U.S. Department of Transportation
Federal Highway Administration

Oklahoma Division

5801 N Broadway Ext., Ste. 300
Oklahoma City, OK 73118
Phone: 405-254-3300
Fax: 405-254-3302
www.fhwa.dot.gov/okdiv

October 28, 2024

In Reply Refer To:
HDA-OK

Tim J. Gatz
Executive Director
Oklahoma Department of Transportation
200 NE 21st Street
Oklahoma City, OK 73105

Dear Mr. Gatz:

This letter is in reference to Mr. Shawn Davis's July 10, 2024, letter (attached) requesting the Federal Highway Administration (FHWA) Oklahoma Division (Division) to approve the The ODOT Quality Assurance (QA) program. We also acknowledge receiving ODOT's revised QA program document on October 07, 2024, which reflects the recommendations provided by FHWA.

We are pleased to inform you that the revised QA program dated October 07, 2024, with modifications in its Independent Assurance (IA) program, has been reviewed and approved. This modified QA program supersedes its previous version dated January 30, 2013.

As per 23 CFR 637.207 "Quality Assurance Program", if a state transportation agency uses a system-based approach for its IA program, it is required to submit an annual IA report to FHWA summarizing the results of the IA program. Therefore, ODOT will need to provide this annual IA report to our Office by February 15th of each year. Please ensure any future modifications to this document are coordinated with our Office.

If you have any questions or comments, please contact me at 405-254-3332.

Sincerely,

WASEEM FAZAL

Digitally signed by WASEEM FAZAL
Date: 2024.10.28 14:20:32 -05'00'

Waseem Fazal P.E,
Team Leader, Program Development Team

cc:

Shawn Davis, Director of Operations, ODOT
Matt Romero, Materials Division Engineer, ODOT
Souzan Bahavar Division Administrator, FHWA
Bindu Johnson, Acting Deputy Division Administrator, FHWA

OKLAHOMA Transportation

Materials Division
5201 N.E. 122nd
Edmond, OK 73013-8306
www.odot.org

July 10, 2024

Mr. Basharat Siddiqi, Division Administrator
Federal Highway Administration
5801 N. Broadway Ext., Suite 300
Oklahoma City, OK 73118

Dear Mr. Siddiqi:

Changes to the Independent Assurance Program have required updating the Department's Quality Assurance (QA) Program, previously dated January 30, 2013. Revisions to the Department's Quality Assurance Program are attached for your review and approval.

The following items are attached to this cover letter:

ODOT Quality Assurance Program
Appendix A, "SiteManager™ Sampling Frequency Report"
Appendix B, "Guide to Independent Assurance Program"
Appendix C, "Split Sample Result Tolerance Guide"

Please contact me if you require any additional information on this matter.

Shawn Davis

Shawn Davis (Jul 11, 2024 13:28 CDT)

Director of Operations

Cc:
John Leonard, Construction Engineer
Matt Romero, Materials Engineer

OKLAHOMA Transportation

Materials Division
5201 N.E. 122nd
Edmond, OK 73013-8306
www.odot.org

DATE: July 10, 2024

TO: Shawn Davis, Director of Operations

FROM: Matt Romero, Materials Engineer

SUBJECT: Quality Assurance Program

Review and updates to the Independent Assurance Program have created the need to update the Department's Quality Assurance (QA) Program, which was previously dated January 30, 2013. Revisions to the Department's Quality Assurance Program are attached for your review and consideration.

The following items are attached to this cover letter:

1. ODOT Quality Assurance Program
2. Appendix A, "SiteManagerTM Sampling Frequency Report"
3. Appendix B, "Guide to Independent Assurance Sampling and Testing"
4. Appendix C, "Split Sample Result Tolerance Guide

Major revisions from the previously approved QA Plan are described below:

- In Appendix B, changes were made to describe the Qualified Lab program.
- In Appendix C, the Split Sample Result Tolerance Guide has been updated to maintain consistency.

If you have any questions or would like to talk more, please feel free to contact me.

Sincerely,

Matt Romero P.E.
Materials Division Engineer

OKLAHOMA Transportation

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Revised October 07, 2024

QUALITY ASSURANCE PROGRAM

ACCEPTANCE PROGRAM

Sampling, testing, and inspection of construction materials and workmanship will be performed on Federal Aid projects on the National Highway System in accordance with 23 CFR, part 637 Subpart B and the Department's Sampling and Testing requirements as defined in SiteManager™ or AASHTOWare Project. If the project contract documents specify additional or conflicting requirements for sampling and testing, the contract documents supersede Appendix A. The SiteManager™ or AASHTOWare, Project Sampling Frequency Report, is included in Appendix A. Acceptance of materials and workmanship will be based on the results of acceptance sampling and testing performed by the Department or its agent. All sampling, testing, and inspection utilized in making acceptance decisions will be performed by qualified personnel utilizing qualified laboratory equipment and qualified laboratories. All sampling and testing utilized in making acceptance decisions will be evaluated utilizing the Department's Independent Assurance Program. Random sampling and testing methods will be utilized for acceptance, quality control, verification, and conflict resolution.

In the event of a conflict between quality control and acceptance test results, the contractor may request referee sampling and testing by the Department's Central Laboratory or an independent laboratory that is accredited by the AASHTO Materials Reference Laboratory within 15 calendar days of completion of the lot unless otherwise specified in the plans or specifications. The laboratory must be acceptable to both the Department and the Contractor. If the additional sampling and testing results in acceptance of a larger portion of material and workmanship or acceptance at a higher pay factor for the lots in question, the additional cost for sampling and testing will be borne by the Department. If the results are unchanged or worse, the Contractor will pay the additional cost for sampling and testing.

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Revised October 07, 2024

INDEPENDENT ASSURANCE PROGRAM

The Central Laboratory of the Department will conduct evaluations of quality control, quality acceptance, and verification sampling and testing on NHS projects in accordance with the Departments Guide to Independent Assurance Sampling and Testing on a project basis (Appendix B). Testing equipment calibration documentation will be evaluated annually during Residency Lab Inspection. Documentation will be performed in accordance with AASHTO R-18.

Qualified testing personnel will be evaluated by observation and split sample testing. Prompt comparisons of split sample testing will be made and documented in SiteManager™ or AASHTOWare Project. Sampling and testing observations will be reported in SiteManager™ or AASHTOWare Project. If the difference between split sample results is greater than the tolerances set by the IA Program, the difference will be investigated and reconciled, if possible. A summary of IA sampling, testing, and observations will be in SiteManager™ or AASHTOWare Project. The Resident Engineer will be notified when IA activities are completed on the project.

MATERIALS CERTIFICATION

The Resident Engineer will prepare material certification and support documents for each project and submit them to the Construction Division.

LABORATORY AND SAMPLING AND TESTING PERSONNEL QUALIFICATIONS

The Department will maintain an adequate qualified staff to administer the quality assurance program. The Department will maintain a central laboratory that is accredited by the AASHTO Materials Reference Laboratory for applicable test procedures. The department intends to provide independent assurance and dispute resolution utilizing central laboratory personnel or a commercial laboratory. If the Department retains another laboratory to provide either of these services, the laboratory will be accredited by the AASHTO Materials Reference Laboratory. Sampling and testing personnel, who are responsible for quality control, quality acceptance, and verification testing on projects, will be qualified for a period of 5 years. Qualification is defined by Certification from the Oklahoma Highway Construction Materials Technician Certification Board (OHCMTCB), which includes observed successful demonstration of sampling/testing procedures and successful completion of a written test covering each applicable method. Observation and documentation will be provided by individuals qualified by the Department's Central Laboratory or the Certification Board's evaluation committee. Sampling and testing personnel may be decertified for cause as the Certification Board determines. Online information on the certification process can be found at http://www.oktechcert.org/.

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Revised October 07, 2024

Testing used for acceptance purposes shall be performed by Qualified Laboratories. The Materials Division, Independent Assurance Branch (IA), will inspect each lab facility. Upon this inspection, a lab will be placed in "Qualified Status" and listed as an ODOT Qualified Lab. The lab will remain qualified for 2 years. The site inspection will include reviewing documentation addressing requirements in the Lab Manual Checklist Append. 'A'. The lab will receive notification from an IA inspector to set up an inspection. Information on this qualification process and checklist can be found online at https://www.odot.org/materials/pdfs/TESTLAB01.pdf.

The test equipment will be qualified by calibration/verification checks in accordance with frequencies and procedures established by the applicable testing standards and as defined by the Department. Calibration/verification checks shall be conducted and documented by lab personnel or by a commercial calibration service. Calibration documentation will include identification of equipment, identification, and traceability of calibration reference standards used, date of calibration, results, reference specification, and name of the calibration technician. The Central Lab will review Residency Lab documentation during the annual lab inspections. Any deficiencies in equipment and personnel will be forwarded to the Materials Engineer for review. To avoid the appearance of a conflict of interest, any qualified non-department laboratory shall perform only one of the following types of testing on the same project: Acceptance testing, quality control testing, or dispute resolution testing.

OKLAHOMA Transportation

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Revised October 07, 2024

Revision 6/20/2016: Changed old ODOT logo to new ODOT logo. The updated hyperlink for the laboratory qualification process (policy) is located in the second paragraph under the section "LABORATORY AND SAMPLING AND TESTING PERSONNEL QUALIFICATIONS" to the new URL.

