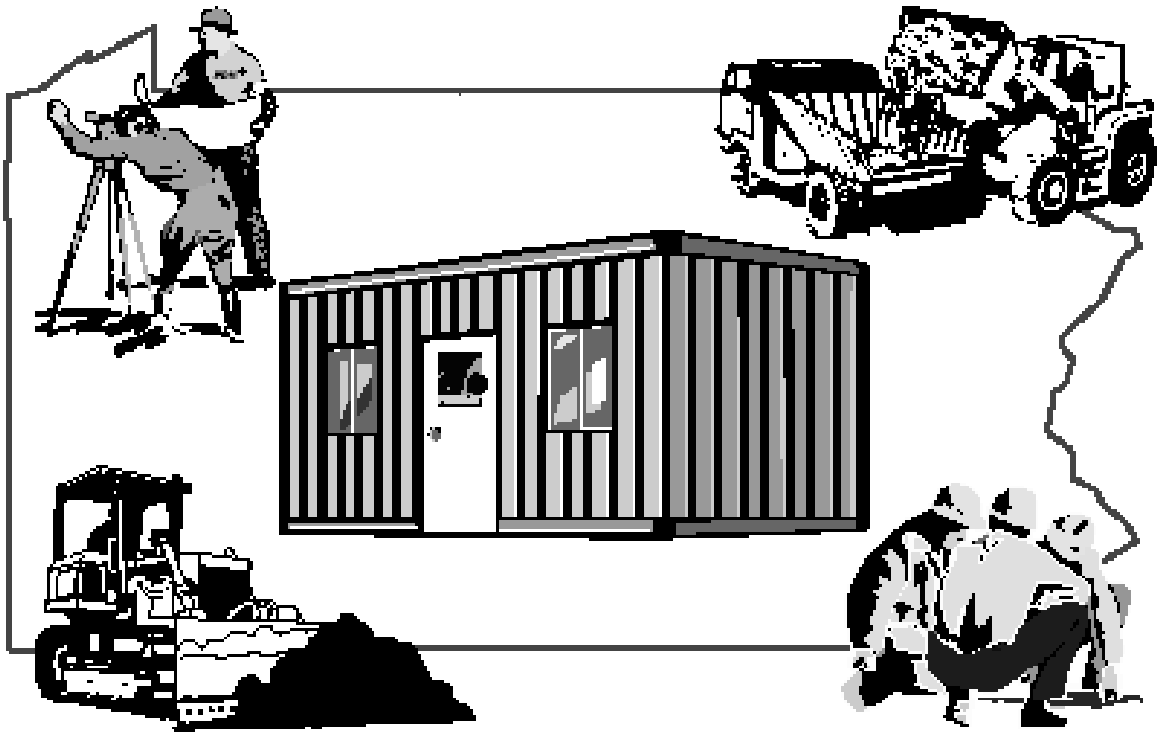
PROJECT OFFICE MANUAL

April 2014 Edition
Change#1 – April 2015



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DEPARTMENT OF TRANSPORTATION

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PUB 2 (4-14)

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INTRODUCTION

The Project Office Manual (POM) is a compilation of Department policies and procedures relating to field administration and inspection of construction contracts. The purpose of the POM is to act as a reference for the appropriate District staffs so they may perform their duties in accordance with Department policies and procedures.

Each project field office shall have a copy of the POM, and each District Office shall have copies of the POM for the District Construction staff's use.

The following sources are updated, consolidated and used in the POM:

1. The Project Office Manual issued December 1, 1980 and subsequent revisions.

2. Pertinent Strike-off letters.

3. District Construction Engineers Manual issued June 1, 1982 and subsequent revisions.

4. Pertinent items from the Field Computation Guide Book.

The POM is divided into five parts:

Part A - Pre-Construction
Part B - Project Office Administration
Part C - Construction Inspections
Part D - Project Finalization
Appendix

The five Parts are subdivided into sections in the Table of Contents.

Since the POM is revised periodically, the Districts should record each POM location so that all of the manuals will be updated. In addition, material of interest to District Construction Support Services may also be found herein.

Any questions or suggestions should be directed to the Chief – New Products and Innovations Section, Bureau of Project Delivery, 81 Lab Lane, Harrisburg PA, 17110-2543.

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PROJECT OFFICE MANUAL
TABLE OF CONTENTS

PART C - CONSTRUCTION INSPECTIONS

Section 1 - General (100)

Summary of Revisions for Change# 1 to Publication 2, Project Office Manual 2014 Edition

POM Section revisions distributed through Clearance Transmittal (CT) process:

POM Section(s)	CT#	SOL #	FHWA Approval Date
A.4.1	S-13-024	481-14-07	
B.1.3	S-14-034		2/23/15
B.1.6	S-14-042		2/23/15
B.2.2	S-14-028		2/23/15
B.6.21	S-14-018	481-14-09	9/8/14
B.9.1, B.9.4, B.9.9, C.1.13, C.1.15, D.3.7	S-13-018	481-14-10	3/21/14
C.9.2, C.9.13	S-14-025		3/6/15
C.10.14	S-14-005		9/23/14

CAMMS information was replaced with eCAMMS information in the following POM Sections:

B.7.19	B.8.1	B.8.2	B.8.3	B.8.4
B.8.7	B.8.8	B.9.10	C.4.5	

Metric units were removed from the following POM Sections:

B.1.4	B.1.7	B.4.2	B.4.11	B.4.12	B.6.11	B.6.20	B.7.21
C.4.1	C.4.2	C.4.3	C.4.4	C.5.7	C.6.7	C.10.10	C.10.11

Inspection stamps were updated in POM Section A.2.3.

POM Section B.7.18 was updated to reflect best practices which have previously been communicated to the Districts for handling Form CS-430, Notification of Inspection.

Sentence was revised in POM Section B.9.6 to agree with Section B.9.7 and to state that the Bulletin 15 Committee will review all failures.

New Forms and new QA Checklists were added to Appendix A.

LIST OF CHANGES FROM NEW 2014 EDITION
THROUGH APRIL 2015 CHANGE#1

POM Section	POM Section Title	Explanation of Change
A.2.3	Shop Inspection	Inspection Stamps were updated.
A.4.1	Policies and Procedures for Sharing Construction Services	New Section establishes Department policies and procedures for sharing construction and material inspection services between Districts. (SOL 481-14-07 & CT S-13-024)
B.1.3	Project Site Activity (PSA) Reports/Field Inspector's Diary (Form CS-4333; FID Reports)	Section was revised to include the new information required on all daily Project Site Activity Reports/Field Inspector's Diaries. (CT S-14-034)
B.1.4	Items and Estimate Book (I/E Book)	Metric units were removed.
B.1.6	CDS Files	Section was updated to reflect the change from vendor supply to PennDOT supply of project site computer equipment. (CT S-14-042)
B.1.7	Required Construction Documentation	Metric units were removed.
B.2.2	Rounding-Off Pay Quantities (Estimates and Final)	The decimal place for measurement for computations was changed from tenths (0.1 ft.) to hundredths (0.01 ft.), to improve accuracy when measuring in inches and converting to feet. (CT S-14-028)
B.4.2	Handling and Storage of Department Nuclear Gauges	Metric units were removed.
B.4.11	Wetlands	Metric units were removed.
B.4.12	Open Burning	Metric units were removed.
B.6.11	Bituminous Concrete Core Removal and Submission	Metric units were removed.
B.6.20	Independent Assurance Procedures-Aggregate Sources	Metric units were removed.
B.6.21	Plant Adjustment of Concrete Mixes	New Section establishes policy for the plant adjustment of concrete mixes, specifically the addition of air entraining admixtures at the plant. (SOL 481-14-09 & CT S-14-018)
B.7.18	CS-430 "Notification of Inspection"	Section B.7.18 was updated to reflect best practices which have previously been communicated to the Districts for handling Form CS-430, Notification of Inspection.
B.7.19	Letters of Approval for Neoprene Compression and Strip Seal Production Lots	CAMMS information was replaced with eCAMMS information.
B.7.21	Extra Cement Concrete	Metric units were removed.
B.8.1	Electronic Construction and Materials Management System (eCAMMS)	CAMMS information was replaced with eCAMMS information. Section was renamed.
B.8.2	Sample Identification Form TR-447	CAMMS information was replaced with eCAMMS information.
B.8.3	Cost Reimbursement System for Material Testing	CAMMS information was replaced with eCAMMS information.
B.8.4	District or Bureau Requests for Correction of eCAMMS Final Testing Reports	CAMMS information was replaced with eCAMMS information. Section was renamed.
B.8.7	Sample ID (TR_447) for Epoxy Coated or Galvanized Reinforcement Bars	CAMMS information was replaced with eCAMMS information.
B.8.8	District Requests for Corrected Copy eCAMMS Testing Reports for Bituminous or Asphalt Mixture Acceptance Samples	CAMMS information was replaced with eCAMMS information. Section was renamed.

POM Section	POM Section Title	Explanation of Change
B.9.1	Material Deviations	Section was revised to reflect the removal of the requirement for Central Office concurrence when leaving defective bituminous pavement lots and defective concrete lots in place at reduced payment. (SOL 481-14-10 & CT S-13-018)
B.9.4	Bituminous Lot Acceptance	Section was revised to reflect the removal of the requirement for Central Office concurrence when leaving defective bituminous pavement lots in place at reduced payment. (SOL 481-14-10 & CT S-13-018)
B.9.6	Quality and Independent Assurance Deviations	Sentence revised to agree with Section B.9.7 and to state that the Bulletin 15 Committee will review all failures.
B.9.9	Handling Defective Bituminous Lots	Section was revised to reflect the removal of the requirement for Central Office concurrence when leaving defective bituminous pavement lots in place at reduced payment. (SOL 481-14-10 & CT S-13-018)
B.9.10	Bituminous or Asphalt Mixture Acceptance Sample Requests for Retests	CAMMS information was replaced with eCAMMS information.
C.1.13	Evaluation, Disposition And Adjusted Payment Of Low Strength Cement Concrete	Section was renamed and revised to reflect the removal of the requirement for Central Office concurrence when leaving defective concrete lots in place at reduced payment. (SOL 481-14-10 & CT S-13-018)
C.1.15	Low Strength Cement Concrete Acceptance and Payment Policy	Section was deleted and information combined in Section C.1.13. (SOL 481-14-10 & CT S-13-018)
C.4.1	Paving Bituminous Concrete Using Multiple Pavers	Metric units were removed.
C.4.2	Bituminous Pavement Weather Limitations	Metric units were removed.
C.4.3	Bituminous Concrete Compaction During Late Season Paving	Metric units were removed.
C.4.4	Use of Pavers for Bituminous Shoulders	Metric units were removed.
C.4.5	Bituminous Outlier Requirements	CAMMS information was replaced with eCAMMS information.
C.5.7	Cement Concrete Pavement Contraction Joints	Metric units were removed.
C.6.7	Field Acceptance Criteria for Reinforced Concrete Pipe	Metric units were removed.
C.9.2	Maintenance and Protection of Traffic at Construction Sites	Section was revised to simplify the CS-901 documentation and frequency guidelines. (CT S-14-025)
C.9.13	Accident Information	Section was revised to streamline the flow of crash report information. (CT S-14-025)
C.10.10	Pre Deck Placement Meeting & Inspector's Checklist for Portland Cement Concrete Bridge Deck Placements	Metric units were removed.
C.10.11	Placement of Extra Cement Concrete in Water	Metric units were removed.
C.10.14	Documentation for Pile Driving Operations (CS-1005)	New Section provides guidance on required information, and how that information is to be recorded on Form CS-1005, Pile Driving Log. (CT S-14-005)
D.3.7	District's Letter of Project Materials Certification	Section was revised to remove the requirement for Central Office concurrence when leaving defective bituminous pavement lots and defective concrete lots in place at reduced payment. (SOL 481-14-10 & CT S-13-018)
Appendix A		New Forms and new QA Checklists were added.

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At or before the project's pre-construction conference, the District Engineer will obtain from the prime contractor, in writing, the name and location of the manufacturer of the following listed structural items that require plant inspection. The information should be promptly forwarded to the Bureau of Project Delivery, Structural Materials Section on Form CS-430 in order to assign shop/plant inspection:

Precast Concrete

Box Culvert Sections
Concrete Barrier
Endwalls
Inlets (Boxes-Risers-Tops)
Junction Boxes
Manholes
Noise Barrier (Panels-Posts)
Prestressed Concrete Beams
Special Design Reinforced Concrete Pipe
Precast Concrete Retained Earth Panels
Other (upon request by the District)

Fabricated Structural Steel and Aluminum

Aluminum Light Poles
Bridge Beams, Girders and Stringers
Bearings (High Load Multi-Rotational, Pot, Steel)
Dams (Armored Preformed Neoprene Compression, Expansion, Modular, Strip Seal and Tooth)
Drainage Items (Curb Drains, Downspouting Grills and Scuppers)
Poles (High Mast, Light, Strain, Traffic Signal Support)
Sign Structures
Steel Grid Deck Flooring
Welded Steel Sound Barrier Posts
Bridge Railing (HT Elliptical, PA, Type 10M)
Other (upon request by the District)

The Department contracts with consultant inspection agencies to perform plant inspections at precast/prestressed plants, steel and aluminum fabricators. Other structural products, including Fiber Reinforced Polymer and Timber decking should also be inspected during manufacturing.

Acceptable structural products which receive plant inspection will be stamped either by the Department's Structural Materials field staff or by the current consultant inspection agency. Examples of the inspection stamps are illustrated on the following pages. The inspection stamp indicates that the items were produced in accordance with specifications, and all material certifications are on file with the fabricator. The fabricator will send a Form CS-4171 with each shipment and will identify the quantity of material being certified.

If these materials arrive on a project without an inspection stamp, or if the items are stamped and arrive at the project site in an unacceptable condition, notify the Structural Materials Section of the Bureau of Project Delivery at (717) 783-6710.

EXAMPLES OF INSPECTION STAMPS – 2015-2019

(Fabricated Structural Steel, Aluminum, Timber and FRP)

HRV Conformance Verification Associates
Agreement: E03236

KTA Tator
Agreement: E03237

Pennoni Associates
Agreement: E03238

TRC Solutions
Agreement: E03239

EXAMPLES OF INSPECTION STAMPS – 2011-2015

(Precast/Prestressed Concrete)

Pennoni Associates
Agreement: E02113

TRC Solutions
Agreement: E02112

EXAMPLES OF INSPECTION STAMPS - Structural Materials Unit

(Precast/Prestressed Concrete or Fabricated Structural Steel, Aluminum, Timber and FRP)

SUBJECT

POLICIES AND PROCEDURES FOR SHARING CONSTRUCTION SERVICES

1. Purpose

To establish the Department policy to ensure sharing of construction and material services between Districts.

2. Background

Instances occur where Department staff reside outside their assigned District border and live adjacent to other District borders. Despite this fact, coordination does not occur across District borders to balance resources where it may make business sense. This lack of flexibility has resulted and continues to result in lost opportunities for the Department to improve areas of cost control, employee quality of life, information sharing, and knowledge transfer.

3. Department Approach

- Districts should consider regionalization efforts in the following areas:
  a) Border Project – projects across District borders in close proximity to each other or projects having large travel distances for one District's personnel and not the adjacent District's.
- Regionalized Winter Reassignments – provide employees the opportunity to spend their winters in the District that is their shortest daily commute. Border Projects will be reassigned to appropriate Districts or staffed with the nearest qualified Department Field Staff. Examples of Border Projects are as follows:
  a) The entire project is managed by another District, from the Assistant District Executive for Construction (ADE-C) through Inspectors.
  b) An Inspector-in-Charge (IIC) is temporarily assigned to another District's Assistant Construction Engineer (ACE)/Assistant Construction Manager (ACM).
  c) Field inspectors are temporarily assigned to another District's IIC.

  Note: During the project, the home District will need to be updated on issues including Legislative Contacts.

- Refer to the Statewide GIS Map, which displays home residences of Department Field Staff. The map should be used when considering possible inspection candidates for sharing. Update map every January and July.
- Districts are responsible for sharing upcoming and active project lists with adjacent Districts every January and July.
- The management of sharing Department Inspection resources between Districts is the responsibility of the Assistant Construction Engineer (ACE)/Assistant Construction Manager (ACM).
- A yearly Western ACE Regional Meeting and Eastern ACE Regional Meeting will be held in the first quarter of each calendar year. This meeting will help plan the upcoming construction season and allow guidelines to be presented, discussed, and refined.

- Any unmet District Winter Reassignment need will be eligible for winter reassignment. The ADE-C will convey their District's reassignment opportunities to bordering Districts.
- Respective Finals Unit Supervisors will manage Final Audits and provide guidance for CDS Coordination.
- Respective District Material Engineers will manage Material Plant Inspections.

4. Benefits

- Reduces travel time and reporting mileage for Construction Staff.
- Reduces direct costs incurred for Construction Staff.
- Balances resources to match changing Contractor schedules.
- Increases value of Construction Staff by matching expertise and experience to specific project operations, such as bridge deck placements, asphalt paving, or concrete paving.
- Develops versatility of Construction Staff by familiarizing individuals with different construction practices utilized across Districts.
- Improves project dedication and buy-in. As an example, if individual lives in the area of project, there may be more vested interests in the quality of the finished project.
- Improves quality-of-life for Construction Staff through reduction of commute times.
- Improves staff morale. As example, an individual does not have to travel great distances during winter reassignment at their own expense.
- Increases utilization of Construction Staff prior to winter reassignments.
- Increases information and knowledge transfer across District borders.
- Provides opportunities for Districts to evaluate Best Practices of adjoining Districts and adopt processes/procedures as determined appropriate.

5. Department Guidelines

- Annual, statewide meetings are to be scheduled to discuss further opportunities. The Agenda for Transferring Projects Between Districts and the Handoff Agenda should be used to guide and facilitate the meetings. The following items should be discussed:
  a) Specific District Guidelines, as applicable.
  b) Lines of Communications – discuss and determine how issues/concerns are escalated during the project. The employee should have a daily discussion with their supervisor/manager in the District in which they are currently working; if their issue is not resolved, then discussions should take place with their supervisor/manager in their home District. The home District Supervisor/Manager should contract the appropriate manager to resolve any operational issues.
- When District and AFSCME employees are involved, conduct meetings with respective AFSCME Locals, Councils, and appropriate management staff. Meetings will be coordinated with the District Human Resource Officer or Labor Relations Coordinator. Utilize the AFSCME Meet & Discuss Agenda for these meetings. Upon implementation and after the initial meeting with AFSCME Locals, inform the District Labor Relations Coordinator (LRC) and the Local Union President.

