



OS-299 (11-13)  pennsylvania DEPARTMENT OF TRANSPORTATION www.dot.state.pa.us	TRANSMITTAL LETTER	PUBLICATION: Publication 2 DATE: 5/4/2021																					
SUBJECT: <p style="text-align: center;">PUBLICATION 2 - PROJECT OFFICE MANUAL, APRIL 2020 EDITION, CHANGE NO. 1 Effective April 1, 2021</p>																							
INFORMATION AND SPECIAL INSTRUCTIONS: <p>Publication 2 (Project Office Manual), April 2020 Edition, Change No. 1, is to be issued with this letter.</p> <p>Beyond minor revisions and revisions related to policy changes, POM revisions were incorporated from the following Strike-Off Letters (SOLs) and approved Clearance Transmittals (CTs):</p> <table border="0" style="width: 100%;"> <tr> <td>SOL 481-20-01</td> <td>CT# C-17-009</td> <td>CT# H-20-024</td> </tr> <tr> <td>SOL 481-20-02</td> <td>CT# C-19-008</td> <td>CT# H-20-025</td> </tr> <tr> <td>SOL 481-20-03</td> <td>CT# C-20-001</td> <td>CT# H-20-038</td> </tr> <tr> <td>SOL 481-20-04</td> <td>CT# C-20-002</td> <td>CT# H-20-048</td> </tr> <tr> <td></td> <td>CT# C-20-005</td> <td>CT# H-20-063</td> </tr> <tr> <td></td> <td>CT# C-21-002</td> <td>CT# H-20-064</td> </tr> <tr> <td></td> <td>CT# H-20-010</td> <td></td> </tr> </table> <p>A List of Changes is included in the change. The effective dates for sections approved by FHWA after April 1, 2021, coincide with the approval date by FHWA.</p>			SOL 481-20-01	CT# C-17-009	CT# H-20-024	SOL 481-20-02	CT# C-19-008	CT# H-20-025	SOL 481-20-03	CT# C-20-001	CT# H-20-038	SOL 481-20-04	CT# C-20-002	CT# H-20-048		CT# C-20-005	CT# H-20-063		CT# C-21-002	CT# H-20-064		CT# H-20-010	
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APPROVED FOR ISSUANCE BY:  Digitally signed by Christine Norris Date: 2021.05.04 12:37:07 -04'00' CHRISTINE NORRIS, P.E. DIVISION CHIEF, CONSTRUCTION AND MATERIALS , BOPD																							

PROJECT OFFICE MANUAL

April 2020 Edition-Change No. 1



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.

The POM is available electronically. The POM shall be accessible to each project field office, each District Office for use by the District Construction Staff, and every consultant performing inspection on PennDOT projects.

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 - Preconstruction
- Part B - Project Office Administration
- Part C - Construction Inspections
- Part D - Project Finalization
- Appendices

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

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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GENERAL ACRONYM LIST

AADT Average Annual Daily Traffic
AASHTO American Association of State Highway and Transportation Officials
ACE/ACM Assistant Construction Engineer/Assistant Construction Manager
ACHP Advisory Council on Historic Preservation
ADA Americans with Disabilities Act
ADE-C Assistant District Executive-Construction
ADE-D Assistant District Executive-Design
ADE-M Assistant District Executive-Maintenance
ADT Average Daily Traffic
ADTT Average Daily Truck Traffic
ASTM American Society for Testing and Materials
AT Acceptance Testing
AVR Alleged Violation Report
BEO Bureau of Equal Opportunity
BIO Bureau of Infrastructure and Operations
BDTD Bridge Design and Technology Division
BOPD Bureau of Project Delivery
BOMO Bureau of Maintenance and Operations
CFR Code of Federal Regulations
CMS Contract Management Section
CMD Construction and Materials Division
CQAS Construction Quality Assurance Section
CRP Cultural Resources Professional
CUF Commercially Useful Function
DB Diverse Business
DBE Disadvantaged Business Enterprise
DE District Executive

DEP Department of Environmental Protection
DLCCA District Labor Contract Compliance Agent
DME/DMM District Materials Engineer/District Materials Manager
USDOL U.S. Department of Labor
DPSO District Project Safety Officer
DQA District Quality Assurance
E&S Erosion and Sediment Control
eCAMMS Electronic Construction and Materials Management System
ECMS Engineering and Construction Management System
EEO Equal Employment Opportunity
EPDS Environmental Policy and Development Section
EQMS Electronic Quality Management System
ESB Electronic State Book
FHWA Federal Highway Administration
GFE Good Faith Effort
HDD Highway Delivery Division
IIC Inspector In-Charge
IRI International Roughness Index
JMF Job Mix Formula
LTS Laboratory Testing Section
MPMS Multi-modal Project Management System
MPT Maintenance and Protection of Traffic
MUTCD Manual on Uniform Traffic Control Devices
NECEPT Northeast Center of Excellence for Pavement Technology
NHS National Highway System
NPDES National Pollutant Discharge Elimination System
NPI New Products and Innovations Section
NTP Notice to Proceed

OCC Office of Chief Counsel
OJT On-The-Job Training
OSHA Occupational Safety and Health Administration
PASPGP Pennsylvania State Programmatic General Permit
PATA Pennsylvania Typical Application (see Publication 213)
PEMA Pennsylvania Emergency Management Agency
PHMC Pennsylvania Historical and Museum Commission
PennDOT Pennsylvania Department of Transportation
POM Project Office Manual
PPCC PennDOT Project Collaboration Center
PTM Pennsylvania Test Method
PSA Project Site Activity
PS&E Plans, Specifications, and Estimates
PWL Percent Within Limits
QC Quality Control
RAM Reclaimed Aggregate Material
RAP Reclaimed Asphalt Pavement
RSO Radiation Safety Officer
SCE Structure Control Engineer
SCM Supplementary Cementitious Material
SBE Small Business Enterprise
SDS Safety Data Sheet
SHPO State Historic Preservation Office
SMS Structural Materials Section
SSP Standard Special Provision
TDS Technical Data Sheet
TTC Temporary Traffic Control
USACE United States Army Corps of Engineers

VE Value Engineering
VT Verification Testing
WBS Work Breakdown Structure

**LIST OF CHANGES FOR NEW POM 2020 EDITION THROUGH
APRIL 2021 CHANGE #1**

POM Section	POM Section Title	Explanation of Change
POM A.2.3	Shop Inspection	Revised due to new contracts with new consultants for BDTD-SMS.
POM A.2.5	Inspector's Field Office and Inspection Facilities	Revised due to changes to Publication 408, Sections 609 and 688, based on recommendations from Bureau of Infrastructure and Operations (BIO), who will manage cellular phones for Department field inspection staff and Consultant Agreements Unit will manage cell phones for consultant inspection staff circulated via Clearance Transmittal H-20-064 .
POM A.3.1	Preconstruction Conference	Revised due to the updating of Construction Value Engineering Procedures circulated via Clearance Transmittal H-20-024 and issued via Strike-Off Letter 481-20-04 .
POM B.1.6	Project Field Office Equipment	Removed reference to the CDS Coordinator and only reference the District Representative moving forward. Clarified who is supposed to have a department issued CWOPA Account, to access Project Field Office Computer Equipment. These changes were circulated via Clearance Transmittal C-20-005 .
POM B.1.8	Authorization to Enter Private Property	Minor Wording Revisions.
POM B.3.1	Preparation of Work Orders on Construction Contracts	Changed Equipment Watch to EquipmentWatch. Added language ensuring that time extensions requested by the contractor do not exceed the Federal Authorization 4232 Project Agreement End Date.
POM B.3.4	Construction Value Engineering	Revised due to the updating of Construction Value Engineering Procedures circulated via Clearance Transmittal H-20-024 and issued via Strike-Off Letter 481-20-04 .
POM B.4.1	Radiation Dosimetry Badges	Revises responsibility for investigation of high dosimetry badge readings, sundry clarifications, and editorial changes circulated via Clearance Transmittal C-21-002 .
POM B.4.2	Handling, Storage, and Operation of Department Nuclear Gauges	Expanded description of safe field use of nuclear gauges, clarification of vehicular storage requirements and requirements for unrestricted areas, sundry other clarifications, and editorial changes via Clearance Transmittal C-21-002 .
POM B.4.3	Transportation of Nuclear Gauges	Expanded description of requirements for transportation of nuclear gauges including prohibition on use of personal vehicles for transport of nuclear gauges, sundry clarifications, and editorial changes via Clearance Transmittal C-21-002 .
POM B.4.4	Radiation Incidents	Additional step to call "911" as may be required, clarification of response times, sundry other clarifications, and editorial changes via Clearance Transmittal C-21-002 .

POM Section	POM Section Title	Explanation of Change
POM B.4.10	Responsibilities and Documentation Requirements for Erosion and Sediment Pollution Control	Revised to implement a comprehensive Compliance Management Program (CMP) to deal with construction stormwater runoff circulated via Clearance Transmittal H-20-025 .
POM B.6.5	Materials Accepted by Project Sampling	Changes the size of the sample for PTFE (Teflon) from 1 square foot to 16 inches by 16 inches minimum approved by FHWA via Clearance Transmittal C-21-002 .
POM B.6.11	Asphalt Core Removal and Submission	Changed “bituminous concrete” to “asphalt”. Minor comma revision.
POM B.6.18	Independent Assurance Procedures-Concrete	Revised due to the updating of concrete IA procedure to put them in compliance with FHWA regulations circulated via Clearance Transmittal H-20-048 .
POM B.6.19	Independent Assurance Procedures-Asphalt Sources	Changed Bitumen to Asphalt.
POM B.7.5	Minimum Quality Control Plan for Asphalt Mixtures	Changed “Hot mix delivery tickets” to “Asphalt plant delivery tickets”.
POM B.7.10	Concrete Plant Records and Documentation	Edited Title of Form CS-4211E. (The title of Form CS-4211E in POM B.7.15 was previously edited in the April 2020 Edition.)
POM B.8.2	Sample Identification Form TR-447	Fixed typo on page 15.
POM B.8.8	District Requests for Amended eCAMMS Testing Reports for Asphalt Mixture and Asphalt Density Acceptance Samples	Finalized Bituminous to Asphalt Changes.
POM B.9.1	Material Deviations	Revised to change 5% payment to 50% payment for deficient concrete lots left in place circulated via Clearance Transmittal H-20-038 .
POM B.9.9	Handling Defective Asphalt Lots	Added reference to Form CS-4307G done via Clearance Transmittal H-20-038 .
POM B.9.10	Asphalt Mixture Acceptance Sample Requests for Retests	Finalized Bituminous to Asphalt Changes and other revisions due to recent Publication 408 Changes and a change in the Asphalt Lab Testing Unit manager.
POM B.10.5	Requests for Contractor Payroll Information	Changed end of email address from “@state.pa.us” to “@pa.gov”.
POM B.11.1	Responsibility for EEO Contract Compliance Activities - Guidelines for the Inspector-in-Charge	Revised as a result of the new On-the-Job Training Maintenance System (OMS) in ECMS that replaces Forms EO-363, Form EO-364, and Form EO-365 as of January 28, 2021.
POM B.11.2	EEO Form Requirements	Revised as a result of the new On-the-Job Training Maintenance System (OMS) in ECMS that replaces Forms EO-363, Form EO-364, and Form EO-365 as of January 28, 2021.
POM B.11.3	Review and Approval of Training Programs for Trainees on Federal-Aid and 100% State Construction Projects	Revised as a result of the new On-the-Job Training Maintenance System (OMS) in ECMS that replaces Forms EO-363, Form EO-364, and Form EO-365 as of January 28, 2021.
POM B.11.4	Guidelines for Implementation of Training Programs/Reports	Revised as a result of the new On-the-Job Training Maintenance System (OMS) in ECMS that replaces Forms EO-363, Form EO-364, and Form EO-365 as of January 28, 2021.
POM B.11.5	EEO Checklist for Project Inspector-in-Charge	Revised as a result of the new On-the-Job Training Maintenance System (OMS) in ECMS that replaces Forms EO-363, Form EO-364, and Form EO-365 as of January 28, 2021.

POM Section	POM Section Title	Explanation of Change
POM C.1.1	Pennsylvania Steel Products Procurement Act/FHWA “Buy America” Requirements	Minor Comma Revision.
POM C.1.8	Contract Schedule and Time Revisions	Added language ensuring that time extensions requested by the contractor do not exceed the Federal Authorization 4232 Project Agreement End Date.
POM C.1.13	Evaluation, Disposition and Adjusted Payment of Low Strength Cement Concrete	Revised to change 5% payment to 50% payment for deficient concrete lots left in place and added reference to Form CS-4307G done via Clearance Transmittal H-20-038 .
POM C.1.19	Pre-Meeting Requirements Prior to Crane Operation	New Section circulated via Clearance Transmittal C-19-008 and issued via Strike-Off Letter 481-20-02 .
POM C.1.20	Procedures for Handling Equal Employment Opportunity (EEO) Complaints by Contractor Employees	New Section circulated via Clearance Transmittal C-17-009 .
POM C.4.8	Asphalt Temperature Checks Taken from Hauling Equipment at the Project Site	New Section circulated via Clearance Transmittal C-20-002 and issued via Strike-Off Letter 481-20-03 .
POM C.6.9	Surveying Method Verification Responsibility for Federally Funded Projects	Edited Title.
POM C.6.14	PA Guide Rail Mobile App	New Section circulated via Clearance Transmittal C-20-001 and issued via Strike-Off Letter 481-20-01 .
POM C.6.15	Roadside Safety Hardware Training Requirements for Generic and Proprietary Systems	New Section circulated via Clearance Transmittals H-20-010 and H-20-010a .
POM C.9.5	Certification Requirements for Traffic Control Devices	Changed submission of Source of Supply to be done via the ECMS functionality instead of Form CS-201.
POM C.9.8	Reuse of Concrete Median Barrier	Removed Section as the content was moved to Publication 213, Appendix C, via Clearance Transmittal H-20-063 .
POM C.10.11	Placement of Extra Cement Concrete in Water	Minor Comma Revision. Changed “by” to “according to” for PTM No. 1 Reference.
POM D.3.7	District's Letter of Project Materials Certification	Revised to change 5% payment to 50% payment for deficient concrete lots left in place circulated via Clearance Transmittal H-20-038 .
Appendix A	Material Codes for Form TR-447	Edited based on recommended changes by the Laboratory Testing Section (LTS) for codes 63, 217, 218, 295, 297, 298, 299, 410, and 412.
Appendix A	Forms	Edited Typo in WH 1284. Added Forms CS-10, CS-413EQC, and CS-413ES. Edited Title of Form CS-4211E. Added Compliance Response Policy (CRP) Memo, Stormwater Self-Audit (SSA) Program Memo, and Summary of Compliance Response Policy Table circulated via Clearance Transmittal H-20-025 . Added PennDOT NOTICE TO WORKERS for those that use nuclear gauges circulated via Clearance Transmittal C-21-002 .
Appendix A	QA Checklists	Updated for 2021 and changed COR 1001.3(t) to COR 1001.3(q)2.b.

REPLACES A.1.1	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART A	SECTION 1	PAGE 1-1
DATED 04/01/2019	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT NOTIFYING RAILROADS OF CONSTRUCTION WORK				

Refer to the latest edition of Publication 371, Grade Crossing Manual, Chapter 4, entitled “Highway and/or Bridge Project Process” involving Railroad facilities.

The Contractor is to notify the Railroad company(ies) of the actual date on which the highway construction work will begin at or near their facilities, unless the Pennsylvania Public Utility Commission (PUC) Order or Secretarial Letter directs the Department to do so.

In cases where the Department is directed, through the PUC Order or Secretarial Letter issued for the project, to notify the PUC and all parties of record of the actual date construction will begin, the PUC Order or Secretarial Letter will contain language to the effect that, “Pennsylvania Department of Transportation notify all parties of record at least fourteen (14) days prior to performing any work in accordance with this Order.”

Railroad officials should be informed of pre-bid and preconstruction conferences in a timely manner. Publication 371, Section 4.08, “Construction”, describes procedures regarding attendance at Pre-Bid and Preconstruction meetings.

Ensure compliance with the State-Railroad agreements, Railroad special provisions and standard special provisions, PUC Orders or Secretarial Letters, Form D-4279A “Railroad Crossing Data for Contractor”, Railroad specifications, Right-of-Entry permits/agreements, and contracts regarding notification of, coordination with, and cooperation with railroad officials. Publication 371, Section 4.06 E, outlines “Documentation to District Project Managers for inclusion in ECMS contract.”

Railroad Protective Services (Flagging)

When a Department construction project impacts railroad Right-of-Way, Railroad Protective Services may be required. Refer to the contract and the preconstruction meeting minutes for information on this item.

The Inspector-in-Charge (IIC) will have the responsibility to track the use of flaggers on a project.

- Compare the number of flaggers on the project to the number specified in Form D-4279A.

- Track the time the flaggers spend on the project. Report monthly flagging hours to District Grade Crossing Engineer/Administrator (DGCE/A).

PART A	SECTION 1	PAGE 1-2	DATE April 1, 2020
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- If there are more flaggers on site than the contract stated, make sure the additional personnel were required for the project. This is information needed under Part II of the Railroad Protective Services Cost special provision.

If it is determined that the railroad required additional flaggers, contact the Assistant Construction Engineer (ACE). If necessary, the ACE should then contact the DGCE/A for resolution. The additional flagger cost would not be the contractor's responsibility in this scenario.

If the contractor requests flaggers for a certain date and time and the flaggers fail to report to the site, contact the ACE or the DGCE/A for resolution. Be sure the details of the request (date and time of request, required work date, duration, contact person, etc.) are documented and conform to the procedures outlined in the contract, Right-of-Entry permit, and/or preconstruction meeting minutes.

Project Completion

Upon completion of the project, the Department, through the PUC Order or Secretarial Letter, is required to notify the PUC that the work has been completed so that a final inspection can be scheduled and conducted by the PUC. This notice will be sent by the DGCE/A to the PUC.

REPLACES A.1.2	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART A	SECTION 1	PAGE 2-1
DATED 03/01/1996	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT NOTIFYING INTERESTED PARTIES PRIOR TO START OF CONSTRUCTION ACTIVITIES				

As a method of customer service to the public and to minimize any negative impacts on the construction project, the Inspector-in-Charge is to verify that the following interested parties were notified prior to the start of work:

1. **Adjacent property owners** were to be informed of all pertinent facts about the project or invited to a meeting to discuss the same facts.
2. **County Maintenance Managers and Pertinent public officials** were to be notified by mail, email, telephone or through meetings.
3. **"Other interested parties"** (i.e., those parties who, in addition to the parties mentioned above, may have an interest in or may be affected by the construction activity). "Other interested parties" will vary from activity to activity depending upon the scope and ramifications of the activity. They were to be notified by mail, email, newspaper, meetings, "open house", flyers, radio/TV spots, or social media.

REPLACES A.1.3	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART A	SECTION 1	PAGE 3-1
DATED 4/25/2013	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT CONSTRUCTION PROJECT COORDINATION WITH PENNSYLVANIA TURNPIKE COMMISSION (PTC)				

Construction project coordination with the Pennsylvania Turnpike Commission (PTC) is required when a PennDOT construction project, including its MPT or Detour Plan, is 1) crossing over or under the Pennsylvania Turnpike, 2) within one driving mile of a Pennsylvania Turnpike interchange or crossing, 3) located within a maintenance boundary previously agreed upon by the Department and the PTC or 4) located within the Pennsylvania Turnpike right-of-way.

Construction project coordination with the PTC is indicated in ECMS, within the “Detail Information – Characteristics” area of the “Project Information” screen as “Turnpike: ‘Yes’ or ‘No’.”

The flowchart on the following pages has been developed to outline the PTC coordination process. The flowchart defines the project milestones at which coordination with the PTC should be ensured throughout the project life cycle. Milestones 1 through 3, Project Identification through Final Design, are detailed in Publication 10, Design Manual 1-Series. Milestone 4, PS&E – Processing/Let/Award, is detailed in Publication 51, Plans, Specifications, and Estimate (PS&E) Policies and Preparation Manual. Milestones 5 through 7, Notice to Proceed (NTP)/Preconstruction through Close Out, are detailed here in Publication 2, Project Office Manual.

Construction project coordination with the PTC should be established with the PTC Roadway Engineering Manager.

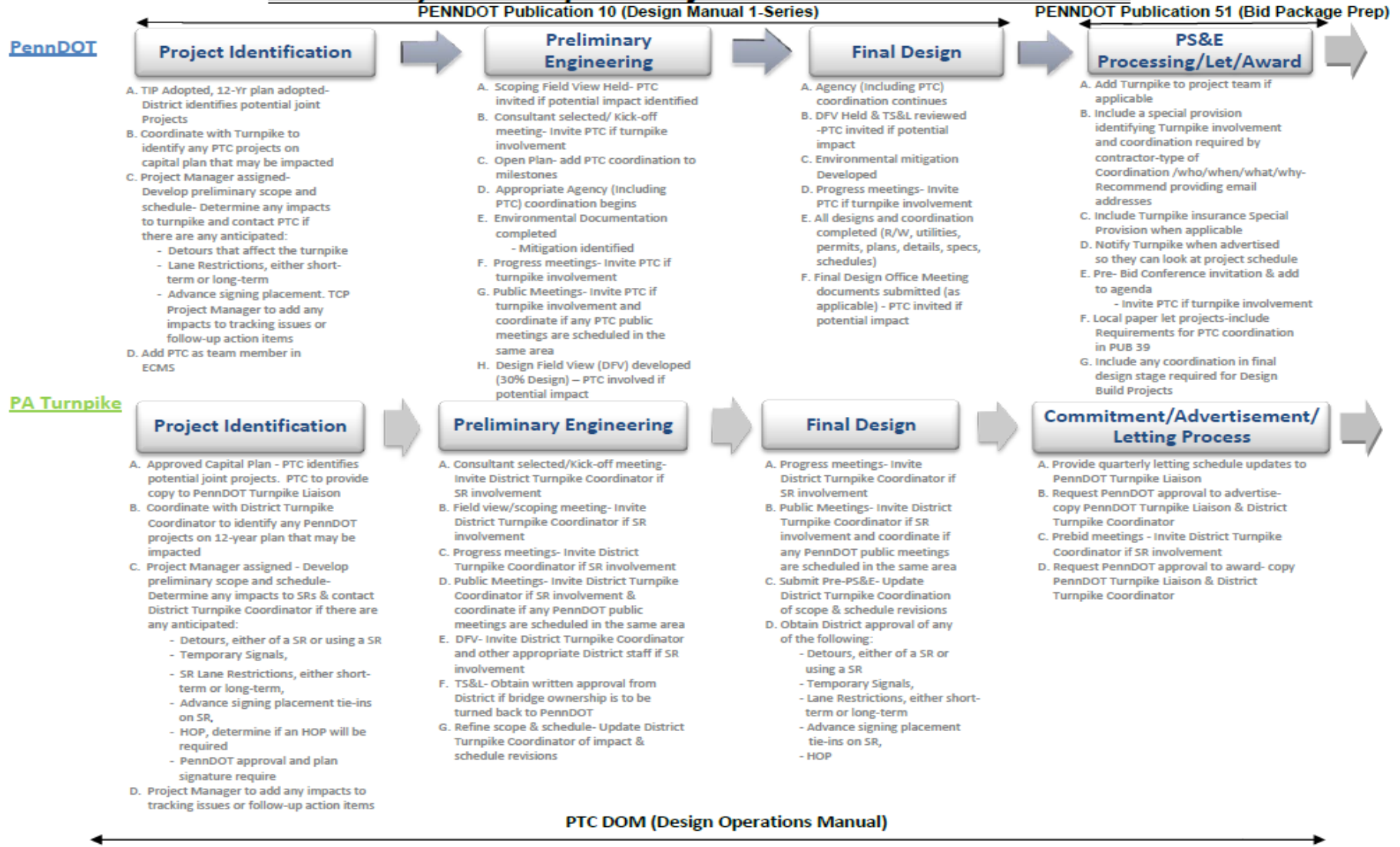
During the NTP/ Preconstruction phase (Milestone 5), the PTC must be invited to the preconstruction conference and any project coordination meetings.

During Construction (Milestone 6), the maintenance and protection of traffic becomes a major concern. Detours must be coordinated with the PTC and the impact at toll plazas is to be addressed. The PTC must also be invited to any pre-pave, pre-placement, and pre-erection meetings. As the construction progresses, the PTC is to be invited to progress meetings. The PTC must be informed of any schedule changes and scope-of-work changes.

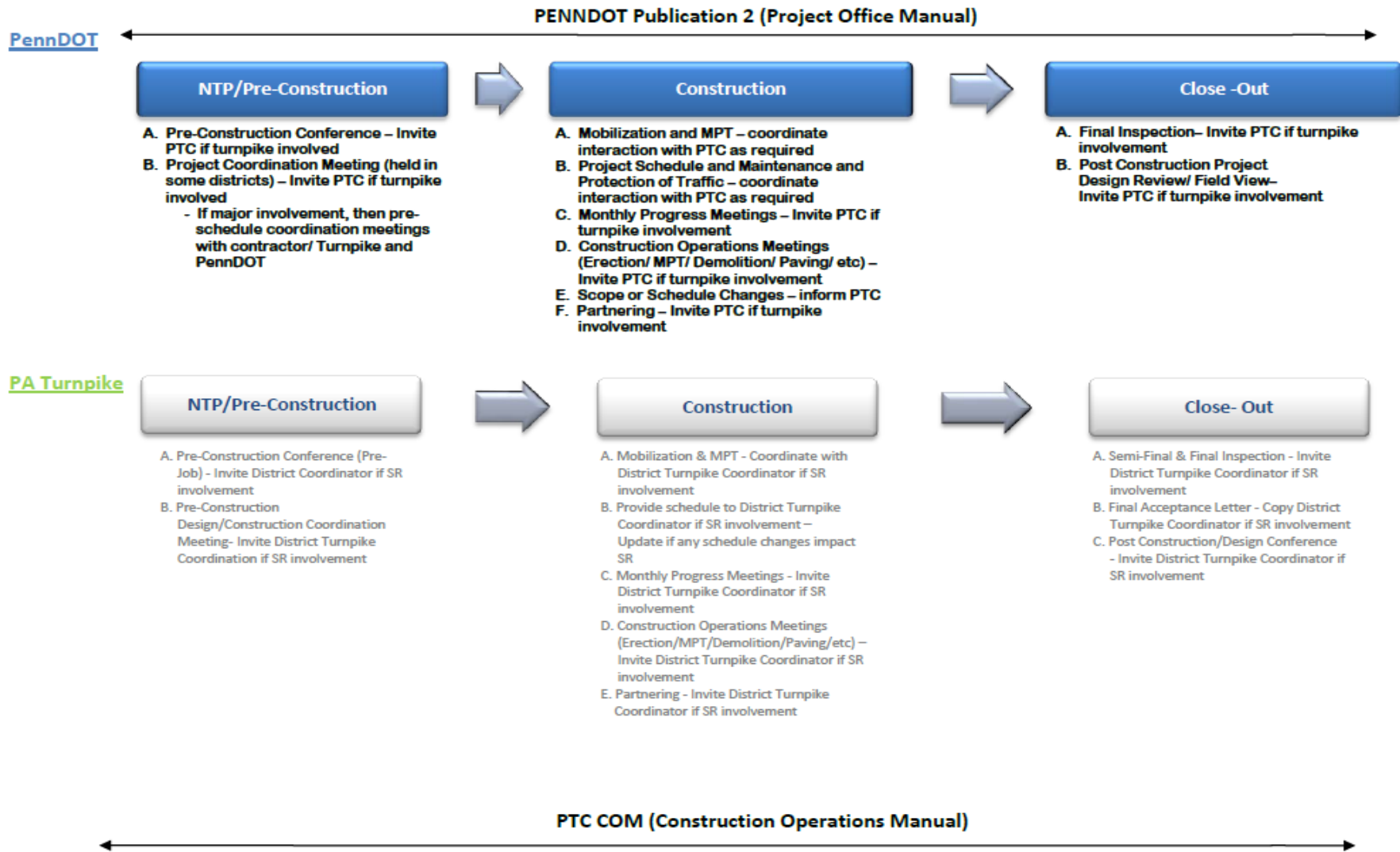
Once construction is complete (Milestone 7), the PTC must be invited to the Final Inspection and Post-Construction Project Design Review/Field View.

See Flowchart on next two pages.

PennDOT / PA Turnpike Project Coordination Milestones



PennDOT / PA Turnpike Project Coordination Milestones



REPLACES A.2.1	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART A	SECTION 2	PAGE 1-1
DATED 04/25/2013	PROJECT OFFICE MANUAL	DATE April 1, 2014		
SUBJECT PRE-BID CONFERENCE				

1. The pre-bid conferences should be viewed as an opportunity to discuss project issues between the Department and the contractors. Important issues may include the project schedule, specifications, construction sequencing, and constructability. The Department representatives should be prepared to answer questions that may arise at the pre-bid conference, and should ensure that personnel critical to the success of the project are in attendance.
2. Meetings for Federal Oversight projects should be scheduled in consultation with the FHWA.
3. It must be made clear to the prospective bidders, by visual display or by announcement made at the beginning of meeting, that any issue raised, comments made, or opinion expressed during this meeting will not be binding to the contract unless covered by an addendum.
4. All attendees at the pre-bid conferences are required to sign the Register and include: attendee name, company name, title, email address, and a telephone number.
5. Chairperson should respond directly or direct other Department representative to respond to the issues. Any concern requiring consultant's review or designer's review must be noted for follow-up action and addressed in the form of an addendum, if required. Comments or input from other attendees should be directed to the Chairperson only.
6. Confidential cost figures, estimates, or Department internal policy matters must not be discussed or commented upon.
7. It is strongly recommended to record the pre-bid conference.
8. Minutes of the pre-bid conference should be kept in the project files and attached to the project development checklist in ECMS. Minutes must be prefaced with a statement that makes it evident that the contents may not be considered a part of the proposal or the subsequent contract. The prefacing statement is to be as follows: "The following minutes of the Pre-Bid Conference held on ____ (date) ____, for project ____ (project identification) ____, are furnished for informational purposes only, and do not constitute a part of the contractual obligations of the Department or the contractor."
9. Refer to Publication 51, Chapter 14 for further information regarding pre-bid conferences.

REPLACES A.2.2	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART A	SECTION 2	PAGE 2-1
DATED 03/01/2011	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT MAINTENANCE OF PERFORMED WORK				

The contractor, as specified in Publication 408, Section 105.13, is only responsible for maintaining their performed work, unless otherwise specified in the contract documents.

Review this matter at the pre-bid conference. The bidding proposal shall include items of work for maintenance of existing roadway or existing bridges if this work is anticipated to be required prior to the contractor performing the physical work.

REPLACES A.2.3	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART A	SECTION 2	PAGE 3-1
DATED 04/01/2020	PROJECT OFFICE MANUAL	DATE April 1, 2021		
SUBJECT SHOP INSPECTION				

At or before the project's preconstruction conference, the Assistant District Executive-Construction (ADE-C) or their delegate 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 (BOPD), Bridge Design and Technology Division (BDTD), Structural Materials Section (SMS) on Form [CS-430](#) (see Section B.7.18 for submittal process) in order to assign shop/plant inspection:

Precast Concrete

- Box Culvert Sections
- Concrete Barrier
- Endwalls
- Inlets (Boxes-Risers-Tops)
- Junction Boxes
- Utility holes
- Noise Barrier (Panels-Posts)
- Prestressed Concrete Beams
- Special Design Reinforced Concrete Pipe
- Precast Concrete Retained Earth Panels
- Total Precast
- NEXT Beam
- 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)
- Structure Mounted Guide Rail (upon request by the District only)
- Other (upon request by the District)

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The Department contracts with consultant inspection agencies to perform plant inspections at precast/prestressed plants, and 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 BOPD, BDTD, SMS, at (717) 787-1566 or email a copy of a completed Form TR-800, Structural Materials Quality Comment Sheet, to ra-pdstructmatls@pa.gov.

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EXAMPLES OF INSPECTION STAMPS – 2019-2024
(Fabricated Structural Steel, Aluminum, Timber and FRP)

HRV Conformance Verification Associates
Agreement: E04689



KTA Tator
Agreement: E04688



Pennoni Associates
Agreement: E04690



TRC Solutions
Agreement: E04687



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EXAMPLES OF INSPECTION STAMPS – 2020-2025
(Precast/Prestressed Concrete)

KTA Tator
Agreement: E04858

TRC Solutions
Agreement: E04857



EXAMPLES OF INSPECTION STAMPS - Structural Materials Unit
(Precast/Prestressed Concrete or Fabricated Structural Steel, Aluminum, Timber and FRP)



REPLACES A.2.4	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART A	SECTION 2	PAGE 4-1
DATED 04/1/2017		DATE April 1, 2020		
SUBJECT CONSULTANT INSPECTION QUALIFICATIONS				

The Bureau of Project Delivery (BOPD) Process Control Procedures for Wage Rate Approval process has been implemented that requires all wage rate approval/resumes to be reviewed and approved by PennDOT's Central Office and the District in the Engineering and Construction Management System (ECMS) prior to an inspector being assigned to a project. The new resume format is available in ECMS. All consultant construction inspector approvals can be viewed (Proper Security Clearance required) in ECMS from the original Engineering Agreement screen via the Resumes/Wage Rate Go button. The Project Manager may request a copy of the assigned inspection staff wage rate approval and resumes through the District's Construction Unit.

REPLACES A.2.5	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART A	SECTION 2	PAGE 5-1
DATED 04/01/2020		DATE April 1, 2021		
SUBJECT INSPECTOR'S FIELD OFFICE AND INSPECTION FACILITIES				

NOTE: All section references and Table A refer to Publication 408, Section 609.

Inspector's Field Office and Inspection Facilities
Publication 408, Section 609
Policy and Procedure Guidelines

In order to properly utilize and obtain the maximum benefit from the subject specification, the following policy and procedural guidelines should be adhered to:

- Project Designers (District or Consultant) must coordinate with the Construction Unit's Project Management team to determine what office and laboratory facilities are needed, based on the type and size of project as well as the technological experience of the personnel who will manage and staff the project. The appropriate item number(s) should be included in the proposal/contract. If customization of the basic facility is necessary, a project-specific special provision should be developed to modify the criteria as specified in Table A. Existing standard item numbers for the following remain applicable:
 - Inspector's Field Office and Inspection Facilities, Type A
 - Inspector's Field Office and Inspection Facilities, Type B
 - Inspector's Field Office and Inspection Facilities, Type C
 - Proportioning Plant Office
 - Field Laboratory

To eliminate the need for the modified standard or non-standard version of these items to be used when more than one field office of the same type is needed, an additional iteration of these standard items has been added to the Master Items List.

- Project Designers (District or Consultant) must coordinate with the Construction Unit's Project Management team to determine what communications, specialized equipment, internet service, and miscellaneous items are needed, based on the type and size of project as well as the technological experience level of the personnel who will manage and staff the project. Indicate the quantity of each piece of equipment to be furnished on the Equipment Package table associated with the Table A Appendix. The "Equipment Package" table is made up of four sub-tables labeled Communications Equipment, Specialized Equipment, Internet Service, Miscellaneous Items, and Laboratory Equipment. Each sub-table lists the specific equipment pieces that are currently approved for use. Fill in the empty fields under each column to specify which of the listed pieces, if any, are to be provided and, if so, in what quantity.
- Use [Form CS-101](#), Inspector's Field Office and Inspection Facilities Project Development Checklist, to streamline the coordination effort between the Design Unit and Construction Unit, and to ensure that the Assistant District Executive who is

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responsible for managing the overall cost of the project is in concurrence with the planned size and makeup of the office or laboratory facility and equipment package to be included in a given proposal/contract. Form CS-101 has been designed to coordinate with Section 609 and is used by project designers to obtain input from the District Construction Unit as to which facilities (i.e., field office, proportioning plant office, and/or field laboratory) should be included in the proposal/contract, as well as the quantity of each type of communications, electronic, specialized equipment, internet service, and miscellaneous items that will be needed. Upon completion, Form CS-101 is to be routed through the Assistant District Executive for Construction (ADE-C) or the Assistant District Executive for Maintenance (ADE-M), as appropriate, for review. If in agreement, the ADE-C or ADE-M must indicate their concurrence by signing and dating the completed form in the space provided. After sign-off, the form is to be returned to the Design Unit for use in preparing the “Table A Appendix” special provision for the proposal/contract. A copy is then sent to the District construction field office information technology (IT) equipment point of contact. So that the point of contact has the necessary information to submit the Request for Service (RFS), requesting the Bureau of Infrastructure and Operations’ (BIO) IT equipment, for the field office.