Revision 3/16/2020: Changed the old ODOT logo in the header to the new ODOT logo.

Revision 4/20/2020: Changed address, located in the header, to the address of the new Materials Division building.

Revision 6/17/2020: Changed city of address in the header from "Oklahoma City" to "Edmond."

Revision 12/11/2020: Updated hyperlink for laboratory qualification process (policy) in the second paragraph under the section "LABORATORY AND SAMPLING AND TESTING PERSONNEL QUALIFICATIONS" to new URL.

Revision 06/13/2024: Updated the second paragraph under section LABORATORY AND SAMPLING AND TESTING PERSONNEL QUALIFICATIONS on how laboratory qualifications are conducted.

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Revised June 17, 2024

Appendix 'A'

SiteManager™

Sampling Frequency Report

Oklahoma Department of Transportation

SiteManager Sampling Frequency Report

Specification Year: 2019

Material Code	Material Name	Spec. Ref.
acem001	Asphaltic Cement Type PG 76-28 OK	708.03

Sample Type	Acceptance Method	Test Method		Frequency	
Material	MAT Materials Division	C91018	PG Asphalt Binder_Project Sample	1 per 100,000	GAL

Material Code	Material Name	Spec. Ref.
acem002	Asphaltic Cement Type PG 70-28 OK	708.03

Sample Type	Acceptance Method	Test Method		Frequency	
Material	MAT Materials Division	C91018	PG Asphalt Binder_Project Sample	1 per 100,000	GAL

Material Code	Material Name	Spec. Ref.
acem003	Asphaltic Cement Type PG 64-22 OK	708.03

Sample Type	Acceptance Method	Test Method		Frequency	
Material	MAT Materials Division	C91018	PG Asphalt Binder_Project Sample	1 per 100,000	GAL

Material Code	Material Name	Spec. Ref.
acem008	Asphaltic Cement Type PG 76-28 E	SP708-2409

Sample Type	Acceptance Method	Test Method		Frequency	
Material	MAT Materials Division	C91018	PG Asphalt Binder_Project Sample	1 per 100,000	GAL

Material Code	Material Name	Spec. Ref.
aggr001	Aggregate Base Aggregate Type A	703.01

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	T27	Sieve Analysis of Fine and Coarse Aggregates	1 per 1,500	TON

Material Code	Material Name	Spec. Ref.
aggr002	Aggregate Base Aggregate Type B	703.01

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	T27	Sieve Analysis of Fine and Coarse Aggregates	1 per 1,500	TON

Material Code	Material Name	Spec. Ref.
aggr003	Aggregate Base Aggregate Type C	703.01

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	T27	Sieve Analysis of Fine and Coarse Aggregates	1 per 1,500	TON

Material Code	Material Name	Spec. Ref.
aggr011	Eco Base/CTB Alt2 Aggregate, Combined	703.02

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C93004	Aggregate_Sand Equivalent T 176	1 per 50,000	TON
Material	CRES Construction Residency	T27	Sieve Analysis of Fine and Coarse Aggregates	1 per 1,500	TON

Material Code	Material Name		Spec. Ref.		
aggr012	Eco Base/CTB Alt1 Aggregate, Fine		703.02		
Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	T27	Sieve Analysis of Fine and Coarse Aggregates	1 per 1,500	TON

Material Code	Material Name		Spec. Ref.		
aggr013	Eco Base/CTB Alt1 Aggregate, Coarse		703.02		
Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	T27	Sieve Analysis of Fine and Coarse Aggregates	1 per 1,500	TON

Material Code	Material Name		Spec. Ref.		
aggr017	Open Gr PC Conc Base Aggregate		703.03		
Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	T27	Sieve Analysis of Fine and Coarse Aggregates	1 per 1,500	TON

Material Code	Material Name		Spec. Ref.		
aggr026	TBSC Aggregate Type A		703.05		
Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	T27	Sieve Analysis of Fine and Coarse Aggregates	1 per 1,500	TON

Material Code	Material Name		Spec. Ref.		
aggr027	TBSC Aggregate Type B		703.05		
Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	T27	Sieve Analysis of Fine and Coarse Aggregates	1 per 1,500	TON

Material Code	Material Name		Spec. Ref.		
aggr028	TBSC Aggregate Type C		703.05		
Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	T27	Sieve Analysis of Fine and Coarse Aggregates	1 per 1,500	TON

Material Code	Material Name		Spec. Ref.		
aggr029	TBSC Aggregate Type D		703.05		
Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	T27	Sieve Analysis of Fine and Coarse Aggregates	1 per 1,500	TON

Material Code	Material Name		Spec. Ref.		
aggr030	TBSC Aggregate Type E		703.05		
Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	T27	Sieve Analysis of Fine and Coarse Aggregates	1 per 1,500	TON

Material Code	Material Name		Spec. Ref.		
aggr031	TBSC Aggregate Type F		703.05		
Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	T27	Sieve Analysis of Fine and Coarse Aggregates	1 per 1,500	TON

Material Code	Material Name		Spec. Ref.		
aggr033	Micro Surf Aggregate Type I, Mineral		707.02		
Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C93004	Aggregate_Sand Equivalent T 176	1 per 2,500	TON

Material Code	Material Name	Spec. Ref.
aggr034	Micro Surf Aggregate Type II, Mineral	707.02

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C93004	Aggregate_Sand Equivalent T 176	1 per 2,500	TON

Material Code	Material Name	Spec. Ref.
aggr035	Micro Surf Aggregate Type III, Mineral	707.02

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C93004	Aggregate_Sand Equivalent T 176	1 per 2,500	TON

Material Code	Material Name	Spec. Ref.
aggr042	Granular Backfill Aggregate	703.07

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	T27	Sieve Analysis of Fine and Coarse Aggregates	1 per 500	CY

Material Code	Material Name	Spec. Ref.
aggr048	Pipe Underdrain, Filter Sand	703.06

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	T27	Sieve Analysis of Fine and Coarse Aggregates	1 per 250	CY

Material Code	Material Name	Spec. Ref.
aggr049	Standard Bedding Matl Class C	703.08

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C95001	Density and Moisture Content of Soil Agg by Nuke Meth	1 per 50	CY
Material	CRES Construction Residency	T27	Sieve Analysis of Fine and Coarse Aggregates	1 per 500	CY

Material Code	Material Name	Spec. Ref.
aggr051	Pipe Underdrain Aggregate, Coarse	703.06

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	T27	Sieve Analysis of Fine and Coarse Aggregates	1 per 250	CY

Material Code	Material Name	Spec. Ref.
aggr054	HC Conc Aggregate, Fine	701.05

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	T27	Sieve Analysis of Fine and Coarse Aggregates	1 per 500	TON

Material Code	Material Name	Spec. Ref.
aggr056	HC Conc Aggregate No 67, Coarse	701.06

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	T27	Sieve Analysis of Fine and Coarse Aggregates	1 per 500	TON

Material Code	Material Name	Spec. Ref.
aggr057	HC Conc Aggregate No 57, Coarse	701.06

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	T27	Sieve Analysis of Fine and Coarse Aggregates	1 per 500	TON

Material Code	Material Name	Spec. Ref.
aggr063	High Density Conc Aggregate, Combined	701.10

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	T27	Sieve Analysis of Fine and Coarse Aggregates	1 per 500	TON

Material Code	Material Name	Spec. Ref.
aggr064	Latex Mod Conc Aggregate, Combined	701.11

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	T27	Sieve Analysis of Fine and Coarse Aggregates	1 per 500	TON

Material Code	Material Name	Spec. Ref.
aggr078	Subballast Aggregrate Type B	plan notes

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C95001	Density and Moisture Content of Soil Agg by Nuke Meth	1 per 1,000	CY
Material	CRES Construction Residency	T27	Sieve Analysis of Fine and Coarse Aggregates	1 per 1,000	CY

Material Code	Material Name	Spec. Ref.
aggr085	HFST Calcined Bauxite Aggregate	SP707-1a09

Sample Type	Acceptance Method	Test Method		Frequency	
Material	MAT Materials Division	C94011	Aggregate_LA Abrasion	1 per 500	TON
Material	MAT Materials Division	T27	Sieve Analysis of Fine and Coarse Aggregates	1 per 500	TON

Material Code	Material Name	Spec. Ref.
aggr086	HFST Mine Chat Aggregate	SP707-1a09

Sample Type	Acceptance Method	Test Method		Frequency	
Material	MAT Materials Division	C94011	Aggregate_LA Abrasion	1 per 500	TON
Material	MAT Materials Division	T27	Sieve Analysis of Fine and Coarse Aggregates	1 per 500	TON

Material Code	Material Name	Spec. Ref.
asco004	Asphalt Concrete, Type S2 (PG 76-28 OK)	708

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C93004	Aggregate_Sand Equivalent T 176	1 per 20,000	TON
Material	MAT Materials Division	C93005	HMA TSR T 283	1 per 10,000	TON
Material	CRES Construction Residency	C93015	HMA Sample	1 per 1,000	TON
Material	CRES Construction Residency	C93016	HMA Density Test for Pavement Cores	1 per 1,000	TON

