



NORTH CAROLINA Department of Transportation



2021 CAPA/NCDOT Virtual Workshops Materials and Tests Topics

Matt Hilderbran, PE – Field Operations Manager

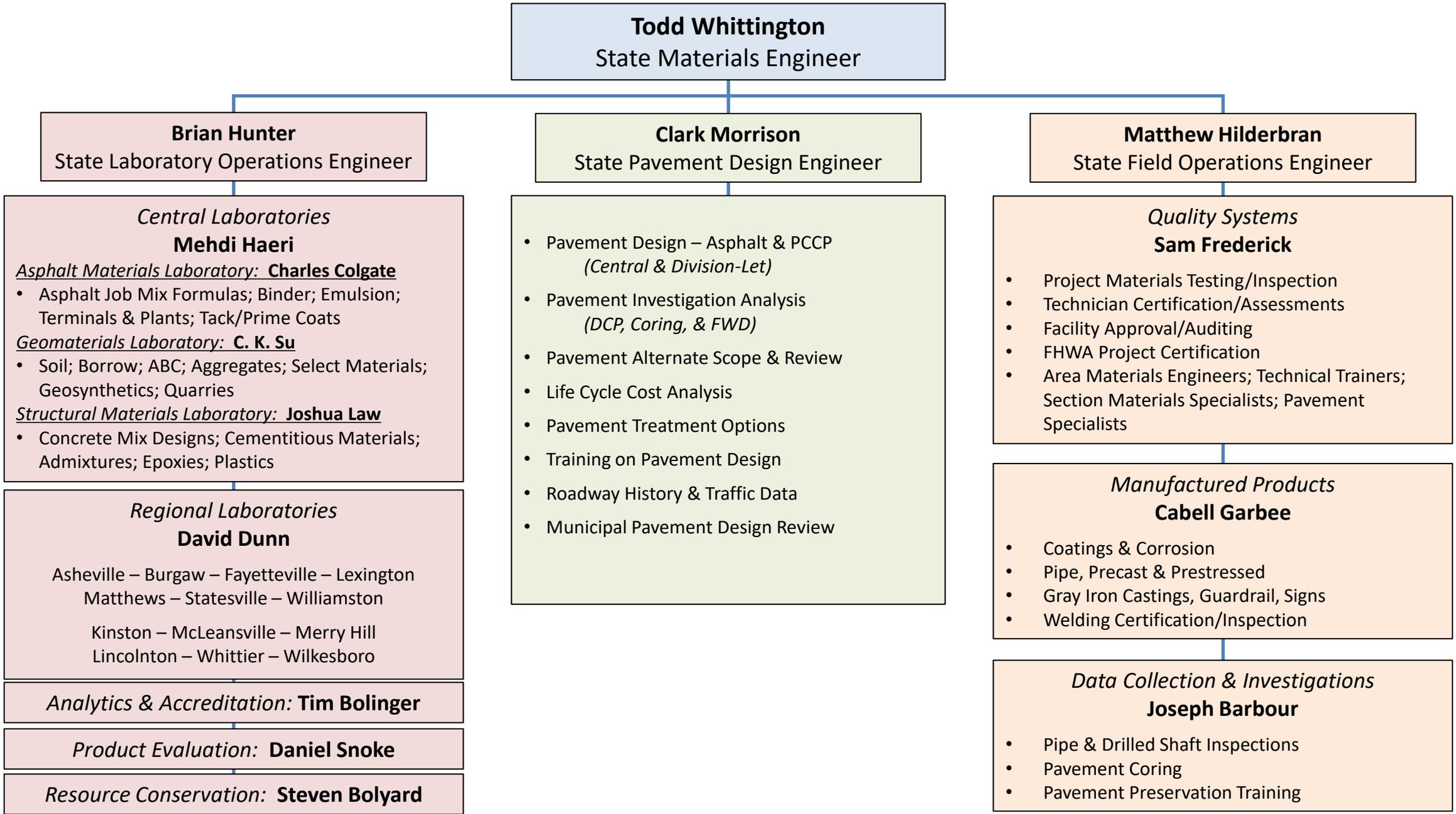
Jim Sawyer, PE – Field Services Engineer