- Consideration should be given to the feasibility of obtaining necessary office and laboratory facilities, communications equipment, electronic equipment, and/or specialized equipment through other means, thereby limiting what is obtained for Department use as part of the construction contract. This consideration is of particular importance when specifying high cost, specialized equipment pieces. The specialized equipment pieces should be obtained via the construction contract only when the need for the specific piece can be clearly demonstrated and the additional expense justified.
- The Bureau of Project Delivery (BOPD) revised Form CS-101, Inspector’s Field Office and Inspection Facilities Project Development Checklist, when BIO agreed to acquire and provide IT equipment for highway and bridge construction projects. BIO has agreed to acquire and provide laptop computers and low capacity Multifunctional Devices (MFDs). BIO has also agreed to provide the following services: delivery, installation, maintenance, and de-installation. Each District has identified a Point of Contact who is responsible for entering the required information to obtain the necessary IT equipment for each construction project. To obtain the necessary IT equipment for each construction project, the District Point of Contract is to complete Department [Form CS-101A](#), Construction Field Site IT Equipment Request, and submit to the BIO District “XX” IT using Remedy Request for Service (RFS) to manage the IT equipment for the construction field office.

REPLACES A.3.1	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART A	SECTION 3	PAGE 1-1
DATED 04/01/2020	PROJECT OFFICE MANUAL	DATE April 1, 2021		
SUBJECT PRECONSTRUCTION CONFERENCE				

The District will notify the Prime Contractor of the date and time of the Preconstruction conference. The District will request that the Prime Contractor notify all Subcontractors that are known at the time of the Preconstruction conference of the date and time of the meeting and encourage them to attend the Preconstruction conference. The District will invite the Pennsylvania Turnpike Commission (PTC) to the Preconstruction conference if coordination is required, as defined in POM Section A.1.3. Also, the District will ensure that all in attendance receive minutes of the conference.

The following items should be discussed, as appropriate, at the Preconstruction Conference. Many of these items will require the Contractor to submit forms, documents, etc., on the day of the Conference. These documents can instead be submitted electronically via the PennDOT Project Collaboration Center (PPCC).

1. **Execution of Contract** - All Award Letter conditions must be reviewed and discussed.
2. **Addenda** - Discuss all addenda to assure that all parties agree on the changes made to the bid proposal.
3. **Insurance** - As specified in Publication 408, Sections 103.05 and 107.14, all Contractors must furnish the Department insurance certificates proving adequate property damage and public liability insurance coverage.

The Bureau of Project Delivery (BOPD), Contract Management Section (CMS) will receive from the Contractor the initial insurance certificates at the time of award and execution of the contract. The appropriate insurance coverage will meet the requirements of Publication 408 and/or the Special Provisions of the bid proposal. All Contractors must furnish renewal certificates, as needed, to demonstrate continuous insurance coverage for the life of the project.

4. **Contractor Project Staffing** - The Contractor is to provide a list of its project superintendent, project engineer, foremen, and surveyor at the Preconstruction Conference.
5. **Decision Making Hierarchy** - Issue Escalation Matrix ([Form CS-8](#)) is shown on page A.3.1-13. Prior to the Preconstruction Conference, the District shall prepare a Chain-of-Command list for their Inspection Staff. The District may also include other individuals that may assist in resolving construction related issues in the District Contact List section of Form CS-8. The Contractor is also to provide a Chain-of-Command list for the project. These lists shall include each individual's title, name, and contact information. Discuss and complete all applicable sections of Form CS-8 with the Contractor at the Pre-

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construction Conference. The completed form shall be distributed to all attendees by the project's Assistant Construction Engineer/Assistant Construction Manager (ACE/ACM) or their staff.

If the Contractor is unable to provide enough information to complete Form CS-8 satisfactorily, the ACE/ACM may suspend the Notice to Proceed (NTP) date until the necessary information is provided.

6. **Equal Opportunity; Disadvantaged, Small, and Diverse Business Enterprises** - The Assistant District Executive for Construction and their staff are responsible for construction related Equal Employment Opportunity (EEO) provisions. The District Representative shall discuss EEO/Disadvantaged Business Enterprise (DBE)/Small Business Enterprise (SBE)/ Diverse Business (DB) provisions, including Form submission requirements.

- a. The Minority Participation and Commitment must be thoroughly reviewed to ensure the following:
 - 1. The DBEs/DBs listed on the Minority Commitment are being used;
 - 2. The items of work on the Minority Participation and Commitment Detail screen are a reflection of the work to be performed by the DBEs/DBs; and
 - 3. The actual amount awarded to the DBE/DB is greater than or equal to the amount shown on the Minority Participation and Commitment screen in the Engineering and Construction Management System (ECMS).
- b. The Minority Participation and Commitment must be reviewed for conditional approvals and the potential impact to meeting the DBE/DB goal.

NOTE: Conditional approvals will alert the Inspector-in-Charge (IIC) to potential Commercially Useful Function (CUF) issues.

- c. The Contractor is to be reminded to submit a Subcontractor Request for all DBEs/DBs (including Services and Suppliers) listed on the Minority Participation and Commitment screen.
Subcontractor Requests for DBE/DB firms listed on the Minority Participation and Commitment must be accompanied by three pages from the executed agreement:
 - 1. A copy of the executed signature page,
 - 2. A copy of the description of the scope of work, and
 - 3. A copy of the unit prices as they appear in the DBE's/DB's subcontract or agreement.

Please note: Prior to actual performance, the Prime Contractor must provide the IIC a copy of the complete subcontract or agreement for each DBE/DB firm participating on the project. Electronic copies of subcontracts are acceptable provided they incorporate all applicable contract provisions.

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- d. The Contractor is to be reminded to prohibit the start of work by a Subcontractor until a Subcontractor Request has been approved and a copy of the executed subcontract is available on the project for the Department's review; and until the Department has reviewed and acknowledged that the subcontract physically incorporates the provisions of the prime contract that contain statements of self-inclusion (including the wage rates). Electronic copies of subcontracts are acceptable provided they incorporate all applicable contract provisions.
- e. The actual or estimated starting dates for all DBEs/SBEs/DBs must be established.
- f. The type of work to be performed by the DBEs/SBEs/DBs must be established (Subcontractor, Regular Dealer, Manufacturer, Service, Broker, Consultant, etc.).
- g. Manufacturers or producers of construction materials must be checked for approval as listed in either Bulletins 14, 15, 41, or 42.
- h. Ensure that the Contractor meets its responsibility for ensuring that all suppliers approved on the Minority Participation and Commitment screen, supply material in accordance with Department specifications.
- i. The Contractor must be advised that failure to meet the DBE/DB goal by the project's completion could result in sanctions including prequalification suspension or debarment for up to three years. The Contractor must be reminded that it has a continual obligation to make a Good Faith Effort (GFE) for the life of the project. (Corrective Action Plan)
- j. The BOPD, Prequalification Office must be contacted immediately if the DBE/SBE/DB work is imminent and a DBE's/SBE's/DB's sufficient prequalification status is not established.
- k. Reporting responsibilities (DBEs/SBEs/DBs payments, GFE documentation, etc.) are to be reviewed with the Contractor. The Contractor is to be reminded to promptly enter all payments to DBEs/SBEs/DBs in ECMS.
- l. Mobilization payments to DBEs/SBEs/DBs shall be discussed.
- m. The Contractor must be advised that failure to meet the DBE goal by the project's completion could result in sanctions including prequalification suspension for up to three (3) years.
- n. The Contractor is to be reminded to adhere to the procedure as specified in Publication 408, Appendix C, DSP4 (100% State-funded) and DSP7 (Federally-funded), for making any changes involving DBE/DB participation. Any such

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changes are to be coordinated with the District and the BOPD, Contract Awards Unit, as necessary.

7. **Subcontracting** - Discuss the actions and procedures needed to assure that Contractors insert required contract provisions into subcontracts and second tier and subsequent tier agreements as specified in Publication 408, Section 108.01(e).

Any requests for Provisional Prequalification must be submitted to the Bureau of Project Delivery, Contract Management Section for approval.

Also, discuss efforts the Contractor has taken to seek out, make contact with, and consider disadvantaged, small, and diverse business enterprises as potential Subcontractors.

Districts will review Requests for Subcontractor Approval, Form [CS-4339R](#) for Non-ECMS or electronic submission in ECMS, and issue approval if applicable. Districts will review the procedures with the Contractor at the Preconstruction Conference. The Contractor is to be reminded of its responsibility to assure that:

- a. Adequate lead time is afforded the District for performing the required reviews.
- b. The District's project field staff is notified of the time and place that Subcontractors are scheduled to begin work.
- c. The subcontract requirements have been satisfied before permitting Subcontractors to begin work.
- d. Subcontractor requests for DBE/DB firms listed on the Minority Participation and Commitment must be accompanied by three pages from the executed agreement:
 - i. A copy of the executed signature page,
 - ii. A copy of the description of the scope of work, and
 - iii. A copy of the unit prices as they appear in the DBE's/DB's subcontract or agreement.

Please note: Prior to actual performance, a copy of the complete subcontract or agreement for each DBE/DB firm participating on the project must be available for review at the project.

8. **Subcontractor/Supplier Estimate Monitoring (Form [CS-111](#))** - The following procedure should be discussed with the Contractor who should be provided with a sufficient number of forms to accommodate the Subcontractors on the project. The Contractor should be instructed to notify its Subcontractors of the availability of this monitoring procedure.

Basically, the procedure involves four steps:

- a. Subcontractor submission of form (page 1).
- b. District verification of work items and quantities submitted by the Subcontractor.

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- c. Contractor's verification of payment or explanation of non-payment.
 - d. District follow-up to determine if Contractor is or is not in compliance. The Assistant District Executive for Construction is to render the final determination for these payment issues.
9. **Pre-Qualification** - Letters of Approval of Classification Codes based on Superintendents should be reviewed and discussed for compliance.
10. **Materials/Suppliers Approval** - Source of Supply documentation must be submitted via functionality found in ECMS. However, standard forms for Materials Source of Supply (Form **CS-200**, Source of Supply–Materials; and Form **CS-201**, Source of Supply–Traffic Control Devices) are shown on pages A.3.1-11 and A.3.1-12 may be used and sent directly to the District Materials Engineer/Manager only if using ECMS is not possible. The forms must be submitted to the District at least two (2) days in advance of the Preconstruction meeting. In order for the forms to be used as intended, the following requirements need to be met where applicable:
- a. The Prime Contractor must submit the forms to the District for each project. The forms should be submitted by an individual responsible for and able to respond to any Department questions relating to the sources of supply.
 - b. Use contract item numbers and descriptions of the materials being provided as noted in the contract.
 - c. For Bulletin materials, provide ID Codes or Model Numbers as listed in the appropriate Bulletin.
 - d. For Bulletin materials, include the Specific Section Number as listed in the specific Bulletin. For non-Bulletin materials, include the Pub 408 specification reference or Standard Special Provision reference.
 - e. All traffic items must have the Department’s Certificate of Approval Number, or specification number included.
 - f. Generally, submit the primary source of supply of each item. While not required, two sources may be provided for specific items if a back-up source is envisioned as necessary. The primary and backup source should be identified as such. However, written notification is required if the backup source is going to be used.
 - g. For proposed material changes to a previously approved source of supply, only submit those new material items that were not previously approved. It is not necessary to resubmit the entire list of materials.

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- h. If there are changes made to the source of supply, the most current approved source of supply form will supersede previous submittals for the material and material source.
- i. For Concrete and Asphalt items include the following:
 - An item number as listed in the contract.
 - The Producers/Manufacturers name and location as listed in Bulletin 14 (Aggregate Producers), Bulletin 15 (Qualified Products List for Construction), Bulletin 41 (Producers of Asphalt Mixtures) or Bulletin 42 (Producers of Ready-Mixed Concrete).
 - Name/Description of material to be used.
 - The Mix Design Code number.
 - Discuss the requirements of Material Certifications (Form CS-4171) and the Contractor's Quality Control Plan.
- j. Fabricated structural material, which requires in-plant inspection, must be documented via the functionality in ECMS. Form CS-430, Notification of Inspection, must also be completed and submitted to the BOPD, Structural Materials Section.

11. **Inspection/Testing Procedure** - Advise the Contractor that consultant-furnished inspectors report to the Department's IIC and they represent the Department in matters relating to the contract. For those projects where the consultant furnishes the IIC, the consultant speaks for the Department within the scope of the IIC authority.

12. **Progress Schedule** - The need for prompt submittal of a detailed progress schedule should be strongly emphasized. Any critical scheduling problems should be intensively explored.

When the actual NTP date issued to the Contractor occurs on a date other than that anticipated in the contract, ask the Contractor if it wishes to have the contract time re-evaluated as specified in Publication 408, Section 108.06. Record the question and the Contractor's response in the minutes of the meeting.

If a re-evaluation is requested, the District should accomplish it promptly.

If the Contractor states that it intends to accomplish the work within the time described in the contract, despite the difference between the anticipated and actual NTP date, have the Contractor submit this intent in writing and do not extend time for this reason.

Discuss extension of contract time as specified in Publication 408, Sections 108.06 and 108.10, to be granted on contracts which are adversely affected by labor strikes which cause a shutdown of the entire project or one or more controlling operations.

13. **Right-of-Way** - Discuss with the Contractor any special conditions agreed to during

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acquisition that would affect this project. Only the Deputy Secretary for Highway Administration has the authority to extend the limits of work.

14. **Utilities** - An up-to-date report on utility removals and relocations should be discussed. For utilities that are to remain and possibly be a hindrance, the Contractor should be reminded of the obligation to inform the utilities before starting work and of any safety measures that might be required. All affected utilities should be invited to Preconstruction conference to discuss any conflicts with Contractor and construction schedule.

The District Utility Relocation Unit will:

- Assist in determining the status of utility relocations.
 - Notify the IIC of any prior work that requires inspection.
 - Provide the IIC with a list of utilities that have not yet started with their relocation work.
 - Remind the Contractor of the following responsibilities:
 - Contact utilities at least 15 calendar days before starting operations.
 - Keep utilities notified when to schedule their utility relocation work according to the Utility Clearance, Form D-419, using specified notification times. When Contractor completes coordinated work items, notify utilities according to the information on Form D-419.
 - Be responsible for utility relocation coordination if changes are made to the construction schedule that impacts utilities.
 - Remind the PennDOT Construction Project Manager/Inspector that they must notify the District Relocation Unit about any changes to the utility relocation arrangements.
15. **Grade Crossing** - Discuss any conditions stated in the PUC Order. When appropriate, review Form D-4279A and railroad specifications on train movements, railroad contact persons, and insurance requirements. The Contractor is to be reminded that no work should be performed at or near railroad facilities without the railroad's knowledge.
16. **Water Supplies** - Water is not to be used from fire hydrants without the owner's approval.

Request that the Contractor submit for acceptance its source of water for construction use and for drinking water.

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17. **Estimates** - Inform Contractor that estimates will be processed monthly when payable amount is less than \$1,000 and semimonthly when payable amount exceeds \$1,000. Final payments amounting to between -\$10 and +\$10 will be disregarded.

18. **Maintenance and Protection of Traffic** - Discuss working hours, ingress and egress, traffic flow, traffic control material, traffic control plan (or alternates), lateral lane restrictions, and special contract provisions.

Discuss Publication 408, Section 107.02(c) registration and licensing of out-of-state vehicles used on public highways. Provide Contractors copies of the FACT SHEETS from Publication 194, Trucker's Handbook.

Have Contractor furnish after hours phone numbers to be used for emergency contacts. Furnish to local/State Police and PennDOT County Maintenance Office.

19. **Safety** - Emphasize to Contractors that safety is of paramount importance both on and off the project and that projects are to be in compliance with OSHA regulations. The Contractor's written project safety program is required to be submitted at this Conference. The District Project Safety Officer (DPSO) or designee should discuss the Contractor's proposed safety program and recommend any additional safety requirements that are required.

A US Department of Labor Poster, [OSHA 3165](#) (Job Safety and Health: It's the Law), the Federal Hazard Communications Regulations, the Contractor's emergency phone number (after hours contact personnel), the Contractor's safety officer's name and phone number, and a listing of hazardous materials found in the workplace should be posted on the project bulletin board.

For projects on major highways, establishing an emergency response plan should be discussed.

20. **Environmental Commitments & Project Permits** - Whenever there are project-specific Permits, Plans, Construction Items, Special Provisions, Notices to Contractor, Environmental Issues and/or Mitigation Commitments included in the contract, the ACE/ACM and/or District Environmental Unit Representative are to make all parties aware of such contractual environmental commitments at the Preconstruction Conference.

- Environmental Commitments and Mitigation Tracking System (ECMTS):
 - Review each Environmental Commitment / Mitigation Item indicated on the project's ECMTS Report and have the Contractor identify their designated individual responsible for mitigation. Note: This is an ECMS Security Role.

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- National Pollutant Discharge Elimination System (NPDES) Permits:
 - Complete the Co-Permittee Application for the NPDES Permit and submit it to the Department of Environmental Protection (DEP) or the authorized County Conservation District for acknowledgement.
 - Provide the Contractor a Notice of Termination (NOT) Form for the NPDES Permit with Sections 1, 2, 4, 6, 7.a and Appendix A completed.
 - Obtain a copy of the Contractor's Preparedness, Prevention and Contingency (PPC) Plan and have the Contractor identify their licensed professional (Professional Engineer, Geologist, Land Surveyor or Landscape Architect) registered in the State and if applicable, their designee to be present onsite and responsible for implementing critical stages of the approved Post Construction Stormwater Management (PCSM) Plan.

- DEP State Water Obstruction and Encroachment Permits (WOEP):
 - Review the General and Special Conditions of the WOEP with the Contractor. Complete the Acknowledgment of Appraisal of Permit Conditions, obtain the Contractor's signature on the form, and submit the completed form to the appropriate DEP Regional Office prior to commencement of construction.
 - A copy of both the Permit and signed Acknowledgment of Appraisal of Permit Conditions must be available at the project for inspection upon request.

- U.S. Army Corps of Engineers Pennsylvania State Programmatic General Permit (PASPGP):
 - Review the General Conditions of the PASPGP with the Contractor.
 - If applicable, review the Special Conditions of the PASPGP with the Contractor. Complete the Acknowledgment and Agreement for Compliance with Terms & Conditions of PASPGP, obtain the Contractor's signature on the form, and submit the completed form to the appropriate Corps District prior to commencement of construction.

21. **Labor Compliance** - Discuss with Contractor the Labor Compliance requirements for this project and how failure to comply will affect payment of estimates.

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The Prime Contractor is to be reminded to include the labor compliance requirements in the written contract between the Prime and Subcontractor. The Prime Contractor is to be reminded to require inclusion of [FHWA-1273](#), Required Contract Provisions, in all lower tier contracts. As a Contract Provision, FHWA-1273 **must** also be physically attached to the written contract between the Prime and Subcontractor. The Prime Contractor is also to be reminded to notify the IIC when Subcontractors are to begin work.

The Contractor is responsible for postings listed in POM Section B.1.21. Inform Contractor that random wage rate checks will be performed during the life of the project.

Additionally, a copy of POM Section B.10.1, “Contract Labor Compliance Guidelines and Responsibilities”, is to be provided to the IIC, reviewed, and discussed in order to provide assurance of contract compliance.

22. **Unique Special Provisions** - Any unique Special Provision should be discussed in order to resolve any questions regarding the Contractor's interpretation of the scope of the Special Provision(s).
23. **Authorizations for Contract Work** - The Prime Contractor is to be reminded that, as specified in Publication 408, Section 110.03(a), any additional work, extra work, and/or extra work on a force account basis performed before receipt of written authorization from the Department will be at the Contractor’s risk. Such written authorization will be transmitted to the Contractor from the IIC via ECMS and, at a minimum, will identify the type of work being authorized, indicate whether the Department is willing to extend the contract time if warranted, and provide a detailed scope of work. When work is initiated based on an oral authorization, the Contractor should expect that the ECMS Authorization for Contract Work will be submitted as confirmation of the oral authorization within a reasonable length of time thereafter (i.e. within 3 calendar days of the start of the work).
24. **Estimated Effective Rate for Unemployment Taxes** - The Prime Contractor is to be reminded of the requirement for a properly completed Form CS-4347EER to be submitted with the itemized statement submitted for final payment of Extra Work performed on a Force Account basis. This requirement is applicable to the Prime Contractor, as well as any Subcontractors involved in the Force Account work. The form is to be completed for the current calendar year using data reported on Pennsylvania Unemployment Compensation tax forms filed with the Department of Labor and Industry and Federal Unemployment Tax returns filed with the Internal Revenue Service for the prior calendar year. Contractors have until April 15th of each calendar year to update their Estimated Effective Rate computation. Only Federal and Pennsylvania Unemployment Tax payments are to be used to compute the Estimated Effective Rate. Unemployment Tax payments made to other states should not be included

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25. **Shop Drawing Review Procedures** - All shop/work drawings require several layers of review and approval. Following is the basic distribution list for all drawings:

Distribution list for all distributions (including 'Returned for Corrections'):

- Fabricator
- Contractor
- District Project Engineer
- District Bridge Unit
- District Structure Control Engineer

Distribution list (for distribution of 'Accepted' and 'Accepted as Noted' drawings):

- All parties included above in the Distribution list for all distributions
- PennDOT shop inspector (sent c/o Fabricator)
- PennDOT Bridge Design & Technology Division,
ATTN: Structural Materials Section,
Materials & Testing Laboratory, 81 Lab Lane, Harrisburg, PA 17110
- PennDOT ACE/ACM
- PennDOT IIC (name supplied at Preconstruction meeting)

26. **Value Engineering** – Discuss any value engineering proposals the Contractor might be considering for submission on the project.

27. **Question and Answer Period**

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CS-8 (4-15)



ISSUE ESCALATION MATRIX

Directions: Use Levels 1-5 to establish a Chain-of-Command for resolving construction issues that occur on the project. The lowest member of the Chain-of-Command should be listed at Level 1, and the highest member should be listed at Level 5. For example, the Contractor matrix may include a Foreman at Level 1 and use a Project Manager, Project Superintendent, etc. to complete the proceeding levels. Likewise, the project inspection staff matrix may include a Transportation Construction Inspector (TCI) at Level 1 and use a TCI Supervisor, TCI Manager, etc. to complete the proceeding levels. If an issue discovered on the project cannot be resolved at a level, it must immediately be escalated to the next level. Starting with the day of the discovering, the level capable of resolving the issue must be notified and actively seeking a resolution no later than the timeframes listed within each step.

ECMS Number: _____
SR: _____ SEC: _____

	Contractor	Project Inspection Staff
Level 1	Title:	Title:
	Name:	Name:
Immediate Response*	Phone:	Phone:
	Email:	Email:
Level 2	Title:	Title:
	Name:	Name:
1-2 Days*	Phone:	Phone:
	Email:	Email:
Level 3	Title:	Title:
	Name:	Name:
3-5 Days*	Phone:	Phone:
	Email:	Email:
Level 4	Title:	Title:
	Name:	Name:
5-10 Days*	Phone:	Phone:
	Email:	Email:
Level 5	Title:	Title:
	Name:	Name:
10 Days*	Phone:	Phone:
	Email:	Email:

* Recommended timeframes may be adjusted with Department and Contractor agreement.

District Contact List		
Materials Unit	Title:	Title:
	Name:	Name:
	Phone:	Phone:
	Email:	Email:
Other	Title:	Title:
	Name:	Name:
	Phone:	Phone:
	Email:	Email:

REPLACES A.3.2	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART A	SECTION 3	PAGE 2-1
DATED 04/25/2013	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT LETTER OF INTENT				

The State Procurement Code authorizes agency heads (i.e., the Secretary of Transportation) or a deputy to issue binding letters of intent before a contract for construction actually becomes effective. The Contractor receiving this letter may then rely on it to prepare to start work and incur costs to the extent authorized. No work may be performed at the construction site and no payment can be made until the contract is fully executed. The letter of intent is used to give the Contractor the opportunity to get a jump-start in performing the contract while being assured that authorized preparatory expenses will be reimbursed in the event the Secretary elects to cancel the contract prior to the Notice to Proceed (NTP) date.

At times, the nature of a particular construction project is such that extensive and/or costly advance preparation by the Contractor is necessary. Such projects would include those that have a compressed construction schedule, those that require significant quantities of steel piling and/or structural steel, those that involve critical construction staging constraints for large portions of the work, and those that call for the fabrication of precast and/or prestressed concrete products during periods when plant capacity will be limited. When a project is deemed to be a “special needs” project with regard to the level of advance preparation expected of the Contractor, a project-specific special provision is to be included in the bid proposal and a Letter of Intent from the Deputy Secretary for Highway Administration submitted to the lowest responsive and responsible bidder. The special provision and Letter of Intent are to outline the extent to which the Contractor may prepare to start work and incur costs in preparation for performance of the contract.

Utilizing the knowledge of the scope of the project and the work to be performed under the contract, the Assistant Construction Engineer/Assistant Construction Manager (ACE/ACM) having responsibility for the project is to work with the District Design Unit to prepare the project-specific special provision and a request for approval outlining the need for and benefits of utilizing a Letter of Intent on the project. Working with the ACE, the Design Unit will select from the list of allowable preparatory expenses as specified in the Standard Special Provision (SSP) entitled “Section 103.02(a) – Letter of Intent”, and include those that apply to the subject project in the body of the provision. Only those expenses listed in the SSP are eligible to be included in the project-specific special provision. The information in the project-specific special provision will be included in the Letter of Intent to the Contractor, which will be prepared by the Bureau of Project Delivery (BOPD), Contract Management Section (CMS).

The Department’s assurance of reimbursement, in the event the contract is cancelled, will apply only to those expenses incurred as authorized in the project-specific special provision and the Letter of Intent. Therefore, care should be taken to ensure that all the allowable, advance preparation the Department expects of the Contractor is addressed in these documents. Before it is finalized, the Design Unit is to submit the project-specific special provision, along with the request for approval, to the CMS, which will coordinate a review by the Office of Chief Counsel (OCC), Highway Construction and Claims Division, to ensure that the contents are in compliance with the requirements of the State Procurement Code.

PART A	SECTION 3	PAGE 2-2	DATE April 1, 2020
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The ACE/ACM should ensure that the District Design Unit links an electronic file copy of the Central Office approval to use the Letter of Intent to the Project Design Checklist in ECMS. The CMS will create an ECMS Project Condition to establish a systematic notification that a Letter of Intent is being employed on the project and must be processed.

Upon reviewing the ECMS Project Conditions, the BOPD, CMS, will prepare the Letter of Intent based on the information in the project-specific special provision, insert the name and address of the lowest responsive and responsible bidder, route the letter through the Executive Offices to obtain the Deputy Secretary's signature, date the signed Letter of Intent, and transmit it to the Contractor prior to the NTP date.

The CMS will link an electronic file copy of the signed Letter of Intent within the Post-Award Checklist Items area of the Contract Awards screen in ECMS for viewing by authorized, interested parties.

In the event a project on which a project-specific special provision and Letter of Intent are employed is canceled by the Secretary, the Federal Highway Administration is to be advised. If the Contractor is to be reimbursed the actual cost of any authorized material purchased for the project, payment is to be made using 100% State funds and the material retained by the Department. If the material is later used on a Federal-aid project, federal participation in the cost may be sought at that time. Any reimbursement for the Contractor's authorized, non-material-related expenses will be eligible for Federal funding at the appropriate pro rata share.

REPLACES B.1.1	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART B	SECTION 1	PAGE 1-1
DATED 03/01/2011		DATE April 1, 2020		
SUBJECT REQUIRED MINIMUM LIBRARY FOR THE PROJECT OFFICE				

The following list of publications is the minimum required for the Project Office:

- [Publication 2](#) - Project Office Manual
- [Publication 19](#) - Field and Laboratory Test Manual
- [Publication 72M](#) - Standards for Roadway Construction
- [Publication 111M](#) - Traffic Control - Pavement Markings & Signing Standards
- [Publication 148](#) - Traffic Standards - Signals
- [Publication 194](#) - Truckers Handbook
- [Publication 212](#) - Official Traffic Control Devices
- [Publication 213](#) - Temporary Traffic Control Guidelines
- [Publication 219M](#) - Standards for Bridge Construction
- [Publication 408](#) - Specifications
- [Publication 647](#) - Intelligent Transportation Systems-Standard Drawings

All of the above-listed publications are available electronically on the PennDOT website at https://www.penndot.gov/_layouts/pa.penndot.formsandpubs/formsandpubs.aspx or via a PennDOT mobile application. If the project staff has electronic devices capable of readily accessing these publications listed above, hard copies will not be required onsite. However, if the inspection staff does not have reliable access to an acceptable electronic device or internet connection, hard copies must be maintained onsite.

REPLACES B.1.2	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 1	PAGE 2-1
DATED 04/01/2019	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT PROJECT FIELD OFFICE RECORDS				

Purpose and Objectives of Project Field Office Records

The Department requires construction contract documentation to account for the expenditure of public funds. Department employees involved in construction activities are accountable for the approval of the payments made for all work that is performed in the contract. Proper documentation substantiates and verifies that actual field measurements, quantities and percentages of items paid under the contract have been performed in accordance with the plans, specifications and contract.

All documentation needs to be adequately identified and cross referenced to support a field audit during the course of the project, as well as a final audit after the completion of the project. The audit trail will be readily traceable yet be as simplified as possible, to eliminate duplication and extra unnecessary work.

All records are to be complete and detailed and compatible with the Department's Engineering and Construction Management System (ECMS) and the PennDOT Project Collaboration Center (PPCC).

All information and field data contained in the Project Site Activity (PSA) reports or other sources must be cross-referenced by inspector's name and date or file name for the PSA. This notation indicates that the work has been inspected, and the necessary measurements or computations have been performed to make current payments or substantiate Final Quantities. An audit trail must exist from the Items/Estimate (I/E) Book or ECMS Items Quantity Report to the source document.

Certain items, at a particular stage of the work, may call for an interim payment or an approximate estimate of quantity to be paid. In such cases, notes explaining the conditions and rough data used to determine the approximation are to be made in other source documents. This kind of notation is to be countersigned and dated by the Inspector-in-Charge to signify approval or it is to be electronically approved in the PSA by the Inspector-in-Charge. Final measurements are always to be used in lieu of approximations.

It is good documentation procedure to obtain actual volumes or dimensions and record the data immediately in its proper place. The date and name of the individual making the notation is to be recorded. Recorded evidence of quantities and inspections must be available; and where judgment is necessarily exercised, an explanation needs to be made in one of the source documentation books/electronic records.

Significant differences between plan and actual quantities should be properly explained, documented and referenced where the differences have occurred.

PART B	SECTION 1	PAGE 2-2	DATE April 1, 2020
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Sketches, if necessary, are to include actual field dimensions. Any measurements in doubt or which appear to be incorrect need to be rechecked in the field and a line drawn through (never erase) the information in error. Date and sign the new entry. Retakes can be expected and indicate a logical approach to resolve doubt or error.

Performance of Work

The Inspector-in-Charge (IIC) will have immediate responsibility for administering the performance of work on the project. The field records that support all estimates are under the IIC's supervision and approval. However, the presence of the inspector during the performance of any work on the project will not relieve the Contractor of the responsibility for work that is later determined by the Engineer to be defective.

Source Documents

Source documents contain the original recording of the field information and should always be referenced through the ECMS Items Quantity Report or I/E Book, which will contain the quantities for which the payment estimate is being approved. This reference is accomplished directly and whenever possible, field information and data will only be contained in one source document.

A source document is that written / electronic record or plan sheet upon which the field data is written and signed / typed with name and date for electronic, and it is to remain a part of the final records. All physical source documentation should be kept in a secure and fireproof location. Electronic source documentation shall be stored in either ECMS or PPCC.

Source documents consist of, but are not limited to, the following:

- A. Project Site Activity (PSA)
- B. Field Survey Books (Black Book) (Form [D-428](#))
- C. iPad App Mobile Construction Concrete Inspectors Diary (MCCID)
- D. Items Quantity Book (Form [CS-4346](#)) (If Applicable)
- E. Drawings (Annotated, As-Builts and Cross-Sections)
- F. Plan Sheets
- G. Delivery Tickets
- H. Certification Slips
- I. Hand and Computer-Generated Forms and Tabulations
- J. Electronic attachments

If information, data, quantity measurements or computations are recorded in more than one source document, all documents will be cross referenced. Similarly, when the PSA is the source document and other supporting data, quantity measurements or computations are recorded in another document, the PSA inspector's name and date or file name will be entered at the point of

PART B	SECTION 1	PAGE 2-3	DATE April 1, 2020
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incorporation of the data. The PSA will also indicate the source document book and page number, or file location in PPCC.

Drawings and plan sheets used as source documents or that are used as a part of the audit trail will be adequately identified and included in the PSA.

If a full page in any source document is voided, it must be so marked and identified in its proper sequential position as to page and book and signed and dated.

Project Field Office Standard Forms

The following standard forms, with explanations and instructions for their use, are to be used on the project by the Inspector-in-Charge and field personnel for recording and documenting project data.

Field Survey Book (Form [D-428](#); Black Book)

This book may be used for the recording of field information in the form of sketches, dimensions, statements or computations. It is imperative that this information be indexed when used as a source document and more than one item or multiple locations are referenced through the I/E Book.

Items Quantity Book (Form [CS-4346](#); I Q Book)

This book may be used for computations or to initiate a record of information, including sketches and field dimensions. When used for this purpose, the appropriate notations and cross references by userid and date, or reference book and page number, will be included to expedite the audit trail.

REPLACES B.1.3	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART B	SECTION 1	PAGE 3-1
DATED 04/01/2017		DATE April 1, 2020		
SUBJECT PROJECT SITE ACTIVITY (PSA) REPORTS				

The Project Site Activity Report (PSA) will be used as the source document for the project.

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 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 daily to document their work. A separate PSA 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 they are completing the daily PSA.

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.1.3-11.

All paper source documents will be filed chronologically in binders. The permanent bound book will be kept for record retention purposes.

A hard copy print out is not required for electronic PSAs. The Mobile Construction PSA app has been developed to allow inspectors to begin their daily documentation in the field. The electronic PSA is then uploaded to ECMS.

Minor alterations to a source document may be performed by a Department Representative. All changes made to the PSAs in ECMS will show a time stamp of when the modification was made and by whom.