Material Code	Material Name	Spec. Ref.
asco005	Asphalt Concrete, Type S2 (PG 70-28 OK)	708

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C93004	Aggregate_Sand Equivalent T 176	1 per 20,000	TON
Material	MAT Materials Division	C93005	HMA TSR T 283	1 per 10,000	TON
Material	CRES Construction Residency	C93015	HMA Sample	1 per 1,000	TON
Material	CRES Construction Residency	C93016	HMA Density Test for Pavement Cores	1 per 1,000	TON

Material Code	Material Name	Spec. Ref.
asco006	Asphalt Concrete, Type S2 (PG 64-22 OK)	708

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C93004	Aggregate_Sand Equivalent T 176	1 per 20,000	TON
Material	MAT Materials Division	C93005	HMA TSR T 283	1 per 10,000	TON
Material	CRES Construction Residency	C93015	HMA Sample	1 per 1,000	TON
Material	CRES Construction Residency	C93016	HMA Density Test for Pavement Cores	1 per 1,000	TON

Material Code	Material Name	Spec. Ref.
asco007	Asphalt Concrete, Type S3 (PG 76-28 OK)	708

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C93004	Aggregate_Sand Equivalent T 176	1 per 20,000	TON
Material	MAT Materials Division	C93005	HMA TSR T 283	1 per 10,000	TON
Material	CRES Construction Residency	C93015	HMA Sample	1 per 1,000	TON
Material	CRES Construction Residency	C93016	HMA Density Test for Pavement Cores	1 per 1,000	TON

Material Code	Material Name	Spec. Ref.
asco008	Asphalt Concrete, Type S3 (PG 70-28 OK)	708

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C93004	Aggregate_Sand Equivalent T 176	1 per 20,000	TON
Material	MAT Materials Division	C93005	HMA TSR T 283	1 per 10,000	TON
Material	CRES Construction Residency	C93015	HMA Sample	1 per 1,000	TON
Material	CRES Construction Residency	C93016	HMA Density Test for Pavement Cores	1 per 1,000	TON

Material Code	Material Name	Spec. Ref.
asco009	Asphalt Concrete, Type S3 (PG 64-22 OK)	708

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C93004	Aggregate_Sand Equivalent T 176	1 per 20,000	TON
Material	MAT Materials Division	C93005	HMA TSR T 283	1 per 10,000	TON
Material	CRES Construction Residency	C93015	HMA Sample	1 per 1,000	TON
Material	CRES Construction Residency	C93016	HMA Density Test for Pavement Cores	1 per 1,000	TON

Material Code	Material Name	Spec. Ref.
asco010	Asphalt Concrete, Type S4 (PG 76-28 OK)	708

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C93004	Aggregate_Sand Equivalent T 176	1 per 20,000	TON
Material	MAT Materials Division	C93005	HMA TSR T 283	1 per 10,000	TON
Material	CRES Construction Residency	C93015	HMA Sample	1 per 1,000	TON
Material	CRES Construction Residency	C93016	HMA Density Test for Pavement Cores	1 per 1,000	TON

Material Code	Material Name	Spec. Ref.
asco011	Asphalt Concrete, Type S4 (PG 70-28 OK)	708

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C93004	Aggregate_Sand Equivalent T 176	1 per 20,000	TON
Material	MAT Materials Division	C93005	HMA TSR T 283	1 per 10,000	TON
Material	CRES Construction Residency	C93015	HMA Sample	1 per 1,000	TON
Material	CRES Construction Residency	C93016	HMA Density Test for Pavement Cores	1 per 1,000	TON

Material Code	Material Name	Spec. Ref.
asco012	Asphalt Concrete, Type S4 (PG 64-22 OK)	708

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C93004	Aggregate_Sand Equivalent T 176	1 per 20,000	TON
Material	MAT Materials Division	C93005	HMA TSR T 283	1 per 10,000	TON
Material	CRES Construction Residency	C93015	HMA Sample	1 per 1,000	TON
Material	CRES Construction Residency	C93016	HMA Density Test for Pavement Cores	1 per 1,000	TON

Material Code	Material Name	Spec. Ref.
asco013	Asphalt Concrete, Type S5 (PG 76-28 OK)	708

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C93004	Aggregate_Sand Equivalent T 176	1 per 20,000	TON
Material	MAT Materials Division	C93005	HMA TSR T 283	1 per 10,000	TON
Material	CRES Construction Residency	C93015	HMA Sample	1 per 1,000	TON
Material	CRES Construction Residency	C93016	HMA Density Test for Pavement Cores	1 per 1,000	TON

Material Code	Material Name	Spec. Ref.
asco014	Asphalt Concrete, Type S5 (PG 70-28 OK)	708

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C93004	Aggregate_Sand Equivalent T 176	1 per 20,000	TON
Material	MAT Materials Division	C93005	HMA TSR T 283	1 per 10,000	TON
Material	CRES Construction Residency	C93015	HMA Sample	1 per 1,000	TON
Material	CRES Construction Residency	C93016	HMA Density Test for Pavement Cores	1 per 1,000	TON

Material Code	Material Name	Spec. Ref.
asco015	Asphalt Concrete, Type S5 (PG 64-22 OK)	708

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C93004	Aggregate_Sand Equivalent T 176	1 per 20,000	TON
Material	MAT Materials Division	C93005	HMA TSR T 283	1 per 10,000	TON
Material	CRES Construction Residency	C93015	HMA Sample	1 per 1,000	TON
Material	CRES Construction Residency	C93016	HMA Density Test for Pavement Cores	1 per 1,000	TON

Material Code	Material Name	Spec. Ref.
asco016	Asphalt Concrete, Type S6 (PG 76-28 OK)	708

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C93004	Aggregate_Sand Equivalent T 176	1 per 20,000	TON
Material	MAT Materials Division	C93005	HMA TSR T 283	1 per 10,000	TON
Material	CRES Construction Residency	C93015	HMA Sample	1 per 1,000	TON
Material	CRES Construction Residency	C93016	HMA Density Test for Pavement Cores	1 per 1,000	TON

Material Code	Material Name	Spec. Ref.
asco017	Asphalt Concrete, Type S6 (PG 70-28 OK)	708

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C93004	Aggregate_Sand Equivalent T 176	1 per 20,000	TON
Material	MAT Materials Division	C93005	HMA TSR T 283	1 per 10,000	TON
Material	CRES Construction Residency	C93015	HMA Sample	1 per 1,000	TON
Material	CRES Construction Residency	C93016	HMA Density Test for Pavement Cores	1 per 1,000	TON

Material Code	Material Name	Spec. Ref.
asco018	Asphalt Concrete, Type S6 (PG 64-22 OK)	708

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C93004	Aggregate_Sand Equivalent T 176	1 per 20,000	TON
Material	MAT Materials Division	C93005	HMA TSR T 283	1 per 10,000	TON
Material	CRES Construction Residency	C93015	HMA Sample	1 per 1,000	TON
Material	CRES Construction Residency	C93016	HMA Density Test for Pavement Cores	1 per 1,000	TON

Material Code	Material Name	Spec. Ref.
asco023	Asphalt Concrete, Type OGBB	708

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	T30	Mechanical Analysis of Extracted Aggregate	1 per 1,000	TON

Material Code	Material Name	Spec. Ref.
asco024	Asphalt Concrete, Type OGFSC	708

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	T30	Mechanical Analysis of Extracted Aggregate	1 per 1,000	TON

Material Code	Material Name	Spec. Ref.
asco027	Asphalt Concrete, Type 1/2" SMA	708

Sample Type	Acceptance Method	Test Method		Frequency	
Material	MAT Materials Division	C93005	HMA TSR T 283	1 per 10,000	TON
Material	CRES Construction Residency	C93015	HMA Sample	1 per 1,000	TON
Material	CRES Construction Residency	C93016	HMA Density Test for Pavement Cores	1 per 1,000	TON

Material Code	Material Name	Spec. Ref.
asco029	Asphalt Concrete, Type 1/2" PFC	708

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C93015	HMA Sample	1 per 1,000	TON

Material Code	Material Name	Spec. Ref.
asco030	Asphalt Concrete, Micro Surf, Type I	707

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C93013	Asphalt Binder Content by Ignition	1 per 500	TON
Material	CRES Construction Residency	T30	Mechanical Analysis of Extracted Aggregate	1 per 500	TON

Material Code	Material Name	Spec. Ref.
asco031	Asphalt Concrete, Micro Surf, Type II	707

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C93013	Asphalt Binder Content by Ignition	1 per 500	TON
Material	CRES Construction Residency	T30	Mechanical Analysis of Extracted Aggregate	1 per 500	TON

Material Code	Material Name	Spec. Ref.
asco032	Asphalt Concrete, Micro Surf, Type III	707

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C93013	Asphalt Binder Content by Ignition	1 per 500	TON
Material	CRES Construction Residency	T30	Mechanical Analysis of Extracted Aggregate	1 per 500	TON

Material Code	Material Name	Spec. Ref.
asco036	Asphalt Concrete, UTBWC, Type A	707

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C93004	Aggregate_Sand Equivalent T 176	1 per 2,500	TON
Material	CRES Construction Residency	C93013	Asphalt Binder Content by Ignition	1 per 500	TON
Material	CRES Construction Residency	T30	Mechanical Analysis of Extracted Aggregate	1 per 500	TON