John Flowers – Pavement Specialist Supervisor

Topics / Outline

- Materials and Tests Unit Org Chart
- 2020/2021 Asphalt QMS Manual
- M&T Field Services Org Chart
- 2021 Training & Certification Classes
- M&T Pavement Specialist Org Chart
- 2021 Technician Assessments & Audits
- Warm Mix Additives for OGFC
- Pavement Preservation Program
- COVID
- Q&A





Todd Whittington
State Materials Engineer

Brian Hunter
State Laboratory Operations Engineer

Clark Morrison
State Pavement Design Engineer

Matthew Hilderbran
State Field Operations Engineer

Central Laboratories
Mehdi Haeri
Asphalt Materials Laboratory: Charles Colgate

- Asphalt Job Mix Formulas; Binder; Emulsion; Terminals & Plants; Tack/Prime Coats

Geomaterials Laboratory: C. K. Su

- Soil; Borrow; ABC; Aggregates; Select Materials; Geosynthetics; Quarries

Structural Materials Laboratory: Joshua Law

- Concrete Mix Designs; Cementitious Materials; Admixtures; Epoxies; Plastics

- Pavement Design – Asphalt & PCCP
(Central & Division-Let)
- Pavement Investigation Analysis
(DCP, Coring, & FWD)
- Pavement Alternate Scope & Review
- Life Cycle Cost Analysis
- Pavement Treatment Options
- Training on Pavement Design
- Roadway History & Traffic Data
- Municipal Pavement Design Review

- Quality Systems*
Sam Frederick
- Project Materials Testing/Inspection
 - Technician Certification/Assessments
 - Facility Approval/Auditing
 - FHWA Project Certification
 - Area Materials Engineers; Technical Trainers; Section Materials Specialists; Pavement Specialists

Regional Laboratories
David Dunn
Asheville – Burgaw – Fayetteville – Lexington
Matthews – Statesville – Williamston
Kinston – McLeansville – Merry Hill
Lincolnton – Whittier – Wilkesboro

- Manufactured Products*
Cabell Garbee
- Coatings & Corrosion
 - Pipe, Precast & Prestressed
 - Gray Iron Castings, Guardrail, Signs
 - Welding Certification/Inspection

Analytics & Accreditation: Tim Bolinger

Product Evaluation: Daniel Snoke

Resource Conservation: Steven Bolyard

- Data Collection & Investigations*
Joseph Barbour
- Pipe & Drilled Shaft Inspections
 - Pavement Coring
 - Pavement Preservation Training

