight:			Air Spec.:	
Contractor:				Mix ID:			Theo. Yield:			Slump Spec.:	
Consultant:				Lot No.:			Supplier:			Temp. Spce.:	
Tester:				Lot Size:			Plant:			Time Spec.:	
Signature:				Date:							

Test No.	Ticket No.	Yds./Cum.	No. of Cylinders	Batch Time	Empty Time	Air Content	Slump	Concrete Temp	Air Temp.	Unit Weight	Yield

General Location:

Test No.	Cyl. Tag / Field ID	Location:

Total Volume:	
---------------	--

Comments: _____

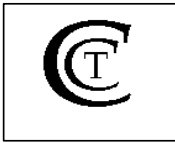
Client: _____

Construction Consulting & Testing, Inc. 700 S. River Road Waterville, Ohio 43566
Ph: 419-878-7304 Fax: 419-878-7305

Date: _____

CCT No.: _____

Page: _____



CONSTRUCTION CONSULTING & TESTING, INC.

TOLEDO OFFICE - 700 S. River Road Waterville, Ohio 43566 Ph.: (419) 878-7304
DETROIT OFFICE - 35410 Mound Rd. Sterling Hts., Michigan 48310 Ph.: (586) 795-2877

Client:

Project:

Date:

CCT No.:

REPORT OF CONCRETE COMPRESSIVE STRENGTH

DATE OF POUR:

LOCATION OF POUR:

SUPPLIER:

TICKET NO.:

MIX I.D.:

FIELD DATA:

BATCH WEIGHTS, (lbs):

DATE:

CEMENT:

BATCH TIME:

WATER:

TEST TIME:

COARSE AGG.:

AIR CONTENT (%):

COARSE AGG.:

SLUMP (in.):

FINE AGG.:

CONC. TEMP. (F):

ADMIXTURES:

AIR TEMP. (F):

UNIT WT. (pcf):

MOLDED BY:

***Testing conforms to ASTM C 172, C 231, C 143, C 1064, C 138, C 31, & C 39/C 39M

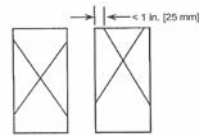
LAB NO.	BREAK DATE	AGE (days)	DIA. (in)	AREA (sq. in.)	LOAD (lbs)	COMPRESSIVE STRENGTH (psi)	TYPE OF FRACTURE

Nominal Cylinder Size: 6" x 12"

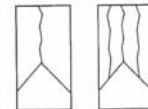
28 DAY AVERAGE

28 DAY SPEC.

Comments:



Type 1
Reasonably well-formed cones on both ends, less than 1 in. [25 mm] of cracking through caps



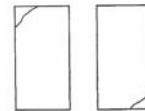
Type 2
Well-formed cone on one end, vertical cracks running through caps, no well-defined cone on other end



Type 3
Columnar vertical cracking through both ends, no well-formed cones



Type 4
Diagonal fracture with no cracking through ends; tap with hammer to distinguish from Type 1



Type 5
Side fractures at top or bottom (occur commonly with unbonded caps)



Type 6
Similar to Type 5 but end of cylinder is pointed

Reviewed By: _____

Distribution:

Typical Fracture Patterns

EQUIPMENT CALIBRATION LIST

CCT Concrete Equipment Inventory/Calibration List

[illegible]

CCT Concrete Equipment Inventory/Calibration List

[illegible]