PART B	SECTION 1	PAGE 3-2	DATE April 1, 2020
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REQUIRED INFORMATION FOR PSA REPORTS

A. INSPECTOR INFORMATION

1. Name
2. Hours Worked
3. Lunch Period
4. Commute Miles
5. On the Job Miles

B. DATE

B. WEATHER CONDITIONS

1. Must be documented twice daily; AM and PM
2. High and Low Temperature for the work shift

C. 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 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

PART	SECTION	PAGE	DATE
B	1	3-3	April 1, 2020

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 CS-6, Pipe Installation Inspection Form
 - b. 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

PART	SECTION	PAGE	DATE
B	1	3-4	April 1, 2020

- 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

PART B	SECTION 1	PAGE 3-5	DATE April 1, 2020
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← Dashboard

PSA v4.4.4 PROD-(SYST)
Project Site Activity - 04/30/2019 - Approved



Hours & Weather

General Comments



Contractor



Utilities



Work Items



Files



Summary

Inspector Hours

Pay Code	L/C Code	Start Time	Quit Time	Hours
Normal	Project Inspection	07:00 AM	12:00 PM	5.00
Normal	Data Entry and Documentation	12:30 PM	05:00 PM	4.50
Total Hours				9.50

Weather & Work Suspended

Time	Temperature	Weather Condition	Work Suspended
08:15 AM	85°F	Clear	None
04:00 PM	90°F	Showers	None



PROJECT #34001
SOURCE OF SUPPLY RELEASE 7.2 Sy...

MENU

PART B	SECTION 1	PAGE 3-6	DATE April 1, 2020
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2570 Characters Remaining

Hours & Weather

General Comments

Contractor

Utilities

Work Items

Files

Summary

Lunch Period: (Time Period)
The Contractor was in violation of Safety Code 103.6 of the Commonwealth Revised Code. Refer for details.

Date and Time:
Utility Name (Utility Name must be consistent with the name shown on the project plan,
List of Utilities):
Confirm presence of utility on project site (yes / no):
Approximate start time (if known):
Approximate end time (if known):
Summary of work performed (if known):
Misc. Notes:

PART B	SECTION 1	PAGE 3-7	DATE April 1, 2020
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Dashboard

PSA v4.4.4 PROD-(SYST)
Project Site Activity - 04/30/2019 - Approved



- Hours & Weather
- General Comments

Azure Excavation and Grading
PRIME - 000270

Contractor N
SUB - 000440

Contractor O
SUB - 000441

Superintendents: **Jim Bob**

- Contractor

Contractor Hours

Start Time	Quit Time	Hours
07:00 AM	05:00 PM	10.00

Total Hours 10.00

- Utilities

- Work Items

Contractor Labor

Laborer	-	2	+
Laborer Group 4 (Rebar tie)	-	2	+
Laborer Group 5 (Pipeline welder)	-	2	+
Nipper	-	2	+

- Files
- Summary

Contractor Equipment

Cable Skidder	-	2	+
Chainsaw	-	2	+
Compressor	-	2	+



PROJECT #34001
SOURCE OF SUPPLY RELEASE 7.2 Sy...

MENU

PART B	SECTION 1	PAGE 3-8	DATE April 1, 2020
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1:48 PM Thu Jul 25 LTE 100%

← Dashboard

PSA v4.4.4 PROD-(SYST)
Project Site Activity - 04/30/2019 - Approved



- Hours & Weather
- General Comments
- Contractor

Gas Company Present	Water Company	Power Company
-------------------------------	---------------	---------------

Present	Delayed	Comments

Start Time	End Time	Hours
07:00 AM	04:30 PM	9.50

	Total Hours	9.50
--	--------------------	------

- Utilities
- Work Items
- Files
- Summary



PROJECT #34001
SOURCE OF SUPPLY RELEASE 7.2 Sy...

MENU

PART B	SECTION 1	PAGE 3-9	DATE April 1, 2020
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← Dashboard

PSA v4.4.4 PROD-(SYST)
Project Site Activity - 04/30/2019 - Approved



- Hours & Weather
- General Comments
- Contractor
- Utilities

0203-0001 | 01
Entire to Location
Entire to Location
0.3 CY

Actual Location	ECMS Data	Used Quantity	Remarks	Reference Info
-----------------	-----------	---------------	---------	----------------

ECMS Used Quantity **Actual Location**

PS Total Field Qty: 55.300000 **Entire to Location**

Overrun Qty: 0.000000 **Date Placed**

Tuesday, 04/30/2019

- Work Items

Item Total Field Qty: 55.300000 **Tonnage Placed**

- Files
- Summary

Select The Field Qty. Entry Type **Field Quantity** Show Calculation

Calculation	Enter Qty.	No Qty.	0.30 CY	Show Calculation
-------------	------------	---------	---------	------------------

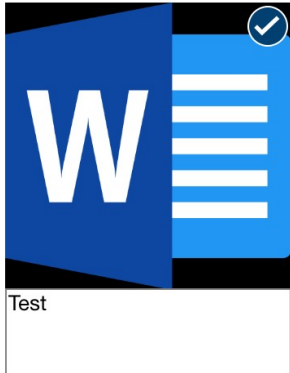



PROJECT #34001
SOURCE OF SUPPLY RELEASE 7.2 Sy...


MENU

PART B	SECTION 1	PAGE 3-10	DATE April 1, 2020
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-  Hours & Weather
-  General Comments
-  Contractor
-  Utilities
-  Work Items



 Files

 Summary

PART B	SECTION 1	PAGE 3-11	DATE April 1, 2020
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- Hours & Weather
- General Comments
- Contractor
- Utilities
- Work Items
- Files
- Summary



PSA - Daily Site Activity

Creation Date	Project Number	PSA Status Code	User Name
04/30/2019	34001	Approved	Joe Inspector/PennDOT
County	Municipality	Section	SR
Cumberland	SOUTH MIDDLETON	003	465

INSPECTOR HOURS

Pay Code	L/C Code	Start Time	Quit Time	Hours
Normal	Project Inspection	07:00	12:00	5.00
Normal	Data Entry and Documentation	12:30	17:00	4.50

WEATHER

Time	Temperature	Condition	Work Suspended	Created By	Created Timestamp
08:15	85	Clear	None	Michael Smeal/PennDOT	04/30/2019 10:02 AM
16:00	90	Showers	None	Michael Smeal/PennDOT	04/30/2019 10:02 AM

GENERAL COMMENTS

Lunch Period: (Time Period)
 The Contractor was in violation of Safety Code 103.6 of the Commonwealth Revised Code. Refer for details.
 Date and Time:
 Utility Name (Utility Name must be consistent with the name shown on the project plan, List of Utilities):
 Confirm presence of utility on project site (yes / no):
 Approximate start time (if known):
 Approximate end time (if known):
 Summary of work performed (if known):
 Misc. Notes:
 Created by: Michael Smeal/PennDOT on 04/30/2019 10:03 AM

CONTRACTOR

Azure Excavation and Grading

Start Time	Quit Time	Superintendent	Equipment Name	Equip. Qty	Labor Name	Labor Qty
07:00	17:00	Jim Bob	Cable Skidder	2	Laborer	2
			Chainsaw	2	Laborer Group 4 (Rebar tie)	2
			Compressor	2	Laborer Group 5 (Pipeline welder)	2



PROJECT #34001
 SOURCE OF SUPPLY RELEASE 7.2 Sy...

MENU

REPLACES B.1.4	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 1	PAGE 4-1
DATED 03/01/2011	PROJECT OFFICE MANUAL	DATE April 1, 2015		
SUBJECT ITEMS AND ESTIMATE BOOK (I/E BOOK)				

The Items/Estimate (I/E) sheets were developed to be a standard, statewide format for the loose-leaf manual documentation system. They illustrate the minimum documentation requirement and can be computer generated through Crystal Reports.

This book contains the current and final payment quantities which are compiled from and referenced to the following source documents:

1. [Field Inspector's Diary](#)
2. [Field Survey Book \(Black Book\)](#)
3. [Items Quantity Book](#)
4. Concrete Book, Material Invoices and Project Plans

The I/E Book is a loose-leaf book that can be generated in its entirety from Crystal Reports and comprised of a series of Items/Estimate and Item/Plan Station Breakdown Sheets. The I/E Book is used to record the progress and payment of a contract item. As the work progresses, the completed quantities to date are recorded by location (or station to station) and description and are referenced to the source document. Approved work orders for additional quantities and extra work are also incorporated. The I/E Book provides the payment estimate records, and, in addition, establishes a history of how quantities were generated for payments of estimates. The I/E Book also establishes the audit and links it to the source documents.

FLEXIBILITY - The three columns without headings on the I/E sheets allow each District to incorporate entry identification that the District prefers. The use of the three columns and the Item/Plan Station Breakdown Sheets will not be critical to an audit review.

PART B	SECTION 1	PAGE 4-2	DATE April 1, 2015
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KEY FOR I/E BOOK SHEETS

1. Item Number & Type
Contract assigned items (Example 2201(0201)-0001). Extra Work, use existing contract item number. Non-Standard items, District's Preference
E = Extra Work,
P = Penalty,
R = Rebate,
V = Value Engineering
2. FUND
The funding assigned to this item for work in a particular location on the project. Also, corresponds to a particular funding participation breakdown on the Federal Agreement Estimate.
3. Cost Function
The cost function is taken from the contract items estimate summary printout.
4. I/E Book #
A unique number assigned to each I/E Book. Contains the last 4 digits of the contract number.
5. Page #
Numbered consecutively starting with 1. The item listed on this page corresponds to the position of the item on the contract items estimate summary Crystal Reports printout. Item #3 on the printout would be numbered 3 on the I-E Basic Sheet. Additional required continuation sheets would be numbered 3.1, 3.2, 3.3, etc. Item/Plan location breakdown sheet pages are numbered with letters (Ex. 3A, 3B, 3C, etc.).
6. ITEM DESCRIPTION
Taken from the Engineering and Construction Management System (ECMS).
7. CONTRACT
Contract number (Self explanatory).
8. UNIT PRICE
The contract unit price for this item.
9. UNIT
Unit of measure (LF, SY, CY, Each, LS, etc.)

PART B	SECTION 1	PAGE 4-4	DATE April 1, 2015
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24. <BLANK> District's Preference.
25. <BLANK> District's Preference.
26. <BLANK> District's Preference.
27. STA. / STA. Location of work to be performed. Plan stations taken from tabulation sheet.
28. REMARKS Used only if noted in remarks column on tabulation sheet.
29. ORIG QTY The plan quantity for this item of work at the particular location specified.
30. PLACED QTY Actual quantity of work performed at the particular location specified.
31. FINAL QTY To be completed by the finals unit during final audit.
32. <BLANK> District's Preference.

PART B	SECTION 1	PAGE 4-6	DATE April 1, 2015
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Required Continuation

Item Number: 1 ECMS #: 7 SR: 80 (B09) 12 Page: 5

Date	OFF #	REF PG#	Notes	PG#	L#	Quantity			
17	18	19	20	21	22	23	24	25	26

PART B	SECTION 1	PAGE 4-7	DATE April 1, 2015
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Plan Location Breakdown

Item Number: 1 Fund: 2 Cost Function: 3 IBK Page: 5 A
 CLEARING AND 6 ECMS 7
 SR: 284 (007 12

L#	Sta./Sta.	Remarks	Orig QTY	Placed QTY	Final QTY	
1	27	28	29	30	31	32
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						

REPLACES B.1.5	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART B	SECTION 1	PAGE 5-1
DATED 04/01/2017		DATE April 1, 2020		
SUBJECT GENERAL FILE SYSTEM GUIDE FOR CONTRACT PROJECTS				

The General File System for Projects is a guide that can be followed on projects using ECMS with a few exceptions. **NOTE:** These examples are used for physical file folder setups on projects. Many projects now use PPCC, which contains a customizable, electronic filing system.

For all filing systems, Certificates of Compliance (Form CS-4171s) should be filed in the appropriate material file folder.

EXAMPLE #1

- A. Contract
- B. Accident and First Aid
- C. Approvals, Laboratory*
- D. Inspection Charge
- E. Batcher Mixer Slips
- F. Bridge Stake Out
- G. Correspondence
- H. Earthwork Computations
- I. Embankment Compaction
- J. Estimates
- K. Final Department*
- L. Gradation, Coarse
- M. Gradation, Fine
- N. Grade Sheets
- O. Hourly Payroll*
- P. Invoices
- Q. Miscellaneous
- R. Public Utility
- S. Releases, Consent to Enter
- T. Roadside Development
- U. Sample Identification
- V.
- W. Work Orders

* May be broken into sub-letters.
(C-1, K-1, K-2)

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EXAMPLE #2

Folder A

- (1) Contract Proposal
- (2) Minutes of Pre-Bid Conference
- (3) Minutes of Preconstruction Conference; Notice to Proceed; Approved Subcontractors (Form [CS-4339R](#))
- (4) Current Estimates
- (5) FHWA. Inspection Reports
- (6) Drinking Water Approval
- (7) Project Correspondence
- (8) Personal Correspondence

Folder B

- (1) Driveway Releases; Consent to Enter (Forms RW-397, RW-397A)
- (2) Borrow Pits; Agreements; Waste Pits (Form [CS-4345](#))

Folder C Materials Accepted by Laboratory Testing Section Approval

- (1) Aggregate Laboratory Test (Form [TR-4126A](#))
- (2) Miscellaneous
- (3) Copper Flashing
- (4) Reinforcement Mesh Record
- (5) Paint (Graphic Lube)
- (6) Rubberized Joint Sealer

Folder D

- (1) Tile Drain
- (2) Cement Concrete Pipe
- (3) Corrugated Metal Pipe
- (4) Steel Shipment
- (5) Guide Rail
- (6) Neoprene Pads
- (7) Prestressed Beam Shipment
- (8) Other Materials Accepted by Affidavit or Certification

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Folder E

- (1) Cement Contracts
- (2) AE Admixture
- (3) Prestressed Beam Defect Sketch
- (4) Compressive or Flexural Strength of Portland Cement Concrete (Form [CS-458A](#))
- (5) Concrete Mix Designs (Form [TR-4221A](#))

Folder F

(A) Soil

- (1) Subgrade
- (2) Subbase Depth Check
- (3) Subbase
- (4) Random Observation

(B) Portland Cement Concrete

(1) Structures

- (a) Class AAA
- (b) Class AA
- (c) Class A
- (d) Class C
- (e) Aggregate Gradation
- (f) Summary - Transit Truck Mixers (Form [CS-4337A](#))

(2) Pavement

- (a) High Early Strength
- (b) Paving
- (c) Aggregate Gradation

(C) Asphalt

- (1) Binder Course
- (2) Wearing Course
- (3) Chemically Treated Base Course or Shoulders, Soil-Cement, Soil-Asphalt, etc.

Folder G Pile Driving

- (1) Pile Book
- (2) Shipment Certification

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Folder H Grade Sheets

Folder J Bridge Stake Out

Folder K Earthwork Computations (Form [D-412A](#))

Folder L Embankment Compaction

- (1) Method for Calculation of Moisture Density Relationship (Form [TR-4247](#))
- (2) Nuclear Method Compaction Density Report (Form [TR-4276A](#))

Folder M Utilities

- (1) Daily Utility Inspection Report
- (2) Plan and Profile

Folder N Miscellaneous Reports

Folder P Work Orders (Form [CS-442A](#))

Folder Q Foreman's or Inspector's Daily Report for Roadside Development

NOTE: Folder R through Folder X contain Duplicate Copy of Forms submitted to office.

Folder R

- (1) Bi-Weekly Comp. Time Report
- (2) Hourly Inspection Charge and Hourly Payroll

Folder S

Folder T

Folder U

- (1) Quality Assurance
- (2) Quality Control

Folder V

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Folder W

- (1) Contractor's and Subcontractor's Payroll Statement either computerized or manual (Forms [WH-347](#), [LLC-25](#))
- (2) Labor Compliance Spot Check
- (3) Commercially Useful Function Report ([Form EO-354](#))

Folder X Accident Reports

Folder Y Trainees (Reports & Outlines)

Folder Z Semi-Final and Final Inspection Notes

Rest Area Filing Outline

The Inspector may add more categories under each Folder if needed.

Folder A

- (1) Contract Proposal
- (2) Minutes of Pre-Bid Conference
- (3) Minutes of Preconstruction Conference; Notice to Proceed; Approved Subcontractor (Form [CS-4339R](#))
- (4) Current Estimates
- (5) FHWA Inspection Reports
- (6) Drinking Water Approval
- (7) Project Correspondence
- (8) Personal Correspondence
- (9) Welder's Certification

Folder B

- (1) Driveway Releases; Consent-to-Enter (Forms [RW-397](#), [RW-397A](#))
- (2) Borrow-Pits; Agreements; Waste Pits (Form [CS-4345](#))
- (3) Temporary Air & Temporary Water Pollution Control
- (4) Traffic Regulation & Control including Flasher Approval List

Folder C

- (1) Aggregate Laboratory Test (Form [TR-4126A](#))
- (2) Miscellaneous Acceptance (Color and Texture only)
- (3) Concrete; Plain & Reinforced
- (4) Masonry Work
- (5) Structural Steel & Miscellaneous Metal
- (6) Rough Carpentry & Finish Carpentry
- (7) Roofing, Insulation & Sheet-Metal Work

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- (8) Finish Hardware, Glass & Glazing
- (9) Tile Work, Painting, Finishing & Wallboard
- (10) Toilet Rooms, Compartments & Accessories, Fire Extinguishers
- (11) Steel Mesh Acceptance
- (12) Paint Acceptance
- (13) Rubber Joint Sealer
- (14) Water-Proofing & Sealing
- (15) Ventilating & Plumbing
- (16) Electrical
- (17S) Sewage Disposal System
- (18W) Water Supply System
- (19) Material Correspondence
- (20) Shop-Drawings, Reinforcement Steel

Folder D

- (1) Tile Drain
- (2) Cement Concrete Pipe
- (3) Corrugated Metal Pipe
- (4) Right-of-Way Fence
- (5) Highway Lighting
- (6) Flag Poles
- (7) Other Material accepted by Affidavit or Certification

Folder F

(A) Soil

- (1) Subgrade
- (2) Subbase Depth Check
- (3) Subbase
- (4) Random Observation

(B) Portland Cement Concrete

(1) Structures

- (a) Class AAA
- (b) Class AA
- (c) Class A
- (d) Class C
- (e) Aggregate Gradation
- (f) Summary - Transit Truck Mixers (Form [CS-4337A](#))

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(2) Pavement

- (a) High Early Strength
- (b) Paving
- (c) Aggregate Gradation

(C) Asphalt

- (1) Binder Course
- (2) Wearing Course

Folder K Earthwork Computations (Form [D-412A](#))

Folder L Embankment Compaction

- (1) Method for Calculation of Moisture Density Relationship (Form [TR-4247](#))
- (2) Nuclear Method Compaction Density Report (Form [TR-4276A](#))

Folder N Miscellaneous Reports

Folder P Work Orders

Folder Q Foreman's or Inspector's Daily Report for Roadside Development

Folder W

- (1) Contractor's and Subcontractor's Payroll Statement either computerized or manual (Forms [WH-347](#), [LLC-25](#))
- (2) Labor Compliance Spot Check

Folder X Accident Reports

Folder Y Trainees (Reports & Outlines)

Folder Z Semi-Final and Final Inspection Notes

REPLACES B.1.6	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 1	PAGE 6-1
DATED 04/01/2019	PROJECT OFFICE MANUAL	DATE April 1, 2021		
SUBJECT PROJECT FIELD OFFICE EQUIPMENT				

Project Field Office computer equipment for Highway and Bridge Construction Projects is supplied by the Department. The equipment request should be made by contacting your District Representative, using the Department Form [CS-101A](#), Construction Field Site IT Equipment Request. Construction Field Office computer equipment, hardware and software, are for exclusive use by the Department employees and Business Partners. Every Department employee and Business Partner will use their uniquely assigned Department issued CWOPA User ID and Password to login to the Department supplied computer equipment. NOTE: Only Business Partners requiring access to Department supplied computer equipment require a Department issued CWOPA User ID.

Note: Contracts for Local Projects, not managed by Department staff, will include the Microcomputer System Item 0688 for the contractor to supply the 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 the District Representative.

REPLACES B.1.7	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 1	PAGE 7-1
DATED 04/01/2015	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT REQUIRED CONSTRUCTION DOCUMENTATION				

General Notes Concerning Source Documentation

1. All items covered in a Project Site Activity (PSA) or other source documents are to be identified and located as follows: Item Number, Type Code (for extra work items), Funding Number, Item Description, SR and STA or SR Segment and Offset for both plan and actual stations, Right or Left, Lane or Side. If there is only one funding number for the project, it need not be listed.
2. The source document for the inspection of an operation should include the construction procedures used to complete the operation, in addition to the information recorded for payment. NOTE: Refer to standards, plans, and specifications, including supplements and/or contract special provisions, for detailed requirements on each item. Cross-referencing to other source documents is required.
3. Class 1 Excavation (Waste) - See Publication 408 for documentation.
 - a. Measure areas not on cross sections; irregular areas.
 - b. Take random cross sections to generally confirm that line, grade, and excavation limits reasonably conform to the plan.
4. Dimensions, sketches and computations are considered acceptable alternatives to cross sections and stripping. (NOTE: Record bottom of footing and/or invert elevations.)
5. Class 4 Excavation - When checking and recording the trench depth for reconstruction, the inspector needs to consider overlapping items such as pavement and subbase for purposes of subsequent quantity checks.
6. Random depth, yield and temperature checks can be placed on the backs of the delivery tickets, in Field Survey Books, or in the PSA. When checks such as depth, width, yield, temperature, etc., are recorded in places other than the PSA, a note identifying their location is needed in the report.
7. Sketches are preferred; however, Plans and/or tabular listings can be used in lieu of sketches.
8. When large quantities of unsuitable material are involved, cross sections may be needed.
9. For Lump Sum and/or their Component Items, actual field measurements are to be recorded on plans or some other source documents.
10. Record calibration of testing equipment.

REPLACES B.1.8	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART B	SECTION 1	PAGE 8-1
DATED 04/01/2014		DATE April 1, 2021		
SUBJECT AUTHORIZATION TO ENTER PRIVATE PROPERTY				

When contract work requires the contractor to enter private property, project personnel need to consult with the District Right-of-Way Administrator to determine if the Department has received permission from the property owner.

The following forms are used for this purpose:

Form RW-397 is used when the Department wishes to enter a property abutting a project to reconstruct a driveway or perform some other work, as a result of an acquired or potential acquisition of right-of-way. Form RW-397 does not require a waiver of any right-of-way or consequential damage claim. Use Form RW-397 in connection with work on the property of a right-of-way claimant.

Form RW-397A is used when the Department wishes to enter a property to perform work, such as cleaning, maintaining or upgrading an existing drainage system (e.g., ditches, pipes, structures) that is NOT required for the construction, operation, or maintenance of a project. Form RW-397A requires that the property owner waive any right they may have under the Eminent Domain Code; for example, the right to assert a claim for consequential damages. Form RW-397A is typically used when there is no need or intent to develop a right-of-way plan. Use Form RW-397A in connection with work on property adjacent to or abutting a highway for which there is no right-of-way acquisition, either existing or anticipated.

Form RW-397A is not a contract if it is properly completed and not modified. It is important to NEVER make promises to the property owner and NEVER sign the form on behalf of the Department. If it is signed by the Department, the form becomes a contract and must be approved for form and legality. The following instructions should be followed in using the Form RW-397A:

- Obtain authorization from the District Right-of-Way Administrator before using the form.
- If not already identified on right-of-way plan, enter the address of the property or other reliable identification such as county tax parcel number.
- Enter a general description of the work to be done on the property.
- If the owner/occupant insists that permission to enter be limited to a specified time period, indicate the time limitation in the blank space provided.
- The executed authorization to enter should be retained in the file of the party securing it.

When project personnel are required to obtain the property owner's permission, the District Right-of-Way Administrator must be consulted to provide assistance in selecting the proper form.

REPLACES B.1.10	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 1	PAGE 10-1
DATED 03/01/2011	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT GUIDELINES FOR HIGHWAY AND SIGN LIGHTING AGREEMENTS WITH ELECTRIC UTILITY COMPANIES				

These agreements are prepared by the Electric Utility Companies and initiated during construction by the District Executive for the supply of electricity. The cost of the provisions to supply the electricity, such as line extension and/or facility charges, is a proper project construction charge. The cost of electricity used to energize the system is a proper maintenance charge.

When a lighting agreement with the electric utility company is required for systems owned by the Commonwealth, it should be initiated during construction by the District Executive. The electric utility company will bill the District Office/County for the energy usage. Billing by the local electric utility company shall be for metered service unless PennDOT approved un-metered energy only rate is available.

When an existing HPS lighting system is retrofitted to LED, contact the electric utility company to coordinate the adjustment of the electricity rate structure.

The electric service locations shown on the plans should be confirmed in writing by the electric utility company, and line extension charges, if any, determined at the time. Charges by the electric utility company for line extension or facilities are to be paid as one-time, lump sum, project construction cost. Such charges are never to be deferred or included in the periodic billing for energy. The one-time, lump sum payment to the electric utility company for line extension and/or facility costs may be procured through a Service Purchase Contract. Payment shall be encumbered with an SAP-7 against the project and paid through SAP ransation code FB 60 when the work is completed. The amount of these charges by the electric utility company is based on their cost to provide the service facilities required with relation to the energy usage anticipated.

When processing agreements, as many copies of the agreement as there are parties to the same (usually two) must be hand-signed by the proper official of the local electric utility company and sent to the District Office. The electric utility company must include a resolution or other delegation of signature authority if the agreement is executed by someone other than the president or a vice president and attested by someone other than the secretary, assistant secretary, treasurer, or assistant treasurer. Under certain circumstances, in order to save time, the Commonwealth will execute the electric utility company's prepared forms in the first instance before signing by the proper officials of the electric utility company, but this practice should be discouraged as contrary to customary procedure. The agreement should be checked for accuracy and conformity with the Commonwealth policy by the District Office and such objectionable terms that would require the Commonwealth to indemnify and save harmless the electric utility company shall be eliminated since this cannot be done legally without legislative authority. In addition, such agreement should provide for a definite termination date either by passage of a certain period or by notice of intention to terminate.

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After all copies of the agreement have been signed by the local electric utility company and approved by the District Office as indicated above, they should be forwarded by the District Office to the Bureau of Project Delivery(BOPD) to check for compliance with PennDOT's policy directives. In the forwarding letter to BOPD, the District must indicate the proper method of funding of the costs involved in carrying out the agreement. Upon approval, the BOPD will forward the copies of the agreement to the Office of Chief Counsel for final processing and subsequent distribution.

In the final processing procedure conducted by the Office of Chief Counsel (OCC), the required copies of the agreement are transmitted to the Bureau of Fiscal Management for budget purposes. Then such copies of the agreement are transmitted to the Deputy Secretary for Highway Administration for signature. When these procedures have been completed, the copies of the agreement are returned to the OCC for approval as to form and legality, the Office of General Counsel (if necessary) and the Office of Attorney General and thereafter to the Comptroller for fiscal approval. Only after approval by the Comptroller does the agreement become a legal obligation of the Commonwealth. The Comptroller retains either a hand signed or signature stamped copy of the fully executed agreement for its files and the OCC returns the remaining hand signed or stamped copies to the originating District. The District then distributes copies of the executed agreement as follows:

- Bureau of Project Delivery - one copy.
- State Treasurer - one copy.
- District Office - one hand signed copy for each party to the agreement.

REPLACES B.1.11	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 1	PAGE 11-1
DATED 04/01/2017	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT DAILY UTILITY INSPECTION REPORT				

The Design Unit and District Utility Relocation Unit are responsible for ensuring that all utility companies identified within the project limits are on the project team in ECMS. The Inspector-in-Charge (IIC) shall check that all utility companies identified within the project limits (List of Public Utilities) are on the project team in ECMS. The IIC shall ensure that the daily utility inspections are performed on all utilities identified within the project limits. This information must be reported daily in the Project Site Activity (PSA) – Utility Section when the utilities are scheduled to be working on the project.

Sometimes, utility relocations will start prior to the award of the highway contract, and a Construction Inspector would be assigned at the time to inspect this work. With the IIC assuming this responsibility, the previously assigned Inspector normally is reassigned. At the time of reassignment, the Inspector shall provide the IIC with copies of all previously prepared Utility Inspection Reports (see DM-5, Figure A-1201 for a blank copy of the Utility Inspection Report, Form D-4298) and the Utility's approved relocation plan.

A Construction Inspector assigned by the IIC to a utility relocation is responsible for maintaining an accurate record in ECMS of the work accomplished. The completion of this Utility Inspection shall be of sufficient detail to show the progress of work performed by the utility.

The PSA Utility log will serve as the location to capture this information. If reporting on multiple utilities, the utility comment text can be copied and pasted as many times as necessary. The previous day's utility comment can also be copied and pasted to eliminate the need to re-enter the utility company names and to ensure consistent utility identification from day to day.

The description of the work performed shall be specific as to location (highway stations) and as to the type of operations, e.g., trenching, laying pipe, placing poles, etc. The major items of material used shall be indicated; e.g., number of poles, length of cable or conductor, length and size of pipe or casing, etc.

Each time it appears that a utility or local authority is exceeding the amount of time estimated for a particular item of utility work listed in the contract special provision for utilities:

- A statement to that effect should be included in the Utility PSA. The statement should at a minimum describe the work that remains to be performed by the utility or local authority to complete the item of utility work.
- The IIC should send a weekly report to the District Utility Unit, Assistant Construction Engineer/Manager (ACE/ACM) and the Assistant District Engineer for Construction (ADE-C) of all items of utility work with respect to which the utility or

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local authority appears to be exceeding the time estimates listed in the contract special provision for utilities.

- If an item of utility work remains on the weekly report of the IIC for two or more weeks, the District Utility Unit should contact the Central Office Utility Unit for assistance.

Any deviation from the approved relocation plan will be brought to the immediate attention of the District Utility Relocation Unit, ACE/ACM, and noted in the PSA - Utility log.

REPLACES B.1.12	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 1	PAGE 12-1
DATED 04/01/2017	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT BORROW EXCAVATION AND WASTE AREAS				

Publication 408, Section 105.14, addresses the provision of both Non-Designated and Designated Areas for Borrow Excavation and Waste Areas. Publication 408, Section 105.14(b) applies when the Department has previously selected areas from which to obtain borrow or areas in which to deposit waste and it is specified in the project proposal. Additional information on Designated Borrow and Waste Areas may be found in Publication 10A, Design Manual 1A, Chapter 7.9.C.

Publication 408, Section 105.14(a), Non-Designated Areas, specifies that the contractor is to negotiate with the owner or owners of property obtained for all borrow and/or waste areas by using Form [CS-4345](#), Borrow and/or Waste Agreement. These non-designated areas shall be recommended by the District Environmental Unit and approved by the County Conservation District per the Erosion and Sedimentation Control Plan.

The form includes the following:

1. Property owner of record.
2. Owner permits the use of their land.
3. Contractor agrees to do the work in a manner satisfactory to the property owner and the District Project Engineer.
4. Property owner's release.

The Inspector-in-Charge (IIC) shall ensure that the contractor executes this form for each borrow and/or waste area and that written notification of acceptance by the Representative is received, before any work starts in that borrow and/or waste area. Copies of applicable permits and the approved Erosion and Sedimentation Control Plan must also be submitted to the Representative before starting work. The IIC should coordinate with the District's Environmental Unit as needed for the borrow and/or waste area.

Department Design Project Manager or designee shall conduct environmental due diligence determinations for **all potential excess excavated materials** during Final Design for all projects prior to advertisement for construction, and document these determinations using Form [D-1](#), Environmental Due Diligence (EDD) Phase 1 Visual Inspection Form, and if necessary Form [D-2](#), Clean Fill Environmental Due Diligence (EDD) Phase 2. Laboratory analysis of materials will only be conducted when EDD Phase 1 and 2 investigations uncover evidence of a release. Analytical parameters will be limited to contaminants of concern identified in the EDD process, unless prior written approval to test for additional parameters is obtained from the District. Of particular importance, under no circumstances may metals analysis exceed the Priority Pollutant or RCRA 8 analytical parameter lists without written District approval.

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For used asphalt/concrete pavement material from a project that is to be moved offsite, the Department Project Manager or designee shall be responsible for conducting environmental due diligence. A flowchart may be found on Page B.1.12-3 summarizing this process. Used, un-milled asphalt and concrete from highway/bridge pavement are considered clean fill, if there is no evidence of impact by a spill or release of regulated substances. Incidental staining from normal vehicular use is not considered a spill or release. The Project Manager or designee shall complete Form D-1 to document the inspection of the pavement material for spills or releases, and provide the property owner of the receiving site with a copy of the completed form. If no spills or releases are documented, the materials are considered clean fill. If it is necessary to perform laboratory analysis of materials, then Form FP-001 from DEP's Management of Fill Policy shall be provided to the property owner of the receiving site, if test results indicate that the materials are clean fill. This does not apply to millings, which are governed under PA DEP's Industry-Wide No. 1: RECLAIMED ASPHALT PAVEMENT (RAP) INDUSTRY-WIDE COPRODUCT DETERMINATION for Reclaimed Asphalt Pavement (RAP).

Pre-1988 fill consisting of a mix of soil and ash, cinders, or slag is considered Historic Fill, a type of residual waste that is eligible for import or export from the ROW for reuse as fill only under the following conditions:

- Waste materials are removed from the mixture, leaving behind Clean Fill.
- Historic Fill can be borrowed or wasted for offsite reuse as Regulated Fill through DEP's Regulated Fill general permit, WMGR096. DEP approval of a Regulated Fill permit application normally takes 2-6 months, making it impractical for the Construction contractor in most cases.
- Historic Fill that does not consist primarily of waste materials may be borrowed or reused offsite as Clean Fill if analytical testing shows no exceedances of analytical parameters found in Table 1 of DEP's Management of Fill Policy. However, Historic Fill is likely to exceed Table 1 values for vanadium, arsenic or other inorganic test parameters.

All of the above options are difficult, and Historic Fill is normally reused onsite (if uncontaminated) or landfilled. In some cases, however, Historic Fill occurs in a distinct layer that can be excavated and stockpiled separately from neighboring Clean Fill during construction activities. See Publication 281 for more details.