Topics / Outline

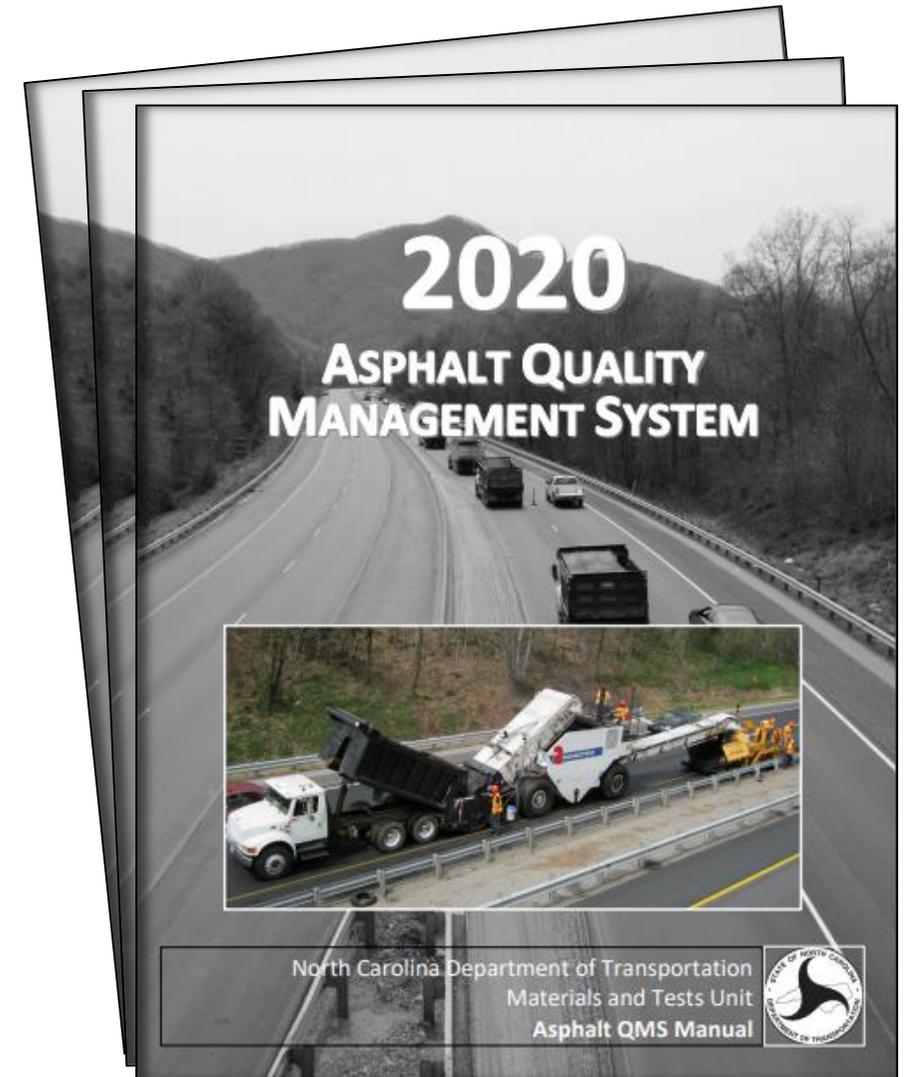
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2020/2021 Asphalt QMS Manual

- 2020 vs 2021 Manual
 - Printed Surplus (800+)
 - Minimal Changes
 - Contact local Pavement Specialist for additional hardcopies

[Click Here - 2020 Asphalt QMS Manual](#)



2020/2021 Asphalt QMS Manual

See 2020 QMS Manual: Page 7-64 > Section 7.20.3 > Item #4

4. IF V results are outside the Individual Limits defined in Table 609-1 and within the Retest limits, but QC passes, THEN – **the Contractor will choose one of the following two options:**
- Sublot based on the retest procedures (Section 7.19) where applicable.
 - Use DR results to calculate the appropriate pay factor for the lot.

Sublotting is now optional when Department samples are:

- Outside Individual Limits
- Within Retest Limits
- AND QC meets specs.

Section 7

Asphalt Mixture Sampling & Testing - 2020

7.20.3 Dispute Resolution Testing Guidelines for Plant Mix

The Dispute Resolution process for lots with both V and QC samples will be based on the following criteria:

- IF both QC and V results are within the Individual Limits defined in Table 609-1, THEN – Use QC results for acceptance of the lot.
- IF either QC or V results are outside of the Retest Limits (in Remove and Replace category) defined in Table 609-2, THEN – Sublot based on the retest procedures (Section 7.19) where applicable.
- IF both QC and V results are outside the Individual Limits (Table 609-1), but are within the Retest Limits (Table 609-2), THEN – Use QC to calculate the appropriate pay factor for the lot.
- IF V results are outside the Individual Limits defined in Table 609-1 and within the Retest limits, but QC passes, THEN – **the Contractor will choose one of the following two options:**
 - Sublot based on the retest procedures (Section 7.19) where applicable;
 - Use DR results to calculate the appropriate pay factor for the lot.
- IF QC results are outside the Individual Limits defined in Table 609-1, but V passes, THEN – Use QC to calculate the appropriate pay factor for the lot.