Material Code	Material Name	Spec. Ref.
asco037	Asphalt Concrete, UTBWC, Type B	707

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C93004	Aggregate_Sand Equivalent T 176	1 per 2,500	TON
Material	CRES Construction Residency	C93013	Asphalt Binder Content by Ignition	1 per 500	TON
Material	CRES Construction Residency	T30	Mechanical Analysis of Extracted Aggregate	1 per 500	TON

Material Code	Material Name	Spec. Ref.
asco038	Asphalt Concrete, UTBWC, Type C	707

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C93004	Aggregate_Sand Equivalent T 176	1 per 2,500	TON
Material	CRES Construction Residency	C93013	Asphalt Binder Content by Ignition	1 per 500	TON
Material	CRES Construction Residency	T30	Mechanical Analysis of Extracted Aggregate	1 per 500	TON

Material Code	Material Name	Spec. Ref.
asco040	Asphalt Concrete, Rich Bottom Layer	708

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C93004	Aggregate_Sand Equivalent T 176	1 per 20,000	TON
Material	MAT Materials Division	C93005	HMA TSR T 283	1 per 10,000	TON
Material	CRES Construction Residency	C93015	HMA Sample	1 per 1,000	TON
Material	CRES Construction Residency	C93016	HMA Density Test for Pavement Cores	1 per 1,000	TON

Material Code	Material Name	Spec. Ref.
asco041	Asphalt Concrete, Type S3 (PG 76-28 E)	SP708-2409

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C93004	Aggregate_Sand Equivalent T 176	1 per 20,000	TON
Material	MAT Materials Division	C93005	HMA TSR T 283	1 per 10,000	TON
Material	CRES Construction Residency	C93015	HMA Sample	1 per 1,000	TON
Material	CRES Construction Residency	C93016	HMA Density Test for Pavement Cores	1 per 1,000	TON

Material Code	Material Name	Spec. Ref.
asco042	Asphalt Concrete, Type S5 (PG 76-28 E)	SP708-2409

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C93004	Aggregate_Sand Equivalent T 176	1 per 20,000	TON
Material	MAT Materials Division	C93005	HMA TSR T 283	1 per 10,000	TON
Material	CRES Construction Residency	C93015	HMA Sample	1 per 1,000	TON
Material	CRES Construction Residency	C93016	HMA Density Test for Pavement Cores	1 per 1,000	TON

Material Code	Material Name	Spec. Ref.
asco043	Asphalt Concrete, RIL (PG 76-28 E)	SP411-1509

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C93004	Aggregate_Sand Equivalent T 176	1 per 20,000	TON
Material	MAT Materials Division	C93005	HMA TSR T 283	1 per 10,000	TON
Material	CRES Construction Residency	C93015	HMA Sample	1 per 1,000	TON
Material	CRES Construction Residency	C93016	HMA Density Test for Pavement Cores	1 per 1,000	TON

Material Code	Material Name	Spec. Ref.
asco044	Asphalt Concrete, Type S4 (PG 76-28 E)	SP708-2409

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C93004	Aggregate_Sand Equivalent T 176	1 per 20,000	TON
Material	MAT Materials Division	C93005	HMA TSR T 283	1 per 10,000	TON
Material	CRES Construction Residency	C93015	HMA Sample	1 per 1,000	TON
Material	CRES Construction Residency	C93016	HMA Density Test for Pavement Cores	1 per 1,000	TON

Material Code	Material Name	Spec. Ref.
asph021	Asphalt, Emulsified, Type PMCSS-1H	708.03

Sample Type	Acceptance Method	Test Method		Frequency	
Material	MAT Materials Division	C91006	Emulsified Asphalt_Project Sample	1 per 10,000	GAL

Material Code	Material Name	Spec. Ref.
asph024	Asphalt, Emulsified, Type PMCRS-1S	708.03

Sample Type	Acceptance Method	Test Method		Frequency	
Material	MAT Materials Division	C91006	Emulsified Asphalt_Project Sample	1 per 100,000	GAL

Material Code	Material Name	Spec. Ref.
asph029	Asphalt, Emulsified, Type ARA-1P	SP

Sample Type	Acceptance Method	Test Method		Frequency	
Material	MAT Materials Division	C91005	Emulsified Asphalt_QM Sample	1 per 20,000	GAL

Material Code	Material Name	Spec. Ref.
base001	Aggregate Base (98% Compaction)	303

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C95001	Density and Moisture Content of Soil Agg by Nuke Meth	1 per 800	CY

Material Code	Material Name	Spec. Ref.
base002	Aggregate Base (95% Compaction)	303

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C95001	Density and Moisture Content of Soil Agg by Nuke Meth	1 per 800	CY

Material Code	Material Name	Spec. Ref.
base008	Subgrade Method B	310.04(B)

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C95001	Density and Moisture Content of Soil Agg by Nuke Meth	1 per 2,500	SY

Material Code	Material Name	Spec. Ref.
base009	Existing Base and Surface	311

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C95001	Density and Moisture Content of Soil Agg by Nuke Meth	1 per 1,000	LF

Material Code	Material Name	Spec. Ref.
base010	Stabilized Subgrade	307

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C95001	Density and Moisture Content of Soil Agg by Nuke Meth	1 per 2,500	SY

Material Code	Material Name	Spec. Ref.
base011	**Econo Base**	**318**

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C94014	Compressive Strength of Concrete Cylinders	1 per 5,000	SY
Material	CRES Construction Residency	C94025	Fresh Concrete Tests	1 per 5,000	SY

Material Code	Material Name	Spec. Ref.
base013	**Open Gr PC Conc Base**	**319**

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C95003	In Place Density of OGPCCB by Nuclear Method	1 per 2,500	SY

Material Code	Material Name	Spec. Ref.
base017	**Cement Treated Base (CTB)**	**317**

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C95004	CTB Tests on Field Molded Specimens	1 per 10,000	SY
Material	CRES Construction Residency	C95005	In Place Density of Cement Treated Base by Nuclear Methods	1 per 2,500	SY

Material Code	Material Name	Spec. Ref.
ckds001	**Cement Kiln Dust (CKD)**	**702.03**

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5001	Acceptance of Pre Approved Products	1 per 1,000	TON

Material Code	Material Name	Spec. Ref.
cure001	**Liquid Membrane Curing Compound**	**701.07(C)**

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5001	Acceptance of Pre Approved Products	1 per 2,500	GAL

Material Code	Material Name	Spec. Ref.
drai017	**Corrugated Metal Pipe (CMP)**	**726.02**

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5001	Acceptance of Pre Approved Products	1 per 250	LF

Material Code	Material Name	Spec. Ref.
drai028	**Corrug. Polyethylene/Polypropylene Pipe**	**726.02**

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5001	Acceptance of Pre Approved Products	1 per 1,000	LF

Material Code	Material Name	Spec. Ref.
elec005	**Elect Wire/Cable, Building/Highway Light**	**738.02**

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5011	Acceptance Form for Bldg or Hwy Lighting Electric Wire	1 per 5,000	LF

Material Code	Material Name	Spec. Ref.
elec007	**Elect Cable, Communication**	**738.03**

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5012	Acceptance of Communication Electric Cable	1 per 5,000	LF

Material Code	Material Name	Spec. Ref.
elec008	**Elect Cable, Traffic Signal**	**738.01**

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5008	Acceptance of Traffic Signal Electric Cable	1 per 5,000	LF

Material Code	Material Name	Spec. Ref.
elec009	Elect Wire, Traffic Signal Wire	738.01

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5010	Acceptance of Dectector Loop Wire	1 per 5,000	LF

Material Code	Material Name	Spec. Ref.
elec014	Elect Cable, Loop Detector Lead-in	738.01

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5009	Acceptance of Shielded Loop Detector Lead In Cable	1 per 5,000	LF

Material Code	Material Name	Spec. Ref.
ewrk001	Earthwork, Select Borrow	202

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C95001	Density and Moisture Content of Soil Agg by Nuke Meth	1 per 2,000	CY

Material Code	Material Name	Spec. Ref.
ewrk002	Earthwork, Excavation/Embankment	202

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C95001	Density and Moisture Content of Soil Agg by Nuke Meth	1 per 2,000	CY

Material Code	Material Name	Spec. Ref.
ewrk003	Earthwork, Trench Backfill	613.04

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C95001	Density and Moisture Content of Soil Agg by Nuke Meth	1 per 250	LF

Material Code	Material Name	Spec. Ref.
ewrk004	Earthwork, Machine Grading	209

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C95001	Density and Moisture Content of Soil Agg by Nuke Meth	1 per 2,500	LF

Material Code	Material Name	Spec. Ref.
ewrk009	Earthwork, Structure Excav & Backfill	501

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C95001	Density and Moisture Content of Soil Agg by Nuke Meth	1 per 2,000	CY

Material Code	Material Name	Spec. Ref.
fabr001	Fabric Reinf for Asphalt Concrete Pvmt	712.01

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5001	Acceptance of Pre Approved Products	1 per 50,000	SY

Material Code	Material Name	Spec. Ref.
fabr002	Fabric, Permanent Erosion Control	712.02

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5001	Acceptance of Pre Approved Products	1 per 5,000	SY