For all borrow materials entering the construction right-of-way, it will be the responsibility of the construction contractor to make the clean fill determination in accordance with DEP's Management of Fill Policy. The contractor shall submit Form [D-1](#), and if required Form [D-2](#), to PennDOT in order to document the environmental due diligence determination. Used asphalt/concrete pavement materials brought onto the project will be accepted as clean fill by the Department only when the materials are obtained from another transportation project and Form D-1 is completed by the contractor. This does not apply to millings, which are governed under PA

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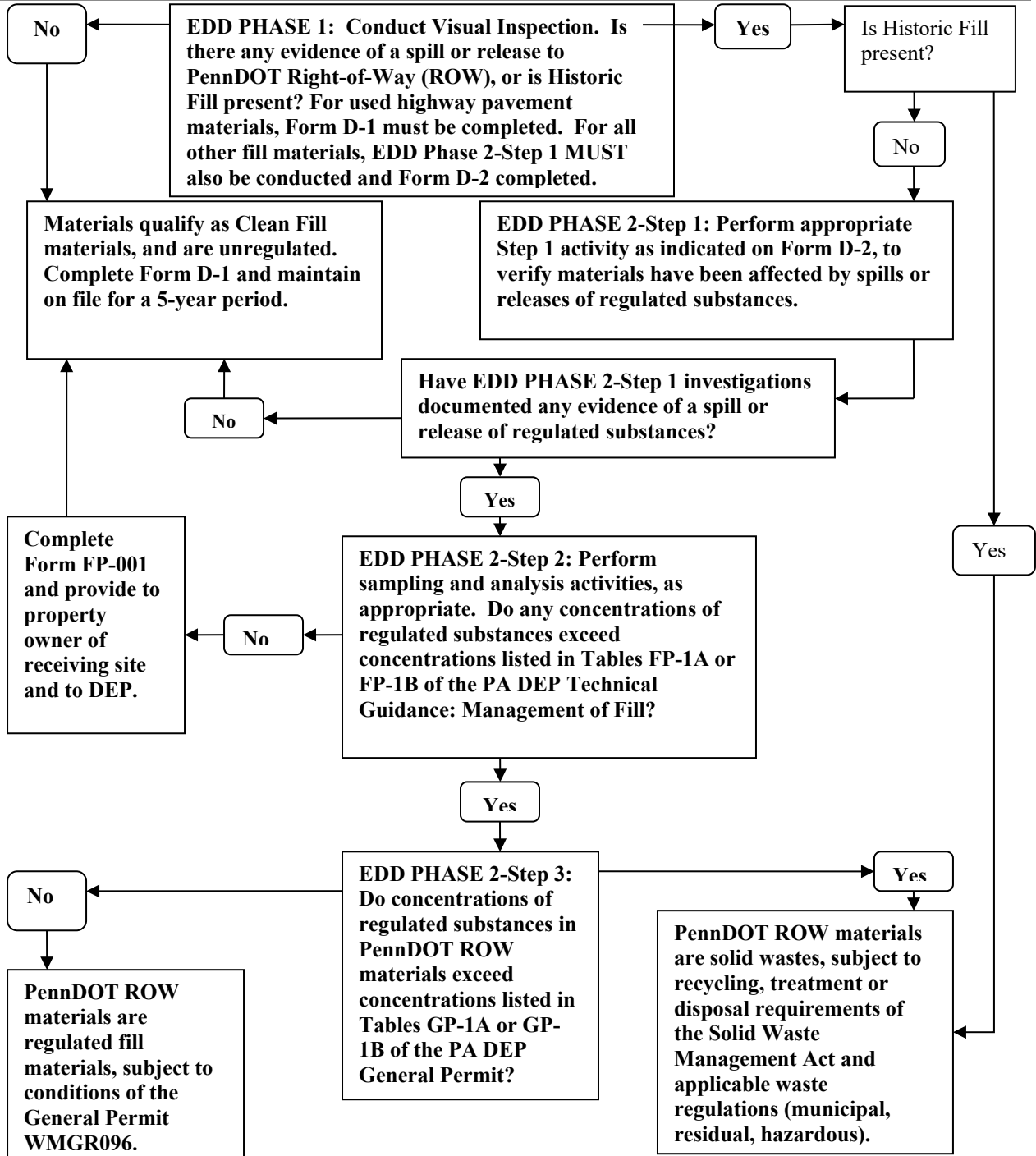
DEP's Industry-Wide No. 1: RECLAIMED ASPHALT PAVEMENT (RAP) INDUSTRY-WIDE COPRODUCT DETERMINATION.

Unforeseen materials within Department Right-of-Way at the construction site determined not to be clean fill will be managed contractually as specified in Publication 408, Sections 104.08 and 104.09.

Forms D-1 and D-2 must be maintained for a minimum of 5 years in the project file.

ENVIRONMENTAL DUE DILIGENCE ACTIVITIES FLOW CHART

Soil, rock, stone, dredged material, used asphalt, and brick, block or concrete from *Highway and bridge* construction and demolition activities that is separate from other waste *are considered Clean Fill materials under the PA DEP Fill Policy, unless a spill or release has occurred.*



REPLACES B.1.13	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 1	PAGE 13-1
DATED 04/25/2013	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT STRAIGHT-LINE ANALYSIS CHARTS				

Straight-line analysis charts or straight-line diagrams play a very important role in a material Quality Control (QC) or construction QC program. They are a tool that can be maintained and used by a contractor, material producer, or other party responsible for material or construction QC when there is a large amount of QC data to review and analyze. They are also a material or construction QC tool to ensure timely corrective actions are performed based on the plots and trends of the data as the test result data becomes available.

If straight-line analysis charts or straight-line diagrams are utilized at the plant or on the construction project, it is recommended that materials and project inspection staff review the straight-line analysis charts or straight-line diagrams maintained by material or construction QC personnel on a regular basis and discuss them with the QC manager of the contractor, materials producer, or other party responsible for material or construction QC.

Material or construction QC problems or problems with comparison of QC sample test results and Acceptance or Quality Assurance (QA) sample test results can be more easily detected by diligent QC sample testing, Acceptance and QA sample testing, prompt plotting of all test results on straight-line analysis charts or straight-line diagrams, and review and analysis of straight-line charts and diagrams. The vertical scales of the analysis charts are generally chosen so that a result falling outside the limits of the graph is also outside the specification limits. A date is assigned to each vertical line. The design value for the material is assigned to the central or “heavy” center line. When large differences occur between the plotted test result data of QC samples and Acceptance or QA samples, or when plotted test result data is either at, trending towards, or exceeding action limits or specification limits, these situations demand increased review and analysis by QC personnel to determine the probable cause(s) and corrective actions to be taken and demand increased review and analysis by Inspection staff to ensure corrective actions have corrected the issue(s). For illustrations and plotting pertinent data, contact the District Materials Engineer/Manager.

It is essential that all personnel involved frequently compare the results of the QA samples with the QC or Acceptance samples for timely evaluation of material compliance with the specifications. When the QA samples, Acceptance samples or QC samples indicate a potential material control problem, the contractor and/or material producer should follow their QC Plan in increasing their frequency of QC sampling and testing to determine if such a condition continually exists.

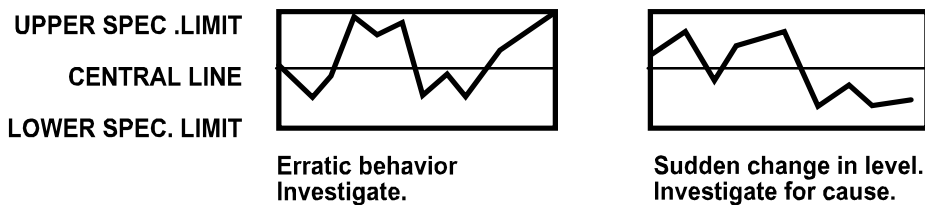
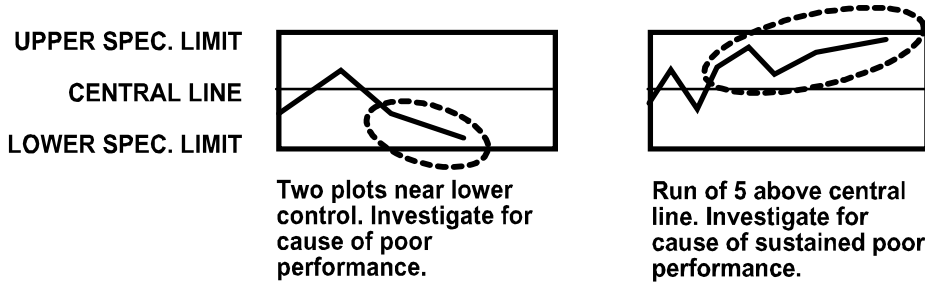
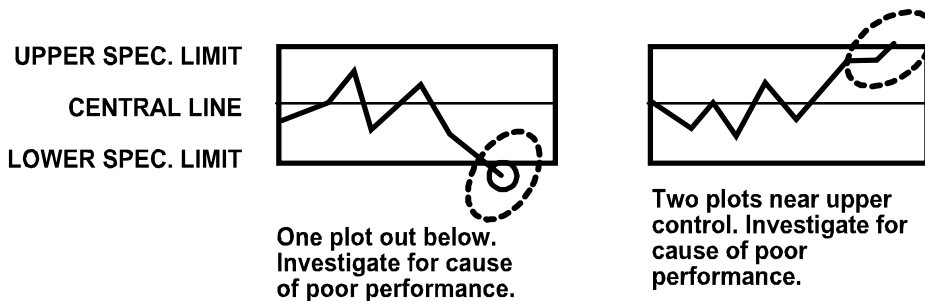
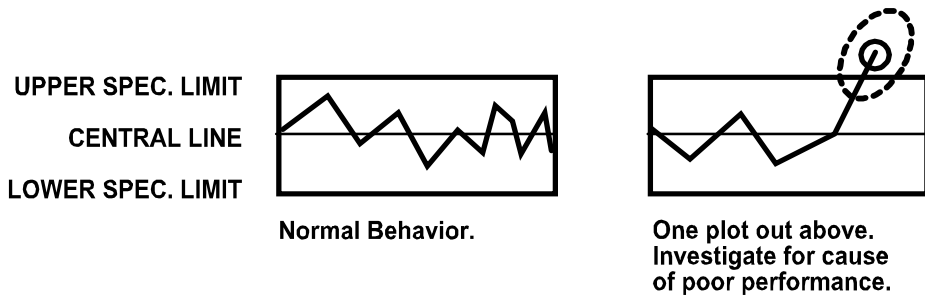
The reliability and value of plotting daily acceptance and/or QC tests is directly dependent on the number of test results obtained on each project for each type of material and for each test procedure. Therefore, as a guide, a minimum of ten plot points is recommended for a particular type of material or test procedure for the straight-line analysis charts or straight-line diagram to be

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reliable. However, straight-line analysis charts or straight-line diagrams can be helpful, regardless of number of plot points, when troublesome materials are being incorporated into the work.

The examples show the required central line or, target value, and both the upper and lower specification limit lines. The examples also show examples of plotted sample test result data that are recommended to be investigated during review and analysis for their cause so that appropriate corrective action can be taken.

The use of straight-line analysis charts or straight-line diagrams for construction site QC, acceptance or QA monitoring is at the discretion of the project's Assistant Construction Engineer/Assistant Construction Manager. The use of straight-line analysis charts or straight-line diagrams at concrete plants, asphalt plants, and quarries are as required in the applicable sections of this manual.



**Straight - Line Analysis Charts -
Evidence for Investigation**

April 2020 Edition

REPLACES B.1.15	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 1	PAGE 15-1
DATED 04/02/2018	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT DOCUMENTATION FOR BLASTING OPERATIONS				

Complete the forms listed within the paragraphs below for the purpose of creating a complete record of all blasting operations for the Department and confirm all blasting operations are as specified in Publication 408, Section 207 – Blasting for Rock Cut Slope Excavation:

1. Determine if the blaster is qualified to perform the work for the project and is licensed in the Commonwealth of Pennsylvania. Provide written approval to the Contractor within 21 days of receipt of the blaster documentation submission.
2. Ensure the qualified independent blasting consultant conducts an exterior and interior pre-blast survey on all structures, buildings or utilities no sooner than six weeks before the beginning of blasting operations. The qualified independent blasting consultant must complete the Exterior and Interior Pre-Blast Survey, Form TR-42. Alternative forms/reports are acceptable for use provided that they contain the required information as specified on Form TR-42. The completed Form TR-42, or acceptable alternative, must be submitted to the Department at least five days before the start of blasting operations. The contractor must notify the Department if the property owner fails to permit access to the property with a written letter and a Pre-blast Survey Waiver Form TR-43.
3. Review Technical Data Sheets(TDS) and Safety Data Sheets(SDS) for all materials necessary to perform the work. Review the completed Blasting Plan, Form TR-40, for each rock excavation that requires blasting. Alternative forms/reports are acceptable for use provided that they contain the required information as specified on Form TR-40. Discuss any concerns with the Contractor prior to acceptance of the Blasting Plan. Submittal of the Blasting Plan is for quality control, conformance, and record keeping purposes. When location and/or conditions change, verify and document the contractor's submittal of a revised Blasting Plan, Form TR-40. Notify the Contractor of acceptance of the Blasting Plan.
4. Review the Blasting Safety Plan and ensure a certificate of insurance was provided from the Contractor. Notify the Contractor of acceptance of the Blasting Safety Plan.
5. Ensure a Water Supply Monitoring Report, Form TR-45, was conducted at least two weeks prior to blasting operations. Alternative forms/reports are acceptable for use provided that they contain the required information as specified on Form TR-45.
6. Attend the Pre-Blast Meeting scheduled at least one week prior to any explosives being brought onto the project site.
7. Review and accept the estimated ground calibration before each blast. Refer to the ground calibration example below.

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GROUND CALIBRATION EXAMPLE

Initial determination of the maximum powder charge per delay uses a minimum scaled distance factor of 50 as the distance between the critical structure and shot location.

The Scaled Distance (SD) is found by dividing the true distance from the blast to a point of concern by the square root of the maximum charge weight per delay. The scaled distance is determined by the following equation:

$$SD = D/\sqrt{W}$$

where,

- D = the distance from the blast to the point of interest (ft.)
- W = the charge weight per delay (lbs.)

The Peak Particle Velocity (PPV) at a point of concern is a function of the scaled distance and coefficients (H) and (B) in the following equation:

$$PPV = H(SD)^{-B}$$

where,

- H = 160 (is a coefficient based on the type of blasting)
- B = -1.6 (is the rate of attenuation based on site conditions)

WORKING EXAMPLE:

The distance to the closest structure is 175 feet. The maximum charge weight per delay is 12.25 lbs. Therefore, the scaled distance is equal to 50.

$$160(50)^{-1.6} = 0.3060$$

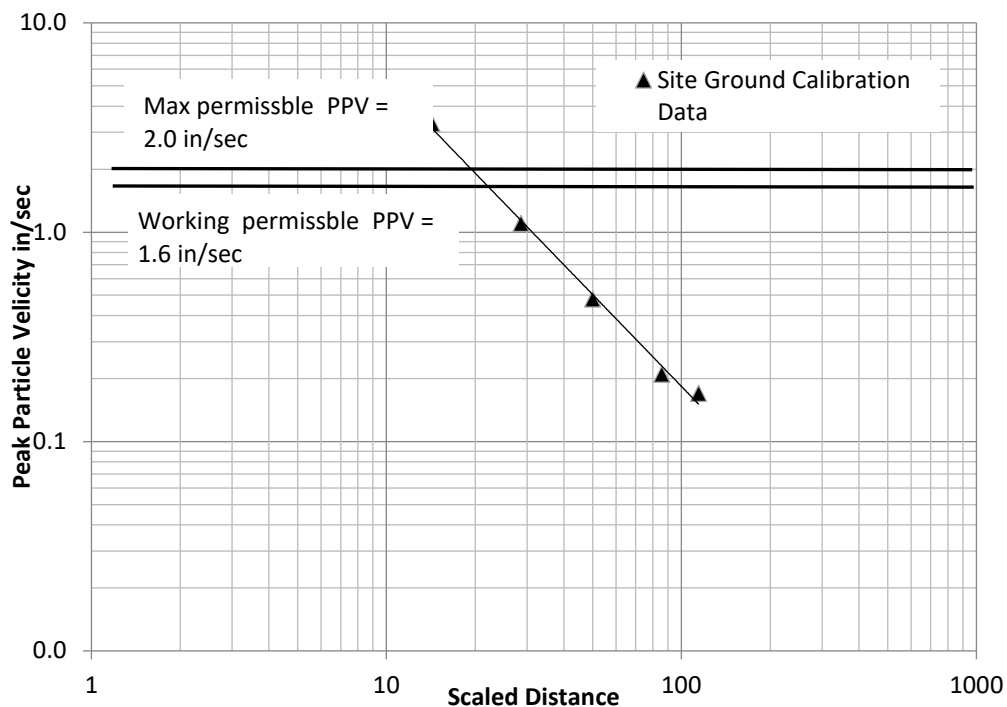
And a theoretical PPV of 0.3060 is estimated prior to the blast.

The initial blast was performed and the ground calibration was completed which recorded the following PPV's:

Initial Shot	Distance (ft)	Charge weight (lbs.)	Scaled distance	PPV (in/sec)
Seismograph-1	50	12.25	14	3.3
Seismograph-2	100	12.25	29	1.1
Seismograph-3	175	12.25	50	0.48
Seismograph-4	300	12.25	86	0.21
Seismograph-5	400	12.25	114	0.17

The peak particle velocity measured at each seismograph and the scaled distance between the blast and each seismograph location examined on a logarithmic-logarithmic graph is shown below. Assume the maximum PPV permitted is 1.6 inches per second therefore a working scaled distance factor of 22 can be used for this project.

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8. Approve and coordinate Maintenance and Protection of Traffic (MPT) activities with the Contractor for any portion(s) of roadway that must have temporary closures or lane restrictions during blasts.
9. Specify to the qualified independent blasting consultant the approved locations of the seismographs to complete the Vibration Monitoring Report, Form TR-44. Alternative forms/reports are acceptable for use provided that they contain the required information as specified on Form TR-44.
10. Specify the second location of the airblast monitoring equipment.
11. Review and accept the borehole deviation survey(s) meeting the specified tolerances.
12. Review, examine, and evaluate the results of the blasted test sections and select the blasthole spacing that demonstrates the best presplit face quality. If no acceptable conditions are found upon examination of the test section, the Contractor must revise and submit a new Blasting Plan for review and acceptance. Drilling and blasting will be suspended until the Blasting Plan is accepted.
13. Provide the Contractor written approval to proceed with full scale controlled and/or production blasting operations.

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14. Ensure a Water Supply Monitoring Report, Form TR-45, is conducted between six and eight weeks after blasting has concluded. Alternative forms/reports are acceptable for use provided that they contain the required information as specified on Form TR-45.
15. Review and provide acceptance of the submitted Blasting Report, Form TR-41, before drilling of the next blast section is initiated. Alternative forms/reports are acceptable for use provided that they contain the required information as specified on Form TR-41. The Blasthole Drill Log, Form TR-39, must be completed during drilling operations as specified and accompany the Blasting Report. Alternative forms/reports are acceptable for use provided that they contain the required information as specified on Form TR-39. The Vibration and Airblast Monitoring Reports and data must be completed as specified and submitted with the Blasting Report.
16. Review the Vibration Monitoring Report with the qualified independent blasting consultant and confirm that the PPV of each component does not exceed the safe limits of the nearest structure subject to vibration damage.
17. Ensure the qualified independent blasting consultant conducts an exterior and interior post-blast survey on all structures, buildings or utilities for which a pre-blast survey was performed. The qualified independent blasting consultant shall complete the Exterior and Interior Post-Blast Survey, Form TR-42, and submit to the Department at least four weeks after completion of blasting operations. Alternative forms/reports are acceptable for use provided that they contain the required information as specified on Form TR-42. The contractor must notify the Department if the property owner failed to permit access to the property with a written letter and a Post-Blast Survey Waiver Form, Form TR-43.
18. Review the Water Supply Monitoring Final Report submitted within 10 weeks after completion of blasting operations and follow-up on any impacts to local water supplies from blasting activities as noted by the qualified independent blasting consultant.
19. Record any follow-up investigations and actions taken as a result of complaints noted in the Post-Blast Survey.

REPLACES B.1.16	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 1	PAGE 16-1
DATED 04/01/2017	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT PREPARATION OF "AS-BUILT" DRAWINGS				

A set of "as-built" drawings must be maintained for each construction project that has construction plans. If there are just sketches in the contract, the adjustments should be placed on straight line diagrams provided by the District.

The "as-built" drawings for projects that have drawings shall consist of a set of white prints of roadway drawings and structural drawings if structures are a part of the contract. They shall be maintained in the field office and used for the purpose of showing field construction changes. All changes to these plans may be made with a red pen on printed sets or shown as mark-ups on a PDF file utilizing the current electronic devices and procedures. Periodic progress markings and changes to the quantities on the Summary Sheet shall not be recorded on the "as-built" drawings.

The "as-built" drawings are an assembly containing a print or a PDF document of each original drawing, or revised sheet. Shop drawings may also be included with the plans if they provide any relevant information. "As-builts" are maintained for the purpose of recording approved field changes which are not shown on the drawings. Such field changes are usually of minor nature, as more significant changes usually require documented revisions to the plans.

The "as-built" drawings should be clean, neat and accurately prepared. All field changes should be made at the earliest possible date and not trusted to the memory of the recorder.

The "as-built" drawings are the most current set of drawings and as such they should show the latest changes. This would include for example, changes in location of pipe, inlets, utility holes, pipe underdrain, guide rail, concrete barrier, permanent impact attenuating devices, and other changes made to structure drawings, such as footing elevations and reinforcement details. Pavement base drains and underdrains with outlets should be plotted even if they are constructed to plan stations.

"As-built" drawings should be done as portions of the work are completed. This will spread this workload out during the life of the project and enable the "as-builts" to be completed in a timely fashion and not create a hardship when the project work is completed.

REPLACES B.1.17	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 1	PAGE 17-1
DATED 03/01/1996	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT LIABILITY CLAIMS AND CITIZEN COMPLAINTS				

Publication 408, Section 107.14, requires the contractor to indemnify and save harmless the Department and its employees from all suits, actions and claims due to injuries or damages sustained by anyone or their property during the performance of work by the contractor.

Therefore, if a citizen makes a complaint to Department personnel or its representatives regarding work performance by the contractor, the citizen should be directed to the contractor's job superintendent or the person in charge on site for the contractor.

If a citizen makes a complaint directed toward the Department due to actions by Department personnel or equipment, the Inspector-in-Charge should document the complaint in the Project Site Activity (PSA) and contact the Assistant Construction Engineer/Assistant Construction Manager (ACE/ACM) and/or the District Tort Coordinator/Risk Management individual for further assistance.

REPLACES B.1.18	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 1	PAGE 18-1
DATED 04/01/2017	PROJECT OFFICE MANUAL	DATE April 1, 2019		
SUBJECT DISTRICT RESPONSE TO NOTICE OF INTENT TO CLAIM				

Districts often receive letters from contractors styled as a “notice of intent to claim.” These letters create confusion as to proper response since they are not called “a claim.” However, a contractor might argue that such a letter constitutes actual notice of a claim situation. Notify the Office of Chief Counsel immediately anytime a “notice of intent to claim” is received. Inform FHWA of all notices of intent to file claim on Federal funded NHS projects when such notices are received.

For projects managed using the PennDOT Project Collaboration Center (PPCC) website, the contractor must submit the notice of intent to claim to the Contracting Officer through PPCC. The filing must include a completed CS-105 “Contractor Notice of Intent to Claim” Form, otherwise it will not be accepted or processed as such.

The following sample letter, drafted by our Office of Chief Counsel, should be used in response to these letters of “notice of intent to claim.” The FHWA is to be included in the cc list for any federally funded project.

Sample Letter

Date:

Dear Contractor,

This is in response to your letter of [DATE], in which you provided notice of your intent to file a claim for [DESCRIBE CLAIM, including total dollar amount]. A notice of intent to claim provides notice of the intent, at some future date, to file a claim. It does not constitute the actual filing of a claim. If you desire to pursue this claim, you must file the claim.

Please consult the Commonwealth Procurement Code, 62 Pa.C.S. §§ 101 – 2311 and Publication 408, Section 105.01(a), for the procedure and applicable time limitations for filing your claim

The Department looks forward to working with you in a collaborative effort to resolve this issue.

REPLACES B.1.19	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 1	PAGE 19-1
DATED 04/01/2017	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT HIGHWAY CONTRACT CLAIMS				

This Department-wide policy is intended to supplement the requirements as specified in Publication 408, Section 105.01(a), and POM Section B.1.18, and applies to all notices of intent to claim and to all claims submitted by Contractors performing contract work for the Department.

The District administering the contract for a Department project is the responsible organization, and the District Executive for the responsible District serves as the Contracting Officer. The Bureau of Project Delivery (BOPD), Construction and Materials Division (CMD), is responsible for monitoring this policy and for serving in an advisory capacity, along with the Office of Chief Counsel (OCC), at any claim review meetings. The OCC is responsible for advising the Contracting Officer and for defending claims before the Board of Claims.

Upon receipt of a notice of intent to claim or a claim, the Contracting Officer or a delegate is to immediately notify the Section Chief of the Bureau of Project Delivery, Construction Quality Assurance Section, and contact the OCC for advice on how to proceed. If the notice of intent to claim or the claim is related to a Federal Oversight or PennDOT Oversight NHS project, the Contracting Officer or a delegate is also to immediately notify the FHWA Transportation Engineer assigned to that District in order to ensure early involvement by FHWA. The Contracting Officer, at their discretion, may conduct a claim review meeting in order to attempt to settle and resolve a dispute or claim with the Contractor. If a claim review meeting is held, representatives from the Contractor, the Bureau of Project Delivery's Construction and Materials Division, the Office of Chief Counsel, and an Assistant District Executive for Construction from another District are to attend. If the claim relates to a Federal Oversight or PennDOT Oversight NHS project, a representative of the Federal Highway Administration is also to be invited to attend.

If an agreement between the Contractor and Contracting Officer to resolve the claim has not been reached after a claim review meeting, the Contracting Officer, in consultation with the OCC, is to prepare a written response denying the Contractor's claim. If the Contracting Officer does not issue a written response within 120 days of receipt of the claim, unless the 120-day period is extended by agreement of the parties, the claim will be deemed to be denied.

All claims filed before the Board of Claims will be defended by the OCC. Negotiated settlements for amounts in excess of \$500,000 must first be approved by the Deputy Secretary for Highway Administration.

Project personnel are to consult with the Assistant Construction Engineer/Assistant Construction Manager responsible for the project in order to obtain guidance with regard to preparation and processing of the associated Legal category work order. On PennDOT Oversight Non-NHS projects, the Contracting Officer has final approval authority regarding the work order and the use of Federal funds to provide payment for the dispute / settlement amount. On Federal Oversight and PennDOT Oversight NHS projects, the FHWA Transportation Engineer will review

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the work order, as well as the supporting documentation, and, using ECMS, inform the Department of the decision as to whether Federal funds may be used to provide payment for the dispute / claim settlement amount.

The above guidance does not apply to claims submitted by contractors performing work for local sponsors on local projects for which the Department may be providing administrative oversight. The Department is not a party to the contracts governing such projects, which are between the local sponsor and the contractor. While such contracts usually incorporate Publication 408, including Section 105.01(a), they also usually contain special provisions providing that references in the specifications to the Department and its officials and employees are to be construed as references to the local sponsor and its officials and employees. Thus, with respect to claims submitted by the contractors under such contracts, the Contracting Officer will be an official or employee of the local sponsor, and the tasks or functions described or referred to above as being performed by BOPD, CMD, or OCC are to be performed by comparable officials, employees and legal counsel of the local sponsor. The time requirements and references to the Board of Claims contained in Publication 408, Section 105.01(a), are derived from requirements of the Commonwealth Procurement Code, which, in certain respects, governs claims against Commonwealth agencies such as the Department, but which does not in any respect apply to claims against local government entities. Local sponsors should be cautioned to consult their legal counsel concerning any legal procedures or time requirements that apply to claims against the sponsors and to so advise their contractors. District personnel involved in providing administrative oversight for a local project should provide assistance, in an advisory capacity, as requested by the local sponsor, with respect to any claims filed by the contractor.

REPLACES B.1.21	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 1	PAGE 21-1
DATED 04/02/2018	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT PROJECT BULLETIN BOARD CHECKLIST				

The Project Bulletin Board Checklist identifies the required postings for both State and Federal funded projects. To assist contractors in complying with the required bulletin board postings, the following checklist and sample notice flyer can be utilized by all contractors. The sample notice flyer includes the required contractor’s notices concerning EEO policies and procedures. This sample notice is to be distributed to all prime contractors working on Federal/Federal-Aid projects and distributed at all preconstruction meetings.

The following is FHWA’s guidance on displaying notices and posters for federally funded projects:

1. Workplace notices and posters must be displayed at all times by the Prime Contractor and Subcontractors at the site of work in a prominent and accessible place where they can be easily seen by the workers.
2. Placing required workplace notices or posters inside vehicles, binders or receptacles (e.g., mailbox, literature box, etc.) does not meet the requirement to display or post in a “prominent and accessible place” that can be easily seen by workers.
3. On mobile operation projects with no field office or staging area, the Contractor must display all notices and posters where hiring is conducted. Each employee must be provided copies of all the notices or posters and sign [Form EO-107](#), Bulletin Board Acknowledgment Signature Sheet, acknowledging they received and understood the content of all the notices and posters.
 - i. A copy of Form EO-107 must be maintained at all times on the project.
 - ii. At the end of the project, a copy of Form EO-107 must be submitted to the Department.
 - iii. Place a copy of completed Form EO-107 in PPCC for PennDOT and FHWA review.
 - iv. The Department Representative must verify that the contractor representative has signed the Form EO-107 to acknowledge that employees have received and understood the content of the notices and posters. However, the Department Representative is not responsible for verifying that all notices and posters are displayed at the place of hiring.

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Project Bulletin Board Checklist

(See links to both Federal and State posters at the end of the checklist)

LOCATION:

_____ Is there a field office? (yes/no)

Notices and Posters are displayed at the following location(s):

- _____ Home Office
- _____ Hiring Location
- _____ Project Work Location(s)
(Provide Address for applicable location, if relevant)

The following postings must be present:

SAFETY

- _____ ***OSHA-3165** "JOB SAFETY AND HEALTH - IT'S THE LAW" (ALL PROJECTS)
- _____ CONTRACTOR/SUBCONTRACTOR'S EMERGENCY PHONE NUMBER (AFTER HOURS CONTACT PERSONNEL) (ALL PROJECTS)
- _____ CONTRACTOR/SUBCONTRACTOR'S SAFETY OFFICER'S NAME AND PHONE NUMBER (ALL PROJECTS)
- _____ LISTING OF HAZARDOUS MATERIALS FOUND IN THE WORKPLACE
(HAZARDOUS SUBSTANCES, SPECIAL HAZARDOUS SUBSTANCES, ENVIRONMENTAL HAZARDS)

LABOR COMPLIANCE

- _____ ***FHWA-1022** NOTICE FEDERAL-AID PROJECT (FEDERAL FUND)
- _____ ***WH-1321** EMPLOYEE RIGHTS UNDER DAVIS-BACON ACT (FEDERAL FUND)
- _____ ***USERRA APRIL 2017** THE UNIFORMED SERVICES EMPLOYMENT AND REEMPLOYMENT RIGHTS ACT (FEDERAL FUND)
- _____ PREDETERMINED WAGE RATES (ALL PROJECTS WITH CONTRACT WAGE RATES)
- _____ ***UC-700** UNEMPLOYMENT COMPENSATION & CLAIM FACT SHEET (100% STATE FUND)
- _____ ***WH1088** -EMPLOYEE RIGHTS UNDER THE FAIR LABOR STANDARDS ACT (FLSA) (ALL PROJECTS WITH NO CONTRACT WAGE RATES)
- _____ ***LLC-1** FAIR LABOR STANDARDS ACT & MINIMUM WAGE LAW
(ALL PROJECTS WITH NO CONTRACT WAGE RATES)
- _____ ***LLC-8** ABSTRACT OF EQUAL PAY LAW (100% STATE FUND)
- _____ ***WH-1462** EMPLOYEE POLYGRAPH PROTECTION ACT (FEDERAL FUND)
- _____ ***LIBC-262** PENNSYLVANIA RIGHT TO KNOW LAW (ALL PROJECTS)
- _____ **LIBC-500** WORKERS' COMPENSATION INSURANCE POSTING (ALL PROJECTS)

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EQUAL OPPORTUNITY

- _____ ***LP-744/744A PA. HUMAN RELATIONS ACT** (ALL PROJECTS)
- _____ ***EEOC-P/E-1 EQUAL OPPORTUNITY IS THE LAW** (ALL PROJECTS)
- _____ ***WH-1420 FAMILY & MEDICAL LEAVE ACT** (COMPANIES WITH MORE THAN 50 EMPLOYEES)
(FEDERAL FUND)
- _____ ***PTNP 12/16 PAY TRANSPARENCY NONDISCRIMINATION PROVISION** (FEDERAL FUND)

CONTRACTOR'S (PRIME and SUBCONTRACTORS over \$10,000)

- _____ EEO OFFICER'S NAME AND PHONE NUMBER (COMPANY LETTERHEAD) (ALL PROJECTS)
- _____ MINORITY AND FEMALE REFERRAL NOTICE (COMPANY LETTERHEAD) (ALL PROJECTS)
- _____ COMPLAINT PROCEDURES (COMPANY LETTERHEAD) (ALL PROJECTS)
- _____ SEXUAL HARASSMENT POLICY (COMPANY LETTERHEAD) (ALL PROJECTS)
- _____ EEO POLICY STATEMENT (COMPANY LETTERHEAD) (ALL PROJECTS)
- _____ AVAILABLE TRAINING PROGRAM AND ENTRANCE REQUIREMENTS (FEDERAL FUND)
- _____ CERTIFICATION OF NONSEGREGATED FACILITIES (FEDERAL FUND)
- _____ UNION EEO COMMITMENTS AND RESPONSIBILITIES (UNION CONTRACTORS)
(FEDERAL FUNDS)
- _____ WORK ENVIRONMENT STATEMENT (COMPANY LETTERHEAD) (FEDERAL FUND)

OTHER REQUIREMENTS:

(YES/NO/NA)

- _____ THE BULLETIN BOARD IS DISPLAYED IN A PROMINENT AND ACCESSIBLE PLACE WHERE
THE WORK IS PERFORMED AND CAN BE EASILY SEEN BY WORKERS.
(INCLUDING AFTER HOURS) (ALL PROJECTS)
- _____ SUBCONTRACTORS WITH CONTRACTS OF \$10,000 OR MORE ARE REQUIRED TO
ADDITIONALLY DISPLAY EEO POLICIES AND PROCEDURES.
(SEE SAMPLE NOTICE FLYER BELOW) (FEDERAL FUND)
- _____ POSTERS AND NOTICES ARE DISPLAYED IN LANGUAGES OTHER THAN ENGLISH.
(ALL PROJECTS)
- _____ BULLETIN BOARD IS PROTECTED FROM THE WEATHER.
- _____ REQUIRED NOTICES AND POSTERS ARE LEGIBLE.
- _____ SDS SHEETS ARE READILY ACCESSIBLE FOR HAZARDOUS MATERIALS.

NOTE: Notices and posters may need to be posted in other languages in project areas with populations or workforces with limited ability to read, speak, write, or understand English. This is to be determined on a project-by-project basis.

Federal Posters: <https://www.fhwa.dot.gov/programadmin/contracts/poster.cfm>

State Posters: <http://www.dli.pa.gov/Pages/Mandatory-Postings.aspx>

*Denotes posters available in Spanish and other languages

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PROJECT REVIEWS:

Date: _____ Reviewer's Initials: _____

Date: _____ Reviewer's Initials: _____

Date: _____ Reviewer's Initials: _____

Date: _____ Reviewer's Initials: _____

Date: _____ Reviewer's Initials: _____

Date: _____ Reviewer's Initials: _____

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DESIGNATED SPECIAL PROVISION 10 (DSP10) NONDISCRIMINATION/SEXUAL HARASSMENT CLAUSE

The Contractor agrees:

1. In the hiring of any employee(s) for the manufacture of supplies, performance of work, or any other activity required under the contract or any subcontract, the Contractor, each subcontractor, or any person acting on behalf of the Contractor or subcontractor shall not discriminate by reason of race, gender, creed, color, sexual orientation, gender identity or expression, or in violation of the Pennsylvania Human Relations Act (PHRA) and applicable federal laws, against any citizen of this Commonwealth who is qualified and available to perform the work to which the employment relates.
2. Neither the Contractor nor any subcontractor nor any person on their behalf shall in any manner discriminate by reason of race, gender, creed, color, sexual orientation, gender identity or expression, or in violation of the PHRA and applicable federal laws, against or intimidate any employee involved in the manufacture of supplies, the performance of work, or any other activity required under the contract.
3. Neither the Contractor nor any subcontractor nor any person on their behalf shall in any manner discriminate by reason of race, gender, creed, color, sexual orientation, gender identity or expression, or in violation of the PHRA and applicable federal laws, in the provision of services under the contract.
4. Neither the Contractor nor any subcontractor nor any person on their behalf shall in any manner discriminate against employees by reason of participation in or decision to refrain from participating in labor activities protected under the Public Employee Relations Act, Pennsylvania Labor Relations Act or National Labor Relations Act, as applicable and to the extent determined by entities charged with such Acts' enforcement, and shall comply with any provision of law establishing organizations as employees' exclusive representatives.
5. The Contractor and each subcontractor shall establish and maintain a written nondiscrimination and sexual harassment policy and shall inform their employees in writing of the policy. The policy must contain a provision that sexual harassment will not be tolerated and employees who practice it will be disciplined. Posting this Nondiscrimination/Sexual Harassment Clause conspicuously in easily-accessible and well-lighted places customarily frequented by employees and at or near where the contracted services are performed shall satisfy this requirement for employees with an established work site.