Notes:

- For the above scenarios, if the V results fall outside either the Individual or Retest limits, the DR sample will be tested at the Central Lab (or another M&T Lab) and the DR results will replace the V results for disposition.
- For the above scenarios, if the QC results fall outside either the Individual or Retest limits, the QC split will be tested (and, if required, the Referee). Based on the findings, the Referee results may replace the QC results for disposition.

in future deficient asphalt being excluded
 5-3. The Engineer shall document cases of
 contractor with copies to the Construction
 develop a plan for corrective action and
 deficiencies may result in future deficient
 rdance with Article 105-3. This acceptance
 Engineer determines a history of quality

dom testing made on split samples during
 of the Contractor's quality control process

replaced with the correct test results and
 ation test results, referee test results, and
 one of these results may be used as the

correct results. Just because the referee sample is tested does not mean that its results will automatically be used. The data and the disposition of the replaced data are left to the discretion of the Engineer. Assistance in making this decision is available through the Asphalt Laboratory.

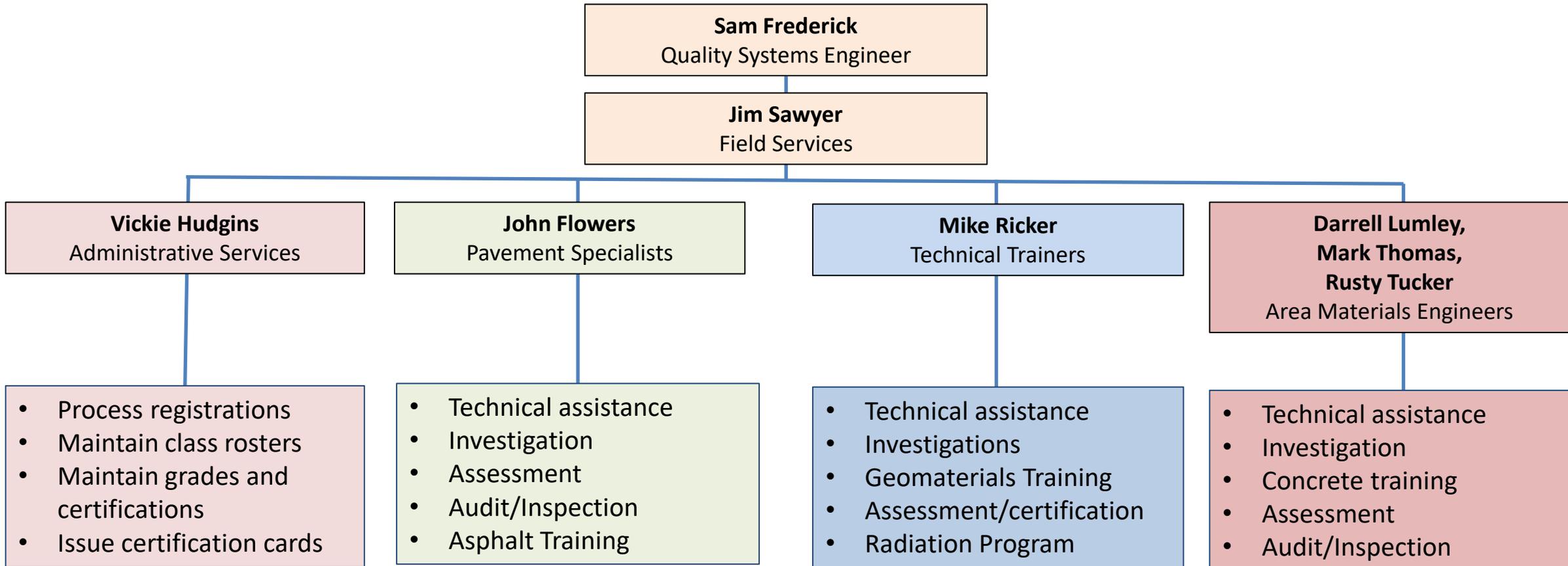
2020/2021 Asphalt QMS Manual

- Option is Already Being Used where Various Conditions Exist:
 - Situations where the road must be completed and opened as soon as possible and cannot wait for Sublot test results;
 - Situations where paving schedule results in the Base, Intermediate, and/or 1st Surface lift is placed and cannot wait for Sublot test results;
 - Other situations involving safety, WZTC phasing, etc.
- These are Situations where Division and the contractor agree the penalty is the more economical choice to resetting traffic control and coring for sublots.

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2021 Training & Certification Classes

2020/2021 Classes

- Due to COVID-19 restrictions Materials & Tests Training Classes were cancelled until **January 1, 2021**.
 - Restarting classes depended on guidance from local and State officials, recommendations from the Governor's office, & the CDC
 - Class enrollment has been limited due to safety requirements
 - Class registrations for 2021 opened mid-December in CVENT (first 3-months only)
 - 2021 Classes may be cancelled, or enrollment reduced on short notice
 - May schedule additional classes later in the year



2021 Training & Certification Classes