- Staff Selection within the Department:
  a) Management has the right to direct the workforce across District lines.
  b) The methodology and procedures for assigning Union covered employees to projects will remain in concert with current or existing Collective Bargaining Agreement language and local agreements. Conflicting District local agreements will be resolved by referring the matter through the District LRCs to the Labor Relations Division in Central Office.
  c) Construction Season – Department Staff selection must be based upon proximity to project, experience in type of work, skills, and abilities. All other factors being equal, seniority should be considered, but not required, for AFSCME covered employees.
  d) Winter Reassignments – AFSCME employees, who are shared with other Districts, will be assigned from and returned to their respective home Districts in the manner consistent with the processes outlined in the Collective Bargaining Agreement and local agreements. If Winter Reassignment needs are unfilled in a District, the District should solicit surrounding Districts for available staff. If surrounding Districts needs have been fulfilled and staff is available, staff may be shared with the other District.
- Cost savings should be estimated and tracked on a biannual basis when services are shared, and the costs saving should be reported to the Construction Quality Assurance Section Chief. The District ADE-C receiving services is to report cost savings by February 1st and August 1st of each year. The Inspection Cost Savings spreadsheet can be used for reporting, but other means are acceptable.
- When an Inspector-in-Charge is shared between Districts, the IIC must have two separate profiles in Engineering and Construction Management System (ECMS); one for home District and another for out-of-District projects.
- The ACE and IIC must review District Operating Procedures and Policies with employees assigned from a different District. Examples of these Operating Procedures and Policies include:
  a) Use of PSA or FID.
  b) Use of a CDS NextGen Operator or direct entry into CDS NextGen.
  c) Completing calculations and other required documentation in the vehicle.
  d) Material releases.
  e) Inspector-in-Charge preferences.
- A one-page orientation paper must be developed by each District to include specific operating structures, policies, procedures, and supervisor expectations.
- A welcome package must be established by each District to include a District organizational chart, documentation manual, District preferences, and relevant District contacts.
- Expense Report – Employee must have the following comment on expense report indicating the sharing opportunity to District Fiscal Unit:

  - "Employee currently works out-of-District on a project due to District sharing opportunity."

- Travel Time –In accordance with the current Technical Services Appendix.

- Travel Expenses - In accordance with Commonwealth travel policy Mileage Shortest Trip Concept – In accordance with the Commonwealth travel policy. The shortest distance is measured by either the employee's initial point of departure and the project or the employee's home headquarters and the project.
- Ground Travel Worksheet – In accordance with District Fiscal Policy. Employees complete only the bottom section of the Ground Travel Worksheet.
- Lunches – In accordance with the Master Agreement or Master Memorandum.
- Overtime Equalization – Overtime is equalized by project.
- Compensatory Time – In accordance with the Master Agreement or Master Memorandum or employee's home District agreements and policies.
- Paper payrolls, expense reports, and leave requests must be submitted to and signed by the Supervisor receiving services. The payrolls, expense reports, and leave requests must then be scanned and emailed to the home District for processing in ESS. The employee's home District Supervisor must be copied on all correspondences, as they will be performing the approvals in ESS. If direct entry into ESS is being utilized, a hardcopy must be submitted to the home District Supervisor.
- Employee Performance – Employee Performance Review Evaluations must be performed by the Supervisor receiving services, utilizing the Employee Evaluation Short Form in order to assist the employee's home District with yearly Employee Performance Reviews.
- At completion of construction season, each employee must complete the Survey for Construction Services Across Districts form and return it to the Supervisor receiving services. The form should then be forwarded along to the corresponding ACE and both Districts' ADE-C.

SUBJECT

PROJECT SITE ACTIVITY (PSA) REPORTS / FIELD INSPECTOR'S DIARY (FORM CS-4333; FID REPORTS)

The Project Site Activity Report (PSA) or Field Inspector's Diary (FID) will be used as the source document, whenever possible.

The Field Inspectors will make a daily record of the elements of work they inspected and/or office duties performed while assigned to a project. The PSA/FID will include hours worked by the inspector, lunch period, travel miles, and on the job miles.

Supervisors who are assigned to more than one project will complete at least one PSA/FID daily to document their work. A separate PSA/FID does not need to be completed for each project. A supervisor, who is present on more than one project daily, shall be listed as a visitor on the projects, with the exception of the project for which he/she is completing the daily PSA/FID.

Regardless of whether the source document is paper or electronic, the required information is indicated on pages B.1.3-2 through B.1.3-4. Examples are on pages B.1.3-5 through B.1.3-8.

All paper source documents will be filed chronologically in binders after applicable data has been recorded in CDS NeXtGen or ECMS. The permanent bound book will be kept for record retention purposes.

If electronic PSAs are being used, a hard copy print out of the PSAs is not required.

Minor alterations to a source document may be performed by a Department Representative. All changes must also be initialed and dated by the Department Representative.

The Master Diary can still be used in lieu of the FIDs (CDS NeXtGen PSA Paper Option) where four or less inspectors are assigned to a project, work in close proximity to each other, and have access to the Master Diary at all times. The Master Diary will be the sole document for recording daily events and pay quantity documentation. Each inspector will enter all data and sign and date their entry. The Inspector-in-Charge will also sign and date to show that he/she has reviewed and approved all data.

REQUIRED INFORMATION FOR FID/PSA REPORTS

A. INSPECTOR INFORMATION
   1. Name
   2. Hours Worked
   3. Lunch Period
   4. Travel Miles
   5. On the Job Miles

B. DATE

C. WEATHER CONDITIONS
   1. Must be documented twice daily; AM and PM
   2. Temperature Hi and Low for the work shift

D. CONTRACTOR/SUBCONTRACTOR INFORMATION
   1. Name
   2. Hours Worked
   3. Labor
   4. Equipment

      Note: When multiple inspectors are on one operation, only one inspector must list the labor and equipment. The other inspectors can refer to the PSA/FID which lists the labor and equipment.

E. ITEM # _____ AND FUNDING #_____

F. ITEM DESCRIPTION

G. LOCATION

   1. S.R./Sideroads/ramps
   2. Plan Sta. _____and RT. /LT. or N.B. /S.B.
   3. Actual Sta._____and RT. /LT. or N.B. /S.B.
   4. Structure No.

H. PAY QUANTITY

   1. Flat Chain Measured Length = LF
   2. Measured SY Length x Width Divided by 9 = SY

3. Measured CY Length x Width x Depth Divided by 27 = CY
4. Other units not listed above

I. REFERENCE TO OTHER SOURCE DOCUMENTS (IF NECESSARY)

1. Item Quantity Book No. and Page No.
2. Black Book No. and Page No.
3. Concrete Inspector's Daily Record Book No. and Page No.
4. Certification/Material Invoices File Folder No.
5. Plan Sheet No.
6. X-Section Sheet No.
7. Other Source Documents not listed above

J. DETAILS OF CONSTRUCTION AND INSPECTION PROCEDURES

1. How the Item of Work Was Performed
2. What Materials Were Used
3. What Inspection Procedures Were Used

    a. Measurements (Partial or Final)
    b. All Types of Testing
    c. Certification
    d. Specification Sections

K. OTHER PERTINENT INFORMATION

1. Reference to any operation specific forms

    a. Form D-4298 Daily Utility Inspection Form
    b. Form CS-6 Pipe Installation Inspection Form
    c. Other forms not listed above

2. Reference to Project Meetings

    a. E and S Preconstruction
    b. Project Control
    c. Pre-pave
    d. Pre-deck placement
    e. Demolition
    f. Erection
    g. Other meetings not listed above

L. DETAILS FOR OFFICE DOCUMENTATION

1. Explanation of the work performed

    a. As-builts
    b. Calculations
    c. Certifications
    d. Verification of Force Account Records
    e. Meeting Minutes
    f. Other office work performed not listed above

2. Reference Applicable Source Documents

    a. Drawings
    b. Item Quantity Book No. and Pages
    c. Material Certification File Folder
    d. Other Source Documents not listed above

Pennsylvania Department of Transportation *Construction Documentation System NeXtGen* *v 7.0*

PSA - Daily Project Site Activity

Project: 84698 **District:** 08 **County:** Monroe **SR** 0078 **Sec:** ITS

PSA Date: 1/4/2015 **Temperature: High:** 29 **Low:** 15 **Weather AM:** Cold **PM:** Snow

Inspector / ID: Bruce Wayne / BWAYNE **Status / Date:** Unapproved / 1/4/2015 **L/C Code / Hours:** 9402 / 7.50

7.50 **Total**

Contractor Name	Hours	Superintendent	Present	Equipment	Equip. Qty	Labor Class	Labor Class Qty
F Contractor							
Time: 8:00 AM / 4:00 PM	8.00	Bob Jones	Yes	Hydro-Seeder	1	Laborer	1
				Skid Steer	1	Teamster - Class I	1
				Truck - Dump	1	Truck Driver (owner)	1

General Comments:
Official visitors on Project: John Smith Assistant District Executive visited the project to attend a Partnering Meeting.

Travel miles to and from project: 26 miles roundtrip
OJM: 12
Work hours: 8:00 am - 4:00 pm
Lunch 12:00 pm - 12:30 pm (0.50 hours)

Item: 0802-0001 **Type:** **Fund:** 01
Description: TOPSOIL FURNISHED AND PLACED

SR/Sec: 1202 / RM2 **Side Road:** **Ramp:** **ID:**
Plan Sta.: 1+84 to 3+93 RT/LT ☑ NC ☐ Comp. ☐ FM
Tab Remarks:

Actual Sta.: 1+84 to 3+93 RT/LT
Quantity: 8.470000 (CY) **Reference:** Refer to IQ Book #001, Page 23 for a sketch, measurements and computations.
Quick Calc:
Remarks: Topsoil Furnished and placed in 4" lifts.
Topsoil leveled and unsuitable material removed.

Pennsylvania Department of Transportation — *Engineering and Construction Management*

PSA - Daily Site Activity

Project: 85180 **District:**05 **County:** Monroe **SR:** 0078 **Section:** ITS

PSA Date: 11/15/2014 **Status:** Draft

Inspector: Mike Lentz **Created By:** Mike Lentz/PennDOT

Inspector Hours Worked

Start Time	Quit Time	Hours	Pay Code	Leave / Cost Code
8:00 am	4:00 pm	8.00	Normal	Project Inspection

Conditions and Work Suspended

Time	Temp	Condition	Work Suspended	Entered By	Entered Timestamp
8:00 am	69°	Sunny	None	Mike Lentz/PennDOT	11/15/2014 10:15:36AM
3:00 pm	45°	Sunny	None	Mike Lentz/PennDOT	11/15/2014 10:15:54AM

Comments

General Comment Created: 11/15/2014 10:16:15AM by Mike Lentz/PennDOT

Official visitors on Project: John Smith, Assistant District Executive, visited the project to attend a Partnering Meeting.

Travel miles to and from project: 26 miles roundtrip
OJM: 12
Lunch 12:00pm-12:30pm (0.50 hours)

Contractors

F Contractor

Start Time	Quit Time	Superintendent	Equipment Name	Equip. Qty	Labor Name	Labor Qty
8:00 am	4:00 pm	Bob Jones	Skid Steer	1	Laborer	1
			Truck - Single Axle Dump	1	Operator - Group 1	1
			Sheepsfoot Roller	1	Truck Driver (owner)	1

Work Items

Item: 0802-0001 **Type:** Contract Item **Fund:** 01

Description: TOPSOIL FURNISHED AND PLACED

SR/Sect: 1202/RM2 **Side Road:** **Ramp:** **ID:** **Status:** Not Complete

Plan Location: 1+84 to 3+93

Location Remarks:

Actual Location: 1+84 to 2 + 90 RT/LT

Quantity: 8.470000 (CY)

Date Placed:

Quick Calc Info:

Reference Info: Refer to IQ Book #001, Page 23 for a sketch, measurements and computations. Reference File Folder K for Certifications

Remarks: Topsoil furnished and placed in 4" compacted lifts
Topsoil leveled and unsuitable material removed. Material compacted with a sheepsfoot roller.

PART	SECTION	PAGE	DATE
B	**1**	**3-7**	**April 1, 2015**

PROJECT SR 1026 SEC XX — BOOK # 360981
CONTRACT — PAGE # 1 — PAGE 1 of 1
CONTRACTOR Prime Contractor — OFFICE # 100B
Name of Sub-contractor doing Excavation (7 to 5:30) — DATE 06/01/1995
NO. OF MEN List for Sub

EQUIPMENT List for Sub

ITEM NO/TYPE/FUNDING	ITEM DESCRIPTION	PLAN	ACTUAL
0203-0001(01)	CL. 1 Ex.	637+42 to 642+19 SR 1026 SB	638 + 00 to 641+00 SR 1026 SB

LOCATION
Est. Pay Quantity Based on Truck Load Count

Name	TK #	Type	Size	# Loads	Volume
Cindrich	2	Tandem	12.0 CY	9	= 108 CY
Carpelotti	18	Tri-Axle	14.0 CY	39	= 546 CY
Iron City TK	37	Tri-Axle	14.0 CY	31	= 434 CY
Iron City TK	76	Trailer	16.0 CY	9	= 144 CY
				Est. Total	= 1232 CY

NOTE: See I BK. #3 PG. 1 for Truck Measurements

A) CL. 1 Exc. material placed in embankment from Sta. 590+00 to 596+50 SR 1026 NB

B) Material was granular and was placed in 8 inch loose lifts by a dozer. Material was compacted by a __ Ton Roller. Compaction for each lift was continued until there was no visible movement under the roller.

C) Also Compaction Test # ___ was conducted.

D) Item complete at these locations, pay estimated totals above.

7:00 AM to 5:30 PM (10 hrs)
(1/2 HR Lunch 12:00 to 12:30pm)

Travel Miles 30 OJM 8

Joe Inspector

HOURS WORKED — INSPECTORS SIGNATURE

PART	SECTION	PAGE	DATE
B	**1**	**3-8**	**April 1, 2015**

PROJECT SR SEC BOOK # 360981
CONTRACT PAGE # 2 PAGE 1 of 1
CONTRACTOR Prime Contractor OFFICE # 101B
(No work performed by contractor)
DATE 06/02/2014
NO. OF MEN
EQUIPMENT

Visitor: Joe Supervisor on site.

Contractor did not work on site due to rain.
Performed the following office work;

A) Performed calculations for class A and Class AA concrete for structure S-12345. Reference IQ Book #____, pgs. ____through_____.
B) Checked rebar calculations for substructure components S-12345. Reference IQ Book ___, pgs. ____through _____.

7:00 AM to 3:00 PM (7.5 hrs.)
(½ hour lunch 12:00 to12:30pm)

Travel Miles 30 OJM 0

Joe Inspector

HOURS WORKED

INSPECTORS SIGNATURE

The General File System for Projects is a guide that can be followed on projects using ECMS/CDS with a few exceptions.

Project site computer equipment for Highway and Bridge Projects is supplied by the Department. The equipment request should be made by either contacting your District CDS Coordinator or District Representative. Construction Field Office computer equipment, hardware and software, are for exclusive use by the Department and Department representatives. Every Department employee and Department representative will use their uniquely assigned Department issued CWOPA User ID and Password to login to the Department supplied computer equipment.

Use the provided fire-proof safe(s) for storage of computer generated documentation and computer equipment including, but not limited to, the construction project General Files and all Construction Field Office laptop computers during non-work hours.

Additional questions should be directed to either the District CDS Coordinator or the District Representative.

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SUBJECT

ROUNDING-OFF PAY QUANTITIES (Estimates and Final)

Units of Payment:

LS = Lump Sum
CY = Cubic Yards
SF = Square Feet
SY = Square Yards
LF = Linear Feet
VF = Vertical Feet
LB = Pounds
GAL = Gallon
MLF = Thousand Linear Feet
MFBM = Thousand Board Feet
EACH = Each
TON = Ton (2,000 lb).

Computations: Measure to 0.01 ft.

Quantities: Calculate to 0.000.

Dollars: Pay to 0.00.

The following exceptions apply as noted in Section 109.01, Publication 408:

M. Linear Feet - measure and pay to the nearest 0.01 M. feet;
Vertical Foot - pay a minimum of 1.0 foot at each site;
Acre - measure and pay to the nearest 0.1 acre;
Ton - measure and pay to the nearest 0.01 ton;
M. Feet Board of Measure - measure and pay to the nearest 0.01 M. feet board.

NOTE: Complete all calculations prior to doing any rounding.

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PLANT ADJUSTMENT OF CONCRETE MIXES

In accordance with Publication 408, Section 704, air entraining admixture may only be added to concrete mixes from a concrete plant's measuring system. However, due to the unpredictable nature of estimating proper dosages at the start of a batching operation, the need may arise to add additional air entraining admixture (AEA) to correct the air content of the mix at the plant prior to the mixture being shipped to the project.

The decision to add additional AEA to a mix at the production source must be made by the producer's certified concrete plant technician. Additional AEA may only be added to the first three trucks at the start of the batching operations. The producer should make appropriate adjustments prior to batching additional loads after air adjustments are made. Concrete shall be mixed to the approved proportions in the design. AEA shall not be withheld deliberately.

The AEA must be the same brand and type as originally proportioned into the mix. The admixture liquid must be accurately measured and placed into a container of sufficient size to be thoroughly diluted with one gallon of water. The total water in the mix cannot exceed the maximum water/cement ratio of the trial mix on the design. With the drum momentarily stopped, the AEA admixture and water solution should be added to the front (or discharge location) of the drum. All mix adjustments must be recorded on the delivery ticket including the 1 gallon of water and the dosage of the AEA added. After the AEA and water solution has been loaded into the mixing drum, the drum must be turned an additional 30 revolutions or more at mixing speed and retested for plastic air content to ensure uniformity in air content throughout the batch. The total number of truck drum revolutions cannot exceed 300 on the project. Only one air adjustment is permitted per load.

Specific details regarding the plant adjustment of concrete mixes must be included in the producer's quality control plan.

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SUBJECT

CS-430 "NOTIFICATION OF INSPECTION"

Form CS-430 "Notification of Inspection" was issued to the Engineering Districts to provide prefabrication notice to the BOPD, Structural Materials Section for assigning inspection to each contract.

Many of the Engineering Districts have transferred this activity to the contractor at the preconstruction conferences, evidenced by the names and signatures on many of the CS-430 forms received by the Structural Materials Section (SMS). Some contractors have even copied the details from the form onto their letterhead. Many of the forms received were incomplete with only part of the required information provided. Improperly completed forms or notification after fabrication has commenced can result in production delays or production of the material without inspection.

Each District is responsible for completing and submitting form CS-430 to the Structural Materials Section. A resource account (ra-pdstructmatls@pa.gov) was created as the preferred mode of receiving the form via e-mail. Complete WBS elements are required to ensure inspection charges are assigned to the correct project. In addition, an anticipated production date/range field was added to assist our contracted consultants in anticipating their resource needs and to coordinate with their assigned fabricators.

Those Districts which continually exceed the current Performance Metrics Dashboard minimum percentage for completion (85%) have instituted formal procedures to ensure the form is completed and sent to the Structural Materials Section. Best practices include:

- discussion with the Contractor at the pre-construction meeting to have them complete and submit form CS-430 with their fabricator information and submit it to a designated individual within the District.
- verification of the information on the form by assigned District staff to ensure accuracy and completeness
- periodic reviews of the interim report by assigned District staff through the SMS' Electronic Quality Management System (EQMS) report to determine if changes in source of supply were made.

Questions regarding the form or the performance metric where errors are suspected should be directed to the Chief Structural Materials Engineer.

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SUBJECT

LETTERS OF APPROVAL FOR NEOPRENE COMPRESSION AND STRIP SEAL PRODUCTION LOTS

Neoprene bridge and pavement compression seal and strip seal lots are sampled and approved for use prior to delivery to Department projects.

The Laboratory Testing Section has an approval process for neoprene seals. A statement of approval or rejection will be placed on the eCAMMS generated laboratory test report. The project will receive a copy of the eCAMMS laboratory report.