CCT Concrete Equipment Inventory/Calibration List

CCT #	Laboratory Equipment	Manufacturer	Model #	Serial Number	Freq. Of Cal.	In Service	Last Cal.	Next Cal.	Service Status
161									
162									
163									
164									
165									
166									
167									
168									
169									
170									
171									
172									
173									
174									
175									
176	*Compression Machine (OH)	Forney Co.	325EX	10140	Annually	5/9/2005	2/8/20	2/8/21	In
177	*Compression Machine (MI)	Forney Co.	F-25EX	7021	Annually	10/4/2010	6/2/20	6/2/21	In
178	Concrete Beam Breaker	Humboldt	H-3030	CCT 178	Annually	3/19/2003	1/28/20	1/28/21	In
179	Concrete Beam Breaker	Humboldt	H-3030	CCT179	Annually	5/4/2010	1/28/20	1/28/21	In
180	Concrete Field Scale	Centech	General	CCT 180	Annually	5/12/2016	1/28/20	1/28/21	In
181	Concrete Field Scale	Centech	General	CCT 181	Annually	6/7/2016	1/28/20	1/28/21	In
182	Concrete Field Scale	Centech	General	CCT 182	Annually	7/9/2016	1/28/20	1/28/21	In
183	Concrete Field Scale	ATP	Refrig	CCT 183	Annually	4/5/2014	1/28/20	1/28/21	In
184	Concrete Field Scale	ATP	Refrig	CCT 184	Annually	3/2/2013	1/28/20	1/28/21	In
185	Concrete Field Scale	ATP	Refrig	CCT 185	Annually	3/2/2013	1/28/20	1/28/21	In
186	Concrete Field Scale	ATP	Refrig	CCT 186	Annually	7/8/2012	1/28/20	1/28/21	In
187	Concrete Field Scale	AND FG-60K	FG-60K	CCT 187	Annually	3/4/2003	1/28/20	1/28/21	In
188	Concrete Field Scale	ATP	Refrig	CCT 188	Annually	8/7/2013	1/28/20	1/28/21	In
189	Concrete Field Scale	AND FG-60K	FG-60K	CCT 189	Annually	6/4/2001	1/28/20	1/28/21	In
190									

* Includes verification of upper and lower platen.

CCT Concrete Equipment Inventory/Calibration List

[illegible]

CCT Laboratory Equipment Inventory/Calibration List

[illegible]

CCT Concrete Field Thermometer Standardization/Inventory List

Standardization Procedure: Per ASTM 1064: field thermometer readable and accurate to +/- 1 degree F. Reference thermometer accurate with 0.1 degrees F (NIST Traceable)

Reference Thermometer: CCT #210 as identified on Concrete Inventory List.

[illegible]

Calibration Services, Inc.

300 Buttertown Road
Emlenton, PA 16373

P: (724) 867-6664
F: (724) 867-1346
www.calibrationinc.com
info@calibrationinc.com

Certificate of Calibration

Client: Construction Consultants & Testing
Address: 430 Bishop Road, Suite A
City/St/Zip: Bowling Green, OH 43402

Calibration

Location: 430 Bishop Road, Suite A
City/St/Zip: Bowling Green, OH 43402
PO Number: Vbl. Mitch Forst
Cert Number: 200404 AB
Procedure No: CAL 1.02A
Condition of Device: Good

Calibration Date: 2/3/2020
Suggested Recal Date: 2/3/2021
Technician: Dan Pfeil
Temperature: 17 Degrees C
Humidity: 38.0%
Barometric Pressure: 29.11 in Hg
Device Type: Digital Compression Machine
Manufacturer: Forney
Model Number: 325EX-B-CPILOT
Serial Number: 10140 / ID# CCT176
Range: 3,000 lbs to 325,000

CALIBRATION SYSTEM USED

All calibration standards used in this calibration are traceable to the International System of Units (SI) through NIST or equivalent National Measurement Institute signatories to the CIPM MRA.

Code	Instrument	Capacity	Serial Number	Class A
N/A	Barometer-Control Company	N/A	181717628	N/A
		Reference Number: 6530-9931151	Control Company	
		Date of Test: November 06, 2018	Date Due: November 06, 2020	
C	Morehouse Load Cell	60K	P-9643	2014.00T/1812.00C
		Report No. P-9643J1719	Morehouse Instrument	
		Calibrated: October 17, 2019	Recalibration Due: October 17, 2020	
D	Morehouse Load Cell	400K	851111D	34048.00C
		Report No. 851111DJ1719	Morehouse Instrument	
		Calibrated: October 17, 2019	Recalibration Due: October 17, 2020	