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6. The Contractor and each subcontractor shall not discriminate by reason of race, gender, creed, color, sexual orientation, gender identity or expression, or in violation of PHRA and applicable federal laws, against any subcontractor or supplier who is qualified to perform the work to which the contract relates.

7. The Contractor and each subcontractor represents that it is presently in compliance with and will maintain compliance with all applicable federal, state, and local laws, regulations and policies relating to nondiscrimination and sexual harassment. The Contractor and each subcontractor further represents that it has filed a Standard Form 100 Employer Information Report (“EEO-1”) with the U.S. Equal Employment Opportunity Commission (“EEOC”) and shall file an annual EEO-1 report with the EEOC as required for employers’ subject to Title VII of the Civil Rights Act of 1964, as amended, that have 100 or more employees and employers that have federal government contracts or first-tier subcontracts and have 50 or more employees. The Contractor and each subcontractor shall, upon request and within the time periods requested by the Commonwealth, furnish all necessary employment documents and records, including EEO-1 reports, and permit access to their books, records, and accounts by the contracting agency and the Bureau of Diversity, Inclusion and Small Business Opportunities for purpose of ascertaining compliance with provisions of this Nondiscrimination/Sexual Harassment Clause.

8. The Contractor shall include the provisions of this Nondiscrimination/Sexual Harassment Clause in every subcontract so that those provisions applicable to subcontractors will be binding upon each subcontractor.

9. The Contractor’s and each subcontractor’s obligations pursuant to these provisions are ongoing from and after the effective date of the contract through the termination date thereof. Accordingly, the Contractor and each subcontractor shall have an obligation to inform the Commonwealth if, at any time during the term of the contract, it becomes aware of any actions or occurrences that would result in violation of these provisions.

10. The Commonwealth may cancel or terminate the contract and all money due or to become due under the contract may be forfeited for a violation of the terms and conditions of this Nondiscrimination/Sexual Harassment Clause. In addition, the agency may proceed with debarment or suspension and may place the Contractor in the Contractor Responsibility File.

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SAMPLE on Company Letterhead

<p><u>Company EEO Policy Statement</u> It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training.</p>	<p><u>Work Environment Statement</u> It is the policy of this company to ensure and maintain a working environment free of harassment, sexual harassment, intimidation, and coercion at all sites, and in all facilities at which our employees are assigned to work. This policy will be rigidly adhered to at all times. Any violation of this policy should be reported immediately to your supervisor or the company EEO Officer.</p>
<p><u>Notice encouraging employees to refer minority and female applicants for employment</u> We encourage the help of all employees in referring minority and female applicants for employment. If you know a minority and/or female who is seeking employment, please refer them to (NAME) at (TELEPHONE #).</p>	<p><u>Certification of Nonsegregated Facilities</u> (CONTRACTOR) certifies that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy of the sexes</p>
<p><u>Notice informing employees of available training program and entrance requirements</u> We are participating in an On-the-Job Training Program for the Heavy-Highway Construction Industry. If you are interested in developing a skill in a craft, please contact (NAME) at (TELEPHONE #). They will explain the program to you in detail. The only requirement is that you have the desire and ability to develop a skill in the craft in which you are interested.</p> <p><u>Complaint Procedures</u> Any complaint of alleged discrimination by this company, its supervisors, or employees, or any person or organization acting on behalf of the company, should immediately be called to the attention of the company Equal Employment Opportunity Officer.</p> <p><u>Notice identifying company EEO Officer by name and contact information</u> The Equal Employment Opportunity Officer for the (CONTRACTOR) is (NAME). They may be contacted by writing (ADDRESS) or calling (TELEPHONE #) before 5 pm. After this time she may be reached at (TELEPHONE #).</p>	<p><u>Notice to unions disseminating EEO commitments and responsibilities and requesting their cooperation</u> (CONTRACTOR) will continue to make the company EEO policy known to the employment entities with whom we deal and in our employment opportunity announcements that employees and applicants for employment will be hired; upgraded, promoted or advanced, demoted; transferred; recruited; laid-off or terminated; compensated; and trained without regard to their race, religion, sex, color, national origin, age or disability. We will request the cooperation of the entities with whom we deal to assist our company in meeting its EEO obligations. It is also the policy of this company to provide reasonable accommodations for qualified disabled individuals.</p>

Additional information regarding the aforementioned policies may be obtained from the Company's EEO Officer.

Signed by (NAME) Company Official (President, VP etc.)
(TITLE)

REPLACES B.1.22	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 1	PAGE 22-1
DATED 04/01/2014	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT UTILITY DELAY COMPENSATION ADJUSTMENTS				

As specified in Publication 408, Section 111, within 10 calendar days of any utility infrastructure or utility adjustment delay, the Contractor is to notify the Inspector-in-Charge (IIC) that operations have been or will be delayed and that a claim for delay damages either is going to or might be filed with the Board of Claims. Confirmation of this notification, in writing, is to be sent to the District Executive (DE) within 10 calendar days of notifying the IIC. **NOTE:** This written notification to the DE is not the notice of intent to claim as specified in Publication 408, Section 105.01(a).

Upon notifying the IIC of a utility infrastructure or utility adjustment delay, both the Contractor and the Department are to begin keeping daily records of all labor, material, equipment, and site overhead expenses for all operations affected by the delay.

Each Monday, the Contractor is to compare its records for the previous week with those kept by the Department, review them for accuracy, and report all disagreements with such records to the DE within 10 calendar days of each review.

On a weekly basis, the Contractor is to prepare and submit to the IIC a written report that indicates the number of days behind schedule, identifies all operations that have been or are to be delayed, explains how the utility infrastructure or utility adjustment delayed each operation, and itemizes all extra costs being incurred.

Upon completion of the project, the Contractor is to submit to the IIC and the DE copies of a report that contains an itemization of all extra costs being sought, a description of the operations that were delayed, a list of all actions taken to minimize the delay and the delay costs incurred, a graphic depiction of how operations were adversely affected, and an explanation of why the delay was unforeseen based on the contract documents and a careful pre-bid examination of the project site.

After reviewing the Contractor's submission, the DE will make a determination regarding Department liability for delay damages.

If the District Executive determines that the Department is not liable for any delay damages, a written decision is to be issued. If the District Executive's decision is disputed, the Contractor must comply with the provisions as specified in Publication 408, Section 105.01, and submit notice of intent to claim to the Contracting Officer, in writing, within 10 days of receipt of the DE's written decision. **NOTE:** In the event the Contractor submits notice of intent to claim or files a claim with the Board of Claims, when an agreement to settle the utility delay dispute or claim is reached with the Contractor or a settlement amount is awarded by the Board of Claims, the procedure outlined below for obtaining Utilities and Right-of-Way Section approval to use Federal funds to pay the settlement must be followed. However, FHWA concurrence regarding Federal

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participation on a “Federal Oversight” or “PennDOT Oversight NHS” project need not be requested through a separate submission but rather will be obtained as part of the review and approval workflow for the resulting Legal category work order. Copies of the documentation package and the letter of concurrence from the Chief of the Highway Delivery Division (HDD) to the DE are to be attached to the work order as support.

If the DE does not dispute the fact that operations were delayed and that the delay occurred through no fault of the Contractor, a review of the damages claimed will be made, a written decision issued, and payment for the delay damages made through the processing of a Contract Adjustment.

If the District intends to use Federal funds to compensate the Contractor for the delay damages, concurrence with the DE’s decision to do so must be obtained from the Bureau of Project Delivery (BOPD) before a Contract Adjustment is processed.

The Assistant District Executive for Construction (ADE-C), working with the District Utility Relocation Unit and the Contractor, is to prepare a documentation package for submission to the BOPD. The package will be reviewed and a determination made regarding the use of Federal funds to pay for the delay damages. The documentation package must establish, to the satisfaction of the Chief of the HDD, that the delay was unforeseen and unforeseeable by a reasonable contractor; that losses could not have been avoided by the judicious handling of forces, equipment and plants, or by reasonable revisions to the schedule of operations; and that the impact has resulted in a documented increase in the cost of performing the contract work.

The documentation package is to include a report from the Contractor that lists the date(s) when the utility infrastructure owner was contacted, copies of the minutes from any meetings with the utility infrastructure owner, and a statement indicating that the District Utility Relocation Unit has reviewed the circumstances of the delay.

The District Utility Relocation Unit, in its review of the circumstances of the delay, must ensure that the following questions have been addressed:

- Was utility infrastructure relocated and/or adjusted prior to the advertisement for bids, or were arrangements for necessary utility relocations and/or adjustments made with the appropriate utility infrastructure owners in advance of the construction work in order to avoid causing a delay?
- In making arrangements for the relocation and/or adjustment of utility infrastructure, were the Department’s utility relocation accommodation procedures followed?
- Was the construction work delayed through no fault of the Contractor?
- Did the Department make reasonable efforts to control the situation?

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- The FHWA should not participate in any delay compensation adjustments caused by conflicts with underground utilities that would have been avoided if Subsurface Utility Engineering (SUE) had been used. Was the SUE Impact Rating Form completed, and the recommended Quality Level investigation conducted, for areas where reasonable expectations of potential conflicts exist? If not, explain why.

Upon receipt of the District’s submission, the Chief of the HDD will forward the package to the Utilities & Right-of-Way Section for review and a determination as to whether the utilities were relocated in accordance with the Department’s Utility Relocation Accommodation policy and the FHWA Program Guide.

After reviewing the District’s submission, the Utilities & Right-of-Way Section will make a determination regarding the use of Federal funds to pay for the delay damages.

If the use of Federal funds is not approved, the Utilities & Right-of-Way Section will prepare a letter of notification from the Chief of the HDD to the DE indicating that the utility delay compensation adjustment must be paid using 100% State funds.

If the use of Federal funds is approved and the Federal Status of the affected project is “PennDOT Oversight Non-NHS”, the Utilities & Right-of-Way Section will prepare a letter of notification from the Chief of the HDD to the DE indicating that the utility delay compensation adjustment may be paid using Federal funds and instructing the District to attach a copy of the documentation package and letter to the Contract Adjustment as support.

If the use of Federal funds is approved and the Federal Status of the affected project is “Federal Oversight” or “PennDOT Oversight NHS”, the Utilities & Right-of-Way Section will prepare a cover letter from the Chief of the HDD to the FHWA Division Administrator requesting concurrence with the determination that use of Federal funds to pay the utility delay damages is appropriate. The documentation package prepared by the District, with the Division Chief’s cover letter attached, is to be submitted to FHWA.

After reviewing the documentation package and the letter prepared by the Utilities & Right-of-Way Section, FHWA will make a final determination regarding the use of Federal funds to pay the utility delay compensation adjustment. FHWA will submit written notification to the Chief of the HDD indicating whether it does or does not concur with the decision to use Federal funds to pay for the utility delay damages.

Upon receipt of FHWA’s written notification, the Utilities & Right-of-Way Section is to prepare a letter of notification from the Chief of the HDD to the DE.

If concurrence is granted by FHWA, the letter will indicate that the utility delay compensation adjustment may be paid using Federal funds and instruct the District to attach a copy of the letter, along with a copy of the documentation package and the written notification from FHWA, to the Contract Adjustment as support.

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If concurrence is not granted by FHWA, the letter will indicate that the utility delay compensation adjustment must be paid using 100% State funds.

Upon receipt of the letter of notification from the Chief of the HDD, the DE is to have the IIC for the affected project, or a delegate, create a Contract Adjustment using ECMS. When creating the Contract Adjustment, select “Utility Delay Compensation Adjustment” as the adjustment type. **NOTE:** For future tracking and reporting purposes, it is essential that “Utility Delay Compensation Adjustment” be selected as the adjustment type. The funding source selected for the Contract Adjustment should comply with the determination regarding the use of Federal funds cited in the letter of notification. Furthermore, ECMS has been programmed so that the “Utility Delay Compensation Adjustment” adjustment type will require a supporting attachment. The supporting attachment should consist of an explanation of the circumstances of the utility delay and the nature of the damages being claimed, and copies of the following:

- The documentation package prepared by the District;
- The letter of notification from the Chief of the HDD to the DE; and
- The FHWA letter of concurrence to use Federal funds (“Federal Oversight” and “PennDOT Oversight NHS” projects only).

REPLACES B.1.23	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 1	PAGE 23-1
DATED 04/01/2016	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT LIMIT OF WORK EXTENSION REQUEST PROCESS – POLICY AND PROCEDURES				

A. Description of Policy

The Limit of Work Extension Request Process provides for expanding the Limits of Work on a currently active transportation project beyond the limits stated in the original contract. Extending the limits of work on a contract is an extraordinary measure to allow an existing contractor to perform work not in the original contract, for bid efficiency. Limit of Work Extensions are only intended for unique situations where unexpected additional work is identified in close proximity to an existing active construction project that could not be reasonably bid as a standalone project. A Limit of Work Extension can only be authorized by the Deputy Secretary for Highway Administration.

B. Purpose

Publication 408, Section 104.02, Alteration of Drawings or Work, states the following regarding Limits of Work:

§ 104.02 Alteration of Drawings or Work.

“With the exception of advance warning signs, detour signs, work zone traffic control devices and other items specified in the contract, perform no work beyond the limits of the project, except as authorized in writing by the Deputy Secretary for Highway Administration.”

C. Procedures

The following activities shall occur to complete the process:

1. The District identifies a potential need to expand the Limits of Work on a transportation project.
2. The District contacts the Special Assistant to the Deputy Secretary for Highway Administration or, in absence of the Special Assistant, the Deputy Secretary’s Office either to obtain initial feedback how to write a request or if it’s a standard request, providing the Special Assistant a signed write up of the request using the Request for Extension of Limits of Work template found on the [Construction and Materials Division \(CMD\) SharePoint site](#).

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3. The Special Assistant, with Deputy Secretary concurrence, contacts the Office of Chief Counsel (OCC), Highway Construction and Claims Division, to discuss the request to determine if the OCC can support the contract addition.
4. If the contract addition is deemed supportable by OCC, OCC notifies the Special Assistant and Executive Secretary in the Deputy Secretary's Office who obtains the Deputy Secretary's signature.
5. The Executive Secretary logs the request into the Limit of Work Extension Log.
6. For federal-aid projects, changes that alter the limits of work, regardless of the cost, require formal FHWA approval. An amended Form D-4232 must be submitted, by the District, to the Center for Program Development and Management, for FHWA approval. The District should consult with the FHWA Transportation Engineer if there is a question regarding the need for an amended Form D-4232.
7. The OCC reviews the submitted form and justification for contractual completeness and supportability. Once deemed complete, the OCC contacts the Special Assistant to confirm the Deputy Secretary for Highway Administration can approve and sign the extension request.
8. Once the Deputy Secretary signs the Limit of Work Extension, the Executive Secretary scans and emails the signed document to the District, with a copy to the OCC. (Please Note: Only the Deputy Secretary for Highway Administration is authorized to approve Limit of Work Extensions.)
9. The Executive Secretary updates the Limit of Work Extension Log to indicate the Extension has been approved.
10. The District updates the contract files to ensure the additional work is documented.

D. Forms

- Limit of Work Extension Request Form
- Limit of Work Extension Log
- Request for FHWA Authorization ([Form D-4232](#)) (for federal-aid projects only)

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E. Milestones

The milestones for completing the Limit of Work Extension Process are stated in the Chart below.

Milestones for Limit of Work Extension Request	
Activity	Responsibility
1. Contact Special Assistant or Deputy Secretary Office	District
2. Provide verbal guidance to the District	Special Assistant or OCC
3. Submit Limit of Work Extension Request	District
4. Enter request into <u>Limit of Work Extension Log</u>	Executive Secretary for Highway Administration
5. Review request for completeness and supportability	OCC
6. Submit Form D-4232 to FHWA for Approval (for federal-aid projects only)	District
7. Approve Form D-4232 and notify the District	FHWA
8. Sign the <u>Limits of Work Extension</u>	Deputy Secretary for Highway Administration
9. Provide signed document back to District	Executive Secretary for Highway Administration
10. Update contract files	District

REPLACES B.2.1	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 2	PAGE 1-1
DATED 04/02/2018	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT ESTIMATES AND PAYMENTS TO CONTRACTORS				

The payment of current estimates to contractors is contained in Publication 408, Section 110.05, and indicates that such payments do not bind the Department to the acceptance of any materials furnished or work performed.

Therefore, the current estimate should contain all items of work completed by the contractor when all required certifications have been provided. For example:

1. Concrete is to be paid as soon as it is placed, and payment is not to be delayed awaiting strength test results.
2. Reinforcement bars are to be paid when placed as indicated, and payment is not to be delayed awaiting concrete placement.

However, if items placed are controversial as to quality or other characteristics at the time of placement, those items are not to appear on a current estimate until they have been determined to be acceptable.

The contractor is to be given an opportunity to review the current estimate with the Inspector-in-Charge for that estimate period. Current estimates do not have to represent the pay item to the exactness of the final estimate.

Under certain circumstances, Districts will be expected to process current estimates to provide payment for work performed before an inspector's field office has been set up and the project computer system installed. When a contract requires that off-site work be performed before physical construction work begins on the project, the District is expected to make whatever arrangements are necessary to ensure that estimates can be processed to provide payment for this off-site work when it is completed and accepted before an inspector's field office has been set up and the project computer system installed. For example:

1. Design work performed in connection with a Design-Build project is to be paid as the various project design phases are completed based on the payment schedule percentages established in the applicable contract special provision.
2. Structural material that is fabricated in the winter months for a project not scheduled to begin construction until the following spring is eligible for payment as stored material when it is delivered to the project site or stored at a secure facility such as the fabricator's yard, provided the other requirements for prepayment as specified in Publication 408, Section 110.06, are met.

REPLACES B.2.2	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART B	SECTION 2	PAGE 2-1
DATED 04/01/2017		DATE April 1, 2020		
SUBJECT ROUNDING-OFF PAY QUANTITIES (Estimates and Final)				

Units of Payment:

ACRE = Acre
 BAG = Bag
 CF = Cubic Foot
 DOLLA = Dollar
 FBM = Foot Board Measure
 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 specified in Publication 408, Section 109.01:

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.

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Rounding of numbers shall follow generally recognized engineering and construction practice. These methods are used by the ECMS system to calculate electronic payments. For written calculations rounding to the hundredth place, use the following guidelines (barring exceptions above):

- 1) Truncate any decimals after the third.
- 2) If the third decimal is 4 or less, round down.
- 3) If the third decimal is 6 or greater, round up.
- 4) If the third decimal is a 5, preceded by an even number, round down.
- 5) If the third decimal is a 5, preceded by an odd number, round up.

For example:

1.48934 becomes 1.489, which rounds to 1.49.

NOTE: Complete all calculations prior to doing any rounding.

REPLACES B.2.3	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART B	SECTION 2	PAGE 3-1
DATED 10/26/2015		DATE April 1, 2020		
SUBJECT PAYMENT FOR MATERIAL STORED OR ON HAND				

A. GENERAL

Publication 408, Section 110.06, allows for certain material (i.e., end product manufactured material or fully fabricated products that are awaiting installation and/or incorporation into the finished work) to be paid for before being incorporated into the work. When requested in writing by the Contractor and approved by the Representative, up to 100% of the cost of the material may be paid, provided the quantity of material subject to the request does not exceed the original plan quantity, the material has been delivered to the project site or an approved location in the vicinity of the project, and the material will be stored for at least 30 days prior to use.

Material furnished as part of a component item of a lump sum Structure item (8xxx-xxxx series) may be eligible for prepayment as stored material even though the ECMS “Stored Materials” indicator for the associated lump sum item will state “Not Eligible for Stored Materials Prepayment”. In such cases, actual eligibility should be determined by applying the requirements as specified in Publication 408, Section 110.06, to the component item’s estimated contract quantity and value. ECMS functionality that is used to process a stored material payment and then recoup that payment over time cannot be used for stored material prepayments associated with component items. Instead, the following procedure should be followed:

- Determine the allowable stored material payment amount for the component item using [Form CS-110](#).
- Divide the prepayment amount by the component item’s unit price and round the resulting quantity value to the nearest whole number.
- Include the computed component item quantity when determining the quantity (i.e., percentage) of the associated lump sum contract item to be paid on the next estimate.
- As the stored material is incorporated into the work, discount any payable quantity of work performed under the applicable component item until the entire prepayment amount has been recouped, at which time payment for quantities of work performed under the component item may resume.

An example stored material payment computation involving a component item of a lump sum Structure is shown below.

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When evaluating whether the required 30-day minimum storage period will be met, the beginning date is to be the date the material is delivered to the project or approved storage location, or the date the invoice is submitted by the Contractor, whichever is the latter. Material originally determined to be ineligible for prepayment due to the minimum storage period requirement, that is then stored for more than 30 days, is eligible for prepayment on the next estimate, provided the invoice has been submitted by the Contractor.

Form CS-110 is to be completed in its entirety and kept, along with required supporting documentation, in the project file. A list of required supporting documentation is shown in the “Attachments” section of Form CS-110.

For other than fabricated structural steel that is to receive a protective coating, an individual stored material payment must exceed \$1,000, but cannot exceed 90% of the contract value for the applicable contract item or component item. Fabricated structural steel that is to receive a protective coating may be approved for prepayment at up to 75% of the contract value for the applicable contract item or component item. Additionally, if the stored material prepayment request is for structural steel to be used in bridge construction, the quantity of material subject to the request cannot exceed 97% of the total estimated weight of structural steel. Finally, the cumulative amount of all stored material payments on a given project cannot exceed 25% of the current contract amount.

To illustrate the procedure for processing a stored material payment for a component item of a lump sum Structure and then recouping that payment, consider the following example:

A project includes Item 8600-0007, Retaining Wall, As-Designed, S-25499. The Component Item Schedule for Item 8600-0007 includes a component item for 727,056 pounds of Fabricated Structural Steel having a unit price of \$1.20 per pound. The fabricated structural steel has been delivered to an approved storage location near the project. The Contractor has submitted an invoice for the fabricated structural steel indicating that the total weight of steel delivered does not exceed 727,056 pounds, and the material will be stored for more than 30 days from the date of the invoice. The Contractor submits the required written request for prepayment of the fabricated structural steel as stored material.

1. As shown on Form CS-110, the invoiced amount for the fabricated structural steel is \$780,500, and the value of the component item is \$872,467.20 (727,056 pounds x \$1.20 / LB). Multiplying the component item value by .90 (90%) results in a maximum allowable stored material payment amount of \$785,220.48. Since the invoiced amount is less than 90% of the value of the component item, the allowable stored material payment amount is \$780,500.
2. Dividing the \$780,500 allowable stored material payment amount by the component item’s unit price (\$1.20 / LB) and rounding to the nearest whole number results in a quantity of 650,417 pounds.

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3. When determining the quantity (i.e., percentage) of lump sum Item 8600-0007 to be paid on the next estimate, include 650,417 pounds of fabricated structural steel.
4. As construction of the retaining wall continues, the weight of any fabricated structural steel incorporated into the work is to be discounted (i.e., not included when determining the quantity of lump sum Item 8600-0007 to be paid on current estimates) until a total of 650,417 pounds of steel has been placed. When a total quantity of 650,417 pounds of fabricated structural has been incorporated into the work and discounted from estimate payment computations, the weight of the remaining steel placed is to be included in computations used to determine the quantity of lump sum Item 8600-0007 to be paid on subsequent estimates.

B. FORCE TRANSFER UNITS

Force Transfer Units, as specified in Publication 408, Section 705.3, provided that the material meets those requirements, qualify for payment of stored material. This material can be prepaid at up to 90% of the invoice price.

REPLACES B.2.4	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 2	PAGE 4-1
DATED 03/01/2011	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT SUBCONTRACTOR/SUPPLIER ESTIMATE MONITORING				

Form [CS-111](#), "Subcontractor/Supplier Request for Estimate Monitoring", is to be used in monitoring payments to Subcontractors and suppliers from Contractors.

Emphasis on the importance of the procedure is to be maintained, as Central Office continues to receive numerous requests from Subcontractors to assist them in obtaining money owed them by Contractors.

This procedure should have been discussed at the Preconstruction Conference and the Contractor should have been provided with a sufficient number of forms to accommodate the Subcontractors on the project. The Contractor should be instructed/reminded to notify its subcontractors of the availability of this monitoring procedure.

The procedure involves four steps:

1. Subcontractor submission of form (page 1).
2. District Verification of work items and quantities submitted by the Subcontractor.
3. Contractor's verification of payment or explanation of non-payment.
4. District follow-up to determine if Contractor is or is not in compliance. The Assistant District Engineer for Construction is to render the final determination for these payment issues.

If the Subcontractor intends to pursue a determination in favor of the Contractor after step 4, a copy of the payment bond will be provided to the Subcontractor upon Request.

This procedure is not expected to become the norm for all Subcontractor payments; rather it should be used as an option for the Subcontractor to pursue, on a case by case basis, when they determine there may be an injustice in the payment process. The responsibility of initiating the procedure is that of the Subcontractor's and a separate request should be submitted for each estimate period.

REPLACES B.2.5	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 2	PAGE 5-1
DATED 03/01/2011	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT INTEREST PAYMENTS TO CONTRACTORS				

1. The responsibility for the preparation of interest payments due construction contractors remains with the District. The method of calculation of interest payments can be found in Publication 11M, Finals Unit Manual.
2. If payment for an item or items is withheld due to lack of required information from the contractor, interest charges will not accrue for the applicable item(s).
3. To hold interest payments to the absolute minimum, Districts are requested to observe the following:

Include all possible additional and extra work items completed on estimates prior to final inspection.

Strictly enforce the time limitations as specified in Publication 408, Section 110.08(c), regarding the contractor's acceptance/rejection of final settlement certificate computations. If the contractor does not respond to the District's notification within ten (10) days or a disagreement cannot be quickly resolved, the District should act in accordance with Publication 408.

4. Process payments as specified in Publication 408, Section 110.09, Release of Final Payments.

REPLACES B.2.6	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 2	PAGE 6-1
DATED 04/01/2014	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT REFUND OF CONTRACT OVERPAYMENT				

The District is responsible for notifying the contractor of overpayments and for requesting the refund. This is normally done at the time of notification of final quantities. Refund checks received shall be forwarded to the Bureau of Accounting and Finance Management, Comptroller's Office with the corresponding SAP's Account Receivable Document # and Commitment coding information.

The Procedure utilizes the SAP Accounts Receivable System. Utilizing SAP will provide an accurate accounting of monies due to the Department and systematic follow-up.

Once an overpayment situation is definitely known, the District will proceed to process the negative estimate for approval. Upon approval of the estimate, the District will invoice the contractor for the overpayments.

The Bureau of Fiscal Management (BFM) will monitor each account to ensure that payment of the billing is forthcoming. In the event the contractor fails to respond to the initial billing, dunning letters will be generated by SAP and sent out by BFM at 31 and 61 days after invoicing:

If payment has not been received after 90 days, BFM will refer the overdue invoice to the Office of Chief Counsel for collection.

The Comptroller's Office will deposit the resulting revenue upon receipt. The District or Central Office personnel may access SAP to determine the status of the receivable.

District Construction and Finals personnel should direct any questions to the Bureau of Project Delivery, Contract Management Section.

District Fiscal Officers should direct any questions to the Bureau of Fiscal Management, Finance Division.

REPLACES B.3.1	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 3	PAGE 1-1
DATED 04/01/2020	PROJECT OFFICE MANUAL	DATE April 1, 2021		
SUBJECT PREPARATION OF WORK ORDERS ON CONSTRUCTION CONTRACTS				

A. GENERAL

The following is to provide guidance in the preparation and processing of work orders using the Engineering and Construction Management System (ECMS). Publication 408, Section 101.03, defines a work order as, "an order, signed by the Representative, authorizing the performance of Additional or Extra Work [at a negotiated price], or Extra Work on a Force Account basis, as specified in Publication 408, Sections 110.02 and 110.03."

On any construction project, accepted quantities for original contract work may vary from the approximate quantities shown in the Schedule of Prices. Additionally, changes in original contract item quantities or alterations in the work may result in a significant change in the character of the work under contract, or the District Executive (DE) may determine that work, having no quantity or price included in the contract, is necessary or desirable to successfully complete the project. When any of the above conditions are encountered, a work order must be processed to balance quantity overruns and underruns associated with original contract work or to incorporate Additional and/or Extra Work into the contract.

Work orders are also needed to process payments resulting from negotiated dispute / claim settlements or Board of Claims / Commonwealth Court awards.

Work orders are to be processed through ECMS, a web-based computer system designed to provide assistance in managing all aspects of a Project from inception through completion. ECMS is used to support and track field-related construction activities.

Refer to the "Additional / Extra Work Category Work Order Flowchart" beginning on Page B.3.1-34, and the "Legal Category Work Order Flowchart" beginning on Page B.3.1-38, for a visual guide to the work order preparation and processing procedure.

B. AUTHORIZATION FOR CONTRACT WORK

In situations involving Additional and/or Extra Work, as defined herein and as specified in Publication 408, Section 110.03, written authorization to perform the work must be provided to the Contractor by the DE or an authorized representative such as the Inspector-in-Charge (IIC). The written authorization must be provided prior to the commencement of the work, whether or not prices for authorized Extra Work have been negotiated with the Contractor and accepted by the Representative. If the Work is in the result of "Field Changes directed by the Engineer" or the estimated cost exceeds \$50,000 then the Assistant Construction Engineer (ACE) shall be consulted and approve the Authorization. The IIC shall

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enter Workflow comments that the ACE was consulted and is in agreement with the authorization.

The ECMS Authorization for Contract Work functions as the vehicle for submission of the required written authorization for a Contractor to perform Additional and/or Extra Work. The authorization is routed electronically between the Contractor and the Project until all outstanding issues concerning the scope of the proposed work have been resolved and the prices to be paid for the associated items have been agreed upon and/or accepted. The Contractor must actively participate in the on-line Authorization process using ECMS.

The ECMS Authorization process is also the Contractor's opportunity to officially notify the Department of its intention regarding a renegotiation of the unit price for a contract item that has experienced a significant change in character as a result of authorized quantity increases or decreases, as specified in Publication 408, Section 110.02(d).

ECMS has been programmed to ensure that a properly completed Authorization for Contract Work in "Accepted" status is linked to all work orders involving Additional and/or Extra Work. More than one authorization may be linked to a single work order. For all available Change Types in the Additional / Extra Work category; with the exception of "Finals Unit Audit", "Funding Change", "Balancing Overruns / Underruns", "Force Account Adjustment", and "DE Specified Change"; before a work order can be approved, ECMS performs a check to verify whether an associated authorization has been linked to it and that each item on the work order can be matched to a corresponding item on the associated authorization(s). The ECMS check requires only that the eight-digit number and Type Code of a work order item must match the number and Type Code of an item on an associated authorization. However, in situations where an Extra Work item (Type Code "E") on an authorization is marked "Force Account" following a decision by the Department to end price negotiations with the Contractor and proceed with the work on a Force Account basis, ECMS will successfully match the authorization item to a work order item having the same eight-digit number and Type Code "A" (Actual Force Account). Item quantity is not part of the ECMS verification; therefore, a difference in quantity between a work order item and an authorization item will not register an error when the check is performed.

ECMS edits pertaining to an associated authorization are not applied to the "Finals Unit Audit", "Funding Change", and "Balancing Overruns / Underruns" change types because, if selected under the proper circumstances, they do not involve the incorporation of Additional or Extra Work into the contract. ECMS edits pertaining to an associated authorization are not applied to the "Force Account Adjustment" change type because, if selected under the proper circumstance, written authorization to perform the Extra Work on a Force Account basis was provided to the Contractor before the work began, an initial work order was processed based on the Contractor's estimate of the cost, payments were made as the work progressed, and, now that the work has been completed, a follow-up work order is being processed merely to adjust the amount paid to the Contractor via progress payments to reflect the actual documented charges. Finally, ECMS edits pertaining to an associated authorization are not

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applied to the “DE Specified Change” change type because, if selected under the proper circumstance, all attempts by the Department to reach agreement with the Contractor on the price to be paid for Extra Work have been unsuccessful and the work is such that force account records cannot be kept by the Department. As a result, the responsible DE, in accordance with the provisions as specified in Publication 408, Section 110.03(a), has provided the Contractor with written notification containing a firm and binding price for the work to be performed, and the Contractor’s acceptance of the price is not required.

It is possible for a contract item to experience a significant change in character simply as a result of an overrun or underrun of the estimated plan quantity (e.g., when the actual length of piles, driven as indicated, exceeds the plan quantity). In such cases, when the resulting quantity increase or decrease is addressed by processing a “Balancing Overruns / Underruns” change type, as would be proper in this circumstance since the increase or decrease in quantity is not due to the incorporation of Additional Work, the fact that ECMS does not require an associated authorization could result in the “significant change in character” issue going unresolved. This oversight could put the Department at a disadvantage if the Contractor decides to revisit the issue later in the project, perhaps after all physical work is complete, and the opportunity for the Department to keep the force account records that will be needed to compare and contrast with the Contractor’s records has passed.

Therefore, an ECMS Authorization for Contract Work must be prepared, processed, and linked to all “Balancing Overruns / Underruns” change types that include one or more contract items (including previously approved Extra Work items) where the pending quantity change will result in the item of work being increased to in excess of 125% or decreased to below 75% of original contract quantity. If the “Balancing” change type includes some items where the item quantity has exceeded the +/- 25% threshold and other items that have not, only those items that have exceeded the threshold are required to be listed on the ECMS Authorization. Since ECMS functionality does not include edits to enforce the requirement for an authorization to be linked to a “Balancing Overruns / Underruns” change type, a manual check must be made during the work order review and approval process to ensure compliance with this directive.

To aid project management personnel in meeting the requirement to provide the Contractor with written authorization for Additional / Extra Work in a timely manner (i.e., prior to the start of the work), ECMS process “workflow” includes an option to initially create and submit a generalized or “conceptual” Authorization for Contract Work. The idea behind this functionality is to allow the IIC to prepare an initial authorization that outlines the scope of the work to be performed, in general terms; submit it to the Contractor prior to the start of the work or as it is just beginning; and then follow up, as the work progresses, with an itemized authorization that provides more detailed information (e.g., item numbers and descriptions, unit prices, estimated quantities, etc.). To provide the Contractor with added detail about the scope of the work being authorized, the IIC may insert one or more special provisions into a conceptual authorization. Utilizing the available ECMS functionality, the User is able to select from a list of the Project’s original special provisions using the “Modify” button, or,

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using the “New” button, select from the library of Standard Special Provisions or create a special provision specifically for authorized Extra Work.

If a conceptual authorization is submitted initially, the Project must follow up with an itemized Authorization for Contract Work. The IIC may elect to skip the conceptual authorization option and proceed directly to preparing and submitting an itemized authorization; however, the requirement for timely submission of written authorization (i.e., prior to the start of the work) remains applicable. ECMS will only allow work orders that are associated with one or more itemized Authorizations for Contract Work to be approved.

To aid project management personnel in preparing the required itemized Authorization for Contract Work, ECMS includes functionality whereby the User is able to select from a list of the Project’s original contract items using the “Modify” button, or establish one or more Extra Work items using the “New” button, and then insert the items into the authorization. Before the itemized authorization can be submitted to the Contractor, an estimated quantity must be entered for all of the listed items. Quantity estimates must be as accurate as possible and based on reasonable computations.