Material Code	Material Name	Spec. Ref.
fabr004	Fabric, Geotextile Subgrade Reinforce	712.04

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5001	Acceptance of Pre Approved Products	1 per 5,000	SY

Material Code	Material Name	Spec. Ref.
fabr005	**Fabric, Separator for Bases**	**712.05**

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5001	Acceptance of Pre Approved Products	1 per 50,000	SY

Material Code	Material Name	Spec. Ref.
fabr006	**Fabric, Silt Fence Filter**	**712.06**

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5001	Acceptance of Pre Approved Products	1 per 5,000	LF

Material Code	Material Name	Spec. Ref.
fabr010	**Geogrid**	**712.07**

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5001	Acceptance of Pre Approved Products	1 per 5,000	SY

Material Code	Material Name	Spec. Ref.
fabr013	**Fabric, Separator for Bond Breaker**	**317.02**

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5001	Acceptance of Pre Approved Products	1 per 50,000	SY

Material Code	Material Name	Spec. Ref.
fenc002	**Fence Wire, Woven, Zinc Coated**	**732.06**

Sample Type	Acceptance Method	Test Method		Frequency	
Material	MAT Materials Division	C92013	Fence_Woven Wire	1 per 16,500	LF

Material Code	Material Name	Spec. Ref.
fenc004	**Fence Wire, Barbed**	**732.06**

Sample Type	Acceptance Method	Test Method		Frequency	
Material	MAT Materials Division	C92010	Fence_Barbed Wire	1 per 66,000	LF

Material Code	Material Name	Spec. Ref.
fenc007	**Fence Wire, Barbless, Zinc Coated**	**732.06**

Sample Type	Acceptance Method	Test Method		Frequency	
Material	MAT Materials Division	C92011	Fence_Barbless Wire	1 per 66,000	LF

Material Code	Material Name	Spec. Ref.
fenc009	**Fence Posts, Steel**	**732.06**

Sample Type	Acceptance Method	Test Method		Frequency	
Material	MAT Materials Division	C92012	Fence_T Post	1 per 1,000	EACH

Material Code	Material Name	Spec. Ref.
fenc011	**Fence Wire, Tie**	**732.06**

Sample Type	Acceptance Method	Test Method		Frequency	
Material	MAT Materials Division	C92040	Post Ties for SWF and WWF	1 per 1,000,000	EACH

Material Code	Material Name	Spec. Ref.
fenc016	**Fence Wire, Chain Link Fabric**	**732.07**

Sample Type	Acceptance Method	Test Method		Frequency	
Material	MAT Materials Division	C92015	Fence_CLF Fabric	1 per 5,000	LF

Material Code	Material Name	Spec. Ref.
fenc017	**Fence Wire, Chain Link Tension**	**732.07**

Sample Type	Acceptance Method	Test Method		Frequency	
Material	MAT Materials Division	C92014	Fence_Tension Wire	1 per 1,000,000	LF

Material Code	Material Name	Spec. Ref.
fenc018	**Fence Wire, Chain Link Tie**	**732.07**

Sample Type	Acceptance Method	Test Method		Frequency	
Material	MAT Materials Division	C92048	Post Ties for Chain Link Fence (CLF)	1 per 1,000,000	EACH

Material Code	Material Name	Spec. Ref.
fenc019	**Fence Posts, Chain Link Support**	**732.07**

Sample Type	Acceptance Method	Test Method		Frequency	
Material	MAT Materials Division	C92016	Fence_CLF Support Posts	1 per 1,000	EACH

Material Code	Material Name	Spec. Ref.
fenc020	**Fence Posts, Chain Link Line**	**732.07**

Sample Type	Acceptance Method	Test Method		Frequency	
Material	MAT Materials Division	C92017	Fence_CLF Line Post	1 per 1,000	EACH

Material Code	Material Name	Spec. Ref.
fenc021	**Fence Rail, Chain Link, Top or Brace**	**732.07**

Sample Type	Acceptance Method	Test Method		Frequency	
Material	MAT Materials Division	C92018	Fence_CLF Brace and Top Rails	1 per 1,000,000	LF

Material Code	Material Name	Spec. Ref.
fenc033	**Fence Wire, Tension**	**732.06**

Sample Type	Acceptance Method	Test Method		Frequency	
Material	MAT Materials Division	C92014	Fence_Tension Wire	1 per 1,000,000	IUC

Material Code	Material Name	Spec. Ref.
lime002	**Lime, Quick**	**706.02**

Sample Type	Acceptance Method	Test Method		Frequency	
Material	MAT Materials Division	C92001	Quick Lime_Lab Analysis	1 per 250	TON

Material Code	Material Name	Spec. Ref.
ljoi001	**Asphalt Longitudinal Joint Density**	**SP411-12**

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C93019	Asphalt Longitudinal Joint Density	1 per 1,000	TON

Material Code	Material Name	Spec. Ref.
pcco001	**HC Conc Class AA(AE)**	**701.01**

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C94014	Compressive Strength of Concrete Cylinders	1 per 70	CY
Material	CRES Construction Residency	C94025	Fresh Concrete Tests	1 per 35	CY

Material Code	Material Name	Spec. Ref.
pcco002	HC Conc Class A (AE)	701.01

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C94014	Compressive Strength of Concrete Cylinders	1 per 2,500	CY
Material	CRES Construction Residency	C94014	Compressive Strength of Concrete Cylinders	1 per 70	CY
Material	CRES Construction Residency	C94014	Compressive Strength of Concrete Cylinders	1 per 625	CY
Material	CRES Construction Residency	C94025	Fresh Concrete Tests	1 per 35	CY
Material	CRES Construction Residency	C94025	Fresh Concrete Tests	1 per 2,500	CY
Material	CRES Construction Residency	C94025	Fresh Concrete Tests	1 per 625	CY

Material Code	Material Name	Spec. Ref.
pcco004	HC Conc Class C(AE)	701.01

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C94014	Compressive Strength of Concrete Cylinders	1 per 70	CY
Material	CRES Construction Residency	C94025	Fresh Concrete Tests	1 per 35	CY

Material Code	Material Name	Spec. Ref.
pcco005	HC Conc Class P(AE)	701.01

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C94014	Compressive Strength of Concrete Cylinders	1 per 70	CY
Material	CRES Construction Residency	C94025	Fresh Concrete Tests	1 per 35	CY

Material Code	Material Name	Spec. Ref.
pcco006	HC Conc, High Density - HDC	701.10

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C94014	Compressive Strength of Concrete Cylinders	1 per 70	CY
Material	CRES Construction Residency	C94025	Fresh Concrete Tests	1 per 35	CY

Material Code	Material Name	Spec. Ref.
pcco007	HC Conc, Latex Modified - LMC	701.11

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C94014	Compressive Strength of Concrete Cylinders	1 per 70	CY
Material	CRES Construction Residency	C94025	Fresh Concrete Tests	1 per 35	CY

Material Code	Material Name	Spec. Ref.
pcco008	HC Conc, Cont Low Strngth Matl - CLSM	701.19

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C94004	CLSM_Compressive Strength	1 per 100	CY

Material Code	Material Name	Spec. Ref.
pcco017	Open Gr PC Conc Base - Mix	319.04(C)

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C94045	Density Unit Weight of Concrete	1 per 20,000	SY

Material Code	Material Name	Spec. Ref.
pcco018	HC Conc Very Early Str Type I (VESI)	701.20

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C94014	Compressive Strength of Concrete Cylinders	0 per 70	CY
Material	CRES Construction Residency	C94025	Fresh Concrete Tests	0 per 35	CY

Material Code	Material Name	Spec. Ref.
pcco019	**HC Conc Very Early Str Type III (VESIII)**	**701.20**

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C94014	Compressive Strength of Concrete Cylinders	0 per 70	CY
Material	CRES Construction Residency	C94025	Fresh Concrete Tests	0 per 35	CY

Material Code	Material Name	Spec. Ref.
pcco020	**HC Conc Rapid Setting Latex Mod (RSLMC)**	**701.20**

Sample Type	Acceptance Method	Test Method		Frequency	
Material	CRES Construction Residency	C94014	Compressive Strength of Concrete Cylinders	0 per 70	CY
Material	CRES Construction Residency	C94025	Fresh Concrete Tests	0 per 35	CY

Material Code	Material Name	Spec. Ref.
qual001	**HC Conc Admixture, Liquid**	**701.03**

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5001	Acceptance of Pre Approved Products	1 per 10,000	IUC

Material Code	Material Name	Spec. Ref.
qual002	**Hydraulic Cement**	**701.02**

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5001	Acceptance of Pre Approved Products	1 per 1,000	TON

Material Code	Material Name	Spec. Ref.
qual003	**Fly Ash**	**702.01**

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5001	Acceptance of Pre Approved Products	1 per 1,000	TON

Material Code	Material Name	Spec. Ref.
qual004	**Prestressed Concrete Bridge Item**	**503**

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5002	Acceptance of Pre Delivery Inspected	1 per 10,000	EACH
Document	CRES Construction Residency	AM5002	Acceptance of Pre Delivery Inspected	1 per 10,000	LF

Material Code	Material Name	Spec. Ref.
qual005	**Fabricated Structural Steel Item**	**724**