Direct your staff to accept seal lots by an eCAMMS laboratory report with the approval statement.

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SUBJECT

ELECTRONIC CONSTRUCTION AND MATERIALS MANAGEMENT SYSTEM (eCAMMS)

eCAMMS is a web-based application that manages the material quality assurance program for PennDOT's highway construction and maintenance programs, including activities performed by the Bureau of Project Delivery, and both District Quality Assurance and Acceptance Testing.

eCAMMS tracks material samples and their test results for materials collected from bridge and roadway construction projects; maintenance projects and stockpiles; aggregate, concrete, and asphalt suppliers; and other material suppliers seeking PennDOT qualification.

The system is a database that receives, generates and distributes information and reports in a timely manner.

The benefits of this system are:

1. Reduced Testing Turn around time.

2. Immediate access to information and management reports.

3. An enhanced Quality Assurance System.

4. To provide data for:

    - Redirection of Resources.
    - Prompt Presentation and Comparison of Data.
    - Study and Statistical Analysis.
    - Modification or Revision of Specifications, Standards, methods and Processes.
    - Training Needs.
    - Future Planning.

An integral part of eCAMMS requires that District and Central Office Construction Quality Assurance Section (CQAS) personnel be responsible for setup of their samples. Failure to have samples setup prior to receipt at the Laboratory Testing Section (LTS) creates a number of logistical and administrative problems since LTS cannot test and input results into the system without the setups.

It is important that Project/CQAS personnel who are sampling materials and entering them in the system have available all necessary information and codes to properly complete Form TR-447.

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SUBJECT

SAMPLE IDENTIFICATION FORM TR-447

A TR-447 Form is completed for every material sample.

When a sample is collected, the Inspector or Engineer is responsible for completion of a TR-447 form. It is a three-part form; one copy is sent to the Materials Testing Laboratory with the sample; one copy is sent to the District office or is kept by the CQAS Representative; one copy is filed with the project documentation. Form TR-447 also contains peel-off bar codes which are attached to the sample for identification purposes. Each peel-off bar code contains the TR-447 number and an increment number. Caution is urged in the placement of these bar code stickers, lessening the difficulty of scanning by LTS.

Direct any questions to the District Materials Engineer/Manager Staff regarding the completion of Form TR-447.

Filling out a TR-447:

The following information is to be included on the TR-447 form:

Format Codes:

L = Alpha character
# = Numeric character
@ = Alpha or numeric character
( ) = Number of characters

Matl Code:

Material Code.

Enter the appropriate Material Code for the sample. See POM Appendix A for Material Code listing per Publication 408 Sections.

Format: # # #
Example: 203

Material Class:

Enter the appropriate Material Classification for the sample. See POM Appendix A for Material Class listing per Publication 408 Sections.

Format: @@@@@@@
Example: A8

S Class:

Sample Classification.

Enter the Sample Classification for the sample. See the backside of Form TR-447 for Sample Class listing.

Format: @@
Example: QA

Aggregate Usage by Sect 703 Table D:

Format: @ (30)
Example: Bit. Seal Coat w Precoated Agg

Lot/Batch Number:

Enter the Lot/Batch Number for the sample being tested.

Format: @ (30)
Example: 00000006A

Lot/Batch Size & Units:

Enter the size of the lot/batch associated with the material, including the units.

Format: Size: @ (15) Units: @ (7)
Example: 300 LF

Location Code:

Reserved for Plant inspections only.

Format:	@@@@@@@@	
Example:	BEA14A14	(Supplier Code. For Report distribution, add Supplier Code to Associated Parties during eCAMMS Sample Setup)
	05	(For a District, only enter a two digit District number in first two blocks. For Report distribution, add District to the Associated Parties during eCAMMS Sample Setup.)

Place Collected:

Enter a description of the place where the sample was collected, if it was not collected on a project.

Format: @ (30)
Example: CIC48A

Date Collected:

Enter the date that the sample was collected or if the sample increments were collected over several dates, enter the last collection date from the increments.

Format: MM/DD/YYYY
Example: 03/26/2010

# of Inc:

Number of Increments.

Enter the total number of increments for the sample.

Format: # #
Example: 03

Related Sample:

Enter the cross-reference number used to tie a bituminous Density and Extraction sample together or to relate an Investigation (IV) Sample Class sample to a previously collected sample.

Format: L # # # # # #
Example: A002915

Tank #:

Enter the Tank # for liquid samples (Tank # is typically associated with a liquid asphalt cement sample or emulsified asphalt sample and the Tank # is usually identified on the Bill-of-Lading of the asphalt cement or emulsified asphalt).

Format: @ (10)
Example: 2

Construction Item #:

Enter the construction item number from the project contract that the material sample falls under.

Format: # # # # - # # # #
Example: 0409-0582

PE/PEQ:

Product Evaluation/Product Evaluation Qualification.

Enter the PE Number (for new materials) or PEQ Number (for materials with an existing specification) for the sample [Typically, this number is in a Year-Number-Letter format (YY-###L)]. This field is for cost accounting purposes.

Format: @ (15)
Example: 14-156A

Product Name:

Enter the Product Name for the sample materials as applicable. Typically, Publication 35 (Bulletin 15) lists materials by a Product Name.

Format: @ (100)
Example: Eucon-Air-Mix

Contract Number:

Enter a valid ECMS Contract Number. The eCAMMS system requires that an ECMS Contract Number or an Organization Code Number be entered for cost accounting purposes. If an ECMS Contract Number is entered, eCAMMS will automatically retrieve the list of available Work Breakdown Structure (WBS) Number(s) that can be selected for the ECMS project. If an Organization Code Number is entered, eCAMMS will automatically retrieve the list of available WBS numbers that can be selected from the Organization Code. An Organization Code Number is typically used for samples that are not associated with an ECMS Contract Number.

Format: E@@@@@@
Example: E11688 (Do not add leading zeroes after the "E". When entering the Contract Number in eCAMMS, enter the "E" and numbers).

Work Breakdown Structure (WBS):

Enter the appropriate WBS number for the project the material sample represents. The WBS number is broken down into the MPMS or Non-MPMS (MP), System (S), State Route or Work Order (SR or WO), Sub Project (Sp), Phase (P), Section (Sec), Organization Code (Org), Program (Program), and Participation Code (PC).

Format: @-@#######-####-@@@-#
Example: P-C5412908POC-0540-701-2

Supplier (Party) Code:

Enter the Supplier (Party) Code for the sample.

For Epoxy coated reinforcing bars, the Supplier Code field should always contain the last supplier in the manufacturing chain that handled, added value or further processed the item. For samples taken from projects, the Supplier Code would typically be the fabrication shop. The Supplier Codes for the bar manufacturer, epoxy powder manufacturer, and epoxy

coating company must be entered in the Remarks section of the TR-447. Refer to POM Section B.8.7 for more detailed instruction on completion of the TR-447 for epoxy coated reinforcement.

Format: @@@@@@@@@
Example: BEA14A14

Pub 408 Year:

Enter the Year of the project's governing specification used to test the material from Publication 408.

Format: # # # #
Example: 2013

Ver:

Enter either "IE" for Initial Edition or the Version (Change No.) of the Publication 408 specification.

Format: @@
Example: 2 (for Change No. 2)

Section:

Enter the Section Number of the specification used to test the material from Publication 408.

Special Provision:

Check "Yes" to indicate that a special provision exempts the sample from being tested against a Publication 408 specification Year and Version (Change No.). In addition, enter the special provision's Index (C = Changes to Specifications Related, D = Design/Build Related, G = General Provisions Related, I = Item Related, N = Non-Pay Item Related, P = Provisional Specification Related, or S = Section Related), and the Provision Number.

Format: □ Yes @ (15)
Example: ✓ Yes G-a00002

PO Number:

Purchase Order Number.

For Maintenance samples, enter the Purchase Order Number associated with the material.

Format: @ (20)
Example: 00011688

Sampled By:

Enter the following 'Sampled By' information of the person who actually physically collected the sample.

Sampled By – Title:

Enter the title (Dr., Miss, Mr., Mrs., or Ms.) of the person who actually physically collected the sample.

Format: @ (4)
Example: Mr.

Sampled By – First Name:

Enter the First Name of the person who actually physically collected the sample.

Format: @ (60)
Example: John

Sampled By – Middle Name:

Enter the Middle Name or Middle Initial of the person who actually physically collected the sample.

Format: @ (15)
Example: P.

Sampled By – Last Name/Suffix:

Enter the Last Name and, if applicable, the Suffix (Sr., Jr., III, etc.) of the person who actually physically collected the sample.

Format: @ (60)
Example: Richards, Jr.

Sampled By – Phone Number:

Enter the telephone or mobile phone number where the person who actually physically collected the sample can be contacted or voice-mailed during daytime working hours.

Format: # # # - # # # - # # # #
Example: 814-867-4951

Sampled By – Ext.:

Enter the telephone number extension, if applicable, of the person who actually physically collected the sample.

Format: @ (5)
Example: 100

Sampled By – Certification ID:

Enter the technician certification number of the person who actually physically collected the sample.

Format: @ (30)
Example: 555001

Sampled By – Email Address:

Enter the e-mail address, if available, of the person who actually physically collected the sample.

Format: @ (275)
Example: jrichards@xyz.com

Sampled By – PennDOT Employee, Consultant, Other:

Check the appropriate box for PennDOT Employee or Consultant, or enter the appropriate type under 'Other' of the person who actually physically collected the sample.

PennDOT Employee or Consultant Format: @ (checkbox)
Other Format: @ (15)
Checkbox Example: ✓
Other Example: ✓ Contractor

Inspected By:

Enter the following 'Inspected By' information of the person who directed or inspected another person physically collecting the sample. This person should not have actually physically collected the sample.

Inspected By – Title:

Enter the title (Dr., Miss, Mr., Mrs., or Ms.) of the person who directed or inspected another person physically collecting the sample.

Format: @ (4)
Example: Mr.

Inspected By – First Name:

Enter the First Name of the person who directed or inspected another person physically collecting the sample.

Format: @ (60)
Example: Matthew

Inspected By – Middle Name:

Enter the Middle Name or Middle Initial of the person who directed or inspected another person physically collecting the sample.

Format: @ (15)
Example: R.

Inspected By – Last Name/Suffix:

Enter the Last Name and Suffix (Sr., Jr., III) of the person who directed or inspected another person physically collecting the sample.

Format: @ (60)
Example: Johnson, Sr.

Inspected By – Phone Number:

Enter the telephone or mobile phone number where the person who directed or inspected another person physically collecting the sample can be contacted or voice-mailed during normal daytime working hours.

Format: # # # - # # # - # # # #
Example: 814-867-4951

Inspected By – Ext.:

Enter the telephone number extension, if applicable, of the person who directed or inspected another person physically collecting the sample.

Format: @ (5)
Example: 100

Inspected By – Certification ID:

Enter the technician certification number of the person who directed or inspected another person physically collecting the sample.

Format: @ (30)
Example: 555111

Inspected By – Email Address:

Enter the e-mail address, if available, of the person who directed or inspected another person physically collecting the sample.

Format: @ (275)
Example: mjohnson@consultant.com

Inspected By – PennDOT Employee, Consultant, Other:

Check the appropriate box for PennDOT Employee or Consultant, or enter the appropriate type under Other of the person who directed or inspected another person physically collecting the sample.

PennDOT Employee or Consultant Format: @ (checkbox)
Other Format: @ (15)
Checkbox Example: ✓
Other Example: ✓ Municipal

County:

County Code.

Enter the code for the county in which the sample was collected.

Format: # #
Example: 07

SR:

State Route.

Enter the State Route number as assigned and maintained by RMS.

Format: # # # #
Example: 0022

Segment:

Segment.

Enter the code for the State Route Segment where the sample was collected (not applicable for construction projects in progress).

Format: # # # #
Example: 0010

Offset:

Enter the measurement of the offset from the segment line of a highway which indicates the exact location where a material sample was collected (not applicable for construction projects in progress).

Format: # # # #
Example: 0212

Section:

Enter the Section location of where a sample was collected or the general location of where a QA review took place. Section numbers are only applicable for samples collected from construction projects in progress.

Format: @@@
Example: M04

Station:

Enter the Station location where a sample was collected or the general location of where a QA review took place. Station locations are only applicable for samples collected from sites under construction.

Format: @ (10)
Example: 4214+87.2

CTR Offset:

Center Offset.

Enter the measurement of the offset from the centerline of a highway which indicates the exact location where the sample was collected.

Format: # #. #
Example: 12.5

L/R:

Left/Right Indicator.

Enter "L"eft, "R"ight, Station ahead, or leave the field blank to indicate the location from which the sample was collected, relative to the center line.

Format: L
Example: R

Placement Date:

Enter the actual placement date of the material represented by the Increment number (Increments may have been actually constructed or actually placed over several dates)

Format: ##/##/## (MM/DD/YY)
Example: 05/23/15

AASHTO T 209:

For Bituminous samples, enter the daily Theoretical Maximum Specific Gravity (Gmm) value as determined by the Bituminous Mixture Producer according to AASHTO T 209 for the Increment Placement Date.

Format: #.# # #
Example: 2.397

JMF Year:

Enter the JMF Year number identifying the sample's Job Mix Formula.

Format: # # # #
Example: 2015

JMF Number:

Enter the specific mix number of the supplier's Job Mix Formula for a bituminous material or the Master Mix Design for cement concrete.

Format: @@@@@@
Example: A12B3

Design Thickness:

Enter the bituminous concrete or cement concrete pavement thickness specified in the contract.

Format: # # #. # # #
Example: 001.500

Concrete Air:

Plastic Air Content.

For concrete samples, enter the results of the plastic air content test performed in the field.

Format: # # #. # #
Example: 7.2

Concrete Slump:

For concrete samples, enter the results from the slump test performed in the field.

Format: # # #. # #
Example: 1.25 (Metric entries ignore decimal location)

Concrete Temp:

For concrete samples, enter the temperature (ºF) of the plastic cement concrete determined in the field.

Format: # # #. # #
Example: 74.5

Self Consolidating Concrete J-Ring:

For Self-Consolidating Concrete (SCC) samples, enter results of the J-Ring test performed in the field.

Format: # # . # #
Example: 11.25

Self Consolidating Concrete Slump Flow:

For Self-Consolidating Concrete (SCC) samples, enter results of the slump flow test performed in the field.

Format: # # . # #
Example: 15.50

Self Consolidating Concrete VSI:

For Self-Consolidating Concrete (SCC) samples, enter results of the Visual Stability Index (VSI) test performed in the field.

Format: #
Example: 1

Remarks:

Enter any special instructions for the sample. For example, "Perform a Sodium Sulfate Soundness Test."

For epoxy coated reinforcement, the Supplier Codes for the bar manufacturer, epoxy powder manufacturer, epoxy coating company, and fabrication company must be entered in the Remarks section of the TR-447. Refer to POM Section B.8.7 for more detailed instruction on completion of the TR-447 for epoxy coated reinforcement.

Format: Free-form Text

SAMPLE CLASSIFICATIONS

The following chart lists the sample classification codes used by CAMMS. These codes are defined on the back of the TR-447 form.

Code	Sample Classification
AS	Acceptance
DF	District Field Test
DQ	District Quality Assurance
DW	District Witnessed
ES	External
FV	Field Verification
IA	Independent Assurance
IF	Information
IV	Investigation
PE	Product Evaluation
PS	Preliminary
PV	Plant Verification
QA	Quality Assurance
QF	Quality Assurance Field Test\
QR	Quality Review
QS	Qualification
QW	Quality Assurance Witnessed
RE	Research
RS	Requalification
SR	Structural Review

COUNTY CODES

The following chart lists the counties of Pennsylvania and their corresponding codes.

County Code	Name	County Code	Name
1	Adams	35	Lackawanna
2	Allegheny	36	Lancaster
3	Armstrong	37	Lawrence
4	Beaver	38	Lebanon
5	Bedford	39	Lehigh
6	Berks	40	Luzerne
7	Blair	41	Lycoming
8	Bradford	42	McKean
9	Bucks	43	Mercer
10	Butler	44	Mifflin
11	Cambria	45	Monroe
12	Cameron	46	Montgomery
13	Carbon	47	Montour
14	Centre	48	Northampton
15	Chester	49	Northumberland
16	Clarion	50	Perry
17	Clearfield	51	Pike
18	Clinton	52	Potter
19	Columbia	53	Schuylkill
20	Crawford	54	Snyder
21	Cumberland	55	Somerset
22	Dauphin	56	Sullivan
23	Delaware	57	Susquehanna
24	Elk	58	Tioga
25	Erie	59	Union
26	Fayette	60	Venango
27	Forest	61	Warren
28	Franklin	62	Washington
29	Fulton	63	Wayne
30	Greene	64	Westmoreland
31	Huntingdon	65	Wyoming
32	Indiana	66	York
33	Jefferson	67	Philadelphia
34	Juniata		

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SUBJECT

COST REIMBURSEMENT SYSTEM MATERIAL TESTING

Included within the Electronic Construction and Materials Management System (eCAMMS) are programs and databases that enable the Department to obtain reimbursement for the cost of testing materials for construction projects. Form TR-447, Sample Identification, is the required form.

As part of completing Form TR-447, the Field Inspector must fill in the appropriate project Work Breakdown Structure (WBS) number along with the Material Code and Class representing the material sample. eCAMMS will automatically assign the Laboratory Test Cost Function 9-9998 when electronically transferring test costs to the Department's SAP system.

Information from the Form TR-447 is entered into eCAMMS and is used to charge material testing costs to the proper project. As material tests are completed and samples are released, eCAMMS automatically calculates the test cost and charges the appropriate project for reimbursement. Final charges and reimbursements are processed through a batch interface with SAP.

Additional information on the cost reimbursement for material testing can be obtained by contacting the Systems Management Section, Bureau of Project Delivery at (717) 787-1037.

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SUBJECT

DISTRICT OR BUREAU REQUESTS FOR AMENDED eCAMMS TESTING REPORTS

District or Bureau requests for correction of eCAMMS Final Testing Reports for material samples tested by the Bureau of Project Delivery, Innovation and Support Services Division, Laboratory Testing Section (LTS) (i.e., eCAMMS Owning Lab = LTS), other than Bituminous Hot-Mix Asphalt (HMA) or Warm Mix Asphalt (WMA) acceptance samples, will be considered only upon presentation of factual evidence that an error exists on the test report. See POM, Section B.8.8 for requests for correction of eCAMMS Final Testing Reports for Bituminous Hot-Mix Asphalt (HMA) or Warm-Mix Asphalt (WMA) acceptance samples.

For District requests, the documentation for the request shall be presented in a memorandum or in an e-mail message from the District Materials Engineer/Manager or a District Materials Unit designate. For Bureau requests, the documentation for the request shall be presented in a memorandum or in an e-mail message from the appropriate Bureau Representative most familiar with the sample information. All requests shall include the following documentation:

- Sample Reference Number containing the data error
- Specific data field containing the data error
- Correct data for the specific data field containing the data error
- Factual evidence of the data error and/or justification for the request for an amended eCAMMS Testing Report
- District Materials Unit contact name and phone number

The District or Bureau memorandum or e-mail message shall be addressed and sent to the appropriate LTS Lab Manager. The appropriate LTS Lab Manager can be identified by the statement at the bottom of each eCAMMS Final Testing Report that indicates who authorized the report (e.g., "*This report is authorized by [Name of Lab Manager]...*"). The Lab Manager's e-mail address can be obtained from the Department's e-mail system address book or by calling the Materials Testing Laboratory's main phone number located at the top of page 1 of the eCAMMS Final Testing Report and then asking to be transferred to the appropriate Lab Manager.