Provisional Extensions

- Individuals needing to maintain or renew certification may request provisional extension
 - Request for Provisionals can still be approved with enough evidence of quality field training
 - Requests evaluated on case-by-case basis
 - Valid until December 31, 2021
 - Process has met the needs of clients to help ensure project delivery



2021 Training & Certification Classes

Who, What, When, Where to find information on class registration...



Materials and Tests

Establishes the acceptance criteria for materials used on the North Carolina highway system.

Connect NCDOT > Resources > Materials & Tests



What are you searching for?

Materials and Tests Unit Training Schools

For Materials and Tests 2021 Schools (includes Field, Lab, Coatings, Welding, QCQA - all training provided by the Materials and Tests Unit), **click the button below.**

[Click Here](#)

Employee Directory
Staff contacts for *Materials and Tests*.

Contact Form
For questions & feedback about this area of Connect NCDOT, contact *Materials and Tests*.

Service Groups

- Administrative Group
- Inspection Schools and Technical Trainers
- Stockroom
- Central Laboratory
- Regional Laboratories
- Data Collection and Investigations

Materials and Tests Unit Training Schools

Includes Field, Lab, Coatings, Welding, QCQA - all training provided by the Materials and Tests Unit

Connect NCDOT > Resources > Materials & Tests > Materials and Tests Unit Training Schools

Materials and Test Unit Training Schools 2021

[Click Here](#)

2021 Training Documents

[Field and Lab Classes - Pre-Requisite and Registration Information](#)

[Provisionals and Miscellaneous Information](#)

2021 Materials and Tests Unit Class Schedule

[ABC Sampling Classes](#)

[Batch Classes](#)

[Borrow PIT Sampling Classes](#)

[Chemical Stabilization QA Base-Subgrade Classes \(CEI Personnel Only\)](#)

[Concrete Field Schools](#)

[Concrete Field Schools Re-Test \(Written Exams- ACI or NCDOT\)](#)

[Conventional Density Classes](#)

[Nuclear Density Testing - Base, FDR, and Select Materials Classes](#)

[Nuclear Safety and Hazardous Materials Classes \(NCDOT Personnel ONLY\)](#)

[QCQA Classes](#)

[QMS Density Gauge Classes \(Asphalt\)](#)

Current COVID practices apply during classroom training events

Verifying Technician Credentials

NCDOT NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Connecting people, products, and places safely and efficiently with customer focus, accountability and environmental sensitivity to enhance the economy and vitality of North Carolina.