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5002	Acceptance of Pre Delivery Inspected	1 per 1,000,000	LB

Material Code	Material Name	Spec. Ref.
qual007	**Gray Iron Castings**	**725.03**

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5004	Acceptance of Iron Castings	1 per 50	EACH

Material Code	Material Name	Spec. Ref.
qual008	**Reinforced Concrete Pipe**	**726.01**

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5002	Acceptance of Pre Delivery Inspected	1 per 250	IUC

Material Code	Material Name	Spec. Ref.
qual010	**Cut-Back Asphalt**	**708.03**

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5001	Acceptance of Pre Approved Products	1 per 100,000	GAL

Material Code	Material Name	Spec. Ref.
qual011	**Emulsified Asphalt**	**708.03**

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5001	Acceptance of Pre Approved Products	1 per 100,000	GAL

Material Code	Material Name	Spec. Ref.
qual021	**Fabricated Reinforcing Steel Item**	**723**

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5005	Acceptance of Reinforcing Steel	1 per 50,000	LB

Material Code	Material Name	Spec. Ref.
qual022	**Epoxy Coated Reinforcing Steel**	**723**

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5005	Acceptance of Reinforcing Steel	1 per 50,000	LB
Document	CRES Construction Residency	AM5005	Acceptance of Reinforcing Steel	1 per 1,000,000	LB

Material Code	Material Name	Spec. Ref.
qual023	**Precast Concrete Drainage Structure**	**611**

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5002	Acceptance of Pre Delivery Inspected	1 per 50	EACH

Material Code	Material Name	Spec. Ref.
qual024	**Precast Concrete Box**	**508**

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5002	Acceptance of Pre Delivery Inspected	1 per 250	LF

Material Code	Material Name	Spec. Ref.
qual025	**Precast Concrete Arch Structure**	**508**

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5002	Acceptance of Pre Delivery Inspected	1 per 10,000	LF

Material Code	Material Name	Spec. Ref.
qual027	**Precast Concrete Wall**	**510**

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5002	Acceptance of Pre Delivery Inspected	1 per 2,500	SY

Material Code	Material Name	Spec. Ref.
qual030	**NT Tack Coat**	**SP70825A09**

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5001	Acceptance of Pre Approved Products	1 per 100,000	GAL

Material Code	Material Name	Spec. Ref.
qual033	**Penetrating Corrosion Inhibitor**	**535.02**

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5001	Acceptance of Pre Approved Products	1 per 2,000	SY

Material Code	Material Name	Spec. Ref.
qual034	Prestressed Concrete Deck Panels	503

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5002	Acceptance of Pre Delivery Inspected	1 per 100,000	SF

Material Code	Material Name	Spec. Ref.
rail001	Guard Rail, Galv Steel Beams and Posts	732.01

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5006	Acceptance of Material by Type A Certification	1 per 100	EACH
Document	CRES Construction Residency	AM5006	Acceptance of Material by Type A Certification	1 per 100,000	LF

Material Code	Material Name	Spec. Ref.
rail013	Guard Rail End Treatment, GET	732.01

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5006	Acceptance of Material by Type A Certification	1 per 100	EACH

Material Code	Material Name	Spec. Ref.
rail014	Guard Rail, Spacer Block (Blockout)	732.01

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5001	Acceptance of Pre Approved Products	1 per 100	EACH

Material Code	Material Name	Spec. Ref.
resn001	HFST Binder Resin System	707-1a09

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5013	Acceptance of Material by Type B Certification	1 per 100,000	GAL

Material Code	Material Name	Spec. Ref.
seal010	Jt. Sealant, Rapid Cure	701.08(G)

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5001	Acceptance of Pre Approved Products	1 per 10,000	IUC

Material Code	Material Name	Spec. Ref.
seal011	Elastomeric Mortar	701.08(G)

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5001	Acceptance of Pre Approved Products	1 per 1,000	CF

Material Code	Material Name	Spec. Ref.
seal014	HC Conc Penetrating Water Repellent	701.12

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5001	Acceptance of Pre Approved Products	1 per 2,000	SY
Material	MAT Materials Division	C94005	Penetrating Water Repellent Treatment_Penetration Analysis	1 per 2,000	SY
Material	MAT Materials Division	C94006	Penetrating Water Repellent Treatment_Absorption	1 per 2,000	SY

Material Code	Material Name	Spec. Ref.
seal022	Epoxy Bridge Deck Sealer, Types K,L	70113B1011

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5001	Acceptance of Pre Approved Products	1 per 110	GAL

Material Code	Material Name	Spec. Ref.
seal024	Epoxy for Injection, Type D	701.13B4

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5001	Acceptance of Pre Approved Products	1 per 100	GAL

Material Code	Material Name	Spec. Ref.
seal025	Mastic Crack Sealant	422-1ae09

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5006	Acceptance of Material by Type A Certification	1 per 100,000	LB

Material Code	Material Name	Spec. Ref.
side010	Seeding Materials	735.03

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5007	Acceptance of Material by Visual Inspection	1 per 1	TON

Material Code	Material Name	Spec. Ref.
side019	Fertilizer	735.06

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5007	Acceptance of Material by Visual Inspection	1 per 10,000	TON

Material Code	Material Name	Spec. Ref.
side020	Silt Dike - Triangular	735.07

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5001	Acceptance of Pre Approved Products	1 per 5,000	LF

Material Code	Material Name	Spec. Ref.
sstl002	Steel Welding, Field	724.03

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	C94043	Documenting Field Welding	1 per 100,000	IUC

Material Code	Material Name	Spec. Ref.
sstl012	Steel, H-Pile Splicers	724.01

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5001	Acceptance of Pre Approved Products	1 per 100,000	EACH

Material Code	Material Name	Spec. Ref.
ston001	Riprap Stone	713.01

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5001	Acceptance of Pre Approved Products	1 per 10,000	TON

Material Code	Material Name	Spec. Ref.
ston004	Gabion Fill Stone	713.03

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5001	Acceptance of Pre Approved Products	1 per 10,000	TON

Material Code	Material Name	Spec. Ref.
ston007	Filter Blanket Stone, 2 Course Backing	713.02

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5006	Acceptance of Material by Type A Certification	1 per 10,000	TON

Material Code	Material Name	Spec. Ref.
ston008	Filter Blanket Stone, 1 Course Backing	713.02

Sample Type	Acceptance Method	Test Method		Frequency	
Document	CRES Construction Residency	AM5006	Acceptance of Material by Type A Certification	1 per 10,000	TON

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Appendix 'B'

Guide To

Independence Assurance Program

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APPENDIX B

STATE OF OKLAHOMA

DEPARTMENT OF TRANSPORTATION

GUIDE TO

INDEPENDENT ASSURANCE PROGRAM

This appendix to the Department's written Quality Assurance Program outlines key elements of the Independent Assurance (IA) Program for sampling, testing, and workmanship as defined by AASHTO R44. It provides for compliance with 23 CFR, part 637 Subpart B. This guide provides for administering the IA program utilizing a system basis.

"Independent Assurance" describes activities that are an unbiased and independent evaluation of sampling and testing (or inspection) procedures used in the Quality Assurance Program. IA samples will be used to make independent checks on the reliability of the results obtained in acceptance sampling and testing. Independent Assurance tests should not be used for acceptance purposes. AASHTO R44 provides additional details on the purpose, scope, and implementation of an IA program.

The department uses a systems approach for Independent Assurance activities on Federal-aid highway projects on the National Highway System. This includes evaluating active technicians and qualified labs, as well as splitting samples with field technicians.

Samples and tests will be documented in SiteManager™ or AASHTOWare Project. The Independent Assurance Branch will compare acceptance test results with independent assurance sample test results. The results may be reviewed at any time in SiteManager™ or AASHTOWare Project.

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GENERAL INFORMATION

Laboratories and technicians who perform acceptance sampling and testing for the department must be qualified. A list of qualified labs is maintained on the Materials Division website at http://crystalweb.odot.ok.gov/report/viewer.aspx?reportpath=public/Materials_Division/11069.rpt&password=APEX. Technician qualification status data is maintained in SiteManager™ or AASHTOWare Project. Unofficial qualification status listings are available on the Oklahoma Highway Construction Materials Technician Certification Board (OHCMTCB) website. Test methods not covered by OHCMTCB for qualification are not included in the IA Program.

Periodic IA reviews and evaluations are intended to verify the reliability of the sampling and testing program used to accept the materials. Good communication between technicians and IA inspectors will be essential.

The number of lab reviews will be based on the percentage of qualified labs. Qualified labs are listed as unexpired on the Materials Division website, excluding ODOT central labs covered under AMRL/CCRL certification.

The number of technician evaluations conducted will be based on the percentage of active qualified technicians. Active technicians are defined as those documented in SiteManager™ or AASHTOWare Project as performing sampling and/or testing.

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FREQUENCY & GOALS OF REVIEWS & EVALUATIONS

Qualified Labs

Labs will be reviewed based on a statistically representative sampling of qualified labs. Reviews may also be conducted on qualified labs not part of the statistically chosen percentage for any reason, including lab relocation, newly approved procedures, or when requested.