For correction of information on eCAMMS Final Testing Reports for material samples tested by Asphalt Local Acceptance (i.e., eCAMMS Owning Lab = ALA), contact the appropriate District Materials Unit who generated the ALA Final Testing Report.

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SUBJECT

SAMPLE ID (TR-447) FOR EPOXY COATED OR GALVANIZED REINFORCEMENT STEEL BARS

In order to identify the responsible party in the event of an epoxy coated or galvanized reinforcement steel bar sample failure, during eCAMMS TR-447 Sample Setup, up to four (4) Associated Party: Supplier Party Codes may be required to be added to the eCAMMS Sample. These four (4) Supplier Party Codes are intended to provide supplemental information about the various manufacturers involved in producing epoxy coated or galvanized reinforcement steel bars. By providing this supplemental information for epoxy coated or galvanized reinforcement steel bar samples, the Laboratory Testing Section (LTS) can properly identify the responsible party in the event of a sample failure. These four (4) Supplier Party Codes on the eCAMMS TR-447 Sample Setup page are also to be identified by their appropriate Party Purpose. Up to three or four Party Purpose types may be required to be edited for each Supplier Party Code. When the four (4) Associated Supplier Party Codes are added to the eCAMMS epoxy coated or galvanized reinforcement steel bar sample, each Supplier Party Code will need edited to add in the required Party Purpose(s) for each Supplier Party Code. During eCAMMS Sample Setup under the Associated Party section and for each Supplier Party Code added, after adding the Supplier Party Code, click the edit pencil and select the Party Purpose(s) for each Supplier from the Party Purpose field dropdown by clicking the checkbox(es) for the appropriate Party Purpose(s) for each Supplier Party Code. Some Supplier Party Codes may serve two or more Party Purpose types (e.g., reinforcement steel manufacturer and epoxy coater). The appropriate Party Purposes required for epoxy coated and galvanized reinforcement steel bar samples are identified below:

- Reinf. Steel Manufacturer
- Powder Manufacturer (Epoxy Powder Manufacturer)
- Epoxy Coater or Galvanizer
- Fabricator (Reinforcement Steel Bar Fabricator)

These four (4) Party Purposes supplement the existing “Supplier Code” field found on Form TR-447, Sample Identification. The “Supplier Code” field should always contain the last supplier in the manufacturing chain that handled, added value or further processed the item. The last supplier is also responsible for completing and providing Form CS-4171 "Certificate of Compliance". For reinforcement steel bar samples collected from projects, the “Supplier Code” would typically be the fabricator. The fabricator would, therefore, complete and provide to the contractor Forms CS-4171 and CS-4171F. Supplemental Form CS-4171F is only required when any epoxy coated or galvanized reinforcement steel is supplied to the project. All of the Supplier Party Codes required for reinforcement steel bar samples are found in Section 709.1 of Bulletin 15.

POM Section B.6.5, Materials Accepted by Project Sampling, requires one (1) reinforcement steel bar sample be comprised of three (3) increments (n=3) approximately four

(4) feet in length. Obtain a sample (n=3) of each bar size for the project. Although the chart is not specific, only one (1) increment should be collected from each of three (3) separate reinforcement steel bars of the same size and should be selected from a bundle bearing the same bar mark indicated on the plan. All sampled increments should include a section of the reinforcement steel bar that includes the mill mark that is rolled into the bar at the time of manufacturing, when possible.

Some suppliers and fabricators will supply pre-selected bars with each shipment and bundled specifically for testing samples. Do not submit pre-selected bars provided by the supplier or fabricator for testing.

Listed below are causes for rejection in the field of epoxy coated or galvanized reinforcement steel bars unless they can be repaired by the contractor before use. Visually and physically, examine each bundle for:

- Any signs of rust appearing under the epoxy coating or galvanized coating.
- Damage that might have occurred through mishandling.
- Uncured epoxy patching material.
- Any uncoated or partially coated areas or ends.
- Bundles with excessive epoxy patching end repair material that bonds the bars together.
- Flaking of the galvanized coating particularly at bends.
- Galvanized reinforcing bars that are “frozen” together.
- The presence of tears or sharp spikes, which make the bar hazardous to handle.

Inform the contractor that coating repairs must be made prior to placing or replacement bars must be provided. Whether the contractor or the fabricator performs the field repairs is of no concern. Guidance is provided in POM Section C.7.3 for repairing epoxy coated rebar.

Inform LTS by documenting in the "Remarks" area of the TR-447 if all the increments require routine testing regardless of test results. LTS tests according to ASTM A775, "Testing for Coating Thickness", and AASHTO M 31, "Testing for Strength, Elongation and Bending". In accordance with these procedures, if the first increment tested meets specification requirements, then additional testing is not required on the remaining increments.

The following are routine tests run by LTS on fabricated epoxy coated rebar:

- Tensile Strength
- Yield Strength
- Elongation
- Bend Test
- Coating Flexibility
- Check for Holidays
- Check for Amount of Damaged Area
- Check for Amount of Area Repaired

- Check for Thickness of Epoxy End Repair*
- Check for Coating Thickness over the Complete Rebar
- Check Bar Mill Markings

* Epoxy End Repair Thickness is a routine test for fabricated epoxy coated bars or 30" tie bars. When LTS receives a sample of straight rebar four (4) feet long, the lab manager has no way to know if it was cut from a fabricated bar or cut from an unfabricated steel bar. Thus, the inspector must request end repair testing in the TR-447 remarks.

The following are routine tests run by LTS on fabricated galvanized rebar:

- Tensile Strength
- Yield Strength
- Elongation
- Bend Test (Check for embrittlement)
- Check for Galvanizing Thickness (Weight)
- Check Bar Mill Markings

Any single or combination of routine test(s) can be requested in the "Remarks" area of the TR-447. If, for example, three (3) increments were sent to LTS as an investigation due to a previous failure for End Repair Thickness and Tensile Strength, the inspector would write: "Test Fabricator's End Repair and Tensile Strength - all increments" in the "Remarks".

Regarding the matter of rebar samples, epoxy coated bars cut for the purpose of sampling should not have the ends repaired on the sample increment portion with epoxy patching material in the field. Do not direct the contractor to perform any end repair to the cut end of epoxy coated or galvanized reinforcement steel bar sample portions nor allow the contractor to modify any end repairs made by the fabricator. This also holds true for epoxy coated mechanical rebar splices.

When the end repairs fail to meet the specification for coating repair thickness, reject all bars of the same size from the shipment represented by the sample.

- The contractor may perform bar end repairs with epoxy patching material that is approved in Bulletin 15, Section 709.1 for the specific epoxy powder used to coat the bar or, they may request to call a fabricator's representative to the field to administer end repair. Whether the contractor or the fabricator performs the repairs is of no concern.

- Normally the contractor should only have to perform repairs to a minor amount of rebar.

- Bars should be re-sampled and sent to LTS as Sample Class "IV" (Investigation) to verify that the field end repair with epoxy patching material is acceptable. Document the action taken on Form TR-455, "Disposition of Failed Material".

- LTS will test fabricated bar end repairs on all the sample increments only if it is specifically requested on the TR-447 as an evaluation of the fabricator's factory repairs or of the contractor's field end repairs.

- LTS needs a minimum of three (3) representative ends for proper evaluation.

- Only if test results from a single increment fall outside the specification range will all the increments be tested for end repair thickness. To have all the increments evaluated for end repair regardless of passing results, write in the "Remarks" area of the TR-447 either of the following applicable examples:
    - Test fabricator's end repairs plus all routine tests - all increments.
    - Test contractor's end repairs plus all routine tests - all increments.

To summarize:

- Take samples from three (3) different bars from the same bundle, with the same mill mark.

- Do not repair cut or sheared ends with epoxy patching material on the sample portion to be submitted to LTS.

- Testing of end repairs on epoxy coated rebar must be requested on the TR-447 and written in the "Remarks" area. Write one (1) of the following:
    - Test fabricator's end repairs plus all routine tests.**
    - Test fabricator's end repairs (no other tests).**
    - Test contractor's end repairs plus all routine tests.**
    - Test contractor's end repairs (no other tests).**
    - Test fabricator's end repairs plus all routine tests - all increments.
    - Test contractor's end repairs - all increments.

    ** Written like this, only one (1) increment will have the end repair tested and if the test meets the minimum specification then no other end repair will be tested on other remaining increments.

- If end repairs fail to meet the specification for coating repair thickness, reject all bars of the same size from the shipment represented by the sample.

- Epoxy coated or galvanized rebar should be rejected at the project site for any of the following:
    - Any signs of rust appearing under the epoxy coating or galvanizing.
    - Damage that might have occurred through mishandling.
    - Uncured epoxy patching material.
    - Any uncoated or partially coated areas or ends.
    - Bundles with excessive epoxy patching end repair material that bonds the bars together.

- Flaking of the galvanized coating particularly at bends.
- Galvanized reinforcing bars that are “frozen” together.
- The presence of tears or sharp spikes, which make the bar hazardous to handle.

Limit a TR-447 to a single bar size, coater, fabricator and steel manufacturer. The Material Code for reinforcement steel bar samples (epoxy coated or galvanized) is 231. The Material Class is EPOXY for epoxy coated reinforcement steel bar and GALV for galvanized reinforcement steel bar. All samples of certified material should be submitted with a Sample Class of Field Verification (FV) unless the samples are taken to investigate a failure. Refer to POM Section B.9.3 for investigation samples.

When preparing coated reinforcement steel bar samples for shipment, take measures to protect the coated surfaces and factory end repairs from damage during transport. A piece of newspaper wrapped and folded over the bar end and affixed with masking tape should be sufficient to protect the fabricator's end repairs.

The following example has been included to illustrate where the supplemental information listed above is obtained from Form CS-4171F, "Supplemental Certification for Epoxy Coated or Galvanized Reinforcement Steel - Fabrication Facility", and documented on Form TR-447.

1) Reinforcement Steel Bar Manufacturer (all reinforcement steel bar samples)
   a. Match the reinforcement steel bar's mill mark with a mark found in the Rebar Mill Symbols document in Bulletin 15, Section 709.1. Verify that the mill company and mill location identified by the mill mark on the bar corresponds to the same bar manufacturer Bulletin 15 Supplier Code company and location provided on the CS-4171F. If the mill mark does not correspond to the same information provided on the CS-4171F, immediately notify the Contractor to resubmit the CS-4171F with the correct Bulletin 15 Supplier Code that corresponds to the actual mill mark (company and mill location) on the shipped bar.
   b. On the TR-447 and in the "Remarks" area, write the Bulletin 15 Supplier Code (company and mill location) that corresponds to the actual mill markings (company and mill location) found on the collected bar sample or found on the full length of bar from where sample is collected. Identify this Supplier Code as the "Reinf. Steel Manufacturer" or “Bar Manufacturer”. See ❶
   c. On the TR-447 and in the “Product Name” field, write the Bar Size and Grade of steel.

2) Epoxy Powder Manufacturer (epoxy coated reinforcement bar samples)
   a. Obtain the Supplier Code to identify the manufacturer and location of the epoxy powder used to coat epoxy coated reinforcement bars from Form CS-4171F.
   b. Write the “Epoxy Powder Manufacturer Supplier Code” information in the “Remarks” area of the TR-447. See ❷

3) Epoxy Coater or Galvanizer (epoxy coated or galvanized reinforcement bar samples)
    a. Obtain the Supplier Code for the company and location that epoxy coated or galvanized the reinforcement bars from Form CS-4171F.
    b. Place the “Supplier Code” for the epoxy coater or galvanizer and identify it as the “Epoxy Coater” or “Galvanizer” in the “Remarks” area of the TR-447. See ❸

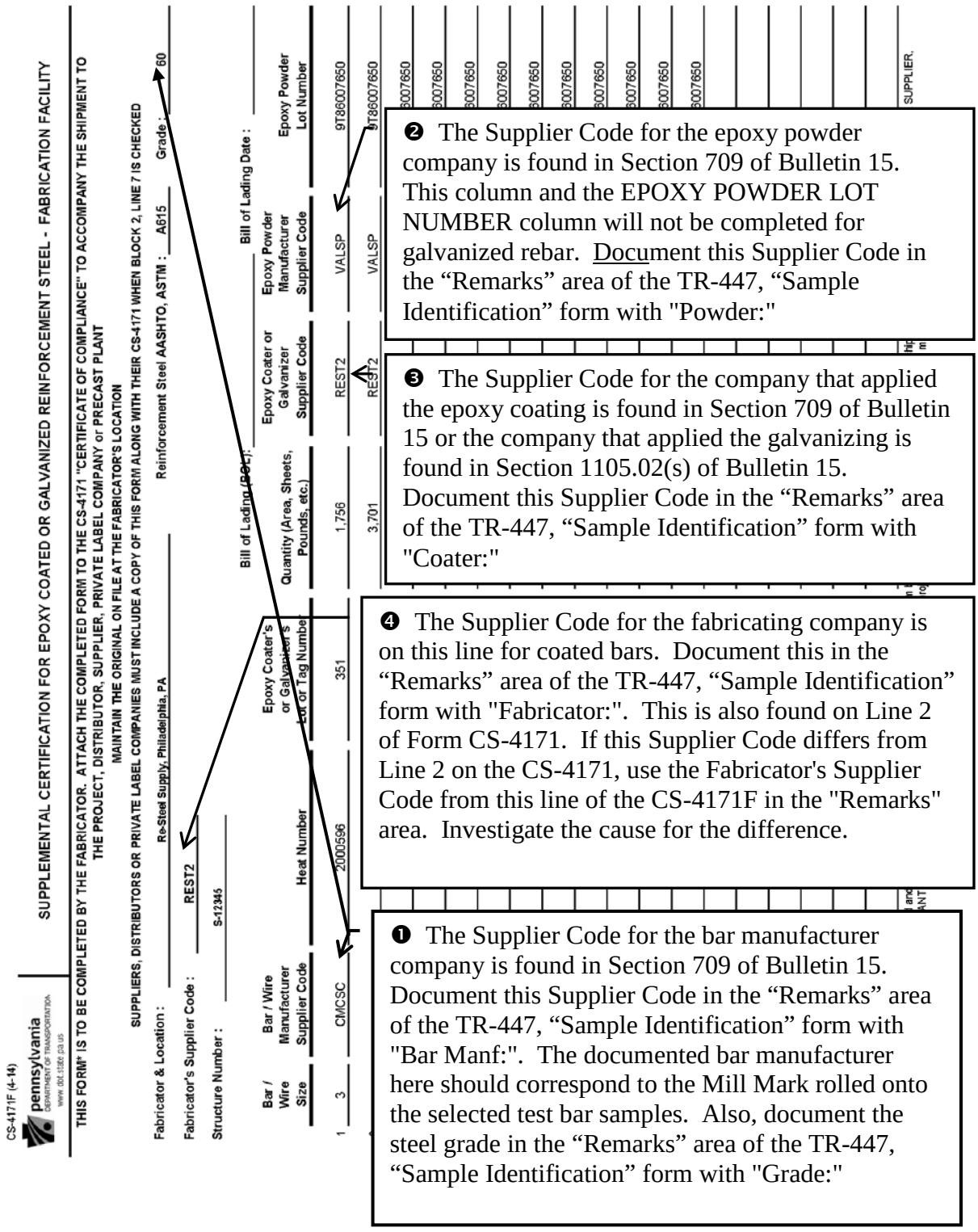
4) Reinforcement Steel Bar Fabricator (all reinforcement steel bar samples)
    a. Obtain the Supplier Code for the company and location that fabricated the reinforcement bars from Line 2 of the CS-4171 or from the CS-4171F. For coated bars, the Supplier Code from Line 2 of the CS-4171 and the Fabricator's Supplier Code from the CS-4171F should be identical.
        i. If these Supplier Codes differ, use the fabricator's supplier code from the CS-4171F and investigate the reason for the discrepancy.
    b. Place the "Supplier Code" for the fabricator in the supplier code field on Form TR-447 in two (2) places. See ❹

5) In the “Product Name” field of Form TR-447, document the Bar Size, and the required Grade of steel for the reinforcement steel sample. Share this information with the contractor so that replacement reinforcement steel bars can be obtained. The more information documented on Form TR-447 allows LTS to complete the required testing with minimal delays. Enclose additional information, such as any specific tests or additional testing, on a separate sheet along with Form TR-447 in the sample ID envelope if necessary or as an Attachment during the eCAMMS TR-447 Sample Setup.

6) Copy the CS-4171F and place in the sample ID envelope or electronically attach it as an Attachment during the eCAMMS TR-447 Sample Setup.

Note that the following illustration of a CS-4171F and TR-447 is for epoxy coated rebar. The TR-447 does not include actual project specific information such as the Date Collected, ECMS Contract Number, WBS, Sampled By, Inspected By, etc. that is required to fully complete the TR-447 for sample setup.

A TR-447 would be completed with similar data for galvanized rebar but would not require remarks for end repair or epoxy powder related data.



CS-4171F (4-14)
pennsylvania
DEPARTMENT OF TRANSPORTATION
www.dot.state.pa.us

SUPPLEMENTAL CERTIFICATION FOR EPOXY COATED OR GALVANIZED REINFORCEMENT STEEL - FABRICATION FACILITY

THIS FORM" IS TO BE COMPLETED BY THE FABRICATOR. ATTACH THE COMPLETED FORM TO THE CS-4171 "CERTIFICATE OF COMPLIANCE" TO ACCOMPANY THE SHIPMENT TO THE PROJECT, DISTRIBUTOR, SUPPLIER, PRIVATE LABEL COMPANY or PRECAST PLANT
MAINTAIN THE ORIGINAL ON FILE AT THE FABRICATOR'S LOCATION
SUPPLIERS, DISTRIBUTORS OR PRIVATE LABEL COMPANIES MUST INCLUDE A COPY OF THIS FORM ALONG WITH THEIR CS-4171 WHEN BLOCK 2, LINE 7 IS CHECKED

Fabricator & Location : Re-Steel Supply, Philadelphia, PA Reinforcement Steel AASHTO, ASTM : A615 Grade : 60

Fabricator's Supplier Code : REST2 Bill of Lading (B/L) : _____ Bill of Lading Date : _____

Structure Number : S-12345

Bar / Wire Size	Bar / Wire Manufacturer Supplier Code	Heat Number	Epoxy Coater's or Galvanizer's Lot or Tag Number	Quantity (Area, Sheets, Pounds, etc.)	Epoxy Coater or Galvanizer Supplier Code	Epoxy Powder Manufacturer Supplier Code	Epoxy Powder Lot Number
1 3	CMCSC	2000596	351	1,756	REST2	VALSP	9T86007650
				3,701	REST2	VALSP	9T86007650
							9T86007650
							9T86007650
							9T86007650
							9T86007650
							9T86007650
							9T86007650
							9T86007650
							9T86007650

SUPPLIER.