Business »

Technician Certification

Technician:

Technician Number:

Certification Type:

Division/Unit:

Expiration Date: (From) (To)

Reports To:

Other Company:

Office Location:

Producer/Supplier:

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Business » Technician Certification »

Technician Certification Detail

Technician: Todd Whittington
 Technician Number: 1414
 Division/Unit: M&T
 Reports To:
 Office Location: Field Section, Central
 Producer/Supplier:
 Other Company:

Certification	Cert Date	Cert Exp	Old Cert Number	Cert Number	Status	Comments
Concrete Batch Technician (Batching)	5/6/1999	12/31/2003		PCB-1414	Expired	
Concrete Field Technician (Testing)	5/6/1999	12/31/2003		PCT-1414	Expired	
Concrete Mix Design Technician (Design)	5/6/1999	12/31/2003		PCD-1414	Expired	
HMA Independent	2/18/2006	2/18/2007		IAI-1414	Expired	TEST

<https://apps.ncdot.gov/vendor/approvedproducts/Technician.aspx>

Classes Post-COVID

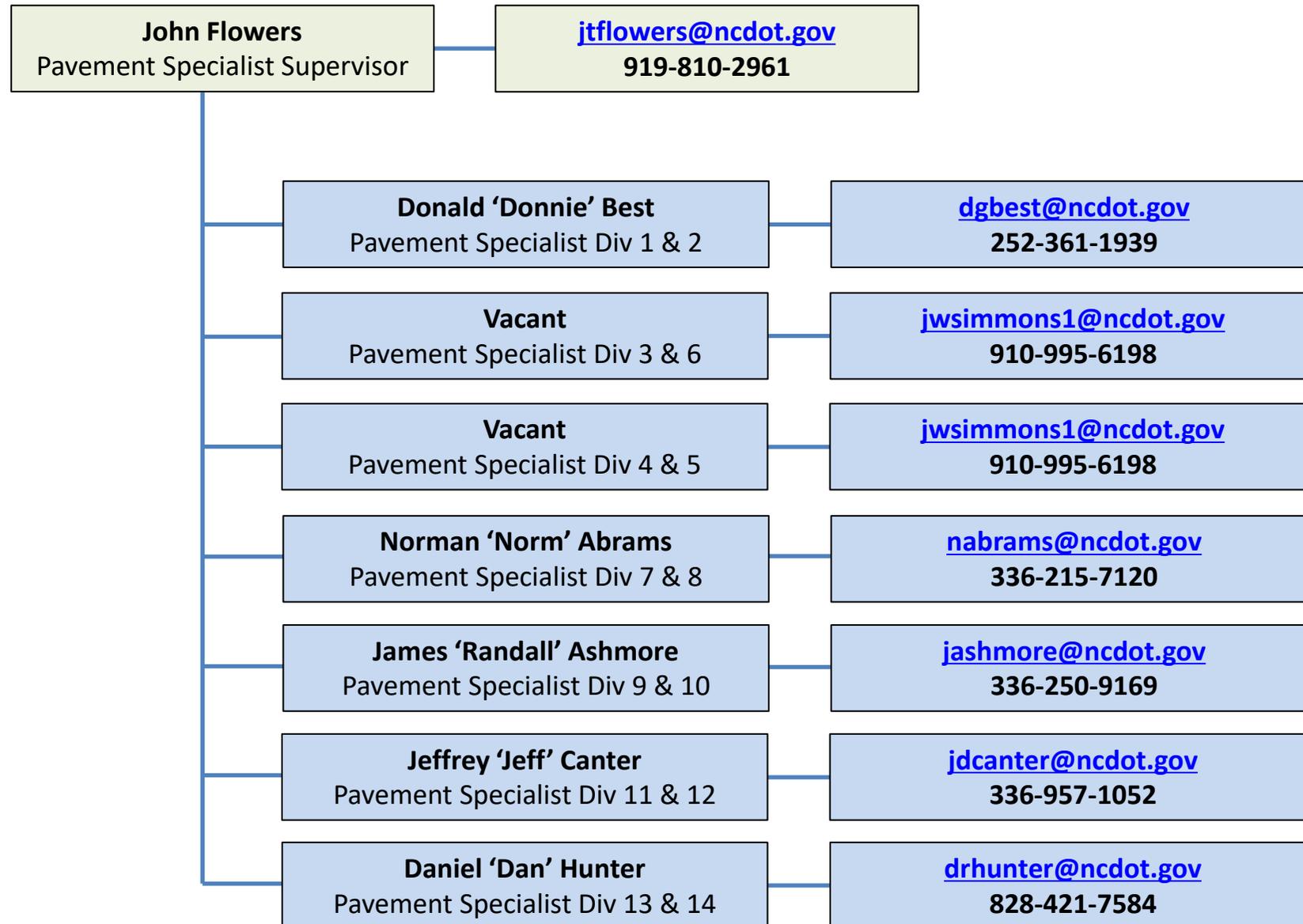
- Due to COVID-19 challenges, M&T is actively pursuing new approaches to training
 - Post-COVID, e-Learning will remain a vital tool alongside in-person classroom sessions
 - Exploring technology to create and utilize web-based virtual training platforms
 - Videos, presentation lectures, and even quizzes & tests
 - Facilitate more control for the student within a self-paced environment
 - Online training will allow students new to the highway construction industry enhanced opportunities for exposure and knowledge
 - Online approach also expands opportunities to community colleges with engineering programs