Statement of Compliance

This is to certify that the above described testing device has been calibrated in accordance with CSI's QMS Program based on ISO/IEC 17025 in accordance with ANSI/NCCL Z540-3, the procedure listed above, and ASTM E-4-16 (excluding sections: 6.2, 13 all, 16 all, A1 all). The device has been verified within +/- 1% of applied load. Uncertainties were calculated using square root sum of squares (rss) with a confidence factor of 95% and a coverage of k=2. The expanded uncertainty is 0.16% of applied load. Decision Rule 1 applies: uncertainties are not taken into consideration for in / out of tolerance determination.

Signed


Calibration Technician

Signed


Quality Director

This Certificate is issued as a statement of the fact that on this date the above instrument(s) had an accuracy as indicated in the data section of this certificate. It should not be construed or regarded as a Guarantee or Warranty of any kind (in favor of the client, the client's customers, or the public at large) that the instrument(s) will continue to retain the same percentage (%) of accuracy or efficiency as determined on the date when the calibration, adjustments, and required was performed and reported by Calibration Services, Inc. since the calibrator has absolutely no control over the future operation, damage, maintenance, repairs, and overall condition of the instrument(s) and hereby expressly disclaims any and all liability for damage, or loss sustained by all parties arising or resulting from deterioration, obsolescence, malfunction, or substandard performance of said instrument(s), which shall be deemed to be and which shall remain the sole responsibility of the machine's regular custodian, owner, and/or manufacturer. This document shall not be reproduced except in full, without the written approval of Calibration Services, Inc.



Calibration Services, Inc.

300 Butternut Road
Emlenton, PA 16373

P: (724) 867-6664
F: (724) 867-1346
www.calibrationinc.com
info@calibrationinc.com

Certificate of Calibration

Client: Construction Consultants & Testing
Address: 430 Bishop Road, Suite A
City/St/Zip: Bowling Green, OH 43402

Calibration

Location: 430 Bishop Road, Suite A
City/St/Zip: Bowling Green, OH 43402
PO Number: Vbl. Mitch Forst
Cert Number: 200404 AB
Procedure No: CAL 1.02A
Condition of Device: Good

Calibration Date: 2/3/2020
Suggested Recal Date: 2/3/2021
Technician: Dan Pfeil
Temperature: 17 Degrees C
Humidity: 38.0%
Barometric Pressure: 29.11 in Hg
Device Type: Digital Compression Machine
Manufacturer: Forney
Model Number: 325EX-B-CPILOT
Serial Number: 10140 / ID# CCT176
Range: 3,000 lbs to 325,000

Range Number 1	Range: 3,000 lbs to 325,000 lbs	Graduation: 5 lbs
-----------------------	--	--------------------------

Mode: Compression

As Found: In Tolerance **As Left:** In Tolerance

		Applied		In Tolerance		As Left		In Tolerance		Algebraic Difference	
Grads	Code	Load	As Found	As Left	#1	#2	Final #1	Final #2	Final #1	Final #2	Percent
lbs		lbs	lbs	lbs	lbs	lbs	lbs	lbs	Percent	Percent	Percent
5	C	3000	2995	3000	3000	3000	0.000	0.000	0.000	0.000	0.000
5	C	6000	5995	6000	6005	6005	0.000	5.000	0.000	0.083	-0.083
5	C	12000	12045	12005	12005	12010	5.000	10.000	0.042	0.083	-0.042
5	C	18000	18080	18005	18005	18010	5.000	10.000	0.028	0.056	-0.028
5	C	24000	24125	24010	24010	24015	10.000	15.000	0.042	0.063	-0.021
5	C	30000	30175	30005	30005	30015	5.000	15.000	0.017	0.050	-0.033
5	C	60000	60265	59995	59995	60010	-5.000	10.000	-0.008	0.017	-0.025
5	D	120000	120390	119980	119980	119990	-20.000	-10.000	-0.017	-0.008	-0.008
5	D	180000	180520	179965	179965	179975	-35.000	-25.000	-0.019	-0.014	-0.006
5	D	240000	240635	239940	239940	239955	-60.000	-45.000	-0.025	-0.019	-0.006
5	D	300000	300810	299910	299910	299925	-90.000	-75.000	-0.030	-0.025	-0.005
5	D	325000	325920	324900	324900	324920	-100.000	-80.000	-0.031	-0.025	-0.006
Zero Return			-5	-10	-10	10					