❷ The Supplier Code for the epoxy powder company is found in Section 709 of Bulletin 15. This column and the EPOXY POWDER LOT NUMBER column will not be completed for galvanized rebar. Document this Supplier Code in the "Remarks" area of the TR-447, "Sample Identification" form with "Powder:"

❸ The Supplier Code for the company that applied the epoxy coating is found in Section 709 of Bulletin 15 or the company that applied the galvanizing is found in Section 1105.02(s) of Bulletin 15. Document this Supplier Code in the "Remarks" area of the TR-447, "Sample Identification" form with "Coater:"

❹ The Supplier Code for the fabricating company is on this line for coated bars. Document this in the "Remarks" area of the TR-447, "Sample Identification" form with "Fabricator:". This is also found on Line 2 of Form CS-4171. If this Supplier Code differs from Line 2 on the CS-4171, use the Fabricator's Supplier Code from this line of the CS-4171F in the "Remarks" area. Investigate the cause for the difference.

❶ The Supplier Code for the bar manufacturer company is found in Section 709 of Bulletin 15. Document this Supplier Code in the "Remarks" area of the TR-447, "Sample Identification" form with "Bar Manf:". The documented bar manufacturer here should correspond to the Mill Mark rolled onto the selected test bar samples. Also, document the steel grade in the "Remarks" area of the TR-447, "Sample Identification" form with "Grade:"

TR-447 (2-15)

pennsylvania
DEPARTMENT OF TRANSPORTATION

SAMPLE IDENTIFICATION

A664801

Matl Code	Material Class	S Class	LTS USE ONLY Lab Serial Number
231	EPOXY	FV	

Aggregate Usage by Sect 703 Table D	Lot/Batch Number	Lot/Batch Size & Units
	2000596	1758 lbs

Location Code	Place Collected	Date Collected	# of Inc	Related Sample
	PROJECT		03	

Tank #	Construction Item #	PE/PEQ	Product Name
	-	-	#3 GRADE 60

Contract Number	WORK BREAKDOWN STRUCTURE (WBS) MP	S	SR or WO	Sp	P	Sec	Org	Program	PC	Supplier (Party) Code
E	-					-	-	-		REST2 15

Pub 408 Year	Ver.	Section	Special Provision	PO Number
		709.1(c)	☐ Yes	

Sampled By

Title	First Name	Middle Name	Last Name / Suffix
	JOE		INSPECTOR

Phone Number	Ext.	Certification ID	Email Address
555-555-5555			

PennDOT Employee [X] Consultant [ ] Other [ ]

Inspected By

Title	First Name	Middle Name	Last Name / Suffix

Phone Number	Ext.	Certification ID	Email Address

PennDOT Employee [ ] Consultant [ ] Other [ ]

INCREMENT INFORMATION

Inc	County	SR	Segment	Offset	Section	Station	CTR Offset	L/R	Placement Date	AASHTO T 209
1										
2										
3										
4										
5										
6										
7										

JMF Year	JMF Number	Design Thickness	Concrete Air	Concrete Slump	Concrete Temp	Self Consolidating Concrete J-Ring	Self Consolidating Concrete Slump Flow	Self Consolidating Concrete VSI

Remarks: Bar Manf: CMCSC Powder Manf: VALSP Coater: REST2
Fabricator: REST2 Test factory end repair by fabricator + all routine tests - all increments

SUBJECT

DISTRICT REQUESTS FOR AMENDED eCAMMS TESTING REPORTS FOR BITUMINOUS OR ASPHALT MIXTURE ACCEPTANCE SAMPLES

District requests for revision/correction of eCAMMS testing reports for Bituminous or Asphalt Mixture acceptance samples tested by the LTS will be considered only upon presentation of factual evidence that an error exists on the eCAMMS testing report.

When released Bituminous or Asphalt Mixture acceptance sample (Sample Class = AS) LTS test results are incorrect due to an erroneous eCAMMS Sample Set-Up data entry for:

- Sample Class,
- AASHTO T 209 Value (Theoretical Maximum Specific Gravity Value), or
- 408 Year, Version, or Section,

the District Materials Engineer/Manager may submit a written request (memorandum or e-mail message) for an amended test report to the LTS Engineer of Tests and copy the LTS Bituminous Unit Manager and copy the LTS Bituminous Testing Lab Manager. The appropriate LTS Bituminous Testing Lab Manager can be identified by the statement at the bottom of each eCAMMS Final Testing Report that indicates who authorized the report (e.g., "*This report is authorized by [Name of Lab Manager]..*"). All requests shall include the following documentation with the request:

- Sample Reference Number containing the data error
- Specific data field containing the data error
- Correct data for the specific data field containing the data error
- Factual evidence of the data error and/or justification for the request for an amended eCAMMS LTS testing report
- Related TR-447 Sample Reference Number
- District Materials Engineer/Manager contact name and phone number

The LTS will process the above type of request and issue an Amended eCAMMS LTS Testing Report upon satisfaction that a data error exists based on the factual evidence and/or justification provided. The LTS may contact the District Materials Engineer/Manager to provide further justification on a case-by-case basis.

When released Bituminous or Asphalt Mixture acceptance sample (Sample Class = AS) LTS test results are incorrect due to an erroneous eCAMMS Sample Set-Up data entry for any other data item not specifically listed above, the District Materials Engineer/Manager or their District Materials Unit designate may submit a written request (memorandum or e-mail message) for an amended LTS test report to the LTS Bituminous Testing Lab Manager and copy the LTS Bituminous Unit Manager. The appropriate LTS Bituminous Testing Lab Manager can be identified by the statement at the bottom of each eCAMMS Final Testing Report that indicates

who authorized the report (e.g., "*This report is authorized by [Name of Lab Manager]..*"). All requests shall include the same documentation listed above with the request, except the contact name and phone number may be the District Materials Unit designate. The LTS will process these requests and issue an amended eCAMMS LTS Testing Report based on the documentation provided. The LTS may contact the District on a case-by-case basis if the request and the other eCAMMS data information do not seem to match based on experience of the LTS Bituminous Testing Lab Manager.

For revision/correction of information on eCAMMS Final Testing Reports for Bituminous or Asphalt Mixture acceptance samples tested by an Asphalt Local Acceptance laboratory (i.e., eCAMMS Owning Lab = ALA), contact the appropriate District Materials Unit who released the eCAMMS ALA Final Testing Report.

SUBJECT

MATERIAL DEVIATIONS

As each project progresses, materials are continuously incorporated into the work, and occasionally, materials fail tests which are performed to evaluate compliance with specifications. When this occurs, there is a need to document, in the project records, the actions taken to either accept the material with reduced payment or other acceptable method or to reject and remove the material. **It is the Department's policy to reject all non-specification material unless there is a valid justification to accept the material.** In accordance with the requirements outlined on page B.9.2-1, project personnel are to ensure that FHWA is contacted and advised of major decisions that will be made concerning the acceptance/rejection of deficient materials on non-exempt Federal-Aid projects.

It is critical to document the disposition for all material deviations. The documentation guidelines are listed in the table below. For defective lots of bituminous or concrete material ("Remove and Replace" test results), the District may submit the appropriate failure response up until the time Form TR-4238A, District's Letter of Project Materials Certification, is submitted.

For all other failures, the District should submit the appropriate failure response to the Bureau of Project Delivery, ISSD New Products and Innovations Section Chief within 60 days as to the disposition of the material. This information will be included in the project material documentation file. The TR-455 should include any supporting documentation or calculations and reference the electronic work order adjustment for payment**.**

Sample Class	Failures Requiring Response	Response Format
QA-IA (Quality Assurance-Independent Assurance)	QA-IA Major Sample Failures	Written Response (Letter), except Bulletin 15 material failures and concrete hardened air content failures which can be addressed with Form TR-455
QR* (Quality Review)	All	Form TR-455
DQ (District Quality Assurance)	All	Form TR-455
FV (Field Verification)	All	Form TR-455
IV (Investigation)	Only if the cross referenced original failure is of a class that requires a response	Written Response (Letter) or Form TR-455, depending on the sample class of original failure
AS (Acceptance)	All	Form TR-455. For outliers, see page C.4.5

*Responses to QR Sample Class failures are provided by the BOPD Bridge Design and Technology, Structural Materials Section.

In instances where materials are shipped across District lines to be incorporated in a project and the material fails, the District responsible for responding to the failure is the District in which the project is located. The deviation tracking record is created for the responsible District based on the Org Code of the State Project Number. This was established because it indicates where the material was to be incorporated into the work. In many cases, the responsible District may need to coordinate a response with the other District where the material was sampled and/or originally produced.

For defective bituminous lots being accepted at 50% payment, documentation submitted for disposition of the failure must include as a minimum that outlined in Section B.9.9. For defective concrete lots being accepted at 5% payment, documentation submitted must include the Professional Engineer's (PE) certification as outlined on Section C.1.13. A PE is required to check the contractor's structural calculations in detail and concur with the contractor's recommendation.

The District Materials Engineer/Manager and the appropriate Assistant Construction Engineer/Manager must certify at the completion of each project, that all materials incorporated in the construction work and the construction operations controlled by sampling and testing either met the specifications and approved plans, or that appropriate action was taken for all deviations.

There must be documentation in the project files to support all actions taken to resolve each material deviation. Additionally, if inadequate sampling and/or testing occurred, then exceptions must be noted in the project records.

Material which is paid at less than or more than 100% of the contract price requires the preparation of a work order in accordance with Section 110, Publication 408, to pay the price adjustment.

SUBJECT

BITUMINOUS LOT ACCEPTANCE

Acceptance and price adjustment of paving completed under Section 409, Publication 408 is governed by Sections 409.2(f) and 409.3(j) and Section 409.4(a)4. The District Executive may direct in writing to leave a deficient lot in place and pay 50% of the contract unit price. When the PWT of two or more characteristics are 64 or less, the material must be removed and replaced. Refer to POM Section B.9.9 for step-by-step guidelines for handling defective bituminous lots.

Recent approvals have contained a stipulation requiring the continued monitoring of these lots on an annual basis to demonstrate that the lots are providing adequate long term service. Each affected lot should be compared to the lots that met the specification requirements, to assure our decision to allow the lots to remain in place was in fact correct and in the best interest of the Department.

The Department's policy for bituminous pavement deviations of non-payment parameters (material gradation) is that District Action Points will be identified on LTS test reports whenever non-payment sieve deviations occur; these will require follow-up action to be taken by the District. To assist identification of such deviations, the LTS lab report will denote each deviation with an * or plus or minus sign along with the wording "Cause for Review by District Materials" when gradation deviations are encountered.

The District Materials Unit will be responsible for keeping a file of the documentation for follow-up reviews conducted and corrective action taken, if deemed necessary. The documentation must be on file within one month of the receipt of the report identifying the deviation. This file will be subject to random review by Central Office Quality Assurance personnel.

On all Federal Oversight projects, written documentation must be submitted for "Cause for Review by District Materials". The written documentation must be submitted to the Chief of the BOPD Innovation and Support Services Division, Attention: New Products and Innovations Section Chief, within six (6) weeks of the receipt of the lab report identifying the deviations. Documentation must include, but is not limited to, review of plant and contractor process or quality control plans, review of construction procedures, review of material handling procedures, comparison of companion samples or tests, including Quality Assurance and District Quality Assurance samples, and the utilization of such procedures as outlined in PTM No. 5.

Failure to comply with this policy will result in all follow-up reviews requiring written response to the Chief, BOPD Innovation and Support Services Division. In order to prevent unnecessary "Cause for Reviews", it is imperative that correct JMF is provided with sample submission.

Action Points - Cause for Review

A. Deviation on Multiple Sieves (3 or more) for any Single Sample Increment (as determined by box samples).

1. Pavement Types - FJ, 9.5 mm, 12.5 mm, 19 mm, 25 mm, 37.5 mm, SMA 95, SMA 125

(+) / (-) Cause for Review by District Materials

B. Deviation on Same Sieve Size for Multiple (3 or more) Sample Increments (as determined by box samples)

1. Pavement Types - FJ, 9.5 mm, 12.5 mm, 19 mm, 25 mm, 37.5 mm, SMA 95, SMA 125

(+) / (-) Cause for Review by District Materials

District Personnel are reminded that control of non-payment sieves, as well as pay parameters, should be required by a plant's QC Plan. If you have any questions regarding this policy, please contact the Chief Materials Engineer at (717) 705-3841.

SUBJECT

QUALITY AND INDEPENDENT ASSURANCE DEVIATIONS

This policy describes the assignment of material deviations to results of Quality Assurance and Independent Assurance samples, the assignment of required responses to Quality Assurance and Independent Assurance operational reviews, and the resulting actions required by the District.

The following descriptions and actions for Quality Assurance (QA) samples and reviews apply to Independent Assurance (IA) samples and reviews, except no deviations will be assigned to results of IA aggregate samples.

Construction Quality Assurance Section (CQAS) representatives will discuss any operational findings with a member of the inspection staff or the source technician at the time of the review. The Quality Assurance report will contain written recommendations for all findings and deviations found during the review. The CQAS representative will inform the Assistant District Engineer for Construction, the Assistant Construction Engineer/Manager (ACE/ACM), or the District Materials Engineer/Manager (DME/DMM) of findings requiring written responses within two (2) working days of the review.

Assignment of Deviations and Required Responses

I. Major Deviations for Material Samples

Major deviations are assigned to quality assurance material samples for the following conditions:

A. Plant-mixed Bituminous Concrete

An individual test result or the sample average ($\bar{x}$) exceeds the tolerances of Section 409.2(e)1.d, Table A for Binder, Wearing, and Base Courses.

B. Aggregates

1. Samples with n = 3

a. The sample average ($\bar{x}$) of aggregate passing the 75 μm (No. 200) sieve for the coarse aggregate used in Portland cement concrete exceeds 1%.

b. When specified, the sample average ($\bar{x}$) of aggregate passing the 75 μm (No. 200) sieve for the coarse aggregate used in Bituminous Surface Treatment/Seal Coats exceeds 1.0%

c. The sample average ($\bar{x}$) of aggregate passing the 75 μm (No. 200) sieve for the fine aggregate used in Portland Cement Concrete exceeds 3%.

d. The sample average ($\bar{x}$) of aggregate passing the 75 μm (No. 200) sieve for subbase aggregate usages exceeds 10%.

e. The sample average ($\bar{x}$) of aggregate passing the 75 μm (No. 200) sieve for open graded subbase (OGS) exceeds 5%.

f. The average coefficient of uniformity is less than 4.0 or an individual coefficient of uniformity test result is less than 3.5, for OGS.

g. When the total sample average percent within limits (PWL) is less than 90%, all non-specification test values will be evaluated in accordance with Section 106.03(a)3 to determine the PWL.

h. All specification test values will be determined at 100% PWL and averaged with the PWL for non-specification values to determine the total PWL of the material.

i. The average test result for an individual sieve deviates more than 5% outside the specification limits.

2. Samples with $n < 3$

a. Any test result for an individual sieve deviates outside the specification limits.

b. Any individual quality test result (not gradation or wash test) that is outside the specification tolerance range.

C. Cement Concrete

1. The sample average ($\bar{x}$) is less than the 28-day minimum mix design compressive strength of Section 704, Table A.

2. An individual test result exceeds the tolerances of Section 704.1(c)1 for entrained air content in the hardened concrete.

D. Bulletin 15 Material

Test results exceeding the tolerances of the applicable specification.

II. Minor Deviations for Material Samples

Minor deviations are assigned to Quality Assurance material samples for the following conditions:

A. Plant-mixed Bituminous Concrete

1. The sample average ($\bar{x}$) for asphalt content for 19.0 mm NMAS mixtures and smaller falls between ± 0.2 and ± 0.4 percentage points of the job-mix formula and no individual test result deviates more than ± 0.7 percentage points from the job-mix formula.

2. The sample average ($\bar{x}$) for asphalt content for 25.0 mm NMAS mixtures and larger falls between ± 0.3 and ± 0.5 percentage points of the job-mix formula and no individual test result deviates more than ± 0.8 percentage points from the job-mix formula.

3. The sample average ($\bar{x}$) for percent aggregate passing the 75 μm (No. 200) sieve falls between ± 1.0 and ± 2.0 percentage points of the job-mix formula and no individual test results deviate more than ± 3.0 percentage points from the job-mix formula.

B. Aggregates

1. Samples with n = 3

   a. Aggregate reports which show a total sample average percent within limits between 90% and 99%, as evaluated in I.B.1.g above.

   b. The average test result for an individual sieve deviates outside the specification limits by 5% or less.

III. Findings in Quality Assurance Reports with Written Response Required

Findings in Quality Assurance reports requiring a written response will be issued for the following conditions:

A. The discovery of a deceptive or fraudulent practice

B. Fundamental violation, the oversight of which creates a significant unsafe condition to the public or project workers.

C. Failure of a contractor, producer, District, or project personnel to correct a repeated violation that is correctable within a reasonable time period.

D. Apparent unwillingness of contractor, producer, District, or project personnel to comply with procedures or current specification requirements.

E. Construction or material practices which result in deficient or defective products.

F. Staffing inadequacies that result in unsafe conditions, the acceptance of defective material, or the construction of a defective product.

CQAS representatives can recommend that an operation be shut down if they determine that the seriousness of one or more of the above items, A through F, is of sufficient magnitude to warrant such action. They also have the authority to shut down the operation on a project or at a material production facility if appropriate corrective action is not immediately initiated. The CQAS representative will consult with their Section Chief prior to recommending that an operation be shut down.

IV. Findings in Quality Assurance Reports Not Requiring a Written Response

Findings in Quality Assurance reports not requiring a written response will be issued for the following conditions:

A. Situations where the findings indicate the operation were well performed or exceptionally well performed.

B. Situations which do not create a significant unsafe condition to the public or project workers and do not result in deficient or defective products.

C. Situations where immediate corrective action was initiated to eliminate the specification or procedural deficiency. The reduction from a written response required is at the discretion of the CQAS representative performing the report and/or the supervisor.

CQAS representatives are not limited to the above conditions and will apply judgment to ensure that a fair, objective report of the reviewed operation is provided.

Responses

I. Material Sample Reports with Major Deviations and Quality Assurance Reports Requiring a Written Response

Written responses are required for Major Deviations on Material Sample Reports and for Quality Assurance Reports identifying such.

Upon receipt of a Material Sample Report of a QA Sample which contains a Major Deviation, an investigation by the District Materials Unit is required to complete the documentation for these items. If requested, the Inspector-in-Charge will assist the DME/DMM in the investigation of the problem and in providing data in support of the District's required response.

In addition, the Inspector-in-Charge will document the disposition of the failed material in the project records.

When a Major Deviation is assigned to a Bulletin 15 material or to concrete hardened air content, the District will have the option to prepare and submit a Form TR-455, Disposition of Failed Materials Report, to address the lot of material that did not pass the lab test. In addition, the Bureau of Project Delivery's Bulletin 15 Review Committee will review all material failures that occur. Depending on the nature of the failures, plant investigations with additional sampling and quality control plan reviews may be performed by the CQAS representatives. If additional failures occur, appropriate action will be pursued in accordance with the applicable procedures by the Bulletin 15 Review Committee.

Upon receipt of a Quality Assurance Report of an operational review which contains a Written Response Required, an investigation by the District Construction Unit is required to complete the documentation for these items. The Inspector-in-Charge will assist the ACE in the investigation of the problem and in providing data in support of the District's required response.