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2020 Technician Assessments & Facility Audits

- 119 Technicians were assessed for 2020. Of the 119 technicians, there was three unsatisfactory assessments.
- This averages to a 2.52% unsatisfactory rate for 2020. All reassessments were satisfactory.
- Of the 119 Technicians that were Assessed, 104 were on mix and 106 were on cores.

Reasons for unsatisfactory assessments in 2020:

NCDOT T-308 Binder Content

- Technician failed to empty the contents of the sample basket assembly into an appropriate pan. Material was transferred directly into a bowl resulting in material loss. Technician also fail to place the Safety Cage over burn basket after removing from Ignition Furnace. (7.10.4 (12 & 13) pg. 7-38, 2020 Asphalt QMS Manual)

NCDOT T-30 Sieve Analysis

- The sum of the sieved material was not within the allowed <0.2 percent of the weight after washing. (7.9.4 (Note) pg. 7-33, 2020 Asphalt QMS Manual)

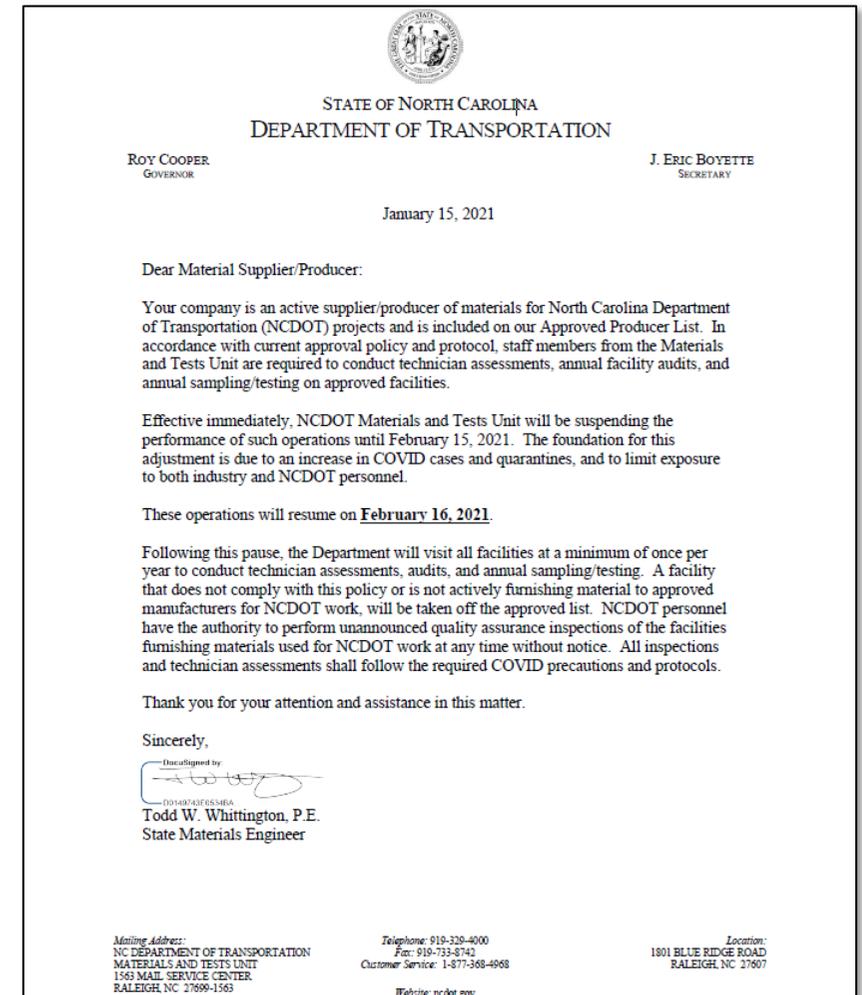
NCDOT T 209

- Technician cooled the Maximum Specific Gravity (Gmm) sample to 93°F before weighing & adding water. Which is outside of the allowable temperature rang.
- Section 7.12.4 (#2) (pg. 7-42 of the 2020 QMS Manual) States: Cool the sample to room temperature of $77 \pm 9^{\circ}\text{F}$ ($25 \pm 5^{\circ}\text{C}$)

2021 Technician Assessments & Facility Audits

2021 Classes

- Moratorium letter issued on January 15th, 2021 pausing:
 - Technician Assessments
 - Annual Facility Audits
 - Annual Sampling/Testing on Approved Facilities
- M&T has resumed the Assessments, Audits, and Sampling as of February 16th, 2021.
 - Reduced statewide COVID positive cases and deaths
 - M&T has to perform these activities due to FHWA audits
 - Assessments allows us to gain confidence in issuing Provisional Certifications