Qualified labs will be reviewed for equipment condition and calibration, as well as a review of all documentation, including the quality manual. The lab documentation and equipment will meet ODOT's Lab Manual Review Checklist requirements to qualify for each material requested for approval. The assigned IA Branch inspector will create a SiteManager™ or AASHTOWare Project entry and submit documents to the IA Supervisor for review. The IA Supervisor reviews and signs the Qualification Letter and Lab Agreement and attaches the documents in SiteManager™ or AASHTOWare Project created by the IA inspector. The template is reviewed and authorized by the IA Supervisor. The Quality Assurance Manager will sign documents and review and authorize the SiteManager™ or AASHTOWare Project entry if the IA Supervisor performs a lab evaluation or is absent. The Laboratory qualification policy and Checklist requirements are available on the Materials Division website: Laboratory Qualification Policy (odot.org)

Technicians

Technicians will be evaluated based on a statistically representative sampling of active technicians. The target frequency will be established in the annual report to FHWA. Evaluations may also be conducted on technicians not part of the statistically chosen percentage for any reason, including apprentice technicians, temporary certified technicians, recently certified technicians, or when requested. Qualified Technicians will be evaluated using a standard checklist of sampling and testing performance criteria in the following controlled material categories:

(A) Aggregate
(B) Asphalt
(C) Concrete
(D) Soils

Checklists for evaluations are available on the Materials Division website:
https://oklahoma.gov/odot/business-center/materials/qa-program.html

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EVALUATION SCHEDULING

IA inspectors will schedule lab reviews and evaluations throughout a calendar year to meet the sampling goals as specified. Technicians or their supervisors may request reviews and evaluations. Requests will be considered and conducted whenever practical based on available resources, scheduling issues, and travel requirements.

The IA inspector will contact the technician (via email, phone, or face-to-face meeting) at the beginning of each quarter to inform the technician that he or she was randomly selected to be evaluated, what discipline the technician will be evaluated in, and the IA inspector's contact information. The technician will have 30 days from initial contact to schedule an evaluation within that quarter. Failure to schedule within the time allotted may be considered a refusal.

EVALUATING EQUIPMENT

Equipment used to perform testing for Department projects will be evaluated using one or more of the following: verification of critical dimensions, calibration checks, observation, split samples, or proficiency samples.

Equipment used during qualified lab and technician evaluations will be inspected. Obvious equipment deficiencies, including out-of-calibration equipment, will be reported on the evaluation form.

A technician's evaluation that is unsatisfactory due to deficient equipment may result in a failing evaluation at the discretion of the Material Division Engineer.

If the laboratory evaluation was unsatisfactory due to deficient testing equipment, the laboratory's qualification status may be suspended for non-compliance on the affected test method at the discretion of the Material Division Engineer.

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EVALUATING PERSONNEL

Technicians will be evaluated by observing the sample and test procedures for conformance with published standards. Results of proficiency samples or split samples may also be used. The evaluation results will be documented on a standard technician evaluation form. Whenever a deficiency is observed, a report of the evaluation will be sent to the technician and the technician's supervisor.

Schedule any sampling and testing technician who fails an initial or follow-up evaluation for re-evaluation within thirty (30) days. A different IA evaluator must perform each re-evaluation. Re-evaluations will be performed in the same manner as the initial evaluation.

The combination of an observation and split sample applies only to test methods with split sample comparison criteria, which are defined in Appendix C.

For laboratory technicians, one observation or split sample/observation should be conducted for each test method they are actively performing.

IA personnel will promptly compare and document test results in SiteManager™ or AASHTOWare Project for review. IA personnel must be qualified in the areas they evaluate. Refusal to participate or a lack of cooperation in the IA evaluation will be sufficient reasons to consider an evaluation unsatisfactory. Participation in the program is mandatory.

IA PERSONNEL QUALIFICATION

Initial certifications by the Oklahoma Highway Construction Materials Technician Certification Board (OHCMTCB) and at least one additional recertification by the OHCMTCB. In addition to the board certification, the IA inspector will also perform the following:

Training by the ODOT Central Lab whenever necessary, but at least every 3 years for continuing education regarding changes to procedures and to review items that are usually a problem in the test procedures.

Take a written exam in each discipline, administered by the QA/IA manager, and score at least 85% every 3 years. Failure to pass the written exam will result in re-training and re-testing in that discipline within 30 days of the failure. Completing this program will result in an additional 36 months of the technician's certification. The

Materials Division will notify the OHCMTCB director and update SiteManager™ or AASHTOWare Project data.

The IA Supervisor or Branch Manager will observe the IA inspectors evaluating certified field technicians at least once per year. This is to ensure that all IA inspectors evaluate technicians consistently according to the approved IA checklists developed from AASHTO and OHD-L methods.

All IA qualification data will be recorded in SiteManager™ or AASHTOWare Project. This will include training conducted by the ODOT central laboratory, written exams, and supervisor observations.

If an IA inspector leaves the IA program, their current certification will remain in effect until expiration. Subsequent certifications will be subject to the current OHCMTCB board rules.

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Figure 1. IA Evaluation Of Technicians