The investigation and written response should identify the cause of the problem, its effect on the item of construction, and the corrective action implemented.

The District's written response letter and supporting documentation are to be submitted to the Chief, Innovation and Support Services Division. The District Office is to submit written response documentation to the Bureau of Project Delivery within 30 days as to the disposition of the material. This information will be included in the project material documentation file.

II. Material Sample Reports with Minor Deviations and Witness Reports Not Requiring a Written Response

No written response is required to be submitted to the Chief, Innovations and Support Services Division, for Minor Deviations. However, appropriate action is to be promptly implemented by project personnel and/or the DME/DMM staff and documented in the project or plant records.

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SUBJECT

HANDLING DEFECTIVE BITUMINOUS LOTS

This procedure establishes a consistent Department policy for Districts to follow after receiving initial failing test results indicating a defective lot on bituminous pavements. Districts must follow the steps in determining a course of action to address the failure.

Step 1: Initial Review:

Review the failed eCAMMS report. Verify the items below to validate there is failure.

1) Sampling was in accordance with the specifications
2) Lot acceptance was appropriately applied
   a) pavement cores, see 409.3(j)4
   b) mixture samples, see 409.2(f) and 409.3(h)2
3) TR-447/eCAMMS information is accurate
   a) JMF/plant source
   b) AASHTO T 209 maximum specific gravity value
   c) Correction factors
4) Potential outliers have been reviewed and a determination made in accordance with PTM No. 4 and Project Office Manual Part C, Section 4, Page 5-1.

If an error is identified, submit a request to BOPD-Laboratory Test Section (LTS) to issue a corrected copy of the eCAMMS report. Supply sufficient supporting details to justify the request. BOPD-LTS must agree with the District's assessment in order to issue a corrected copy.

If the eCAMMS report has been verified and the lot has been determined to be defective, process a Contract Adjustment using ECMS to recoup 100% of the lot payment on the next estimate. When creating the Contract Adjustment, select "Adjustment for Deficiency" as the adjustment type." If the contractor has requested a retest within three weeks as required, follow the procedures outlined in POM Section B.9.10. If no retest occurs or the results of a retest fail, write the contractor a letter directing the contractor to remove and replace the defective lot or request 50% payment with justification within 15 days. If the contractor fails to respond to the letter with either a plan for removing and replacing the material or a 50% payment request with justification, send the contractor a letter warning default under Section 108.08 for failure to respond.

If the contractor makes a request for 50% payment of the lot, proceed to Step 2.

Step 2: Defective Pavement Review:

The District will field view and evaluate the defective pavement. A Quality Assurance representative will participate in the field view if requested by the District. Form CS-7 should be completed by the person who conducted the field review.

Field view items to be reviewed:

1) Construction Workmanship
   a) Segregation (end of load, streaks in the mat, etc.) - check when road is drying
   b) Flushing, rutting, fat spots – check after hottest part of summer
   c) Joint construction quality (holding water at the joint, etc.) - check when road is drying
   d) Ride quality (rippling, wash boarding, etc.) - should be apparent soon after placement
   e) Cracking (mat tears, checking, etc.) – should be apparent immediately after placement
   f) Loss of fines – check after winter in early springtime

Depending on the failure type (e.g. High AC, #200 or density – rutting/flushing, low density loss of fines, etc), schedule the review at the best time to adequately assess the pavement condition. Suggested best review times are shown above as general guidance to assist the reviewer(s).

2) Severity of failure:
   a) Mix quality - Lots with average results within single sample tolerances are candidates for 50% pay. Averages which fall outside single sample tolerances should be removed and replaced (R&R), unless other considerations dictate leaving the material in place.
   b) Density – Wearing/Binder lots with average results of $\geq$90% and base lots averaging $\geq$88% are candidates for 50% pay. Averages which fall below these values should be R&R, unless other considerations dictate leaving the material in place. Over compaction should be evaluated on a case by case basis with a focus on rutting/flushing.

Other items that may be considered include: QC test results, mix performance history, etc.

Step 3: Consideration of Design/Construction Factors:

1) Roadway Characteristics:
   a) Classification (Interstates vs. 4 digit SR) and ADT – For low volume routes 50% payment is recommended unless serious mat deficiencies are present.
   b) Location (Mainline, ramps, shoulders, widening that has been overlaid, etc.)
2) Impacts of Removing Pavement:
   a) Weigh impact of removal vs. allowing the pavement to remain (factors: projected life of defective pavement, inconvenience to motorists, new joints, removal of overlay to get to failure, etc.)

Step 4: Department Responsibilities

Districts will weigh all of the above considerations before making a determination whether to recommend the pavement remain in place at 50% payment.

If the District Executive determines that the lot must be removed and replaced, provide a letter to the contractor denying their request for 50% payment and identify the defective material as R&R. Once the work has been satisfactorily performed, full payment will be made to the contractor for the work based on specification compliance. Provide a copy of the completed Form CS-7 from Step 2 to the BOPD, ISSD within 10 days to document the District Executive's determination of remove and replace.

If the District's determination is that the pavement should remain in place at 50% payment, supply a letter to the contractor outlining the final determination of the lot. Return 50% of the lot payment to the contractor which had been withheld in Step 1. Provide a copy of the District's determination letter and all supporting documentation to the BOPD, ISSD New Products and Innovations Section Chief, within 10 days as justification of the District Executive's determination. Minimum supporting documentation must include Form CS-7, test results, and contractor's request to leave the material in place at 50% payment.

Approval authority for granting 50% payment rests solely with the District Executive and may not be delegated to any level below the DE.

Substandard materials for which the Department makes a reduced payment or which by their removal and replacement reduce the overall quality of the project should be factored into the Contractor Evaluation.

CS-7 (1-14)

pennsylvania
DEPARTMENT OF TRANSPORTATION
www.dot.state.pa.us

DEFECTIVE BITUMINOUS PAVEMENT REVIEW

TO BE COMPLETED IN ACCORDANCE WITH POM B/9/9

ECMS# _____ SR/SEC- COUNTY: _____ LOT# _____

ADT: _____ %TRUCKS: _____ TR-447 REF# _____ JMF: _____

MAT'L SUPPLIER CODE: _____ CONTRACTOR: _____

MIX SIZE: _____ PG BINDER GRADE: _____

COURSE: ☐ WEARING ☐ BINDER ☐ BASE ☐ LEVELING ☐ OTHER: _____

FIELD VIEW ITEMS:

ITEM	YES	NO	N/A	REMARKS
SEGREGATION:	☐	☐	☐	
FLUSHING/RUTTING:	☐	☐	☐	
JOINT ISSUES:	☐	☐	☐	
POOR RIDE QUALITY:	☐	☐	☐	
CRACKING, CHECKING, OR MAT TEARS:	☐	☐	☐	
LOSS OF FINES/OPEN:	☐	☐	☐	

SEVERITY OF FAILURE:

ITEM	YES	NO	N/A	REMARKS
MIX QUALITY - LOT AVG'S WITHIN SINGLE SAMPLE TOLERANCES?	☐	☐	☐	
DENSITY - BINDER/WEARING LOT AVERAGE ≥ 90%?	☐	☐	☐	
DENSITY – BASE COURSE LOT AVERAGE ≥ 88%?	☐	☐	☐	

FINAL LOT DISPOSITION: ☐ R&R ☐ 50% PAY ☐ OTHER*
*requires explanation below

OVERALL DETERMINATION JUSTIFICATION REMARKS:

REVIEWED BY: _____ _____
PRINT NAME SIGNATURE/DATE

SUBJECT

BITUMINOUS OR ASPHALT MIXTURE ACCEPTANCE SAMPLE REQUESTS FOR RETESTS

Department criteria, responsibilities and required actions when a Prime Contractor requests a retest of a failed Bituminous or Asphalt mixture acceptance sample or requests a retest of a failed Bituminous or Asphalt density acceptance sample are as follows:

District Responsibilities & Required Actions for Retest Requests

Upon receipt of a Prime Contractor's written request for a retest of Bituminous or Asphalt mixture acceptance samples or density acceptance samples, the District will review the Contractor's retest request and all information provided by the Contractor to justify the retest request. In addition, the District will review LTS test results for the failing sample (lot) and other lots of the same JMF from the same project, and visually inspect the area of the roadway where the failing sample(s) and sample increments were collected. During the visual inspections, the District will check the roadway for visible segregation especially when the eCAMMS test report shows single or multiple sieve deviations. If the sample was collected in a Base or Binder Course and the Base or Binder Course has been overlaid, the District will need to consider information from the construction project records or construction inspection staff for any indications of segregation observed during construction. In general, when the original LTS test results indicate single or multiple sieve deviations on increments with failing test results for asphalt content or percent passing the 75 µm (No. 200) sieve, retests should only be granted if there was no segregation noted during visual inspections of the roadway or noted during construction and the Bituminous or Asphalt Mixture Producer's quality control sieve test results are not beyond their action limits.

If after reviewing the Contractor's justifying information the District concludes that the failing sample results do not represent the in-place material, the District shall submit a written request to LTS to perform a retest of the failed material sample. All District retest requests must be submitted by U.S. mail, interoffice mail or e-mail to the LTS Engineer of Tests with a copy sent to the LTS Bituminous Unit Manager. All District retest requests sent to LTS must include the following information (See Attachment 1 for example memorandum):

1. Identification of the original failed acceptance sample by ECMS Project No. and TR-447 Sample Reference Number,
2. The project's governing specifications year and version (ex., Pub. 408/2011, Change No. 5) or governing General Standard Special Provision (e.g., Ga07005 Changes to Specifications: Section 409) or a District or Project Special Provision,
3. Copy of the Contractor's original retest request letter and justifying information.
4. Indication that the District is approving or granting the retest and a summary of the District's reasons/justification for granting the retest,

5. Name of the person from the Contractor/Producer to contact to schedule the retest.

If after reviewing all the Contractor's justifying information the District concludes that the failing sample results represent the in-place material, the District will send a letter to the Prime Contractor denying the Contractor's retest request and send copies of the letter to the LTS Engineer of Tests and the LTS Bituminous Unit Manager. The letter is to include reasons for denying the retest request. Attachment 2 is an example of a letter that Districts may reference or use to send retest denial letters to the Prime Contractor.

The District will make the final decision to grant or deny the retest request.

LTS Responsibilities and Required Actions for Retest Requests

Upon receipt of a District retest request memorandum or e-mail concurring with a Contractor's request for a retest, the LTS will review the District retest request and attached information to ensure that it includes all items as required above. If all items are not included, LTS will return the request to the District.

If all items are included, LTS will perform the following:

1. For mixture acceptance sample retests, the LTS will contact the District to have the retest pavement cores drilled, packaged and sent to the LTS. (The District may proceed with drilling the retest pavement cores at their convenience and before being contacted by LTS; however, the District shall not set-up the retest sample in eCAMMS or send the retest sample to LTS until contacted by LTS).
2. After receipt of the retest pavement cores, LTS will contact the person from the Contractor/Producer identified to witness the retest and schedule the retest.
3. For density acceptance sample retests, the LTS will contact the person indicated from the Contractor/Producer to witness the retest and schedule the retest.
4. The LTS will notify the appropriate District Materials Engineer/Manager of the scheduled retest date by e-mail message. If LTS and the Contractor/Producer cannot mutually agree on a date to perform the retest within an appropriate time period, the LTS may schedule the retest date at its convenience.

Condition and Identification Requirements of Retest Cores

All pavement cores for mixture acceptance sample retests must be 6-inch diameter pavement cores. Smaller or larger diameter pavement cores are not acceptable.

All pavement cores for mixture acceptance retests must be thoroughly rinsed with water immediately after drilling and extracting the pavement core and while the core is still wet from

the drilling operation. The purpose of the rinsing is to remove any fine debris resulting from the drilling operation.

Pavement cores collected for the purpose of mixture acceptance sample retesting shall be properly labeled and identified by the District. Pavement cores that include material other than the material or pavement course to be retested, must clearly be marked to show the section of each pavement core to be tested and the section(s) of the pavement core to be discarded. Pavement cores not clearly showing the portion to test will be considered Non-Conforming samples and will not be tested by LTS until the portion to test is identified by the District.

Pavement cores submitted for mixture acceptance sample retests must include enough material to be tested in accordance with the minimum sample size requirements in either PTM No. 757 or PTM No. 702, Modified Method D. If samples are received by LTS that do not meet the required minimum sample size for the appropriate test method, the samples will be considered Non-Conforming samples and will not be tested by the LTS.

To ensure each pavement core has the minimum amount of material to be properly tested, the portion of the 6-inch diameter pavement core to be tested must meet the minimum depths in Table A. If the portion of the pavement core to be tested does not meet these minimum depths, the Contractor and District must collect two 6-inch diameter pavement cores for each sample increment. When two pavement cores are required for one sample increment, drill the two pavement cores within a maximum of 12 inches of each other on center. When two pavement cores are required for one sample increment, ensure that each pavement core is identified by the proper sample increment number and that the TR-447 Remarks section includes comments that two cores were collected for specific sample increments. Do not use and submit two TR-447's for retest samples requiring two pavement cores per increment. Only submit one TR-447 for retest samples requiring two pavement cores per increment and just identify one of the increment cores with the appropriate TR-447 increment sticker and clearly mark the second pavement core with the appropriate increment number using either keel or masking tape and a marker. Districts are to ensure that the two pavement cores for each increment number are clearly marked with the correct increment number. The minimum depths in Table A also ensure that each pavement core has enough material for the LTS to trim some material away from the edges of the core to eliminate cut and exposed aggregate surfaces before testing.

Table A Minimum Layer Depths for Material to be Retested Take Two (2) Pavement Cores per Sample Increment if Minimum Depths Not Met		
Mixture Nominal Maximum Aggregate Size (NMAS)	**Material Code 97 (Ignition Furnace Test Method) Minimum Layer Depth for Retest Pavement Cores**	**Material Code 98 (Solvent Extraction Test Method) Minimum Layer Depth for Retest Pavement Cores**
9.5 mm	2 inch depth	1 inch depth
12.5 mm	2 inch depth	1.5 inch depth
19 mm	2 inch depth	1.5 inch depth
25 mm	2.5 inch depth	2 inch depth
37.5 mm	2.5 inch depth	2 inch depth

The TR-447 identifying the retest pavement cores must be properly completed and include the following information:

1. The TR-447 reference number of the original sample failure must by entered in the Related Sample field on the TR-447 Form and entered during eCAMMS Sample Setup as a Related Sample with the Related Sample Type selected as 'Retested',
2. The TR-447 Remarks section must include comments clearly identifying the material as pavement cores for a retest and include the Sample Reference Number of the original sample failure. Example Remark: "These cores are for retest of failing Sample Ref. No. A######")
3. The TR-447 for the retest pavement cores must include the Material Code 97 for Ignition Furnace test method or Material Code 98 for Solvent Extraction test method in the Material Code field of the TR-447 and the eCAMMS TR-447 Sample Setup page.
4. The TR-447 and eCAMMS Sample Class must be "AS".
5. Add "R" following the lot number on the TR-447 and the eCAMMS TR-447 Sample Setup page. Example: Original Sample Lot Number = 01, Retest Sample Lot Number = 01R.

ATTACHMENT 1
EXAMPLE REQUEST FOR RETEST MEMORANDUM FROM DISTRICT TO LTS

July 1, 2015

Request for Bituminous Retest
ECMS No. #####, Sample Reference No. A######

Timothy L. Ramirez, P.E., Engineer of Tests
Laboratory Testing Section
Bureau of Project Delivery

Sid Viscous
District Materials Manager
Engineering District ##-0

We received a bituminous retest request from Prime Contractor, Inc. for the subject project and sample reference number. This project's governing specifications are Pub. 408/2011, Change 6.

Attached is the contractor's request for retest letter, the eCAMMS Testing Report indicating a failure and the quality control test (QC) test results submitted with the request for retest.

The District has evaluated the QC documentation provided by the prime contractor and performed a site view. The District is approving this retest request for the following reasons:

- The QC test results were all within the action limits and indicate the producer was producing the material in close conformance with the JMF target values.
- There was no apparent segregation noted during the site view or during project construction
- eCAMMS Testing Reports for other lots of the same JMF on this project do not indicate similar test results

Mr. Bradley Pitt, QC Manager, is the contact person for Prime Contractor, Inc. to witness the retest. Mr. Pitt can be contacted at the following phone number (###)-###-####.

Should you have any questions concerning this matter or need any additional documentation, please contact me at (###)-###-####.

Attachments

cc: Troy A. Lehigh, Bituminous Unit Manager
Jeffrey L. Smith, Bituminous Testing Lab Manager

ATTACHMENT 2
EXAMPLE RETEST DENIAL LETTER FROM DISTRICT TO CONTRACTOR

ABC Prime Contractor
222 Smith Ave
Anytown, PA, 00000

RE: ECMS No. 11111
Request for Retest of Sample Ref. No. A######

Dear Mr. Contractor,

In response to your request for a retest of the referenced sample, the District has reviewed your request and the justifying information supplied with your request. Based on the District's review, the eCAMMS Testing Report represents the in-place material and the District is denying your request for a retest of the referenced sample for the following reasons:

1. A visual review of the project resulted in observations of segregation within the locations where the sample increments were collected and is consistent with the test results.
2. The Producer's QC test results indicate that production was not targeting the JMF. The upper sieves show a trend of test results below the JMF target values consistent with the multiple sieve deviations indicated on the eCAMMS Testing Report.
3. The Producer's QC volumetric analysis test results show high air voids near the specification limit and low VFA

If there are any questions, please contact Tony Bagodonuts at (555) 555-5555.

Sincerely,

Rico Suave
Project Manager

cc: Project Manager
DME/DMM
T. L. Ramirez, P.E., BOPD/LTS
T. A. Lehigh, BOPD/LTS

SUBJECT

EVALUATION, DISPOSITION AND ADJUSTED PAYMENT OF LOW STRENGTH CEMENT CONCRETE

Publication 408, Section 110.10, "Evaluation, Disposition, and Adjusted Payment of Low Strength Concrete", outlines the specification procedure to be followed when the compressive strength of concrete cylinders fails to meet the 28-Day Minimum Mix Design Compressive Strength (F' 28-day) from Section 704, Table A.

In accordance with this procedure, when the compressive strength of either the 28-Day Quality Control or Acceptance cylinders falls below the 28-Day Structural Design Compressive Strength (F'_c) from Table A, resolution will be determined based on cores obtained from the concrete lot in question.

If the concrete lot is considered deficient, the lot is to be removed and replaced at no additional cost to the Department, unless otherwise directed, in writing, by the District Executive. This specification was developed to establish a uniform and consistent method to address the acceptability and adjusted payment of low strength concrete on a statewide basis. Therefore, it is the intent of the specification to remove and replace all concrete falling into this category.

However, under certain specific circumstances, it may be in the Department's or public's general interest to allow concrete meeting the remove and replace condition to remain in place. This will only be considered when the Contractor submits a written request to the District. The contractor must include a signed document waiving the right to pursue a claim for the reduced payment of the concrete. If District concurrence is granted, the Contractor must perform a detailed structural analysis to verify that all design assumptions have been satisfied using the lower compressive strength value. The structural analysis will be reviewed by a Professional Engineer (PE) in the District and a determination made. The PE responsible for checking the contractor’s structural calculations will be required to certify that they have reviewed the calculations in detail and concur with the recommendation. It will be the District's responsibility to assure that all specification and design requirements have been satisfied before granting approval. If approval is granted by the District Executive, deficient concrete meeting the remove and replace criteria will be permitted to remain in place. Approval of the District Executive may not be delegated to a lower level.