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Certificate of Calibration

Client: Construction Consultants & Testing
Address: 700 South River Road
City/St/Zip: Waterville, OH 43566

Calibration

Location: 35410 Mound Road
City/St/Zip: Sterling Heights, MI 48310
PO Number: Vbl. Mitch Forst
Cert Number: 201862 JB
Procedure No: CAL 1.02A
Condition of Device: Good

Calibration Date: 6/2/2020
Suggested Recal Date: 6/2/2021
Technician: Andrew Boal
Temperature: 25 Degrees C
Humidity: 50.0%
Barometric Pressure: 29.19 in Hg
Device Type: Digital Compression Machine
Manufacturer: Forney
Model Number: F-25EX-F-DR-500
Serial Number: 07021
Range: 2,500 lbs to 250,000 lbs

CALIBRATION SYSTEM USED

All calibration standards used in this calibration are traceable to the International System of Units (SI) through NIST or equivalent National Measurement Institute signatories to the CIPM MRA.

Code	Instrument	Capacity	Serial Number	Class A
N/A	Barometer-Control Company	N/A	181717617	N/A
		Reference Number: 6530-9931140 Control Company		
		Date of Test: November 06, 2018 Date Due: November 06, 2020		
C	Morehouse Load Cell	60K	P-9643	2014.00T/1812.00C
		Report No. P-9643J1719 Morehouse Instrument		
		Calibrated: October 17, 2019 Recalibration Due: October 17, 2020		
D	Strainsense Load Cell	400K	851111D	34048.00C
		Report No. 851111DJ1719 Morehouse Instrument		
		Calibrated: October 17, 2019 Recalibration Due: October 17, 2020		

Statement of Compliance

This is to certify that the above described testing device has been calibrated in accordance with CSI's QMS Program based on ISO/IEC 17025 in accordance with ANSI/NCSL Z540-3, the procedure listed above, and ASTM E-4-20 (excluding sections: 6.2, 13 all, 16 all, A1 all). The device has been verified within +/- 1% of applied load. Uncertainties were calculated using square root sum of squares (rss) with a confidence factor of 95% and a coverage of k=2. The expanded uncertainty is 0.16% of applied load. Decision Rule 1 applies: uncertainties are not taken into consideration for in / out of tolerance determination.

Signed

Andrew Boal

Calibration Technician

Signed

Chris Hester

Quality Director

This Certificate is issued as a statement of the fact that on this date the above instrument(s) had an accuracy as indicated in the data section of this certificate. It should not be construed or regarded as a Guarantee or Warranty of any kind (in favor of the client, the client's customers, or the public at large) that the instrument(s) will continue to retain the same percentage (%) of accuracy or efficiency as determined on the date when the calibration, adjustments if required, was performed and reported by Calibration Services, Inc. since the calibrator has absolutely no control over the future operation, damage, maintenance, repairs, and overall condition of the instrument(s) and hereby expressly disclaims any and all liability for damage, or loss sustained by all parties arising or resulting from deterioration, obsolescence, malfunction, or substandard performance of said instrument(s), which shall be deemed to be and which shall remain the sole responsibility of the machine's regular custodian, owner, and/or manufacturer. This document shall not be reproduced except in full, without the written approval of Calibration Services, Inc.