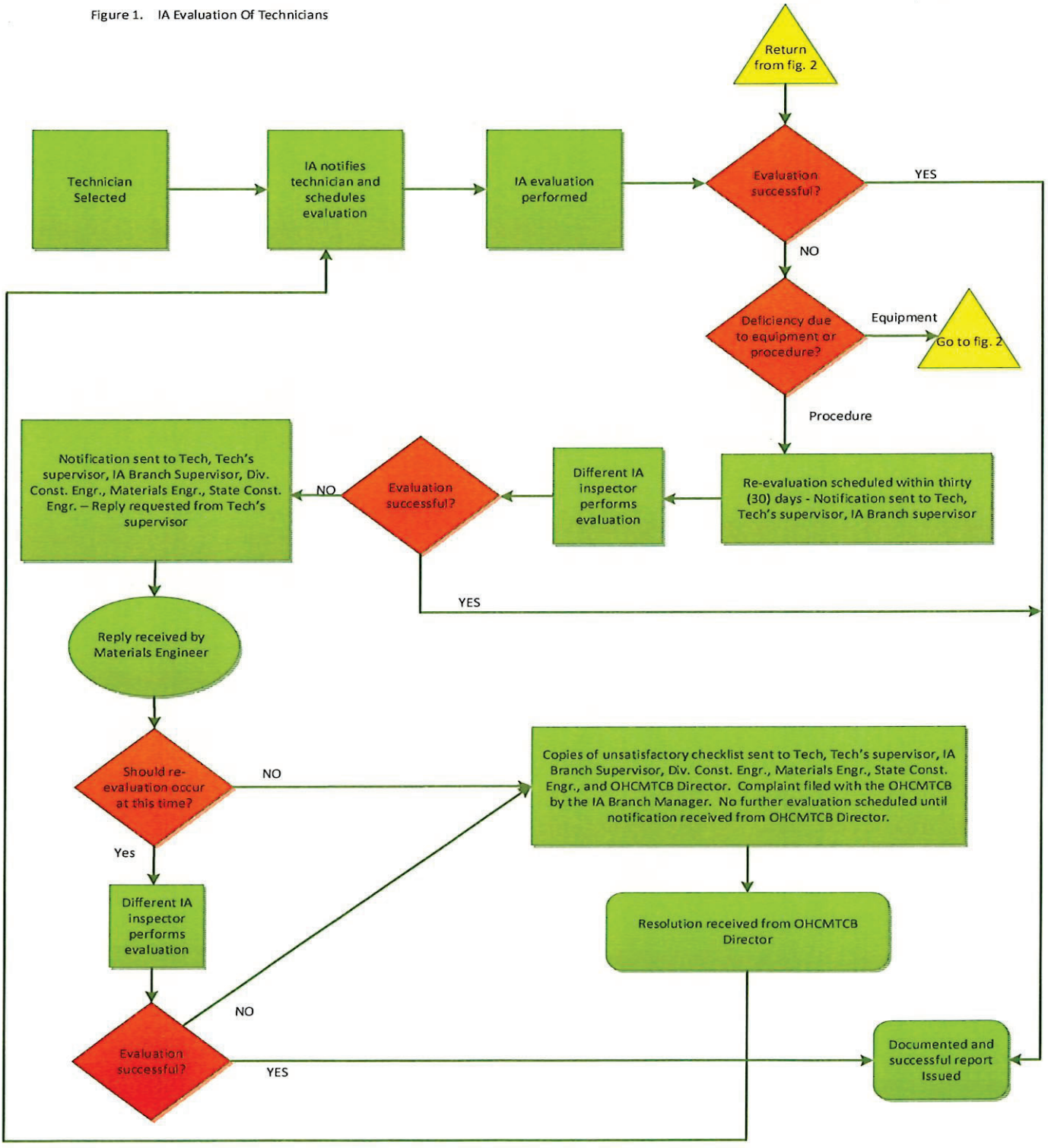

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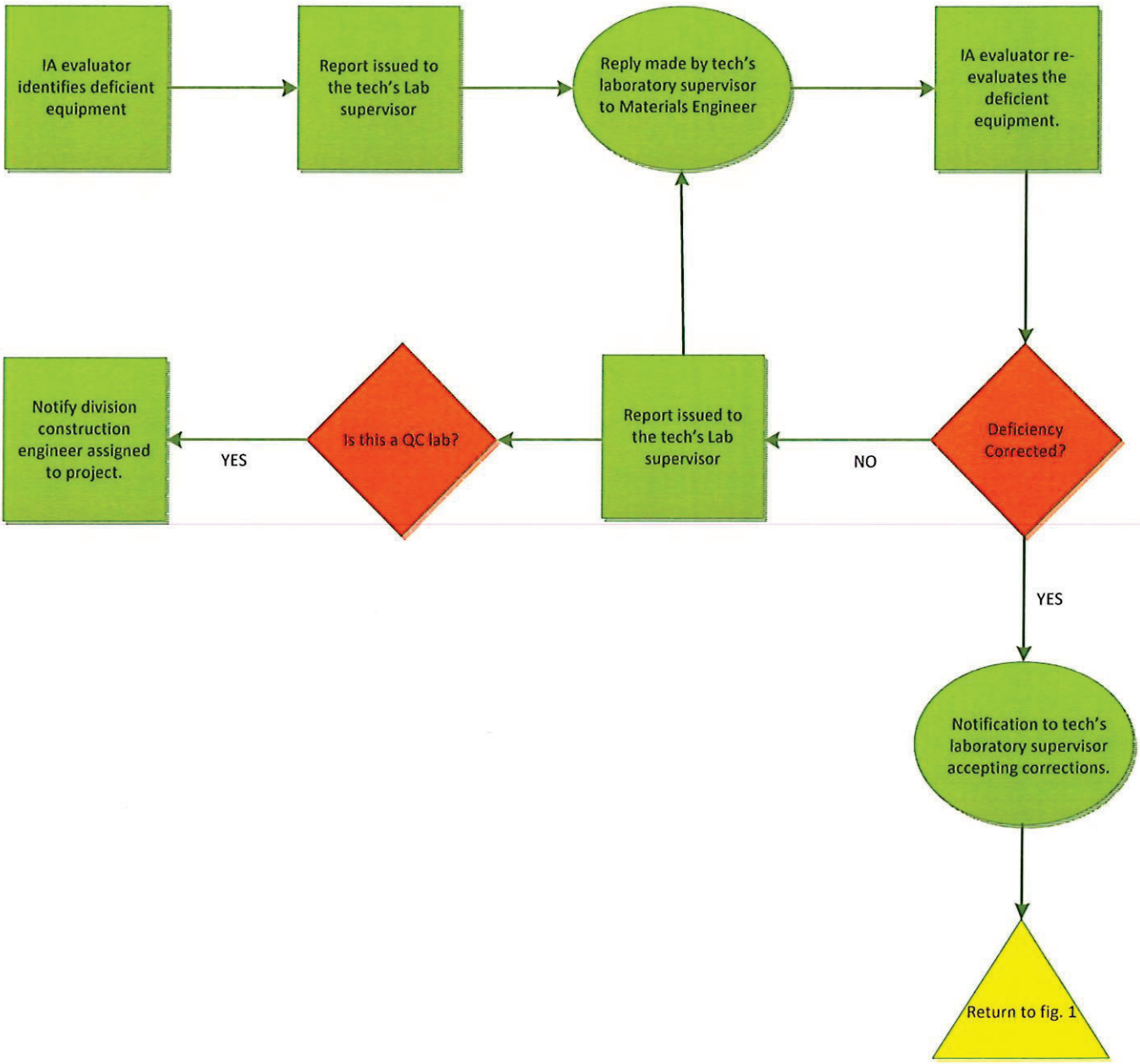
Figure 2. IA Evaluation Of Equipment



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COMPARISON TOLERANCE

Comparison Testing (Appendix C)

Proficiency Samples (OMRL) – (One technician performs all involved testing)

Testing Equipment (Lab Check Verification)

DOCUMENTATION

Systems Report

The Materials Engineer will submit an annual report to the FHWA documenting the activities of the Independent Assurance Program.

The report will include the following information: the number of certified technicians, the number of active technicians, the number of technicians covered by the IA program, the number of IA reported deviations, goals for the upcoming year, and a summary of how the deviations were addressed along with any potential systematic solutions to reoccurring deficiencies.

Revision 6/20/2016: Updated hyperlink for Materials Division list of qualified labs, located in the first paragraph under the section "General Information," to new URL. Also, the updated hyperlink for evaluation checklists, located at the bottom of the section "Technician" of the section "FREQUENCY & GOALS OF REVIEWS & EVALUATIONS", to the new URL.

Revision 7/6/2016: Updated hyperlink for evaluation checklists, located at the bottom of the section "Technicians" of section "FREQUENCY & GOALS OF REVIEWS & EVALUATIONS," to new URL.

Revision 5/2/2018: Updated hyperlink for Materials Division list of qualified labs, located in the first paragraph under the section "General Information," to new URL.

Revision 12/11/2020: Updated hyperlink for evaluation checklists, located at the bottom of the section "Technicians" of section "FREQUENCY & GOALS OF REVIEWS & EVALUATIONS," to new URL.

Revision 11/2/2022: Updated second paragraph after the first sentence, located in the section "Qualified Labs" of section "FREQUENCY & GOALS OF REVIEWS & EVALUATIONS."

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Appendix 'C'

Split Sample Result Tolerance Guide

IA Comparison Tolerances

T-176	Sand Equivalent	+/- 13	
T-310	Nuclear Densities	+/- 1.5 %	
T-152	Concrete Pressure Meter Air Test	+/- 1%	
T-119	Concrete Slump	+/- 1"	
OHDL-26	Ignition Oven Asphalt Content	+/-0.4%	
C1064	Concrete Temperature	+/- 2 F	
T-209	Rice's Gravity	+/- .019	
T-166	Roadway Asphalt Cores	+/- 1.5%	
T-22	Concrete Cylinder Breaks	+/- 14%	(Difference between the averages ÷ average of the averages)100
T-89	Liquid Limit	+/- 13	
T-90	Plasticity Index	+/- 18	
T-30	Extracted Aggregate Gradation	1.5"	+/-4
		1"	+/-4
		3/4"	+/-4
		1/2"	+/-4
		3/8"	+/-4
		#4	+/-4
		#8	+/-4
		#16	+/-2
		#30	+/-2
		#50	+/-2
		#100	+/-2
		#200	+/-2.0
T-27	Concrete Sand	3/8"	
		#4	+/-4
		#8	+/-4
		#16	+/-4
		#30	+/-4
		#50	+/-3
		#100	+/-2
		#200	+/-1.0
T-27	#57 Aggregate for Concrete	1 1/2"	
		1"	+/-6
		1/2"	+/-6
		#4	+/-3
		#8	+/-2
		#200	+/-1.0
T-27	#67 Aggregate for Concrete	1"	
		3/4"	+/-6
		3/8"	+/-6
		#4	+/-3
		#8	+/-2
		#200	+/-1.0
T-27	Econocrete Aggregate	1 1/2"	
		1"	+/-7
		1/2"	+/-7
		#4	+/-6
		#40	+/-5
		#200	+/-3.0

T-27	O.G.C.B. Aggregate	1 1/2"	
		1"	+/-6
		1/2"	+/-6
		#4	+/-3
		#8	+/-2
		#200	+/-1.0

T-27	Aggregate Base	Type "A"		Type "B"		Type "C"		Type "D"	
		1 1/2"		1 1/2"	+/-7	1 1/2"	+/-7	1 1/2"	+/-6
		3/4"	+/-7	3/4"	+/-7	1"	+/-7	1"	+/-6
		3/8"	+/-7	3/8"	+/-6	1/2"	+/-8	1/2"	+/-6
		#4	+/-6	#4	+/-6	#4	+/-6	#4	+/-3
		#10	+/-6	#10	+/-6	#10	+/-6	#8	+/-2
		#40	+/-5	#40	+/-5	#40	+/-5		
		#200	+/-3.0	#200	+/-3.0	#200	+/-3.0	#200	+/-2

T-27	T.B.S.C.	Type "A"		Type "E"		Type "F"			
		1"		1 1/2"		1 1/2"			
		3/4"	+/-5	3/4"	+/-7	#4	+/-7		
		#4	+/-5	3/8"	+/-7	#200	+/-4.0		
		#20	+/-5	#4	+/-6				
		#200	+/-3.0	#10	+/-6				
				#40	+/-5				
				#200	+/-3.0				

T-27	Cover Aggregate 3C	5/8"	
		1/2"	+/-6
		3/8"	+/-6
		#4	+/-3
		#8	+/-2
		#200	+/-1.0
		Dust Coat	+/-1

Miscellaneous Materials (Any materials not covered above)

				D2S	Rounded
T-27	Coarse Aggregate Gradation	100	=95	1	1
		<95	=85	3.9	4
		<85	=80	5.4	6
		<80	=60	8	8
		<60	=20	5.6	6
		<20	=15	4.5	5
		<15	=10	4.2	4
		<10	=5	3.4	3
		<5	=2	3	3
		<2	=0	1.3	1

				D2S	Rounded
T-27	Fine Aggregate Gradation	100	=95	0.6	1
		<95	=60	2.2	2
		<60	=20	4	4
		<20	=15	3.1	3
		<15	=10	2.1	2
		<10	=2	1.8	2
		<2	0	0.9	1