Provide a copy of the District’s determination letter and all supporting documentation to the BOPD, ISSD New Products and Innovations Section Chief, within 10 days as justification of the District Executive’s determination. Minimum supporting documentation must include the PE certification, test results, contractor’s detailed structural analysis, and the contractor’s request to leave the material in place at 5% payment.

In every case, the payment is to be 5% x CUP x lot (as in Section 110.10(d)2) for deficient lots of concrete where the lot is deficient and the material is left in place. This needs to be uniformly applied throughout the Department, so payments for these situations are not arbitrary.

Substandard materials for which the Department makes a reduced payment or which by their removal and replacement reduce the overall quality of the project should be factored into the Contractor Evaluation.

Potential outliers (extreme values) of test results, when they occur, will be identified on the Laboratory Testing Section's laboratory report along with the wording "Cause for Review by District Construction". This does not mean the result is an outlier. However, evaluated statistically, it is identified as a potential outlier. When this occurs, the District must determine whether the result represents an outlier or can be associated with an assignable cause. PTM No. 4 provides guidance to the Districts in evaluating chance cause and assignable cause variation.

The District is to evaluate project records and plant records related to a potential outlier for a likely cause. The District is also to evaluate other similar eCAMMS results of in-place construction or materials that may demonstrate poor construction or materials quality control problems.

When the outlier is determined to result by deviation from prescribed construction procedure or materials quality control, numerical calculation error, or error in recording numerical data, then an assignable cause can be determined. When the assignable cause is determined to be specifically poor construction or materials quality control practices, the outlier will be retained and processed in the same manner as the other test observations in the sample (lot, etc.). Calculation or recording errors are to be corrected and the sample observation reanalyzed base upon the corrections.

PTM No. 4 states that an outlier may occur due to random variability inherent in the data. In other words, no assignable reason can be determined to cause the variation. In such cases, the outlier should be discarded and when practical, another test determined. However, if it is not practical to obtain another test, the outlier should be discarded and the sample (lot, etc.) re-evaluated in accordance with the applicable specifications on the basis of the reduced number of tests.

The Bureau of Project Delivery is responsible for evaluating the disposition actions by the Districts regarding potential outliers. Therefore, the Districts are to submit documentation as to the disposition of outliers directly to the Section Chief, New Products and Innovations Section, Bureau of Project Delivery. The documentation should reference the appropriate specifications and include:

- A brief summary of the District’s evaluation of the identified potential outlier
- What disposition action the District employed in reference to the potential outlier and the applicable specifications
- Attach the applicable Lab Report
- When applicable, documentation/calculations to re-analyze the lot with the remaining results and include the new Lot Payment
- Attach Form TR-455, Disposition of Failed Materials

The submitted documentation will be forwarded to the Construction Quality Assurance Section for review and approval. The Construction Quality Assurance Section will review the documentation to assess the District's evaluation, resulting action, and applicable calculations follow the specifications.

When the documentation applies to a Federal Oversight Project, the Construction Quality Assurance Section will forward the submitted documentation to the Federal Highway Administration for concurrence, in accordance with POM, Part B, Section 9, Page 2-1.

After review of the documentation, the Construction Quality Assurance Section will send written concurrence/rejection to the District or may request additional information. A copy of the concurrence/rejection will also be sent to the New Products and Innovations Section.

The District should link the written concurrence from the Construction Quality Assurance Section to the electronic work order adjustment for payment in ECMS.

OS-600 (3-89)

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

DATE: "[Click here and type date]"

SUBJECT: Bituminous Outlier Request
Project #NNNNN, SR NNNN, Section XXX
XXXX County, Lot N

TO: [Click **here** and type name], Section Chief
New Products and Innovations Section
Bureau of Project Delivery

FROM: [Click **here** and type name]
Assistant District Executive for Construction
Engineering District XX-0

INSERT DETAILS OF OUTLIER REQUEST, INCLUDING:

- Reference to and attach the LTS Lab Report
- The location of the material in question and lot specifics
- The District's evaluation of the potential outlier
- The District's disposition action to the potential outlier and applicable specifications
- When applicable, the District's documentation/calculations to re-analyze the lot with the remaining results including the new Lot Payment
- Attach Form TR-455, Disposition of Failed Materials
- Reference to and attach any documents that support the District's recommendation

If you have any questions on this matter or require any additional data, please contact, (Name) District Materials Engineer/Manager at XXX-XXX-XXXX.

Concurrence by: [Click **here** and type name]
BOPD, Chief, Construction Quality Assurance Section

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SUBJECT

MAINTENANCE AND PROTECTION OF TRAFFIC AT CONSTRUCTION SITES

1. **Traffic Control Plan (TCP)** - The Department representative is required to:

a. Review and become knowledgeable of the approved work zone traffic control requirements and TCP for the project.

b. Assure that normal traffic patterns are not affected or altered by work performed within the project limits until traffic control is provided in accordance with the Manual on Uniform Traffic Control Devices (MUTCD), Publication 46, Publication 212, Publication 213, Publication 408, and the approved TCP. In the case of a discrepancy among the publications listed above and the TCP, the following order of precedence will apply:

1. Approved TCP
2. Publication 213
3. Publication 408
4. Publication 212
5. MUTCD
6. Publication 46

c. Provide proper maintenance and protection of traffic so the traveling public can proceed through work zones without incident.

d. Monitor the performance of traffic control devices to ensure compliance with the Manual on Uniform Traffic Control Devices (MUTCD), Publication 46, Publication 212, Publication 213, Publication 408, and the approved TCP–or a revised TCP approved by the District Traffic Engineer. [Section 901.3(a), Publication 408].

e. Check maintenance of the devices and observe the flow of traffic as it is affected by the traffic control.

f. Provide two-week advance notice to Assistant Construction Engineer/Manager (ACE/ACM) when a major change in traffic operations occurs.

2. **Initial Setups and Changes** - The initial setup of work zone traffic control and each change from the initial setup must be inspected in detail by the Department representative, and if the work involves daily setups of short-term work zone traffic control, the setup must be inspected each day to ensure that:

a. The traffic control has been installed in accordance with the Manual on Uniform Traffic Control Devices (MUTCD), Publication 46, Publication 212, Publication 213, Publication 408, and the approved TCP.

b. All traffic control devices utilized for the work zone traffic control are Bulletin 15 approved and in conformance with contract requirements. Signs and devices shall be placed within the legal right-of-way, or proper right-of-way releases have been obtained if the signs and/or devices must be placed outside the legal right-of-way or on existing utility poles.

c. All traffic control devices are functioning properly and are correctly positioned, clean, legible, operative and in a good state of repair. Traffic Control devices must meet the acceptable or marginal criteria described in the Pennsylvania Quality Guidelines for Temporary Traffic Control Devices.

d. All conflicting, inappropriate, or non-applicable traffic control devices are removed, and in the case of signs, covered entirely [Section 901.3(a), Publication 408], folded, or turned away from traffic so that they are not readable by drivers.

3. <u>Required Work Zone Traffic Control Compliance Inspections</u> - Inspections must be made of the work zone traffic control to ensure that all traffic control devices required by the Manual on Uniform Traffic Control Devices (MUTCD), Publication 46, Publication 212, Publication 213, Publication 408, and the approved TCP are functioning properly, correctly positioned, clean, legible, operative and in a good state of repair and effectively warning approaching motorists of the construction project and any required action. Particular attention should be given to all arrow panels and warning lights to be sure that the required number of devices are being used and properly placed and spaced, and that all potential hazards are properly identified and signed or otherwise shielded in accordance with the Manual on Uniform Traffic Control Devices (MUTCD), Publication 46, Publication 212, Publication 213, Publication 408, and the approved TCP.

Required inspections are as follows:

a. Long-Term Traffic Control Compliance Inspections:
   - Where traffic is maintained through the construction zone, all temporary traffic control devices shall be inspected at least twice a day - at the beginning and end of each workday.

b. Road Closed and Detour Traffic Control Compliance Inspections:

- Where the road is closed and traffic is detoured, all temporary traffic control devices, excluding the detour signs, shall be inspected at least once each work day to ensure that the road closing devices are in place and functioning properly. The remainder of the work zone traffic control, namely the detour signing, is to be inspected at least twice a week.

c. Night Time Traffic Control Compliance Inspections:

- If the work zone traffic control is to remain in place during hours of darkness, a night inspection of the initial setup and each change (phase/stage changes) from the initial setup must be conducted by the Department representative.

d. Phase/Stage Change Traffic Control Compliance Inspections:

- After any construction phase/stage change, a Traffic Control Compliance Inspection shall be performed.

e. Short-Term Traffic Control Compliance Inspections:

- Where traffic is being maintained through a short-term construction operation, all temporary traffic control devices shall be inspected during the initial setup and periodically throughout the short term operation.

4. **Documentation of Work Zone Traffic Control Compliance Inspections** – Form CS-901 shall be used for documenting work zone traffic control device inspections. Form CS-901 can be saved in an electronic file and can be printed out when needed, such as when a deficiency needs to be reported formally to the contractor. It is an acceptable practice for the completed CS-901 forms to be stored electronically in the project field office. A Project Site Activity (PSA) entry shall be made noting that the work zone traffic control devices were checked, and the PSA is to refer to the CS-901 file for specifics on the inspections, unless otherwise noted below. The time (am or pm) that the Work Zone Traffic Control Compliance Inspection was performed must be noted on the CS-901 form and/or through a PSA entry. All findings of Work Zone Traffic Control Compliance must be adequately documented as follows:

a. Long-Term Traffic Control Compliance Inspections:

- The Department representative shall use the Department's Work Zone Traffic Control Compliance Checklist and Notification Form CS-901 (See C/9/3-1) to document **all** long-term work zone traffic control compliance inspections.

b. Road Closed and Detour Traffic Control Compliance Inspections:

- The Department representative shall use the Department's Work Zone Traffic Control Compliance Checklist and Notification Form CS-901 (See C/9/3-1) to document long-term road closed traffic control inspections. Detour devices shall be noted in the Department's PSA as having been inspected and any deficiencies noted.

c. Night Time Traffic Control Compliance Inspections:

- The Department representative shall use the Department's Work Zone Traffic Control Compliance Checklist and Notification Form CS-901 (See C/9/3-1) to document **all** long-term work zone traffic control compliance inspections.

d. Phase/Stage Change Traffic Control Compliance Inspections:
The Department representative shall use the Department's Work Zone Traffic Control Compliance Checklist and Notification Form CS-901 (See C/9/3-1) to document **all** phase/stage change traffic control compliance inspections.

e. Short-Term Traffic Control Compliance Inspections:

- The Department representative is required to use the Department's Work Zone Traffic Control Compliance Checklist and Notification Form CS-901 (See C/9/3-1) to document short-term work zone traffic control issues and conditions in situations where the contractor neglects or refuses to correct identified deficiencies. **Form CS-901 documentation is only required in the event assessment of liquidated damages is appropriate or becomes necessary.**

- In situations where short-term work zone traffic control measures are correct and in compliance with the Manual on Uniform Traffic Control Devices (MUTCD) Publication 46, Publication 212, Publication 213, Publication 408, and the approved TCP, the Department representative shall include a statement in their PSA for the operation they are inspecting, in lieu of using Form CS-901, stating that short-term traffic control devices were set up in accordance with contract requirements.

5. **Contractor Notification of Liquidated Damages** - Following Work Zone Traffic Control Compliance inspections, notify the contractor (the sub-contractor may be copied), in writing, of all deficiencies related to work zone traffic control compliance. A properly completed Form CS-901 will serve as written notification. Conduct follow-up inspections to determine when corrective action has been taken. In accordance with Publication 408, Section 901.3(t), if the contractor neglects or refuses to take corrective action, within the time frames permitted, liquidated damages may be assessed (See C/9/3-1 for Instructions to complete CS-901 and See C/9/4-1 for examples of assessing damages). Notify the ACE-Construction prior to liquidated damages being assessed. If the contractor remains in violation of these requirements, the District Executive has the authority to suspend work in accordance with Ssection 105.01(b), until the conditions are corrected, or direct Department forces to correct the deficiencies and charge the contractor for labor, equipment and material costs in accordance with Publication 408, Section 901.3(t).

6. **Removal or Covering of Warning and Work Zone Signs** - Review the project TCP to determine when signs should be covered or removed. Traffic control warning signs are to be covered entirely [Section 901.3(a), Publication 408] or removed when they are not needed.

When the public continually encounters warning signs, only to determine that no work is being performed, the integrity of the Department's construction and traffic control operations are questioned. Drivers may then tend to ignore temporary traffic control signing which jeopardizes their safety as well as the safety of workers and project personnel.

7. **Additional items to be considered in the inspection of Work Zone Traffic Control**:

a. Insufficient number, or improper positioning, or maintenance of traffic signs, drums, barricades, or barricade warning lights.

b. Improperly striped or reflectorized drums or barricades.

c. Flaggers not wearing a helmet and high-visibility apparel with retroreflective material, in accordance with Publication 213 and Publication 408, (e.g., fluorescent yellow-green or fluorescent orange attire, hard hats or not using proper flagging methods).

d. Flagger not using proper flagging methods or not properly positioned in accordance with Publication 213 and Publication 234 (Flagging Handbook).

e. The use of signs from an unapproved sign manufacturer, or the use of non-standard signs, word messages, lettering, or placement of signs.

f. Conflicting messages from traffic signs and pavement markings.

g. The exposure of signs, which should be completely covered.

h. The improper eradication of conflicting pavement markings.

i. All barricade warning lights used on the project have the manufacturer's name and model number clearly marked thereon and only those lights currently approved by the Department are used. The approved lights are listed in Bulletin 15.

When it is desirable to delineate a travel path by installing barricade warning lights, Type C (Steady Burn) lights shall be used in lieu of either Type A or Type B lights, since an array of randomly flashing lights is very confusing to motorists.

When barricade warning lights are operated by a 120 V, 60 cycle power supply, extreme care must be exercised to provide safety. In these cases, the 120 V A.C. power source should be located so that an accident could not readily cause a motorist or his vehicle to come into contact with the power source.

j. Arrow panel lights dim at night.

k. Contractor's equipment and material should be stored to prevent conflicts with traffic through work zones in accordance with Publication 213.

l. Shadow vehicles, when required, are properly positioned and equipped. Shadow vehicles shall be equipped with a truck mounted attenuator (TMA) on Expressways and Freeways.

m. Temporary concrete barrier not properly installed.

n. Damaged/missing impact attenuator.

o. Improper pedestrian protection.

8. Work Zone Traffic Control Compliance Inspection Frequency Table

Type of Set-Up/Inspection	Frequency	Required Documentation
Long-Term Traffic Control	2x / day-at the beginning and end of each workday.	CS-901
Short-Term Traffic Control	1x / day[1]	CS-901 or PSA[2]
Road Closed Traffic Control (Temporary traffic control devices excluding detour signing.)	1x / day	CS-901
Road Closed and Detour Traffic Control (Detour signing only.)	2x / week	PSA
Nighttime Traffic Control[3]	Initial and each change (phase/stage changes)	CS-901
Phase/Stage Change Traffic Control	After any construction phase/stage change.	CS-901

[1] All temporary traffic control devices shall be inspected during the initial setup and periodically throughout the short term operation.

[2] A statement in the PSA may be used in lieu of using Form CS-901, stating that short-term traffic control devices were set up in accordance with contract requirements. Form CS-901 documentation is only required in the event assessment of liquidated damages is appropriate or becomes necessary.

[3] Nighttime inspections of Long-Term Traffic Control.

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SUBJECT

ACCIDENT INFORMATION

As a valuable aid in reducing construction zone accidents and to meet the reporting requirements of the Pennsylvania Vehicle Code (75 Pa. C. S. Chapter 37), the District Office must be informed as soon as possible of all accidents occurring within the limits of construction projects.

All accidents occurring on the project are to be reported, by the Inspector-in-Charge, to the District Construction Safety Officer; the District Traffic Engineer, the District Risk Management Engineer, or the Assistant Construction Engineer/Assistant Construction Manager; and the local or State Police.

Often, the Inspector-in-Charge may not be aware of construction zone accidents that have occurred during non-working hours. So that accident sites can be reviewed as soon as possible and required reporting and notification initiated, establish a cooperative procedure whereby the local police agency or the Pennsylvania State Police will systematically notify the District Construction Unit within a reasonably short period of time (24 hours or the next working day) after a traffic accident occurs within or near a construction project during non-working hours.

Cooperation from all sources in the accident reporting effort is necessary to have an efficient and effective method for obtaining complete and accurate work zone traffic accident statistics. Accident data is essential in evaluating our current work zone traffic control practices and in determining and developing new methods and procedures for accommodating traffic within construction zones.

All requests for accident information that cannot be met at the District level are to be directed to the Bureau of Maintenance and Operations.

Responsibilities of the District Construction Unit

For all projects, a representative of the District Construction Unit should meet with the supervisor of the local police agency or the local State Police substation, as appropriate, to advise them of the upcoming construction project within their jurisdiction and arrange for them to contact a designated Project Representative whenever a traffic accident occurs within the specified limits of the project during non-working hours.

Responsibilities of the Inspector-in-Charge

1. Upon being made aware of the occurrence of a construction zone accident for which a report must be made as required by the PA Vehicle Code, a full report of the accident is to be obtained by the Inspector-in-Charge. A reportable accident, as defined in the Vehicle Code, is one that involves injury to or the death of any person, or damage to any vehicle involved to the extent that it cannot be driven under its own power and therefore requires towing. The Vehicle Code specifies that an initial written report is to be made available by the local police agency or the State Police within 15 days of the accident. The Inspector-in-Charge should be prepared to provide proof of Commonwealth employee status by presenting proper Department identification to the responsible police agency when requesting the accident report. Procedures should be established for obtaining crash reports electronically from the state or local police.

2. Upon being made aware of the occurrence of any construction zone accident, the Inspector-in-Charge should immediately notify the District Traffic Unit and then inspect the work zone to determine if changes or revisions are needed in the traffic control methods being employed. The Project Engineer can recommend changes or revisions to the Traffic Control Plan (TCP) as a result of an accident. The District Traffic Unit will review the suggested TCP changes. Minor field adjustments that are made to the TCP are to be noted in the Master Diary.

3. For each reportable work zone accident, the Inspector-in-Charge should complete the Construction Zone Vehicular Accident (Crash) Report Form (See Page C.9.13-4) to ensure that all pertinent information is recorded. Submit a copy of the completed form, along with a copy of the official police accident report, if available, to both the Construction Unit and the District Traffic Engineer. To expedite the distribution of crash report information, e-mail should be used.

4. Maintain any individual accident reports and project accident analysis done by the District Traffic Unit in a separate project file. This project file is to be labeled **"CONFIDENTIAL"** because the data and information contained in the file are part of a traffic engineering and safety study. The safety study documentation is only provided to those official agencies or persons who have responsibility in the highway transportation system and may only be used by such agencies or persons for traffic safety-related planning and research. Any requests for release of the documents in this file are to be referred to the District Risk Manager and/or Tort Coordinator.