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Certificate of Calibration

Client: Construction Consultants & Testing
Address: 700 South River Road
City/St/Zip: Waterville, OH 43566

Calibration
Location: 35410 Mound Road
City/St/Zip: Sterling Heights, MI 48310
PO Number: Vbl. Mitch Forst
Cert Number: 201862 JB
Procedure No: CAL 1.02A
Condition of Device: Good

Calibration Date: 6/2/2020
Suggested Recal Date: 6/2/2021
Technician: Andrew Boal
Temperature: 25 Degrees C
Humidity: 50.0%
Barometric Pressure: 29.19 in Hg
Device Type: Digital Compression Machine
Manufacturer: Forney
Model Number: F-25EX-F-DR-500
Serial Number: 07021
Range: 2,500 lbs to 250,000 lbs

Range Number 1	Range: 2,500 lbs to 250,000 lbs	Graduation: 10 lbs
-----------------------	--	---------------------------

Mode: Compression

As Found:

As Left: In Tolerance

		Applied		Algebraic Difference							
Grads	Code	Load	As Found	#1 As Left	#2 As Left	Final #1 Error	Final #2 Error	Final #1 Percent	Final #2 Percent	Percent	EMU
lbs		lbs	lbs	lbs	lbs	lbs	lbs				lbs
10	C	2500	2610	2500	2500	0.000	0.000	0.000	0.000	0.000	4.00
10	C	5000	5150	5010	5010	10.000	10.000	0.200	0.200	0.000	8.00
10	C	10000	10360	10020	10020	20.000	20.000	0.200	0.200	0.000	16.00
10	C	15000	15410	15040	15030	40.000	30.000	0.267	0.200	0.067	24.00
10	C	20000	20740	20040	20030	40.000	30.000	0.200	0.150	0.050	32.00
10	C	25000	25980	25050	25040	50.000	40.000	0.200	0.160	0.040	40.00
10	C	50000	51420	50000	49990	0.000	-10.000	0.000	-0.020	0.020	80.00
10	D	100000	102010	100050	100030	50.000	30.000	0.050	0.030	0.020	160.00
10	D	150000	151950	149820	149800	-180.000	-200.000	-0.120	-0.133	0.013	240.00
10	D	200000	202180	199770	199750	-230.000	-250.000	-0.115	-0.125	0.010	320.00
10	D	250000	252510	249730	249720	-270.000	-280.000	-0.108	-0.112	0.004	400.00
Zero Return		0	0	0	0						

Andrew Boal



Calibration Services, Inc.

300 Buttertown Road
Emlenton, PA 16373

P: (724) 867-6664
F: (724) 867-1346
www.calibrationinc.com
info@calibrationinc.com

Certificate of Calibration

Client: Construction Consultants & Testing
Address: 700 South River Road
City/St/Zip: Waterville, OH 43566

Calibration

Location: 35410 Mound Road
City/St/Zip: Sterling Heights, MI 48310
PO Number: Vbl. Mitch Forst
Cert Number: 201863 JB
Procedure No: CAL 1.02A
Condition of Device: Good

Calibration Date: 6/2/2020
Suggested Recal Date: 6/2/2021
Technician: Andrew Boal
Temperature: 24 Degrees C
Humidity: 50.0%
Barometric Pressure: 29.19 in Hg
Device Type: Multi Loader w/ Load Cell
Manufacturer: Geotest
Model Number: ML: 5840 / LC: S-Type
Serial Number: 107093
Range: 200 lbs to 5,000 lbs

CALIBRATION SYSTEM USED

All calibration standards used in this calibration are traceable to the International System of Units (SI) through NIST or equivalent National Measurement Institute signatories to the CIPM MRA.