The Contractor, upon receiving an authorization from the Project, must log into ECMS, access the applicable document, and prepare a response. To respond to a conceptual (i.e., non-itemized) authorization, the Contractor has to either acknowledge its understanding of the “Scope of Work” statement, as well as the requirements of any attached special provision(s), by selecting “Acknowledge” or request clarification by selecting “Clarification Requested”, and then submit the authorization back to the Project. Note that, upon acknowledging its understanding of the scope of work and the requirements of any attached special provision(s), the Contractor is authorized to begin work. To respond to an itemized authorization, the items on the authorization must first be reviewed. Then, for each Additional Work item on the authorization, the Contractor must indicate that the contract unit price remains acceptable by selecting “Accepted” or, if a renegotiation of the contract unit price is applicable and justifiable based on the provisions as specified in Publication 408, Section 110.02(d), select “Out of Scope”. For each newly established Extra Work item on the authorization, the Contractor must enter the requested unit price in the appropriate field thereby initiating the price negotiation process. When all items on the itemized authorization have been addressed, the Contractor is to submit it back to the Project.

Upon receipt, the Project is to review the Contractor’s response to the “Scope of Work” statement, the special provision(s), and, if itemized, the items on the authorization. If clarification of the “Scope” statement or any attached special provision is requested, the Project must address the request and, if necessary, make changes to the statement and/or the special provision. If any contract items are marked “Out of Scope”, further action on the part of the Project is necessary. First, the contract item must be removed from the authorization. Then, if the Project wants to proceed with the work, the removed item should be replaced with a new, Extra Work item and the process of renegotiating the contract unit price initiated. The Project must also indicate acceptance or rejection of the Contractor’s submitted price for each

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Extra Work item on the authorization by selecting “Accepted” or “Rejected”, or notify the Contractor of the Department’s desire to end the negotiations and proceed with the work on a Force Account basis by selecting “Force Account”. Note that, before the Contractor’s submitted price can be accepted, it must be justified using one of the acceptable methods described herein (Subsection G, Extra Work).

When the “Scope of Work” statement and any attached special provisions have been “Acknowledged” and all items are marked as either “Accepted” or “Force Account”, the itemized authorization status can be changed to “Accepted” and the Project may proceed with preparation of the associated work order(s). If, for any reason, a decision is made not to proceed with the authorized work, the authorization status should be changed to “Work Not Completed”. Authorizations in “Draft” status may be deleted entirely; but, once an authorization is submitted to the Contractor the first time, the option to delete will no longer be available.

The Districts are responsible for the preparation of all work orders. The DE will act as the Approval Authority for Additional / Extra Work category work orders for all project types (i.e., Federal Oversight, PennDOT Oversight NHS, PennDOT Oversight Non-NHS, and Non-Federal), and Legal category work orders for PennDOT Oversight Non-NHS and Non-Federal projects.

The DE may delegate the approval authority for work orders, as described above, to the Assistant District Executive for Construction (ADE-C), an Assistant Construction Engineer/Manager (ACE/ACM), or the Work Order Specialist at their discretion.

The Bureau of Project Delivery (BOPD) will act as the Approval Authority for Federal Oversight and PennDOT Oversight NHS project work orders in the Legal category. In addition, the BOPD is responsible for conducting a Quality Assurance (QA) Review of a designated percentage of those work orders approved at the District level. If significant errors are discovered on a Federal Oversight project work order, the BOPD is responsible for coordinating with the District on the processing of the necessary corrective work order.

C. CATEGORIZATION AND CHANGE TYPES

A system of work order categorization has been developed to ensure that, while maintaining the benefit derived from the decentralization of work order approval authority for payment, the BOPD and FHWA are kept apprised of major contract changes involving Additional and/or Extra Work, as well as dispute/claim settlements or Board of Claims/Commonwealth Court awards.

The available work order Categories are: “Additional / Extra Work” and “Legal”. Once the work order category has been selected, all items included on the work order must relate to that category. There can be no mixing of categories within any one work order.

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Upon selecting a work order Category, it is then necessary to identify a more specific purpose or "reason" for the change, within the context of the Category. Therefore, each work order Category has been further broken down into Change Types.

The Change Types within the Additional / Extra Work category are to be used to:

- Indicate that item quantities for original contract work are being increased / decreased (i.e. "balanced") due to overruns / underruns in estimated plan quantities,
- Attribute the need for Additional and/or Extra Work to a design-related error or omission, an unforeseen field condition(s), or a directive of the Engineer,
- Process an adjustment to the contract price for an item(s) of work as specified in Publication 408, Sections 110.02(b), 110.02(c), or 110.02(d),
- Implement the contract changes associated with an approved Value Engineering proposal,
- Process a change in the funding source for applicable items of work,
- Adjust the amount paid to the Contractor via progress payments, based on an Estimated Force Account, to reflect the actual documented charges,
- Indicate that the DE has established a firm and binding price for Extra Work because attempts by the Department to negotiate a price have been unsuccessful and the work is such that force account records **cannot** be kept by the Department, or
- Process minor adjustments to contract item quantities as needed to "balance the books" following the District Finals Unit's audit of project documentation.

The Change Types within the Legal category are to be used to:

- Indicate that the District was able to negotiate a settlement in order to resolve a dispute with the Contractor before a claim is filed with the Board of Claims,
- Indicate that the District and/or the Office of Chief Counsel was able to negotiate a settlement with the Contractor after a claim was filed with the Board of Claims but before a Board of Claims / Court hearing, or
- Indicate that the Board of Claims or Commonwealth Court has made an award decision in favor of the Contractor in settlement of a claim.

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Refer to the “Additional / Extra Work (Administrative Adjustment) Change Type Selection Flowchart” and the “Additional / Extra Work Change Type Selection Flowchart” beginning on Page 1-34 for a visual guide to the selection of change types in the “Additional / Extra Work” category.

Upon selecting one of the available Change Types within a particular Category, all items related to that change type are to be logically grouped together to form a work order. The purpose behind this methodology is to present, evaluate, and explain all items within the Change Type as a whole so that the human and financial resources of the BOPD and FHWA can be focused on reviewing the more extensive contract changes and Contractor claims associated with Federal Oversight projects, while minor contract changes are evaluated through a QA review process.

The Change Types associated with the two work order Categories are:

CATEGORY	CHANGE TYPES
Additional / Extra Work	Changes Related to Value Engineering Design Omission(s) Design Error(s) Unforeseen Field Condition(s) Field Change(s) Directed by the Engineer Required Change(s) in Scope of Work Differing Site Condition(s) Suspension of Work Ordered by Engineer Other
Additional / Extra Work (Administrative Adjustment)	Force Account Adjustment DE Specified Change Funding Change Finals Unit Audit Balancing Overruns / Underruns
Legal	Negotiated Dispute Settlement Negotiated Claim Settlement Board of Claims / Court Award

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D. WORK ORDER APPROVAL AUTHORITY

All Federal Oversight and PennDOT Oversight NHS project work orders in the Legal category, regardless of the specific change type or payment amount, will be reviewed and approved by the BOPD and then transmitted to the FHWA for approval concurrence. PennDOT Oversight Non-NHS and Non-Federal (100% State Funded) project work orders in this category will be approved for payment by the DE or an authorized delegate.

For work orders in the Additional / Extra Work category only, a designation of "Major" or "Minor" will be attached to the change type based on the following parameters:

PARAMETERS	MAJOR	MINOR
Cumulative Percentage Change in Quantity for an Original Contract Item or Previously Approved Extra Work Item	> ± 15%	≤ ± 15%
Dollar Value of a Newly Established Individual Extra Work Item	> \$15,000	≤ \$15,000
Net Change Based on All Items Associated with the Change Type (Additional and/or Extra Work)	> ± \$50,000	≤ ± \$50,000

The DE will have approval authority for payment of all (Major and Minor) Additional / Extra Work category work orders for all project types (i.e., Federal Oversight, PennDOT Oversight NHS, PennDOT Oversight Non-NHS and Non-Federal). For Federal Oversight projects, following the DE's approval for payment, change types designated as "Additional / Extra Work – Major" will be transmitted to the FHWA for approval concurrence. If selected for QA review, Change types designated as "Additional / Extra Work - Minor" will be further evaluated by the BOPD.

E. ADJUSTMENT OF LUMP SUM ITEMS

The original contract price of a lump sum item, where quantities and unit prices for component items are designated on a Component Item Schedule submitted as specified in Publication 408, Section 103.01(a), will not be adjusted for any reason other than for changes directed by the Representative. When addition or deletion of work is required due to a change directed by the Representative, adjusted payment will be made as specified in Publication 408, Section 110.02(e). Component item unit prices provided by the Contractor are for use in making progress payments only and are not binding upon the Department in situations involving adjusted payment. Adjusted prices agreed upon with the Contractor must be justified using one of the acceptable methods described herein (Subsection G, Extra Work).

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F. ADDITIONAL WORK

Publication 408, Section 101.03, defines "Additional Work" as "work of a type already provided by the contract and for which the contract has established a unit price."

The term Additional Work is generally used to describe work arising when alterations in the work are authorized, but do not result in a significant change in the character of the work as required under the original contract. When planned contract work is altered for any reason, the necessary item quantity increases and/or decreases are processed as Additional Work.

Quantity increases / decreases resulting from such alterations in original contract work should continue to be paid for as Additional Work until either party (Department or Contractor) believes and is able to demonstrate that the character of the work, as required under the original contract, has been significantly changed as specified in Publication 408, Section 110.02(d).

When required, Additional Work is to be added to the contract through the processing of a work order. Additional Work is always paid for at the contract unit price and in the same manner as if it had been included in the original contract.

When items of work are to be completely eliminated from the contract, as specified in Publication 408, Section 104.02, adjustments to the items involved are processed as Additional Work.

In situations involving item quantity overruns, underruns, and/or eliminations, no allowance will be made for any increased costs except as specified in Publication 408, Sections 104.02 and 110.02.

G. EXTRA WORK

Publication 408, Section 101.03, defines "Extra Work" as "work arising from changes in quantities or alterations in the work that result in a significant change in the character of the work under contract, or work, having no quantity or price included in the contract, that is determined by the DE to be necessary or desirable to complete the project."

The term Extra Work is generally used to describe work arising when changes or alterations to the original contract are deemed necessary or desirable, for whatever reason, but the contract does not include an item for the desired type of work. Additionally, when changes or alterations to original contract work result in the work experiencing a significant change in character, and an adjustment or renegotiation of the contract unit price is requested and can be justified, the new item of work that is established is added to the contract as Extra Work.

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The term "significant change" applies only to the following circumstances:

- When the character of the work as changed or altered differs materially in kind or nature from that involved or included in the original proposed construction, or
- When an item of work is increased to in excess of 125% or decreased to below 75% of the original contract quantity. Any allowance for an increase in quantity applies only to that portion in excess of 125% of the original contract item quantity or, in case of a decrease below 75%, to the actual quantity of work performed.

When an item of work is decreased to below 75% of the original contract quantity, the actual quantity of work performed may be paid at an adjusted price; however, total compensation is not to exceed the contract item's original value. Item value is defined as the original contract quantity multiplied by the contract unit price. The adjusted price must be agreed upon by the Contractor and accepted by the Representative.

When work, as specified in Publication 408, Sections 104.02, 104.03, and 110.02, is to be paid for as Extra Work, the following conditions should be evaluated:

- Can the Contractor and DE agree on a tentative price for the work, and
- Can force account records, if necessary, be kept by the Department?

If both conditions can be met, the DE's written authorization to perform the work is to state that the work will be paid for as Extra Work at a Negotiated Price. The ECMS Authorization for Contract Work instructs the Contractor to submit back-up data to support its asking price for the Extra Work within 10 days of receipt. If the Extra Work commences before the price is accepted by the Representative, force account records are to be kept by the Department and, in the event price negotiations are ultimately unsuccessful, used to compute payment. Once the price is accepted by the Representative, the work will be paid for only at the negotiated price, which will not be renegotiated.

If neither of the above conditions can be met, the DE must submit written notification to the Contractor containing a firm, binding price that has been determined to be fair and equitable for the work to be performed.

If the nature of the Extra Work is such that the Contractor and DE cannot agree on a tentative price therefore, but force account records can be kept by the Department, the DE's written authorization is to state that the Extra Work will be paid for on a Force Account basis. Force account records are to be kept as specified in Publication 408, Section 110.03(d) and as outlined in Subsection H, Extra Work on a Force Account Basis.

When required, Extra Work is to be included in the contract through the processing of a work order. When a work order for Extra Work at a Negotiated Price is processed, the item that is established is to be assigned Item Type Code "E" or "C1". The determination as to

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which Type Code to use is to be based on whether the Extra Work is the result of a significant change in the character of work already under contract, as specified in Publication 408, Section 110.02(d), or a decision to include work, having no quantity or price in the contract, that has been determined to be necessary or desirable to complete the project. Item Type Code “C1” is to be used in situations where a new item is established after an original contract item experiences a significant change in character due to a change in quantity in excess of +/- 25% of original contract quantity, and one of the parties to the contract (i.e., the Department or the Contractor) requests and can justify an adjustment to the original contract item’s unit price. When an item is established for this purpose in ECMS, the User is to select the same, 8-digit item number as the original contract item and assign the new item Type Code “C1”. If, when faced with the same circumstance, the Department and Contractor agree that the contract unit price remains applicable, quantity increases and/or decreases should continue to be processed against the original contract item.

Once established, Item XXXX-XXXX “C1” is to be treated as if it were a contract item. The “original quantity” for this item will be the quantity established via the work order on which the item first appears. Should subsequent quantity changes or alterations result in a significant change in the character of the work (e.g., the “original quantity” being changed in excess of +/- 25%), contract provisions permitting a possible price adjustment would remain applicable. If an adjustment of the “previously adjusted” unit price is justified, the User is to establish a new item having the same item number as the original contract item and assign the new item Type Code “C2”, indicating that it represents the second adjustment to the original contract unit price resulting from a significant change in the character of the work. ECMS was designed to handle a total of nine such “price adjustment” iterations for a given contract item over the life of a project (i.e., Item Type Codes “C1” thru “C9”).

In situations where the District’s intent is to include work, having no quantity or price in the contract, that has been determined to be necessary or desirable to complete the project, and negotiate a price for the Extra Work, the resulting work order item is to be assigned a standard, modified standard, or non-standard item number, based on the nature of the work to be performed, and Item Type Code “E”. Once established, Item XXXX-XXXX “E” is to be treated as if it were a contract item, and, if quantity changes or alterations result in a significant change in the character of the work (e.g., the quantity established via the work order on which the item first appears is changed in excess of +/- 25%), contract provisions governing a possible price adjustment would apply. If the Department and Contractor agree that the negotiated price remains applicable, quantity increases and/or decreases should continue to be processed against the original Extra Work item. If an adjustment in the negotiated price is justified, the new item that is established is to be assigned the same standard, modified standard, or non-standard item number and Item Type Code “E1”, indicating that the item represents the first adjustment to the originally agreed upon unit price. ECMS was designed to handle a total of nine such “price adjustment” iterations for a given Extra Work item over the life of a project (i.e., Item Type Codes “E1” thru “E9”).

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Prices for Extra Work are to be based on careful estimates. The DE is to negotiate with and obtain satisfactory unit or lump sum prices from the Contractor. An “Accepted” ECMS Authorization for Contract Work, indicating agreement with the price(s) to be paid for the Extra Work, is to be electronically linked to the resulting work order along with the Contractor’s detailed cost estimate and any additional, required supporting documentation. The work order cannot be approved; however, until agreed upon prices for Extra Work are fully justified.

Agreed unit or lump sum prices must be satisfactorily justified, by the DE, using one of the following acceptable methods:

- Comparison with average price data for the same item of work taken from the Historical Data database,
- Reference to the price paid for similar work on at least two other Allied Contracts,
- Computations of the estimated material, labor, and equipment costs associated with the work using the Force Account format, or
- An acceptable Engineering Analysis.

As an additional negotiating tool, an Adjustment Increase of up to 10% may be added to the average price obtained using Historical Data or to the average of referenced Allied Contract prices, if needed to reach an agreement with the Contractor on a price for Extra Work. The ability to apply the increase when negotiating with the Contractor is intended to enable the District to account for costs not normally included in bid prices, such as mobilization, traffic control, and/or additional engineering. The adjustment increase may not be applied when a Force Account Estimate or Engineering Analysis is used for cost justification.

The Item Price History database is a continually updated, searchable listing within ECMS of the actual prices bid for highway and bridge construction contract items. Available cost data can be segregated by region (i.e., Locale) to account for the similarity of material costs and labor rates within specific geographical areas. A map showing the area boundaries for each of the five Locales that are to be used for cost justification purposes can be found in the Appendix. When manually entering ECMS search criteria, care should be taken to ensure that the data obtained is applicable to the Locale within which the project is located. Item Price History data for a particular Locale is applicable only to projects located in one of the Districts within that Locale.

ECMS Item Price History data is not to be used to justify excavation costs. Since the exact subsurface conditions that will be encountered are virtually unknown at the time of bidding, Bidders, realizing that extreme variations in the cost of performing required excavation work can occur from one location to another on a given project, must average estimated location costs together or otherwise account for these variations in their bid prices.

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As a result, bid prices for excavation are considered highly “site specific” and any Locale average price would not necessarily be representative of the cost of performing excavation work within the applicable geographical region.

Additionally, ECMS Item Price History data for items having a unit of measure of “Lump Sum” is not to be used for cost justification purposes. Items falling into this category include, but are not limited to, commonly encountered items such as Mobilization, the Inspector’s Field Office and Inspection Facilities, and Maintenance and Protection of Traffic During Construction. Because these types of items are typically paid as work progresses, in accordance with a specified or “as directed” payment schedule, bidders have been known to inflate bid prices for these items, by including unrelated costs, in order to achieve increased cash flow at the beginning of the project when the initial contract work may not be generating much revenue. As a result, average price data for these items is not considered representative of the actual cost of performing the work or providing the facilities and/or equipment required.

The agreed price for an Extra Work item may be justified by providing a reference to the average unit price paid for the same item of work on other projects within the same Locale as the subject project (Historical Data) provided the average unit price for the applicable Locale is greater than or equal to the agreed price. Further, the Locale average unit price at the time of comparison must be based on at least 6 occurrences (bids).

The Historical Data average unit price for a standard item (i.e., an item on the Master Items list having a unit of measure of other than “Lump Sum”) can be obtained by utilizing the query facility built into the “Work Orders” module in ECMS. The query facility is accessed by first selecting the “Justification” link associated with the item on the ECMS “Work Order” screen. From the “Work Order Item Cost Justification” screen, after selecting Historical Data as the justification Method, use the “New” button to initiate the query. When the “Historical Data” screen opens, the average of the first, second, and third low bidder’s unit prices from projects that include the subject item will be returned in response to the request provided the query finds at least 6 bid occurrences of the item overall. Only unit prices from projects having a Let Date within 2 years of the query date and located in one of the Districts that make up the Locale where the subject project is located will be included in the average unit price determination. A field at the bottom of the screen will display the average unit price, and a separate field will display the average unit price with the 10% Allowable Adjustment Increase added.

When a Historical Data cost justification meeting the above requirements is developed, ECMS automatically captures a reference (i.e., No. of Occurrences and Average Unit Price) as support documentation.

The agreed price for an Extra Work item may also be justified by providing references to the unit price paid for similar work on at least two other contracts within the same Locale as the subject project (Allied Contracts). The similarity of Allied Contract work to the Extra Work must be demonstrated in order to validate the comparison of prices. To accomplish this,

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both unit price and quantity should be considered when selecting Allied Contract references. If available cost comparison data for a particular item of work is limited to only one other contract within the same Locale, references to the first, second, and/or third low bidder's unit price for the applicable item may be considered when developing the agreed price cost justification.

Allied Contract data for a standard item (i.e., an item on the Master Items list having a unit of measure of other than “Lump Sum”) can be obtained by utilizing the query facility built into the “Work Orders” module in ECMS. The query facility is accessed by first selecting the “Justification” link associated with the item on the ECMS “Work Order” screen. From the “Work Order Item Cost Justification” screen, after selecting Allied Contracts as the justification Method, use the “New” button to initiate the query. When the “Work Order Allied Contracts” screen opens, item data (i.e., bid date, quantity, and unit price) from projects that include the subject item will be returned in response to the request. Only projects having a Let Date within 2 years of the query date and located in one of the Districts that make up the Locale where the subject project is located will be included in the query results. If at least one record is found, it may be possible to develop a cost justification based on Allied Contract references. As individual records (i.e., Allied Contracts) are selected from the list of query results, a field at the bottom of the screen displays the average unit price based on the selection. As each new record is selected, the average unit price field is updated. A separate field displays the average unit price of the selected records with the 10% Allowable Adjustment Increase added.

The agreed price for an Extra Work item may be justified using references to the prices paid for similar work on at least two projects in the same Locale, provided the average of the Allied Contract unit prices is greater than or equal to the agreed price. When only one Allied Contract reference is found, the first, second, and/or third low bidder's unit price for the item of work may be used for agreed price cost justification, provided the average of at least two of the three low bid unit prices is greater than or equal to the agreed price. When an Allied Contracts cost justification meeting the above requirements is developed, ECMS automatically captures a reference (i.e., Project No., bid date, quantity, and unit price) to each contract as support documentation. When the first, second, and/or third low bidder's unit prices from a single Allied Contract are used for agreed price cost justification the ECMS reference will include the Project No., quantity, and unit price and indicate whether the referenced data is for the first, second, or third low bidder.

The agreed price for an Extra Work item may also be justified by comparison with the estimated cost of the Extra Work as computed using the force account format (i.e., a material, labor, and equipment cost breakdown with overhead and profit markups added to each cost component). The intent behind this method of cost justification is to demonstrate, based on a Force Account Estimate of the expected cost, that the Extra Work, if it were to be performed and paid for on a Force Account basis, could cost as much as or more than the agreed upon price.

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In developing the cost justification, use either the ECMS Force Account Estimate module (FAE Module) or the Department’s Form [CS-4347CJ](#), Force Account Estimate. Since the purpose is to put together merely an estimate of the total cost of the work, both the FAE Module and Form CS-4347J do not require that computations be as detailed as with an Actual Force Account statement; however, the following minimum criteria should be met. Material prices need not be supported by invoices; however, in cases where the material being used is specialized (i.e., not a material that is traditionally encountered in bridge and highway construction work), or represents a significant portion of the total cost of the work (greater than or equal to 50% of the total cost), a supporting quotation or invoice should be requested for verification purposes. Additionally, generalized hourly rates, appropriate for the labor classification or type of equipment being employed, may be used to estimate labor and equipment costs. The general rate used for a piece of equipment should include the operating cost, and the time charged, including standby time if applicable, and should be estimated in terms of “operating time”. For example, if it is estimated that a piece of equipment will have to be available for an entire day (i.e., 8 hours), but only operated for 3 hours (i.e., 3 hours operating time and 5 hours standby), approximately 5 hours should be charged on the form. The assumption being that the additional 2 hours of operating time charged would be mathematically equivalent to 5 hours of actual standby time. Rates for payroll taxes and insurances should be applied to the total base labor cost. References to the section (and page, if available) of EquipmentWatch where hourly equipment rates can be verified are required. In lieu of EquipmentWatch reference information, worksheet printouts from the on-line version of the EquipmentWatch may be provided as support for the hourly equipment rates being charged. In such cases, the equipment reference shown on Form CS-4347CJ should read “See Attached”. The total cost of any work that is to be performed by an approved subcontractor, including the applicable overhead and profit markup, may be charged on the prime contractor’s cost breakdown, but a separate Form CS-4347CJ providing a material, labor, and equipment cost breakdown of the subcontracted portion of the work is required. References to the section (and page, if available) of the EquipmentWatch where hourly equipment rates can be verified are required. In lieu of EquipmentWatch information, worksheet printouts from the online version of the EquipmentWatch may be provided as support for the hourly equipment rates being charged. In such cases, the equipment reference shown on Form CS-4347CJ should read “See Attached”. The total cost of any work that is to be performed by an approved subcontractor, including the applicable overhead and profit markup, may be charged on the prime contractor’s cost breakdown, but a separate Form CS-4347CJ providing a material, labor, and equipment cost breakdown of the subcontracted portion of the work is required. The prime contractor's need to subcontract any or all of the work must be clearly supported by factual data which rules out the possibility of subcontracting merely for the convenience and benefit of either or both parties. If the cost estimate includes a Service by Others, the type of service must be identified. Estimated Service by Others costs need not be supported by invoices; however, the amount charged must be supported by a quotation or computation. Finally, the Number of Units used to compute an estimated unit price should be reasonable with respect to the quantity estimate for the primary material being used, or supported by a computation wherein the validity of the number is shown to be appropriate. The mere fact that the Number of Units used in the estimate is

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equivalent to the quantity being established on the associated work order, alone, is not sufficient for demonstrating that the Number of Units is reasonable.

Overhead and profit markups are considered negotiable. The overhead markups applied to estimated Subcontractor and Service by Others costs may not exceed the percentages for these cost components as specified in Publication 408, Section 110.03(d). Additionally, the total markup amount paid, including Subcontractor and Service by Others markup amounts, may not exceed the total amount that would be paid if the specified force account markups were applied.

The agreed price for an Extra Work item may be justified using a Force Account Estimate, provided the computed lump sum cost or unit cost is greater than or equal to the agreed price. When a Force Account Estimate is used for agreed price cost justification, attach Form [CS-4347CJ](#) to the work order, along with the other required support documentation outlined above. When using the FAE Module, link the FAE item to the work order.

Finally, the agreed price for an Extra Work item may be justified by an Engineering Analysis. The use of this method of cost justification is to be limited to only those instances when the other acceptable methods of cost justification cannot be used due to the unusual nature or complex scope of the Extra Work to be performed. Any planned use of an Engineering Analysis for cost justification purposes must be coordinated with the BOPD prior to work order approval.

When developing an Engineering Analysis, all engineering logic and assumptions being incorporated into the analysis must be clearly stated. Any price data cited must be supported by an independent source or sources (e.g., invoice, quotation, etc.). All computations must be presented in a clear and concise manner, and include the units of measure for the various numerical values used in equations, formulas, and/or expressions. Components of the other acceptable methods of cost justification cannot be interjected into the Engineering Analysis. For example, although a markup on the estimated cost of subcontracted work is applicable when using the Force Account Estimate method of cost justification, it is not an acceptable “add on” when developing an Engineering Analysis.

The agreed price for an Extra Work item may be justified using an Engineering Analysis, provided the computed lump sum cost or unit cost is greater than or equal to the agreed price. When an Engineering Analysis is used for agreed price cost justification, a written statement that includes all of the pertinent information needed to address the above requirements is to be attached to the work order as support documentation.

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H. EXTRA WORK ON A FORCE ACCOUNT BASIS

Publication 408, Section 110.03(a), specifies that, if the DE and Contractor cannot agree on a tentative price for Extra Work and the work is such that force account records can be kept by the Department, the DE's written authorization is to state that the Extra Work will be performed and paid for on a Force Account basis. Determine the method of documenting Force Account Work either the use of the Department Forms or utilizing the ECMS Actual Force Account (AFA) Module. Once the contractor starts a method, the contractor must complete it in the same manner.

Records of Extra Work performed on a Force Account basis should be compared with those kept by the Contractor, at the end of each day or as directed by the Representative, to ensure accuracy and obtain concurrence. The Representative is responsible for resolving any reported disagreements with such records; however, if the Contractor fails to review the Department's records or to report any disagreements, it will be presumed that the Department's records are complete and accurate. Utilize the AFA Module to electronically record daily activities or the Department Form [CS-4347](#), Force Account Daily Sign-Off. In either method, the daily record is to be signed by both the Contractor and a Department representative. The Daily Sign-Off has been developed for the purpose of documenting the comparison of force account records and the concurrence of both parties to the accuracy of those records. Completed and signed forms will also serve as source documentation for any future audit of the force account payment.

Payment for Extra Work performed on a Force Account basis is normally made upon completion of the work. If progress payments are desired, the Contractor must submit an itemized estimate of costs, in writing, within 10 working days after receipt of the DE's written authorization to perform the Extra Work on a Force Account basis (i.e., the ECMS Authorization for Contract Work) or within 3 working days of the start of the force account work, whichever occurs first. Processing a work order prior to the start of the work or as it is just beginning, based on the Contractor's estimate of the cost, causes monies to be encumbered, which will allow the Contractor to be paid as work progresses, and establishes a true fiscal account for the project for budgeting and cash flow projections. An Estimated Force Account work order should not be processed if the time estimated for performance of the work is less than 10 days and/or the estimated cost is less than \$50,000, provided the Contractor agrees to the deferment of payment until after the work is completed.

Statements of Estimated Force Account costs (rounded to the nearest hundred dollars) need not be as detailed as the statement described below for use in documenting an Actual Force Account payment. Estimated cost data may be presented by selecting Estimated Force Account link within the ECMS AFA Module or on Form [CS-4347CJ](#), Force Account Estimate, or on the standard, Force Account statement package of forms. If the estimate is prepared using the standard, Force Account statement package of forms, Daily Labor Breakdown and Daily Equipment Breakdown sheets are not required. Broad lump sum quotes, or estimates prepared using other forms, are unacceptable.

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The equipment rental rates to be used in an Estimated Force Account are the EquipmentWatch rates in effect at the time the estimate is prepared. In an Actual Force Account, whether the purpose is to adjust the Estimated Force Account amount paid via progress payments or to provide payment in full upon completion of the work, the EquipmentWatch rates to be used are those in effect as of the first day that work was actually performed. These “first day of work” rates remain applicable throughout the performance of such work. When utilizing the ECMS AFA Module, the Contractor must import their equipment as specified in Publication 408 Section 110.03(d) 3.a.

The amount paid to the Contractor based on an Estimated Force Account must be adjusted, upon completion of the force account work, to reflect the actual documented charges.

When documenting changes using Department forms to submit cost data for an adjustment of an Estimated Force Account or for an Actual Force Account, use the following forms:

CS-4347	Force Account Daily Sign-Off
CS-4347AA	Final Summary (Projects Let On or After August 25, 2016)
CS-4347AA	Final Summary (Projects Let Prior to August 25, 2016)
CS-4347AS	Subcontractor Summary
CS-4347BA	Material/Service By Others Breakdown
CS-4347CA	Labor Breakdown
CS-4347CERT	Liability Insurance Rate Certification – Force Account Work
CS-4347CJ	Force Account Estimate
CS-4347CON	Consumables Breakdown
CS-4347D	Daily Labor Breakdown
CS-4347EER	Estimated Effective Rate Computation – Unemployment Taxes
CS-4347E	Equipment Breakdown
CS-4347F	Daily Equipment Breakdown
CS-4347LABOR	Labor Three-Part Form
CS-4347MA	Force Account Material Affidavit
CS-4347OED	Owned Equipment Breakdown (Daily)
CS-4347OEH	Owned Equipment Breakdown (Hourly)
CS-4347OEN	Owned Equipment Breakdown (No Blue Book Listing)
CS-4347RES	Rented Equipment and Service by Others Breakdown
CS-4347SFA	Force Account Salaried Foreman Affidavit
CS-4347WCI	Workers’ Compensation Insurance – 5-Year Average Rate Computation Worksheet

Electronic versions of these forms, in Microsoft Word and Excel formats, have been developed by the BOPD and made available to the Engineering Districts. To ensure that Contractors have access to and are utilizing the most up to date edition of the Force Account forms, paper and/or electronic versions should be distributed at preconstruction conferences

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or presented to the Contractor prior to the start of any force account work. ECMS has developed each form as a screen within the AFA Module. Forms should only be used for manual projects and any other rare instances when ECMS is not used for project management.

When a work order for Extra Work on a Force Account basis is processed, the work order item that is established is to be assigned Item Type Code “A”. This Item Type Code is to be used whether the desired payment scenario is Actual (i.e., upon completion of the work) or Estimated (i.e., as work progresses). When an item is assigned this Type Code, ECMS automatically defaults the item’s unit price to \$1.00 and its unit of measure to “DOLLAR”. The quantity established for the item is to be equivalent to the actual cost of the work, if complete, or, if progress payments are to be made as work is performed, the estimated cost. By defaulting the item’s unit price to \$1.00, ECMS allows for the item quantity to be adjusted (i.e., increased or decreased), as necessary, to account for the expected difference between the original cost estimate and the final cost of the work once it is complete and the actual cost has been computed. Through this default process and controlled use of the “DOLLAR” unit of measure, Projects have the ability to process a work order item for force account work before it begins, make progress payments as the work is performed, and then, upon completion of the work, balance the item to reflect the actual cost.

Under no circumstances should an established Estimated Force Account item be adjusted using the “Balancing Overruns / Underruns” change type. The list of available Change Types in the Additional / Extra Work category includes “Force Account Adjustment”. This change type is to be selected when a work order is generated for the purpose of increasing or decreasing item quantity that was established based on an Estimated Force Account scenario. A complete Force Account statement, indicating the actual cost of the force account work, is to be attached to this work order as support documentation.

Statements of Actual Force Account costs, whether being used to support an adjustment to the amount paid via progress payments based on a prior estimate or to provide payment in full upon completion of the work, must include the detailed information described below presented on the standard package of forms identified above.

The Contractor is to be reimbursed for direct labor costs, at the actual base pay rate and fringe benefit rate paid for forepersons; equipment operators; and skilled, semiskilled, and common laborers directly assigned to the specific operation, for each hour that such employees are engaged in the performance of authorized force account work, including overtime, if directed by the Department. The IIC should qualify the level of skill required for an employee to perform a particular operation (e.g., don't pay foreman rate for a flagger, etc.). If collective bargaining agreements or other employment contracts require that the Contractor pay its workforce for travel time to and from the project site or for time during which its workers were not engaged in the performance of the force account work, or if the Contractor elects to do so, such payments are to be considered overhead and are not to be reimbursed as direct labor.

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Indirect labor costs will also be reimbursed. Reimbursement will be based on the Contractor's method of making payment to its employees. If certified payroll records indicate that the Contractor's method of making payment is such that fringe benefits are paid directly to the worker, indirect labor costs will be computed as a percentage of the total direct labor cost. However, if payroll records indicate that fringe benefits are paid into a tax-exempt pension or retirement fund or to a trade union that provides its members with a pension or retirement benefit, indirect labor costs will be computed as a percentage of the base pay rate portion of the direct labor cost (i.e., the Total Base Labor cost). Mark-ups to Indirect Costs are not applied to projects LET after August 25, 2016.

In computing indirect labor costs, the estimated effective rate is to be used for Unemployment Taxes. To ensure that Unemployment Taxes are billed at the estimated effective rate, as opposed to the legal or statutory rate, the Contractor and all Subcontractors involved in the force account work must complete the Labor Taxes and Insurance (LTI) Module within ECMS. The information requested on the LTI Module is not project specific, so Contractors and Subcontractors need only complete the LTI Module or form once for a given calendar year. The information on the LTI Module will have to be updated by April 15th of each new calendar year. The applicable calendar year will be indicated at the top of the form within the title block (i.e. "For Calendar Year 20__"). The "Total Estimated Effective Rate" computed on Form CS-4347EER for a given contracting firm (Prime or Sub) is to be equivalent to the "Unemployment Taxes" rate entered on Form CS-4347CA by that contracting firm. The LTI Module must be updated once a year as described for the Form CS-4347EER. Labor rates will automatically be applied to the project Force Account.

Be aware that a portion of the information needed by a Contractor or Subcontractor to update its estimated effective rate for a new calendar year may not be available until the Contractor or Subcontractor files its Federal Unemployment Tax return for the prior calendar year, which they have until April 15th to do. Therefore, documentation packages submitted for Force Account work performed early in a calendar year (i.e. between January 1st and April 15th) that do not include a completed Form CS-4347EER for the new calendar year should not be rejected and returned to the Contractor. An updated Form CS-4347EER for the new calendar year is only required in documentation packages submitted for Force Account work performed after April 15th.