Responsibilities of the District Traffic Unit

1. Review traffic accident reports submitted by the Inspector-in-Charge.

2. Review changes or revisions to the Traffic Control Plan (TCP) recommended by the Project Engineer and, if in agreement, sign and date the revised plan. If major changes are being made, the District Traffic Engineer must date and seal the revised plan. When changes to the TCP are necessary, work with the District Construction Unit to ensure that they are implemented as soon as possible.

3. When a recurring accident problem arises on a project, the District Traffic Unit should inspect the work zone traffic control to see if any additional changes are necessary.

4. Maintain a file of any individual accident reports and project accident analysis for each construction project. See the statement regarding confidentiality above in the Responsibilities of the Inspector-in-Charge section and refer to Strike-off letter 470-00-09 for more specific details.

5. At the end of each construction season, meet jointly with the District Construction and Design Units to discuss work zone traffic control issues so that lessons learned can be incorporated into upcoming TCP designs. As a basis for discussion at this meeting, compile an accident summary for each project using the copies of individual Construction Zone Vehicular Accident (Crash) Report forms submitted by the Inspector-in-Charge throughout the construction season.

Reproduce this form as necessary

CONSTRUCTION ZONE VEHICULAR CRASH (ACCIDENT) REPORT

I. Project Information:

Engineering District _____ County _____ Municipality _____

State Route _____ Contract No. _____ WBS No. _____

Fed. Project No. _____ Contractor _____

Type of Construction _____ Length of Work Zone _____

Method of Traffic Control _____

Speed Limit through Work Zone (advisory, reduced regulatory, normal) _____

II. Accident (Crash) Information:

Type of Crash - Rear-end ☐ Hit Fixed Object ☐ Head-on ☐ Angle ☐ Side-swipe ☐ PED ☐ Non-Collision ☐ Unknown ☐

Fatalities: Yes ☐ Number if known ____ No ☐ **Injuries:** Yes ☐ Number if known ____ No ☐

Property Damage: Yes ☐ No ☐ _____

Date _____ **Time** _____ **Weather:** Sunny ☐ Cloudy ☐ Rain ☐ Snow ☐

Road Surface:

Condition				
Dry	Wet	Icy	Snow	Milled
☐	☐	☐	☐	☐

Type			
Leveling	BCBC	Wearing	Binder
☐	☐	☐	☐

Did accident involve a construction vehicle? Yes ☐ No ☐ _____

III. Traffic Control Information:

Roadway Type: 2-Lane, 2-Way ☐ Intersections ☐ 3-Lane, 2-Way ☐ Other ☐ _____
4-Lane or more, Divided or One-Way ☐ 4-Lane or more, Undivided ☐

Figure Number from Publication 213, _____ or WZTC Plan (phase/stage), _____

Crash in Lane (number in circle from sketch) _____

Location of crash within work zone
☐ Before Advance Warning Area ☐ Advance Warning Area
☐ Transition Area ☐ Activity (Work) Area
☐ End Transition Area ☐ Unknown

Contributing Factors: _____

_____

Note any changes or revisions that were made to the project's traffic control methods as a result of the accident and the date they were implemented.

_____

_____

_____

Note damage to Department property and, if any, state whether District Maintenance Unit was notified.

_____

_____

This traffic engineering and safety study is confidential pursuant to 75 PA C.S. § 3754 and 23 U.S.C. § 409 and may not be disclosed or used in litigation without written permission from the Pennsylvania Department of Transportation.

SUBJECT

DOCUMENTATION FOR PILE DRIVING OPERATIONS (CS-1005)

Documentation of pile driving operations is needed for verification of the pile capacity, as well as a means for assessing pile integrity. Complete and accurate records are necessary to verify conformance to the design plans and specifications for the structure foundation and for item quantity calculations to determine payment(s) due the contractor.

Test piles must be driven in the presence of the Structure Control Engineer or their representative to verify the pile hammer's capability, determine driving characteristics, verify pile capacity achieved, and to establish a pile tip elevation before driving any bearing piles. Record the following information on Form CS-1005, PILE DRIVING LOG, for all test piles and bearing piles for the purpose of creating a project record of the Pile Driving Operation:

I. ECMS #, SR & SECTION - located on the first page of the contract.

II. PILING CONTRACTOR - contractor or approved subcontractor performing the pile driving operation.

III. STRUCTURE # - located in the title block on the structure plans. Example: S-12345.

IV. SUBSTRUCTURE UNIT - located in the structure plans. Specific to the actual location where the piles are being driven. Example: Abutment # 1, Wing A, Pier # 3, etc.

V. ESTIMATED/MINIMUM TIP ELEVATION - document the estimated pile tip elevation, and for friction piles, also document the minimum pile tip elevation. Refer to the General Plan sheet in the structure plans, locate the soil boring symbol in the "LEGEND" and determine the soil boring number (B-1, B-2, etc.) closest to the substructure unit where the pile driving operation is to take place. On the Soils Borings page(s) in the structure plans, the boring number will be located at the top left of the boring information header. The estimated pile tip elevation will be designated as "EPTE" or "PTE", and the minimum pile tip elevation will be designated as "MPTE" for friction piles. Another location containing the EPTE is the Elevation and Typical Section plan sheet in the structure plans. The EPTE can be found in the Elevation view for each substructure unit. Verify that the pile tip elevation from the Soils Boring is the same pile tip elevation from the Elevation and Typical Section plan sheet. Example: 866.40.

VI. ESTIMATED/MINIMUM PILE LENGTH - document the estimated pile length, and for friction piles, also document the minimum pile length. Refer to the cross section plan sheet in the structure plans for the substructure unit where the piles are to be driven. Find the proposed bottom of footer elevation, along with the length of pile extending into the footer (typically 1.0 FT for standard pile footings and 1.5 FT for integral abutments). Add the length of pile extending into the footer to the proposed bottom of footer elevation,

creating a top of pile elevation. The estimated pile length is the difference between the top of pile elevation and the EPTE, and the minimum pile length is the difference between the top of pile elevation and the MPTE. Example: (946.50 + 1.00) - 866.40 = 81.10 LF.

VII. HAMMER, CAP BLOCK MATERIAL, THICKNESS & DATE VERIFIED - refer to the pile hammer approval for the hammer type, manufacturer and model number, as well as the cap block material and thickness. Example: Hammer - ICE D25-32; Cap Block Material - Polymer; Thickness - 3". Prior to any pile installation, inspect the hammer to verify the cap block material is in good condition, is the approved thickness, and that the material matches the information in the pile hammer approval. Record the date the inspection of the cap block material was conducted.

VIII. PILE NUMBER - make a copy of the pile layout sheet for the substructure unit where the piles are to be driven. Assign a number to each pile location and maintain this copy with the pile driving logs. Cross reference the assigned pile number from the copy to Form CS-1005.

IX. TEST(T)/BEARING(B) - refer to the pile layout sheet for the substructure unit where the piles are to be driven. The symbol used to designate which pile(s) is considered a test pile(s) is located in the "LEGEND". Piles, other than those indicated as test piles, are considered bearing piles. For test piles, document in the COMMENTS Section the ultimate pile capacity and whether the Wave Equation Analysis Program (WEAP) or Dynamic Monitoring with a Pile Drive Analyzer (PDA) was used to determine the pile capacity at absolute refusal or end of driving criteria.

Note: Record the test pile data for each substructure unit on the "As Built" plans in the "Pile Installation Information" block located on the pile layout plan sheets. Also, provide a copy of Form CS-1005 completed for all test piles to the District Geotechnical Engineer.

X. TYPE OF PILE - the pile type, size, and grade of steel. The type and size of pile can be located in the pile hammer approval or on various plan sheets of the structure plans. The grade of steel can be found on the material certification (CS-4171) or the certified mill test reports received on the project for the piling. Examples: Steel H-pile - HP 10 x 57 GR50 (shape - depth x lbs/ft - Grade of Steel); Steel Shell - 8.5" x 14" x 7 gage GR2 (tip diameter x butt diameter x wall thickness - Grade of Steel); Timber - 10" x 16" x 18' (tip diameter x butt diameter x length).

XI. PILE HEAT NUMBER - heat numbers are typically stenciled on each individual pile. Verify the heat numbers with the provided certifications (CS-4171) and Mill Test results before any driving operations begin.

XII. TYPE OF PILE TIP - if pile tip reinforcement is used, document the type as Standard or Heavy Duty and Cast or Fabricated, along with the Grade. The grade can be found on the material certification (CS-4171) or the certified mill test reports received on the project for the pile tips. If no pile tip reinforcement is required, document as N/A. Example: HD/Cast 65-35

XIII. PLUMB OR BATTERED - found on the pile layout plan sheet for the substructure unit where the piles are to be driven. Refer to the "LEGEND" for the symbol which denotes any battered pile location(s). Plumb piles are driven vertically and battered piles are driven in the direction shown on the pile layout plan sheet and at the slope specified on the Typical Section view. Example: Plumb or Battered - 3:12.

XIV. DRIVING CRITERIA - the minimum blows per inch to attain the required driving resistance. If the piles are required to be driven to absolute refusal, refer to Pub. 408, Section 1005.3(b)4.a. For piles which are to be driven to end of driving criteria, refer to Pub. 408, Section 1005.3(b)4.b. Example: 20/1", 15/1", etc.

XV. STROKE RANGE - The required operating stroke range (minimum/maximum) of the ram for the hammer being used can be found in the pile hammer approval. Example: 6.0 Ft to 7.5 Ft.

XVI. STROKE LENGTH - the operating stroke length of the ram is a critical component in driving a pile to its designed bearing capacity. The amount of energy imparted on the pile is directly related to the length of the stroke. Upon reaching absolute refusal or end of driving criteria, determine and record the stroke length by either witnessing the length of ram exiting the top of the hammer, the use of a saximeter, or a proximity switch. To determine the length of ram exiting the top of the hammer, measure the distance from the top of the ram to the top of the chamber while performing the cap block inspection. Subtract this measurement from the minimum stroke and the maximum stroke ranges indicated in the pile hammer approval. This will determine the minimum/maximum length of ram that should be witnessed exiting the chamber upon reaching absolute refusal or end of driving criteria. Confirm the stroke length meets or exceeds the minimum length indicated in the pile hammer approval, ensuring the pile has reached the designed bearing capacity. Do not exceed the maximum stroke length of the ram, as this could cause damage to the pile. Example: 6.5 Ft.

XVII. STARTING LENGTH - measured length of pile prior to the initial driving operation at each pile location. This measurement will not include the pile tip reinforcement. Example: 60.00 LF.

XVIII. REBUILT LENGTH - for those cases where the starting length is too short to reach absolute refusal or end of driving criteria, the piles need to be extended by splicing. The length rebuilt is the additional length(s) of pile spliced to the starting length. Example: 28.80 LF.

XIX. CUT OFF LENGTH - the length of the pile cut off, upon completion of driving the pile to absolute refusal or end of driving criteria. Example: 7.20 LF.

XX. NET PAY LENGTH - the starting length plus rebuilt length minus cut off length. Example: 60.00 LF + 28.80 LF - 7.20 LF = 81.60 LF.

XXI. TOLERANCE (SECT. 1005.3(b)3) - is the pile within the allowable tolerances indicated in the referenced section? Yes or No. (If NO, contact the Structure Control Engineer.)

XXII. PILE TIP ELEVATION - The actual pile tip elevation upon reaching absolute refusal or end of driving criteria. This elevation is calculated by subtracting the driven length of the pile from the bottom of footer elevation. Example: 946.5 - 80.6 = 865.90.

XXIII. DEPTH FT/IN, BLOWS per FT & BLOWS per IN - working with the Structure Control Engineer and using the information provided on the soil borings, determine an appropriate depth increment (10', 5', 1', 6", 3" or 1") to begin documenting the number of blows required to drive the pile that depth. These depth increments will continue to decrease throughout the pile driving operation depending on the blow counts required to achieve these depths. The depths and corresponding blow counts listed in the BLOW COUNT GUIDANCE block on Form CS-1005 may be used as a reference to determine when you may decide to decrease the depth increment that you're monitoring. Document the depth increments cumulatively in the DEPTH FT/IN column, along with the blow count needed to drive the pile that depth in the appropriate BLOWS per FT or BLOWS per IN column, until the predetermined driving criteria has been achieved.

XXIV. COMMENTS - The following is a list of suggested items which may be documented in the comments block:

1. Test Pile(s) - if Wave Equation Analysis Program (WEAP) or Dynamic Monitoring with a Pile Drive Analyzer (PDA) was utilized to determine the ultimate test pile capacity
2. Ultimate pile capacity at absolute refusal or end of driving criteria for test piles
3. PDA results
4. Re-driving Data
5. Splicing notes
6. Augering, Predrilling, Spudding, Pre-excavation, or Jetting details if applicable
7. Cause of any delays or stoppages
8. Driving method - found on General Notes Plan Sheet
9. Anything else pertinent to the pile driving operation

If additional space is needed for comments, use the back side of the form and document in the comments block that additional comments are included on the back of the form.

The following illustration is an example of a completed CS-1005

CS-1005 (9-14)

pennsylvania
DEPARTMENT OF TRANSPORTATION
www.dot.state.pa.us

PILE DRIVING LOG

ECMS# 54321 SR: 1026 SEC: 004 Piling Contractor: ABC Contractor, Inc.

Structure # S- 12345 Substructure Unit: Pier # 3 EST/MIN Tip Elevation: 866.40 EST/MIN Pile Length: 81.1 LF

Hammer: ICE D25-32 Cap Block Material: Polymer Thickness: 3" Date Verified: 09/09/2014

SPLICE & PILE TIP REINFORCEMENT WELDING PROCEDURES MUST BE APPROVED BEFORE PILE DRIVING

Pile Number		1						2					
Test (T) / Bearing (B)		T						B					
Type of Pile		HP 10x57 A709 GR50						HP 10x57 A709 GR50					
Pile Heat Number		357036						357030					
Type of Pile Tip		HD/Cast 65-35						HD/Cast 65-35					
Plumb or Battered		Plumb						Battered 3:12					
Driving Criteria		20 / 1"						20 / 1"					
Stroke Range		6.0 FT to 7.5 FT						6.0 FT to 7.5 FT					
Stroke Length		6.5 FT						7.0 FT					
Starting Length		60.00 LF						60.00 LF					
Rebuilt Length		28.80 LF						30.60 LF					
Cutoff Length		7.20 LF						6.90 LF					
Net Pay Length		81.60 LF						83.70 LF					
Tolerance 1005.3(b)3		Yes						Yes					
Pile Tip Elevation		865.90						866.30					
BLOW COUNT GUIDANCE		DEPTH FT/IN	BLOWS per FT	BLOWS per IN	DEPTH FT/IN	BLOWS per FT	BLOWS per IN	DEPTH FT/IN	BLOWS per FT	BLOWS per IN	DEPTH FT/IN	BLOWS per FT	BLOWS per IN
Depth	**Blows**	10'	15		6"		40	10'	21		79'		40
10'	**300**	20'	52		9"		43	20'	59		3"		42
5'	**200**	30'	96		79'		44	30'	89		6"		38
1'	**100**	40'	163		3"		46	40'	158		9"		40
6"	**75**	50'	248		4"		16	50'	263		80'		42
3"	**45**	54'-4"	136		5"		15	55'-7"	174		3"		39
		60'	170		6"		16	60'	145		6"		42
		65'	190		7"		16	65'	183		9"		46
		70'	210		8"		17	70'	224		81'		43
		71'	64		9"		17	71'	57		3"		45
		72'	81		10"		18	72'	78		6"		48
		73'	98		11"		17	73'	95		7"		15
		6"		56	80'		18	6"		48	8"		16
		74'		60	1"		18	74'		57	9"		17
		6"		67	2"		19	6"		62	10"		14
		75'		63	3		18	75'		68	11"		16
		6"		70	4"		19	6"		61	82'		16
		76'		68	5"		19	76'		67	1"		18
		6"		70	6"		20	6"		70	2"		17
		77'		74	7"		20	77'		72	3"		17
		3"		36				6"		78	4"		19
		6"		38				78'		76	5"		18
		9"		40				3"		38	6"		18
		78'		41				6"		36	7"		19
		3"		42				9"		41	8"		20

COMMENTS

Driving Method A
Saximeter Used
Test Pile Ultimate Capacity 540 kips (WEAP)

Driving of test pile stopped at 54'-4" for Method 1 Splice

Driving of pile # 2 stopped at 55'-7" for Method 1 Splice

INSPECTOR & DATE

Joe Inspector
09/09/2014

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The District must prepare Form TR-4238A, District's Letter of Project Materials Certification, for all Department projects. This form certifies that all construction operations and materials incorporated into each project met specification requirements or proper disposition of exceptions are explained and documented in the project files. In accordance with the requirements outlined on page B.9.2-1, project personnel are to ensure that FHWA is contacted and advised of major decisions that will be made concerning the acceptance/rejection of deficient materials on Federal Oversight projects. Submit the TR-4238A to the Bureau of Project Delivery, ISSD New Products and Innovations Section Chief. The submitted TR-4238A will be processed in accordance with the QA Manual, Publication 25, Chapter 7.

The following items which were incorporated into the work are required to be listed as exceptions on the back of Form TR-4238A:

1. Materials that did not meet specification requirements, but were incorporated into the work. (Acceptance Sampling and Testing Only).

2. Any 409 material that results in a reduced payment.

3. Any 409 material that had one parameter with a PWT of 64% or less. For lots remaining in place with 50% payment, submit the permission by the District Executive, as required in Publication 408, Section 409.4(a) Table K. For material which was removed and replaced or for lots which were changed in disposition due to an outlier determination, state the disposition of this material.

4. RPS 506 material that meets the definition of defective work and remained in place with reduced payment.

5. Aggregates with PWL < 90% on acceptance tests.

6. Structural Concrete that does not meet PWL F'_{CS} > 99%. For deficient concrete remaining in place with 5% payment, submit the permission by the District Executive, as required in Publication 408, Section 110.10(d).1.a.

7. Materials incorporated into the work without the required certifications.

8. Materials incorporated in the project without the required acceptance testing as outlined on pages B.6.5-2 to 5-20.

If none of the above items were present, the following statement is to be placed on Form TR-4238A:

"NO MATERIAL EXCEPTIONS ON THIS PROJECT"

For bituminous failures, list the TR-447 reference number, the material type, the failure parameter and the disposition of the material.

The District Materials Engineer/Manager (DME/DMM) and/or members of the DME/DMM Staff should have completed at least one materials review on each project in accordance with pages B.6.2-1 and 2-2 in order to determine compliance with contract specifications. Upon completion of the project, a complete review of materials records is conducted to assure that project personnel have properly completed all required materials documentation (see pages B.6.2-1 to 2-7) prior to the DME/DMM initiating and signing Form TR-4238A.

The TR-4238A must also be signed by the District Executive and the Assistant Construction Engineer/Manager, who coordinated with the Project Engineer/Manager by monitoring all of the construction operations to assure compliance with contract specifications. On municipal projects, the signature of the Municipal Manager is required.

In order to provide the necessary assistance to the DME/DMM for completion of Form TR-4238A, project personnel must complete all of the materials control forms discussed on pages B.6.2-1 to 2-7 and provide copies to the DME/DMM upon completion of the final inspection.