Code	Instrument	Capacity	Serial Number	Class A
N/A	Barometer-Control Company	N/A	181717617	N/A
		Reference Number: 6530-9931140	Control Company	
		Date of Test: November 06, 2018	Date Due: November 06, 2020	
B	Morehouse Load Cell	10K	P-9642	200.00T/200.00C
		Report No. P-9642J1719	Morehouse Instrument	
		Calibrated: October 17, 2019	Recalibration Due: October 17, 2020	

Statement of Compliance

This is to certify that the above described testing device has been calibrated in accordance with CSI's QMS Program based on ISO/IEC 17025 in accordance with ANSI/NCSL Z540-3, the procedure listed above, and ASTM E-4-20 (excluding sections: 6.2, 13 all, 16 all, A1 all). The device has been verified within +/- 1% of applied load. Uncertainties were calculated using square root sum of squares (rss) with a confidence factor of 95% and a coverage of k=2. The expanded uncertainty is 0.16% of applied load. Decision Rule 1 applies: uncertainties are not taken into consideration for in / out of tolerance determination.

Andrew Boal
Signed

Calibration Technician

Chris Heiter
Signed

Quality Director

This Certificate is issued as a statement of the fact that on this date the above instrument(s) had an accuracy as indicated in the data section of this certificate. It should not be construed or regarded as a Guarantee or Warranty of any kind (in favor of the client, the client's customers, or the public at large) that the instrument(s) will continue to retain the same percentage (%) of accuracy or efficiency as determined on the date when the calibration, adjustments if required, was performed and reported by Calibration Services, Inc. since the calibrator has absolutely no control over the future operation, damage, maintenance, repairs, and overall condition of the instrument(s) and hereby expressly disclaims any and all liability for damage, or loss sustained by all parties arising or resulting from deterioration, obsolescence, malfunction, or substandard performance of said instrument(s); which shall be deemed to be and which shall remain the sole responsibility of the machine's regular custodian, owner, and/or manufacturer. This document shall not be reproduced except in full, without the written approval of Calibration Services, Inc.



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Certificate of Calibration

Client: Construction Consultants & Testing
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Range: 200 lbs to 5,000 lbs

Calibration

Location: 35410 Mound Road
City/St/Zip: Sterling Heights, MI 48310
PO Number: Vbl. Mitch Forst
Cert Number: 201863 JB
Procedure No: CAL 1.02A
Condition of Device: Good

Range Number 1	Range: 200 lbs to 5,000 lbs	Graduation: 1 lbs
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Mode: Compression

As Found: [REDACTED]

As Left: In Tolerance

		Applied			#1	#2	Final #1	Final #2	Final #1	Final #2	Algebraic	
Grads	Code	Load	As Found	As Left	As Left	As Left	Error	Error	Percent	Percent	Difference	EMU
lbs		lbs	lbs	lbs	lbs	lbs	lbs	lbs			Percent	lbs
1	B	200	200	200	200	200	0.000	0.000	0.000	0.000	0.000	0.32
1	B	500	501	498	498	498	-2.000	-2.000	-0.400	-0.400	0.000	0.80
1	B	1000	1004	997	998	998	-3.000	-2.000	-0.300	-0.200	-0.100	1.60
1	B	2000	2023	2001	2001	2001	1.000	1.000	0.050	0.050	0.000	3.20
1	B	3000	3037	3005	3004	3004	5.000	4.000	0.167	0.133	0.033	4.80
1	B	4000	4046	4004	4004	4004	4.000	4.000	0.100	0.100	0.000	6.40
1	B	5000	5053	5003	5003	5003	3.000	3.000	0.060	0.060	0.000	8.00
Zero Return			1	0	0	0						



SAMPLE CONTROL CHARTS

Slump - Max slump based on submitted mix design

Susp. Limit
= max slump

Act. Limit ≥ -0.5 of max"

Target: _

Value:

Range of Last 2 Tests

Air Content - PWL mix

Susp. Limit	
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= 8.0%

Act. Limit

= 7.8%

Target: 6.7

Act. Limit

= 5.7%

Susp. Limit

= 5.5%

Test No.:

Value:

Range of Last 2 Tests

Test No.:	
Value:	
Range of Last 2 Tests	

Air Content - non-PWL mix

Susp. Limit = 8.0% Act. Limit = 7.7% Target: 6.7 Act. Limit = 5.8% Susp. Limit = 5.5%																	
Test No.:																	
Value:																	
Range of Last 2 Tests																	