To ensure the confidentiality of the information being provided on Form CS-4347EER, the completed form is not to be included in the package of Force Account documentation that is scanned and linked to the applicable work order item as cost justification. Instead, after ensuring that the "Total Estimated Effective Rate" computed on the form is equal to the "Unemployment Taxes" rate entered on Form CS-4347CA, the completed form is to be removed from the Force Account package and placed in the project files.

The cost of material used in the force account work will be reimbursed, including applicable sales tax and transportation costs charged by the material supplier. To qualify for reimbursement as material, an item must be purchased specifically for the force account work

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and must become a permanent part of the final constructed product (e.g., asphalt paving material, cement concrete, aggregates, reinforcement bars, geotextile). Items purchased specifically for the force account work that do not become a permanent part of the final product are to be considered as Consumables for cost reimbursement purposes and are addressed later in this Subsection.

For any Contractor-owned equipment, an hourly rental rate will be determined using the monthly rate listed in EquipmentWatch. The term “owned equipment”, as used herein and in Publication 408, refers to equipment (including trucks and machinery) of the type that the Contractor is required to provide for the proper execution of the contract work, as specified in Publication 408, Section 108.05(c), whether that equipment is actually owned directly by the Contractor, is leased, or has been procured in some other manner. If the equipment needed for force account work is generally equivalent to that required for use in the performance of contract work, the equipment is to be treated as owned equipment for cost reimbursement purposes.

To determine the hourly rental rate for a piece of owned equipment using EquipmentWatch:

1. Locate the specific piece of equipment in EquipmentWatch and obtain the monthly rate (M.R.), the estimated operating cost per hour (O.C.), and the information needed for a proper Description. Obtain the equipment adjustment factor for the model year of the piece of equipment (EQ.ADJ.FAC) and the area adjustment factor for Pennsylvania (AREA ADJ.FAC) for the Rate Adjustment.
2. Determine the adjusted hourly rate (ADJ.HRLY.RT) by multiplying the monthly rate by the equipment adjustment factor and the area adjustment factor, then dividing the product by 176. Enter the adjusted hourly rate in the designated column on Form CS-4347E.

$$ADJ.HRLY.RT = \frac{M.R. \times EQ.ADJ.FAC \times AREA ADJ.FAC}{176}$$

3. Determine the total hourly rate (TOTAL HRLY.RT.) for operating time (O.T.) by adding the adjusted hourly rate and the estimated operating cost per hour. Enter the rate, on the line for O.T., in the designated column on Form CS-4347E.

$$TOTAL HRLY.RT. (O.T.) = ADJ.HRLY.FAC + O.C.$$

4. Determine the amount due for operating time by multiplying the total hourly rate for operating time by the number of hours of operating time. Enter the amount, on the line for O.T., in the designated column on Form CS-4347E.

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EXAMPLE: A 4-wheel drive, articulated wheel loader, Terex SCL-515, model year 2000, 0.65 CY capacity, is located on Page 47 of the 3rd Quarter 2003 supplement to Section 9 of the EquipmentWatch. Determine the amount due if the piece of equipment was in operation for a total of 16 hours.

M.R. = \$1,405.00
O.C. = \$7.95 / Hour
EQ.ADJ.FAC. = .991
AREA ADJ.FAC. = 1.040 (4%)

$$\text{ADJ.HRLY.RT} = \frac{(\$1,405 \times 0.991 \times 1.040)}{176} = \$8.23/\text{Hour}$$

$$\text{TOTAL HRLY.RT. (O.T.)} = \$8.23 + \$7.95 = \$16.18/\text{Hour}$$

$$\text{AMOUNT (O.T.)} = \$16.18/\text{Hour} \times 16 \text{ Hours} = \$258.88$$

The estimated operating cost obtained from the EquipmentWatch is intended to cover the cost of fuel, oil, tire wear, and all other operating expendables. The operating cost is to be included only when the equipment is actually in operation on the force account work.

If equipment or machinery is required to be at the site of the force account work on a standby basis, but is not actually operating, compensation is to be made at 50% of the adjusted hourly rate, exclusive of operating costs.

- Determine the total hourly rate (TOTAL HRLY.RT.) for standby time (S.B.) by multiplying the adjusted hourly rate by 50%. Enter the rate, on the line for S.B., in the designated column on Form [CS-4347E](#).

$$\text{TOTAL HRLY.RT (S.B.)} = 50\% \times \text{ADJ.HRLY.RT.}$$

- Determine the amount due for standby time by multiplying the total hourly rate (S.B.) by the number of hours of standby time. Enter the amount, on the line for S.B., in the designated column on Form [CS-4347E](#).

EXAMPLE: Determine the amount due if the piece of equipment in the above example was on standby for a total of 5 hours.

$$\text{TOTAL HRLY.RT (S.B.)} = 50\% \times \$8.23/\text{Hour} = \$4.12/\text{Hour}$$

$$\text{AMOUNT (S.B.)} = \$4.12/\text{Hour} \times 5 \text{ Hours} = \$20.60$$

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The following guidelines are to be used in the administration of standby time:

- If a piece of owned equipment is required at the work site on a standby basis, but is not operating, compensation, if any, will be at 50% of the adjusted hourly rate, exclusive of operating costs.
- Payment for standby time will not be made on any day a piece of owned equipment is operated the entire work day.
- For a standard 8-hour work day, when equipment operates less than 8 hours, payment for standby time will be limited to the number of hours that, when added to the operating time for that day, equals 8 hours.
- For work days that exceed 8 hours, when equipment operates less than 10 hours, payment for standby time will be limited to the number of hours that, when added to the operating time for that day, equals 10.
- When force account work extends into one or more full weeks, in any 1-week period payment for standby time will be limited to the number of hours that, when added to the operating time for that week, equals 40 hours, regardless of the number of hours per day or days per week the Contractor works (i.e. overtime, multiple shifts, etc.).
- Payment for standby time will not be made on days the Contractor elects not to work or days not normally a work day.
- Standby time will not be paid if equipment is awaiting repair, while repairs are being made, or for maintenance or servicing of equipment.
- Standby time will not be paid for equipment not on the job site (i.e. while equipment is awaiting transport or being transported to the job site).
- If the equipment will not be needed at the site of the force account work for a period of time, compare the cost of demobilization and remobilization against the cost of standby time and pay the lesser cost. Demobilization and remobilization costs are to be computed and documented on the basis of labor and equipment costs. If it is determined that it would be more economical to demobilize and remobilize in lieu of paying standby time, the Contractor may elect to keep the equipment on the job site. In this instance, pay the estimated cost of demobilization and remobilization.

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- If the Contractor is delayed pending receipt of a decision from the Department, consideration is to be given to paying standby time, paying for demobilization and remobilization, or returning the equipment to other contract operations until the Contractor can be directed to resume the force account operation.
- For equipment borrowed from other operations on the same project, when not being used in the performance of the force account work, the equipment is to be returned to the operation from which it was borrowed and mobilization and demobilization costs paid. If the contract operations from which the equipment was borrowed have been completed and no equipment remains on the project, one of the following situations will apply:
 - 1) If the borrowed equipment will be needed for further use on the force account work but is presently not being used, compare the cost of standby time against the cost of demobilization and remobilization and pay the lesser.
 - 2) If the borrowed equipment will not be needed for further use on the force account work, it is to be considered eligible for return to the Contractor's equipment yard. This final demobilization is not to be paid for as part of the force account work since the cost is regarded as being included in the Contractor's bid price for the contract item for Mobilization.

If a piece of equipment needed for force account work is not of the type required to be provided by the Contractor for the proper execution of the contract work, or if the piece of equipment needed is “owned” but not currently available, the equipment may be obtained by rental. The Contractor must discuss the need to rent the equipment with the Representative and the Representative must approve the rental cost before the equipment is secured for the force account work.

The Contractor will be reimbursed the total, actual invoiced cost for rental equipment , plus the cost of transporting the equipment to and from the work site, provided transportation costs are not included in the rental cost. Additionally, an allowance will be made for operating costs by adding, to the rental cost, the estimated operating cost per hour, as listed in the EquipmentWatch, for each hour the rental equipment is actually in operation on the force account work. A separate operating cost should not be paid if the equipment rental agreement indicates that operating expenses (fuel, oil, etc.) are included in the rental cost. Transportation charges for a piece of an equipment rental will be paid provided:

- The rental equipment is obtained from the nearest available source,
- Return charges do not exceed delivery charges,
- Haul rates do not exceed the established rates of licensed haulers, and

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- Charges are restricted to those units of equipment not readily available and not on or near the project.

If an item is purchased specifically for the force account work, but does not become a permanent part of the final product, the item will be considered as Consumables for cost reimbursement purposes. If the item's useful life is completely expended in the performance of the work, as determined by the Representative, the full cost of the item will be reimbursed. Otherwise, that portion of the item's useful life expended in the performance of the force account work is to be computed and the prorated cost reimbursed.

When required as part of a force account operation, work not considered subcontract work requiring prequalification, specialized construction analyses, or engineering services are to be regarded as Services by Others. For such services, the Contractor will be reimbursed the invoice price plus a markup to cover administration and all other costs as specified in Publication 408, Section 110.03(d)4, "Services by Others". Service by Others costs will be limited to a one-time markup regardless of whether the service was arranged by the Contractor or a subcontractor performing any or all of the force account work. The overhead and profit allowances as specified in Publication 408, Section 110.03(d)7, are not applicable to costs for Services by Others.

Examples of Services by Others would include, but are not limited to, the following:

- Hauling services provided by an independent agency that furnishes both the hauling vehicle and operator, where the operator is an employee of and the equipment is owned or leased by the service provider.
- Sampling, testing, and analysis performed by an independent laboratory to evaluate the potential hazard associated with unexpected waste encountered during the performance of force account work.
- Securing of permits, bonds, or specialized insurance coverage beyond what is contractually required, when directed by the Representative as being specifically required for the force account work.

If any or all of the force account work is to be performed by an approved Subcontractor, the work must be considered work requiring prequalification and the Contractor's need to subcontract the work must be approved by the Representative. Payment for work performed by a Subcontractor will only be made based on a complete material, labor, and equipment cost breakdown, with applicable markups for overhead and profit added (i.e., a separate force account statement).

Final payment for Extra Work performed on a Force Account basis will not be made until the Contractor has provided the Department with an itemized statement of the cost of the work in the form of a properly completed force account statement. Statements of labor costs are to

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be supported by certified payroll records. Statements of material costs and consumables (including sales tax and transportation costs), rented equipment costs, and Service by Others costs are to be supported and accompanied by invoices.

If materials used in the force account work are not purchased specifically for the work but taken from the Contractor's stock or provided by entities that are divisions, affiliates, subsidiaries, or in any other way related to the Contractor or its parent company, and an invoice cannot be provided, the Contractor must furnish an affidavit certifying that the materials were obtained as described above, that the quantity claimed was actually used, and that the material and transportation costs claimed were actually incurred. Department Form [CS-4347MA](#), Force Account Material Affidavit, has been developed for use by the Contractor in providing the required certification. Include the completed form in the work order as part of the force account statement.

I. TIME EXTENSIONS

Every time the DE authorizes the Contractor to perform Additional and/or Extra Work, the need for additional contract time must also be evaluated. If it is determined that additional contract time may be warranted as a result of the incorporation of Additional and/or Extra Work into the contract, the DE's written authorization to perform the work is to include an estimate of the number of calendar days and the number of working days required for performance of the work. When the Department is willing to extend contract time, if warranted, informing the Contractor of that fact is necessary in order to preclude the possibility of a future Constructive Acceleration claim. The ECMS Authorization for Contract Work, which serves as the means of providing the Contractor with the required written authorization to perform Additional and/or Extra Work, includes a section wherein the Contractor is to be informed when additional contract time may be granted as a result of the authorized contract changes.

When the resulting work order is processed, re-evaluate and, if necessary, revise the number of working days and calendar days estimated for the potential change in contract time in the response to the applicable standard Explanation question, and identify the controlling operation(s) affected. In the event the estimate of time as stated in the work order differs from that included in the Authorization for Contract Work, address the differences in the response to the same question.

Ultimately, the need for an official time extension, as a result of the authorization of item quantity eliminations, item quantity reductions, Additional Work, and/or Extra Work, must be determined by the Contractor. If an extension of contract time is warranted (i.e., supported by the Construction Schedule), the Contractor must submit an electronic time extension request to the Department, using ECMS. The Contractor's time extension request must be submitted within 30 calendar days after the date prices to be paid for authorized Additional Work and/or Extra Work at a Negotiated Price are agreed upon and, when applicable, accepted

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by the Department, or within 30 calendar days after the date authorized Extra Work on Force Account basis is completed. The request must include a revision to the Construction Schedule as specified in Publication 408, Section 108.06(a). The Department will respond to the electronic time extension request within 14 calendar days of receipt. Ensure that the new completion date does not exceed the Federal Authorization 4232 Project Agreement End Date. Extension of the completion date past the 4232 end date will require a prior extension of the 4232 date. Contact your Planning and Programming representatives should this situation occur.

J. EXPLANATIONS

A complete, detailed explanation is to be provided for each Change Type included in the work order. The complexity of explanation needed is dependent upon the Category of the work order. Additional / Extra Work category change types generally require a more detailed explanation than those change types in the Legal category.

Since what constitutes a "complete, detailed explanation" is a matter of judgment and varies with the individual, a standard, electronic "Explanations" format has been developed for each work order Category and incorporated into ECMS. Within a given category, the form has been structured such that, by responding to the applicable questions, the significant aspects of the change type can be fully explained

Most of the Explanations questions have been formatted to require a "Yes / No" or "Fill in the Blank" type response. However, in some instances, when a more detailed response is desired, the question is followed by a "Comment" field where such information is to be provided.

The series of questions to which ECMS has been programmed to prompt the User to respond, based on the specific Category and Change Type selected for the work order, constitute the Explanations for that work order.

In the Additional / Extra Work category; with the exception of "Design Error", "Balancing Overruns / Underruns", "Finals Unit Audit", and "Funding Change"; all Change Types will be explained by providing responses to 4 questions. If "Design Error" is selected as the change type, the District must address the issue of Consultant Designer liability by responding to one additional question. Explaining a "Balancing Overruns / Underruns" change type will require responses to two questions and, for the "Finals Unit Audit" change type, a response to only one question is required. Since the reason for selecting the "Funding Change" change type is considered self-explanatory, a written explanation will not be required.

The status of original contract items and established Extra Work items with respect to the +/- 25% quantity adjustment window as specified in Publication 408, Section 110.02(d), will be evaluated by ECMS each time such items appear on a work order. If proposed quantity

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changes to the original contract items and/or previously approved Extra Work items associated with a given Change Type, when combined with the net quantity change to the same items from all prior work orders, result in one or more of the items being increased to in excess of 125% or decreased to below 75% of their original quantity, ECMS will prompt the User to indicate whether the unit price for affected items will be adjusted as a result of the significant change, and to explain why or why not. If the response to this question is intended to indicate that the unit price for an affected item will **not** be adjusted as a result of the significant change, the explanation is to include a statement indicating that the Contractor is in agreement with that determination.

In the Legal category, the three available change types correspond to the three tiers associated with the dispute / claim resolution process. Each change type in this Category will be explained by providing responses to two questions. In doing so the District is to outline the circumstances which led to the dispute or claim and explain the process by which the settlement or award determination was made.

As a result of the streamlining and simplification of the Explanations, attachments to the work order become even more important. Document links are available within the “Work Order” and “Time Extension” modules of ECMS. Links available within the “Work Order” module are to be used to include the various attachments that constitute the supporting documentation for most work orders. Such supporting documentation would include, but is not limited to, Force Account Estimate forms and related quotations and/or computations, screen prints showing the results of a manual ECMS Item Price History search, engineering analyses, Force Account forms and related invoices, correspondence, claim settlement memorandums, and legal opinion papers. Document links are also to be used to comply with the requirement that all time extension requests include a revision to the Construction Schedule in the specified format.

If the specifications that are applicable to the original contract do not address authorized Extra Work, a specification can be submitted to the Contractor in the form of a special provision attached to the ECMS Authorization for Contract Work (See Subsection B, Authorization for Contract Work). In such cases, applicable drawings should be specifically referred to in the special provision and attached to the Authorization using a document link.

If the Extra Work involves a change in the original design of a structure or foundation; a revision of drawings, such as a change of alignment or gradient; or other revision of importance, a document link should be used to attach a sketch or print of the revision to the work order or officially revised drawings should be referred to in the Explanations for the Change Type. Copies of prints are to be plainly marked to indicate the revisions. A tabulation of quantities, as may be required by the revision, is to be indicated on the sketch or print or included as part of the attachment.

The District Construction Unit is to consult with other organizational units (Bridge, Design, Environmental, Maintenance, Soils, Materials, R/W, etc.) whenever a proposed

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contract change involves them. Further, proposed contract changes involving structural design changes are to be submitted to the District Bridge Unit for review and comment before the Contractor is authorized by the DE to incorporate such changes.

Changes to the contract that involve previously undisturbed areas, are outside of the original project area, may potentially affect an environmental resource (i.e., wetlands, parks, historic resources, etc.), and/or will affect environmental mitigation features found in the Environmental Commitments and Mitigation Tracking System (ECMTS) report, are to be submitted to the District Environmental Unit for review and comment before the Contractor is authorized by the DE to incorporate such changes. Additionally, the District Environment Unit is to obtain FHWA concurrence with any such planned contract changes, when applicable, before the Contractor is issued an ECMS Authorization for Contract Work. On Federal Oversight projects, environmental documents are required to have FHWA concurrence before any environmental commitments made in the National Environmental Policy Act (NEPA) document are modified or deleted. Failure to implement the environmental commitments contained in the NEPA document, without written concurrence from FHWA, will jeopardize Federal participation in the project.

After the contractor is issued an ECMS authorization for contract work, the PennDOT ACE, IIC, or district staff with the ECMS roles of mitigation entry and mitigation approver are to edit the affected ECMTS mitigation commitment or item or close it and create a new one that reflects the authorized change.

Each Change Type must be presented and handled as an individual entity and is to reflect all factors involved. Deductions as well as additions in quantities, which are brought about by the change, are to be included, or a satisfactory explanation given for retaining any apparent reduction in contract quantities. Additionally, Change Types are to contain all of the items required for performance of the subject work and the total estimated cost. A piecemeal approach involving several work orders is unacceptable.

Any analysis used in determining a resolution to a field problem is to be documented in the work order. Field personnel and others preparing justifications and take-offs to support work orders are to sign and date the information produced.

Work orders for payment of claims based on a Board of Claims or Commonwealth Court decision are to have attached a copy of the recommendation to pay from the Office of Chief Counsel (OCC).

Claim work orders for Federal participation are to include the information, as appropriate, described in POM Section B.1.19, Highway Contract Claims.

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K. FINANCING CONSIDERATIONS

Care must be taken in the preparation of work orders to ensure that items involving maintenance (e.g., cleaning of culverts and ditches), repair of accident damage subject to reimbursement by insurance, or compensation to the Contractor for material purchased but not used on the project, which are clearly nonparticipating items, are not coded for Federal participation.

Work identified as a maintenance need, but included as a Federal participation item, must be explained to clarify that the work is the result of a redesign or design change intended to eliminate a maintenance problem, and not simply maintenance.

Federal funds are not to be used to provide payment for dispute or claim settlements on Federal Oversight and PennDOT Oversight NHS projects until after FHWA has approved the associated Legal category work order. Such work orders are initially to be processed as 100% State funded. Following submission of this work order to FHWA and receipt of FHWA approval concurrence, a follow up, Legal category work order may be processed to change the funding source to Federal participation and the cost billed to FHWA at the appropriate pro rata share. The Federal Highway Administration has committed to the expeditious review of dispute / claim settlement work orders within 45 days.

L. FHWA AUTHORIZATIONS

For project changes that will alter the termini, character, or scope of the work, regardless of the cost, formal, prior FHWA approval will be required. Form [D-4232](#) (Request for FHWA Authorization) is to be used to document the approval. An amended Form D-4232 must be submitted, by the District, to the Center for Program Development and Management, for FHWA approval. The District should consult with the FHWA Transportation Engineer if there is a question regarding the need for an amended Form D-4232.

For major changes to Federal Oversight projects (i.e., project changes that will result in a cost increase or decrease equal to or greater than \$500,000 or 10% of the original contract amount, whichever is less), formal, prior FHWA approval will be required. It should be noted that the prior approval requirement applies to a specific change, regardless of how the items associated with the change are processed on actual work orders. The prior approval requirement is not intended for individual work orders that exceed the above threshold criteria based on the sum of multiple small changes. In addition, the above threshold criteria cannot be offset by unrelated contract deductions or increases. Form [FHWA-1365](#), Record of Authorization to Proceed with Major Contract Revision, is to be used to document the approval prior to directing the Contractor to perform the work. The District should consult with their FHWA Transportation Engineer as soon as major contract changes are anticipated. A copy of approved Form FHWA-1365 is to be attached to the resulting work order(s) as support documentation.

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M. APPROVALS

Work orders may be processed at the discretion of the DE until the cumulative net total of approved work orders exceeds the Maximum Change amount for the project (\$1,000,000). Continued processing of work orders, to increase the cumulative net total to between \$1,000,000 and \$2,500,000, will require the approval of the Director of the Center for Program Development and Management. Program Management Committee (PMC) approval is required when the cumulative net total of approved work orders exceeds \$2,500,000.00.

Major, Additional / Extra Work category work orders for Federal Oversight projects (including Federal Oversight municipal projects), claim settlements for Federal Oversight and PennDOT Oversight NHS projects, and Federal Special Projects require approval concurrence from the FHWA.

Notification that an applicable work order requiring FHWA review and approval concurrence is pending will be sent electronically by ECMS. The FHWA Transportation Engineer will have the option to approve, disapprove, or request clarification of the work order, upon completion of their review, by clicking on the “Workflow” button at the top of the ECMS “Work Order” screen and making the appropriate selection. If clarification is requested, ECMS will allow the Project to respond to the request, by revising or expanding on the existing work order Explanations or any associated document links, and then electronically resubmit the work order to the FHWA. If a work order, wholly or in part, is disapproved by the FHWA Transportation Engineer, the District can either attempt to rebut the FHWA position or process the necessary work order(s) to comply with the FHWA position.

N. DISTRICT QUALITY CONTROL (QC)

The DE is responsible for the quality of their District's work orders and for submitting a QC Plan to the BOPD outlining the procedures that will be implemented to ensure that work orders are complete and correct prior to being approved in ECMS.

As part of the submitted QC Plan, the District must identify the individual who will serve as the District's Work Order Specialist. This individual will be responsible for performing a review of all work orders generated by the District prior to their being approved in ECMS by the DE or an authorized delegate.

In addition, the District's QC Plan must identify those individuals who will have the system user profile needed to access ECMS and approve work orders. The intent here is to identify one key individual who will be responsible for the majority of ECMS work order approvals plus those alternates who will be able to function in that capacity, in the absence of the key individual, to ensure that the work order approval process is not interrupted for an extended period of time.

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The District's work order QC review criteria should include, but is not limited to, the following:

- Ensure that the ECMS Authorization for Contract Work was submitted to the Contractor prior to the start of Additional and/or Extra Work or as the work was just beginning.
- Ensure that complete and accurate responses have been provided for all of the applicable "Explanations" questions, and that question responses address all items on the work order and support the selected Change Type.
- Ensure that Item Type Codes "C1" and "E" have been used properly based on whether the new item is being established to include unanticipated Extra Work at a Negotiated Price in the contract (Type Code "E") or because the Department or the Contractor has requested an adjustment in the unit price for a contract item as a result of a significant change in the character of the work (e.g., where quantity changes have resulted in the item being increased to in excess of 125% or decreased to below 75% of original contract quantity) (Type Code "C1").
- Ensure that Item Type Code "A" is used when the new item is being established to include unanticipated Extra Work on a Force Account basis in the contract, whether the decision to do so is made when the Extra Work is initially authorized or after attempts to negotiate a price for the Extra Work have been unsuccessful and the work is such that force account records **can** be kept by the Department.
- Ensure that the agreed price for each Extra Work item being established on the work order has been justified in accordance with one of the methods described in Subsection G, Extra Work, that all criteria applicable to a specific cost justification method have been met, that the agreed price was established prior to the start of the work, and that any applicable computations are complete and correct.
- Ensure that the supporting statement of costs for each item of Extra Work paid on a Force Account basis represents the required accounting of the work, based on whether the item being established is an Estimated or Actual Force Account item.
- When reviewing a force account statement, ensure that material costs are supported by invoices (when required), that equipment costs are based on correct and up to date EquipmentWatch data, that the hours recorded on Daily Labor and Daily Equipment Breakdowns match the hours shown on Labor and Equipment Breakdown sheets, that indirect labor costs are computed based on the Contractor's method of paying fringe benefits to its workers and using applicable rates for taxes and insurance, and that all applicable computations are complete and correct.

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- Ensure that all required supporting documentation has been electronically linked to the work order.

O. BUREAU QUALITY ASSURANCE (QA)

The BOPD is responsible for performing a QA review of work orders approved for payment by the DE or an authorized delegate. The BOPD is also responsible for computing a compliance level for each District based on the QA review of its Federal Oversight project work orders.

The percentage of each District's approved, Federal Oversight project work orders subject to QA review by the BOPD will be established as stated herein and evaluated annually based on the District's compliance level for the previous year. In Year 1 of the cycle, 75% of Major and 20% of Minor, Additional / Extra Work category work orders will be reviewed. In Year 2, provided the District has achieved a minimum compliance level of 80% after Year 1, 50% of Major and 15% of Minor work orders in this category will be reviewed. In Year 3, the review percentage will drop to 25% for Major work orders and 10% for Minor work orders, provided the District is able to maintain the minimum 80% compliance level after Year 2. The review percentages will stay at Year 3 levels as long as the District continues to meet the minimum compliance level. If at any time the District's compliance level drops below 80%, the review percentages will revert to Year 1 levels and the cycle repeated.

For PennDOT Oversight (NHS & Non-NHS) and Non-Federal (100% State funded) projects, the BOPD will perform a QA review of 10% of DE approved work orders annually.

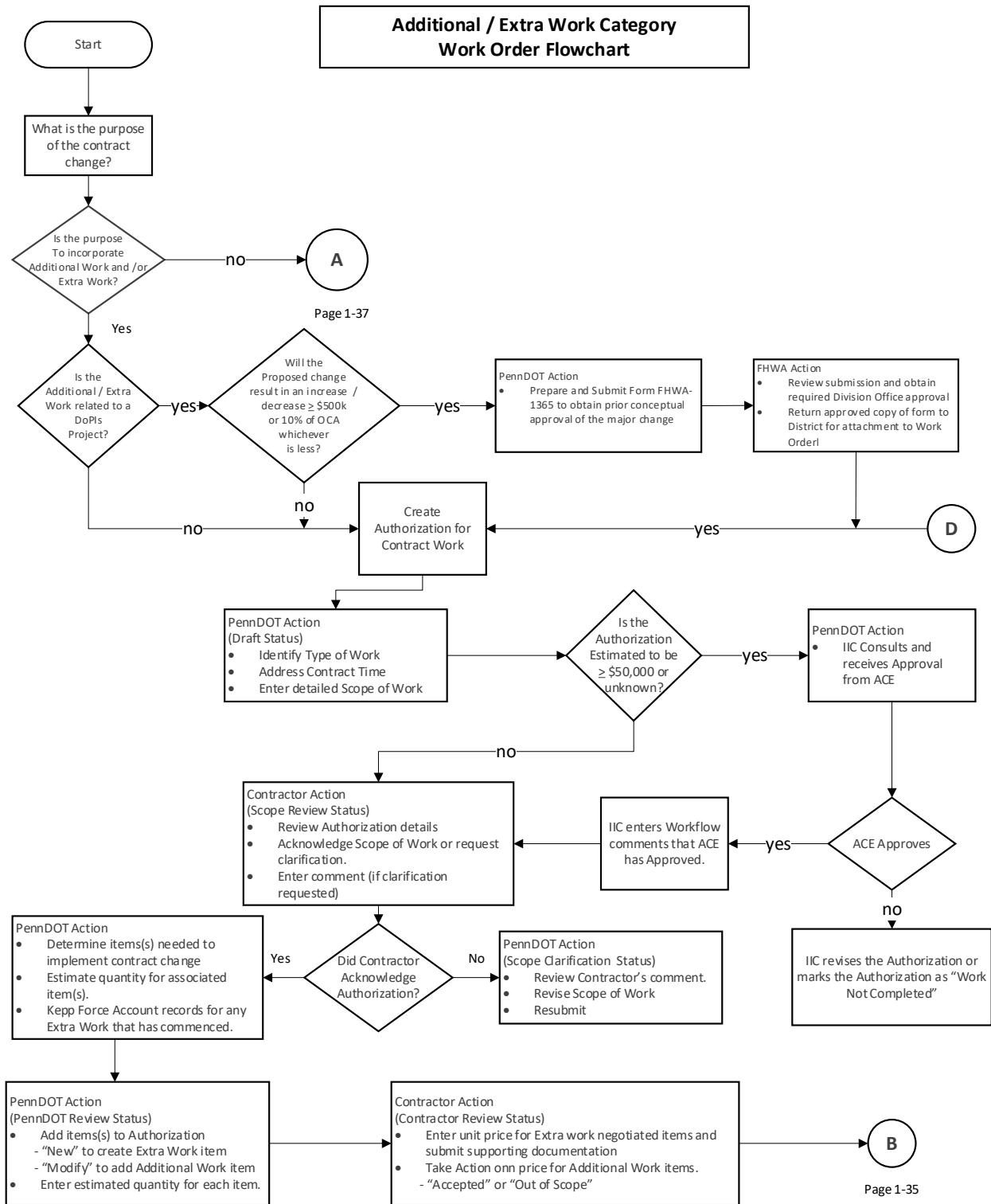
The work order QA review criteria used by the BOPD will include, but is not limited to, the following:

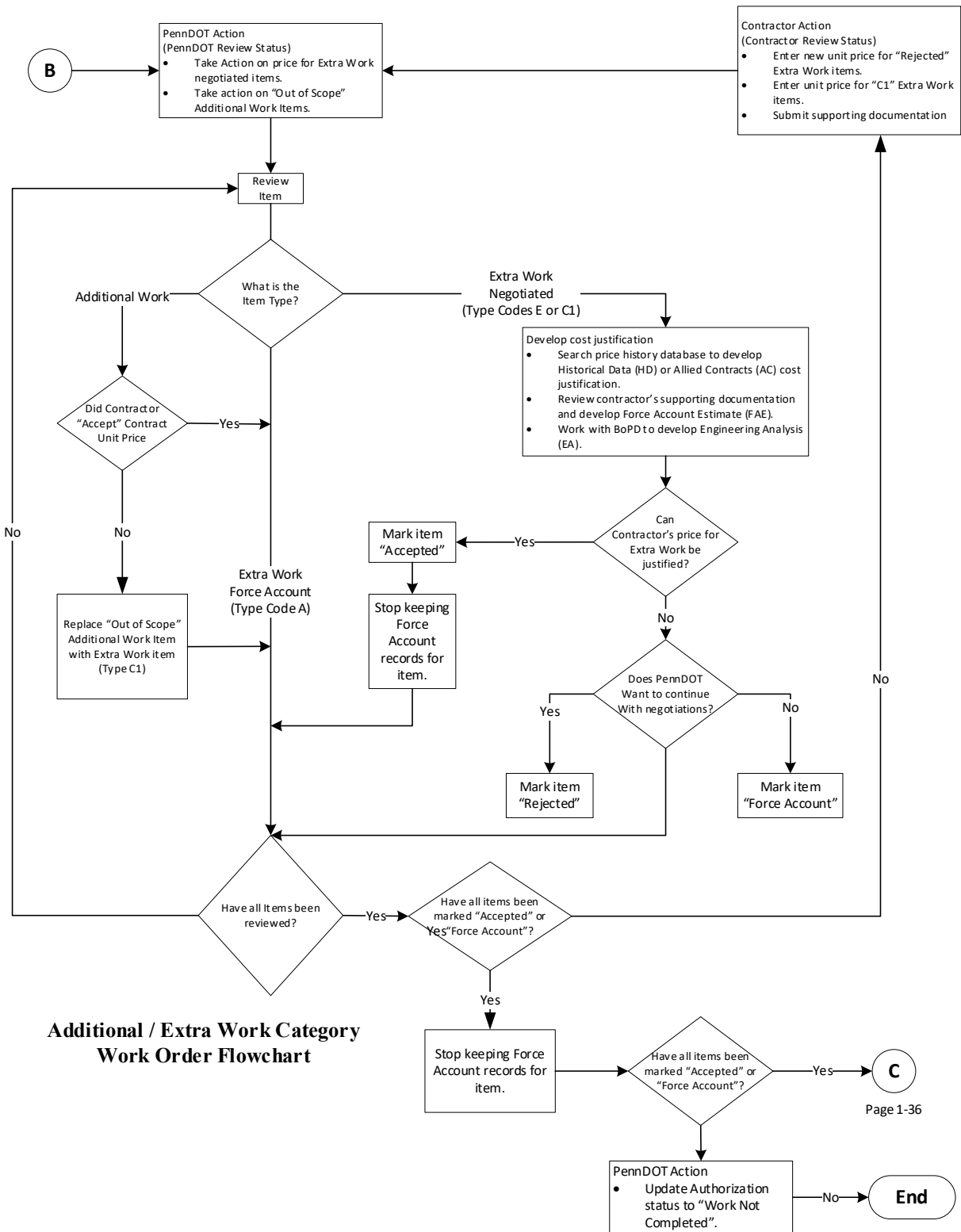
- Timely submission of the associated ECMS Authorization for Contract Work.
- Completeness of the Explanations.
- Use of proper methodology for agreed price cost justifications.
- Correctness of force account documentation, including use of proper EquipmentWatch data in computing equipment costs and inclusion of required support documentation.
- Errors in computations which result in a significant overpayment or underpayment.
- Need for administrative corrections involving use of improper Funding source or Item Type Code.