- We are still following CDC and State COVID guidelines as well as honoring each individual asphalt producer's COVID policies and practices while conducting these activities at their respective facilities.



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Warm Mix Additives for OGFC

Option in lieu of Fiber

- WMA Additives approval will require a 2-step process:
 - Approved Warm Mix Asphalt Technologies List
 - Show existing projects where additive was used in lieu of fibers in OGFC
- Warm mix additives already in use for WMA dense graded mix still need to show successful use in OGFC to prevent draindown
- Case-by-case basis for Provisional Approval



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NCDOT Pavement Preservation Program

Program Overview

- Late 2014, NC Senate SB744 established a Pavement Preservation Program defining eligible activities as well as mandatory outsourcing requirements.
- M&T inherited the Preservation Program in 2017
- M&T partnered with Summit Design and Engineering Services in 2018 to help redefine the program.
- M&T Offers both classroom training as well as onsite advising to both NCDOT personnel and Construction Crews.
- Manuals, Videos, Pre-Con Attendance, etc., all available upon request.



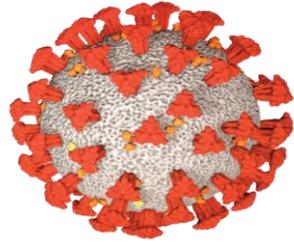
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COVID-19

- We are still under COVID rules, policies, and procedures when you deliver samples to our labs and offices. (Follow the rules, wear mask, social distance, and monitor hygiene/symptoms)
- We are still under COVID rules, policies, and procedures during classroom trainings and certifications.
- We are still under COVID rules, policies, and procedures during technician assessments and facility audits
- Current COVID rules, policies, and procedures can and will alter as Federal, State, and local guidance evolves over the next few weeks and months.



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Questions ?