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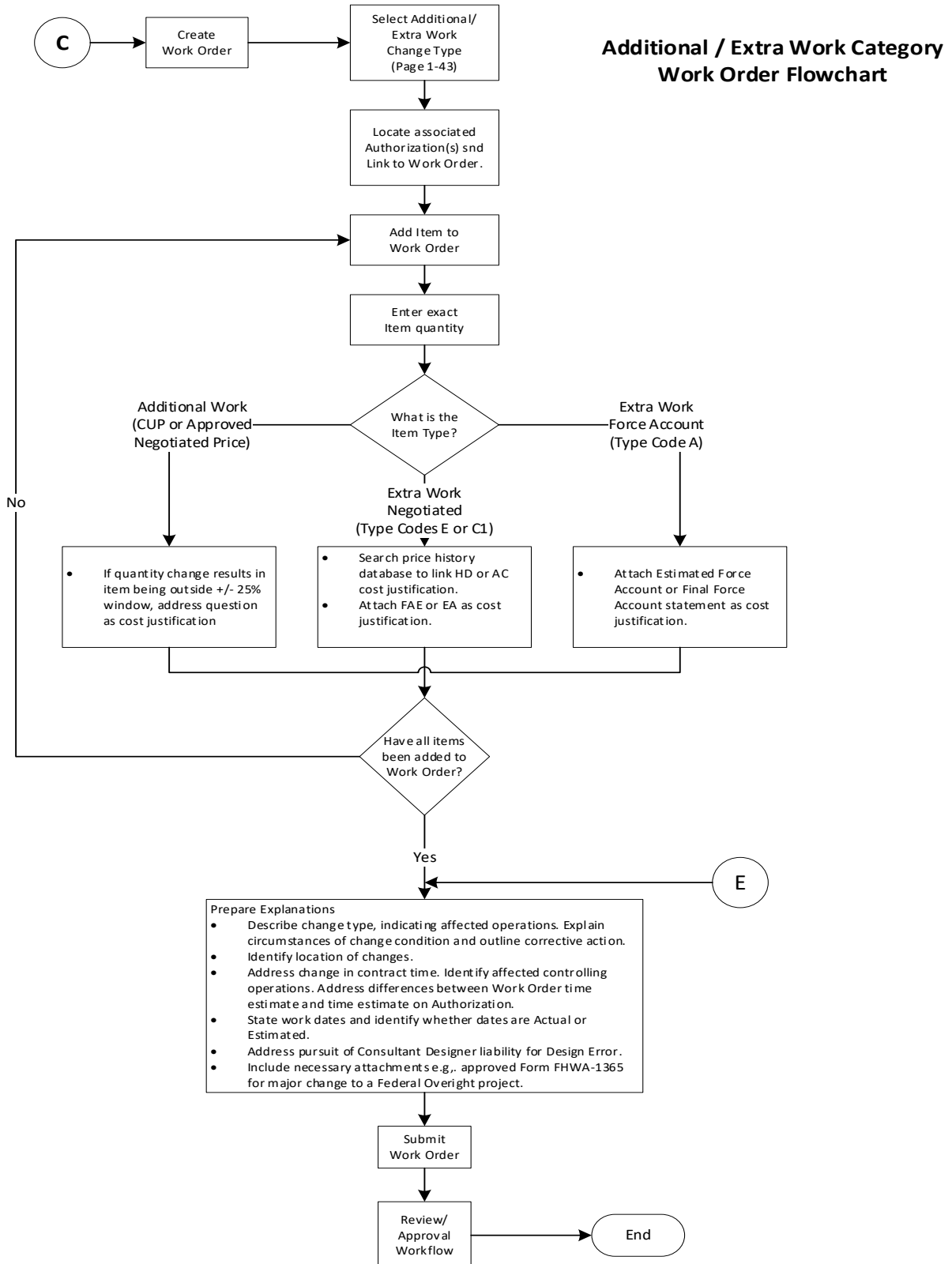
The ECMS "BOPD Q/A Review" module will be used by the BOPD to record and track the results of the QA review of DE approved work orders. A Quality Compliance Level will be computed for each District based on the findings from the QA reviews of Federal Oversight project work orders. QA review results will also be used, along with the District's QC review results, to identify future training needs for each District.

If significant computation errors or administrative inconsistencies are discovered during the QA review of a Federal Oversight project work order, the District will be notified by the BOPD regarding the details of the error or inconsistency and instructed to provide additional support documentation or, if necessary, to process a corrective work order.

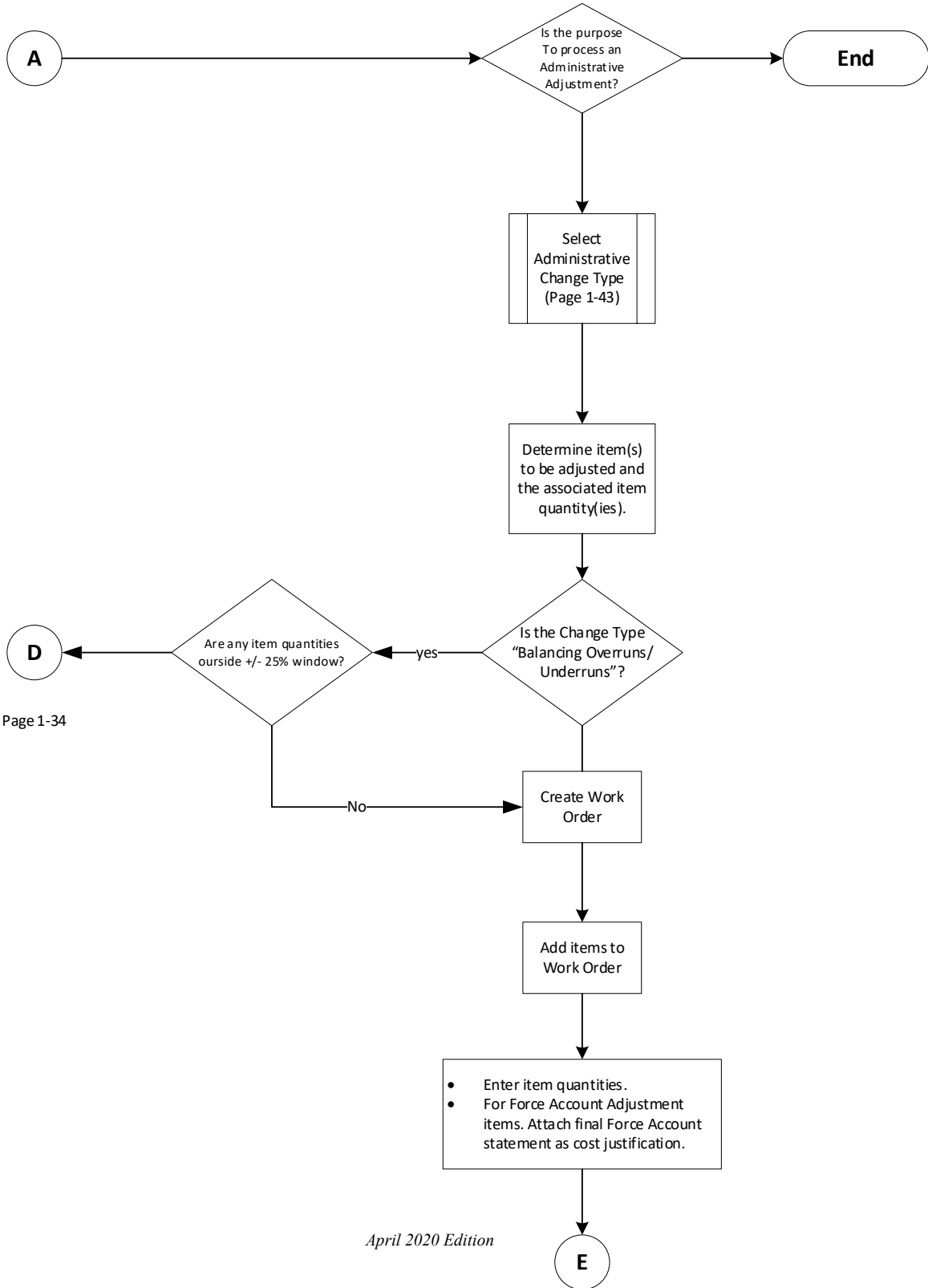




Additional / Extra Work Category Work Order Flowchart

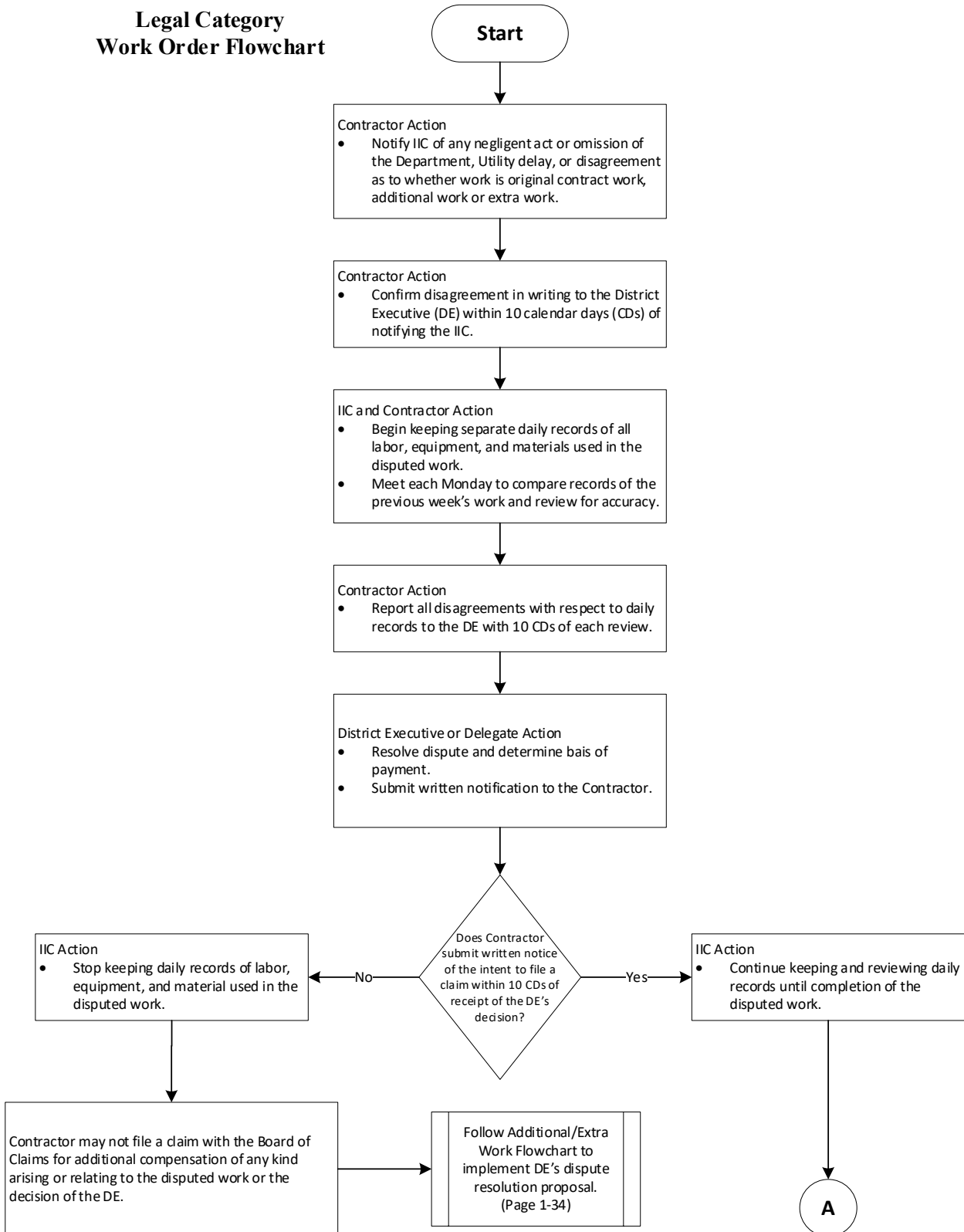


**Additional / Extra Work Category
Work Order Flowchart**

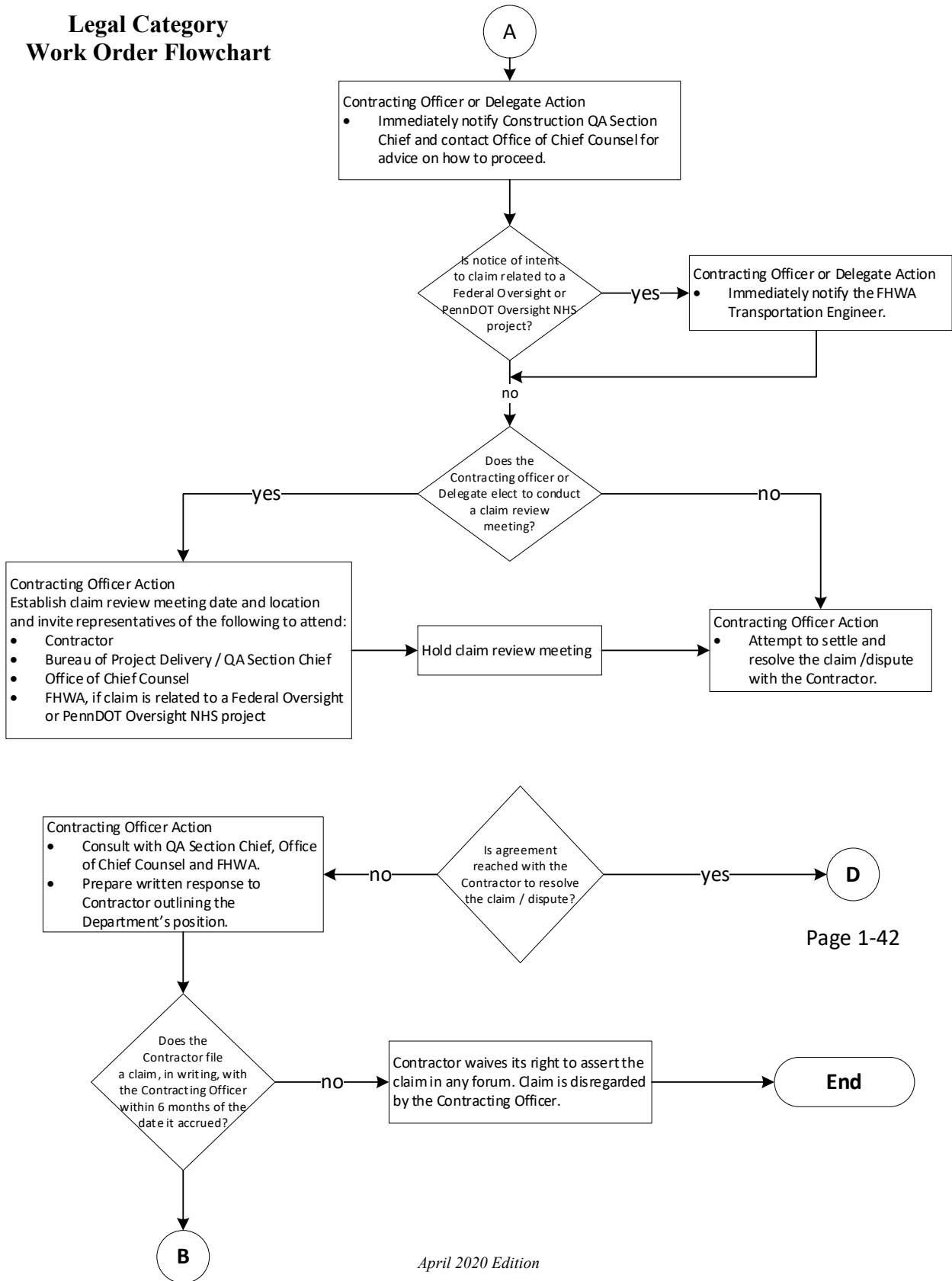


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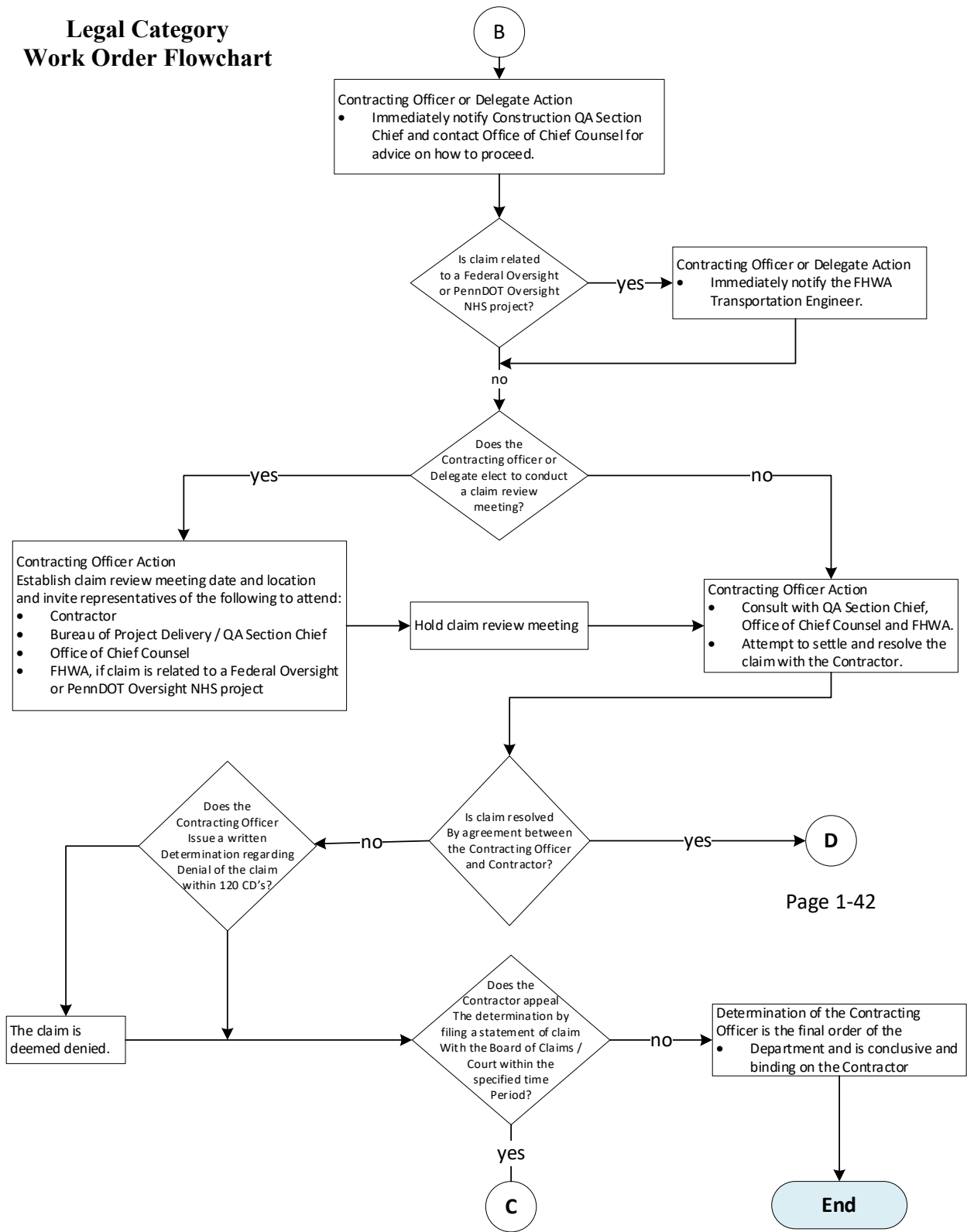
**Legal Category
Work Order Flowchart**



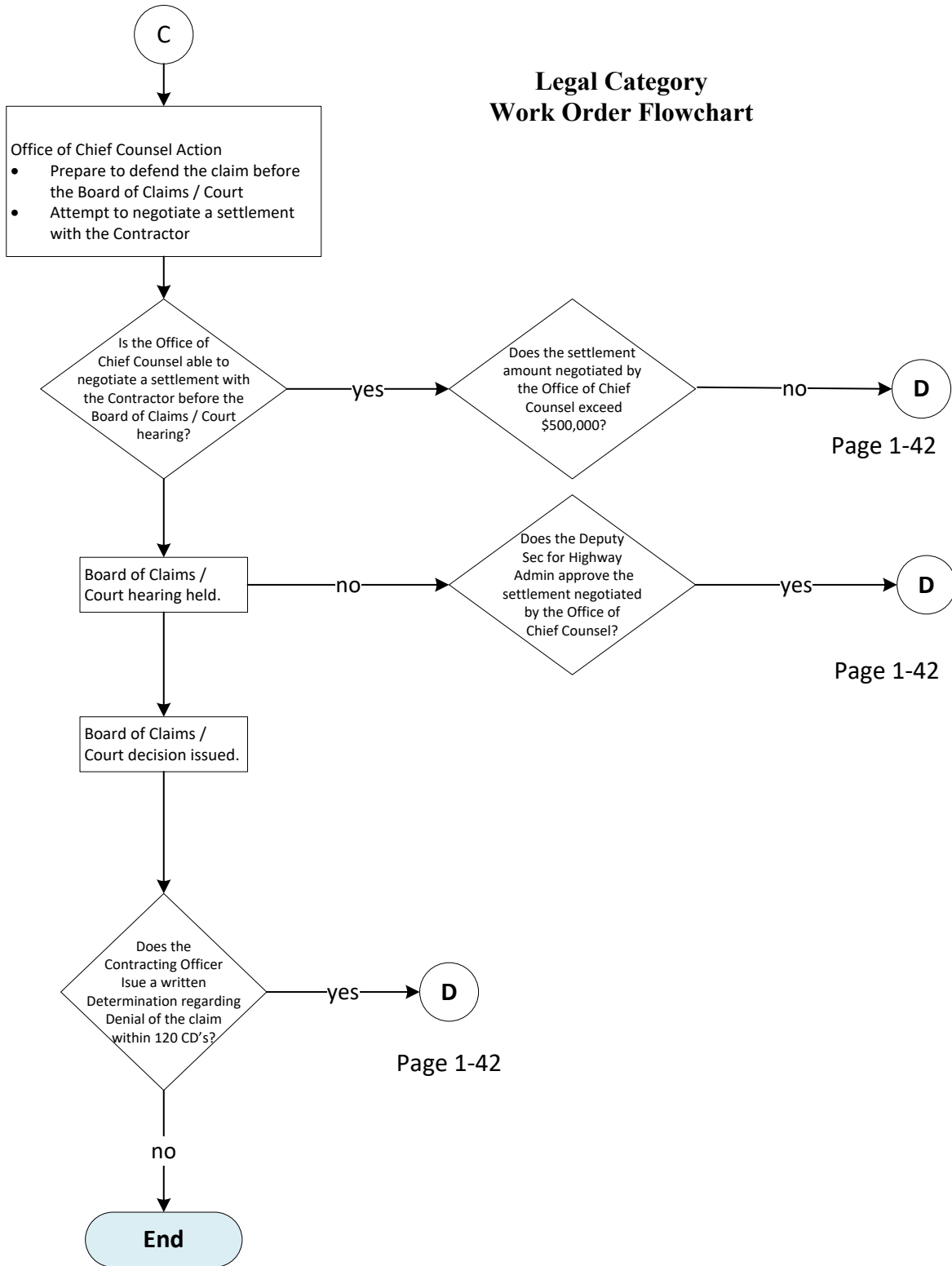
Legal Category Work Order Flowchart



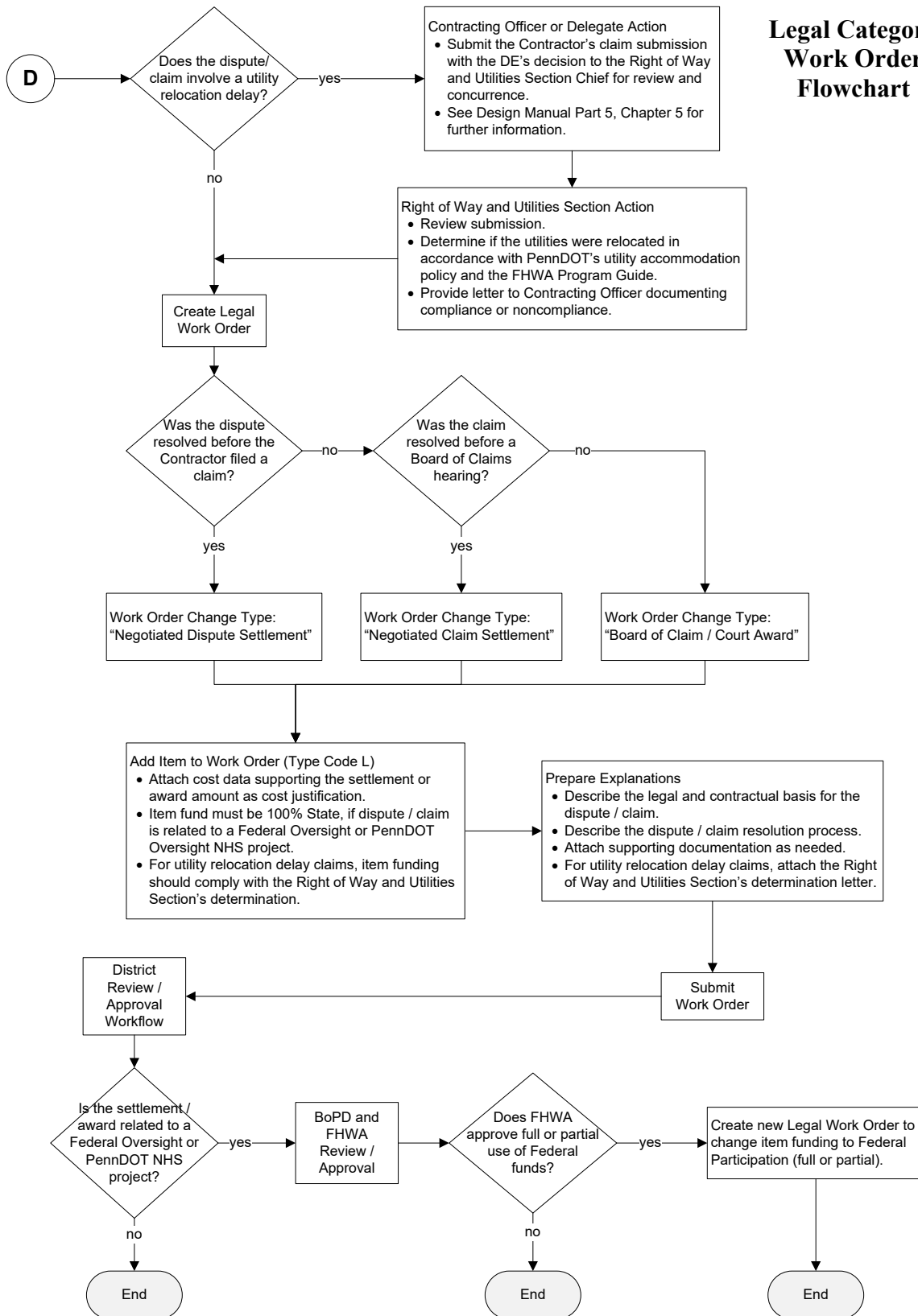
Legal Category Work Order Flowchart

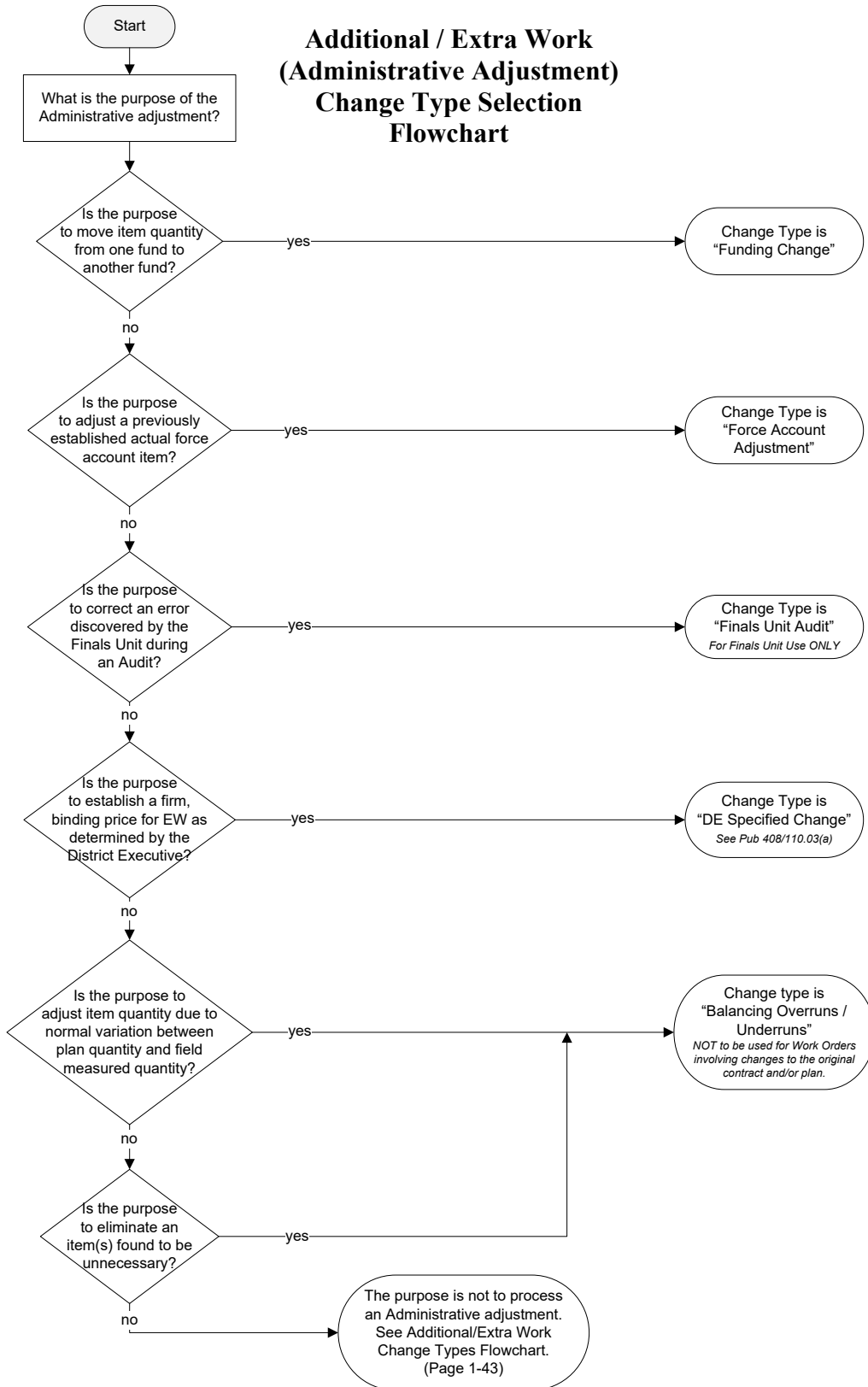


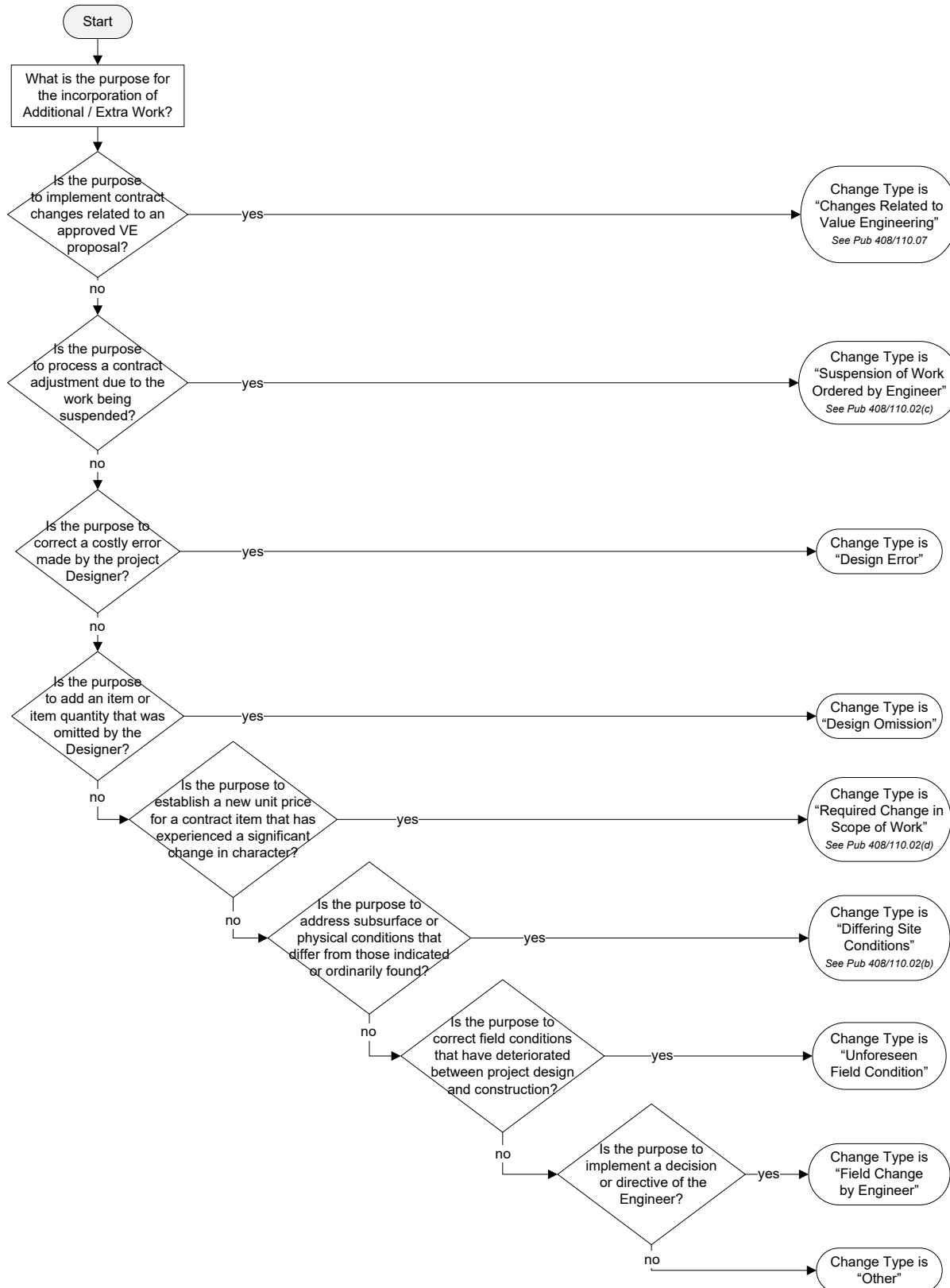
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Legal Category Work Order Flowchart







REPLACES B.3.2	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART B	SECTION 3	PAGE 2-1
DATED 04/01/2017		DATE April 1, 2020		
SUBJECT WORK CLASSIFICATIONS				

In ECMS, all original contract items and extra work items carry a corresponding work classification code.

The work classification code is the identifier for the established work classifications assigned to contractors through the prequalification process. The work classifications assigned the contractor determines the type of work they are eligible to bid as a prime contractor or are eligible to perform as a subcontractor.

Standard items listed in the Master Items list in ECMS are pre-coded by the Bureau of Project Delivery and the Prequalification Office when the items are established. Modified standard items are likewise precoded through the root item number. As a result, extra work involving use of standard or modified standard items will also be precoded.

Non-standard items identified in the proposal are assigned a work classification at the time the items are established in the ECMS Design Items.

Non-standard extra work items are to be assigned a work classification at the time the items are established for a work order.

Codes X, Z, and ZZ are not codes assigned to contractors, but are instead used to identify contract items that involve project management, administrative, and specialty type work.

Code X - Some items on the Schedule of Prices in the proposal do not relate to physical construction operations but to project management and administrative functions. Such items include Mobilization, Inspector's Field Office and Inspection Facilities, Engineering Stakes, Microcomputers, CPM Scheduling Requirements, and other equipment, material and services furnished by the contractor for the Department's use in administering the contract. These types of items are coded X and the value thereof is deducted from the total bid amount when determining if the contractor holds the necessary work classifications to qualify for at least 50% of the contracted work.

Code Z - Some items on the Schedule of Prices may relate to physical construction operations but have been determined to be excluded from the provisions of the Prequalification Regulations. These items are generally maintenance type services such as snow removal, roadside mowing, pesticide spraying, and hazardous material testing and disposal. Additional items which have been determined to be excluded include moving of building structures, boring and enlarging of holes on girder webs for bridge pin hanger projects, and removal and rehabilitation of granite face of highway tunnels. Trucking work items should also be coded as Z. Under the provisions of the Prequalification Regulations these items require the approval of both the Deputy Secretary for

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Highway Administration and the Office of Chief Counsel to be determined as being not under the purview of the Prequalification Regulations.

Approved items will be coded Z in the proposal. The value of these items will not be deducted when evaluating the 50% work classification requirement; instead, all contractors will be presumed to be qualified to perform the work involved. The following list of items has been approved by the Office of Chief Counsel as being exempt from prequalification requirements. The list will be modified when deemed appropriate.

- Dust Palliative
- Snow Removal
- Sign Maintenance (Routine cleaning, etc.)
- Sweeping
- Mowing
- Pesticide Application (Insecticides, etc.)
- Refuse Pick-up and Disposal

Code ZZ - This relates to any Specialty items that may be included in a project, and as noted in the regulations, will be deducted from the total original contract price before computing the amount of work required to be performed by the contractor. Specialty Items should be considered to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid on the contract, and in general are to be limited to minor components of the overall contract. Subcontractors performing Specialty Items on Non-ECMS projects are to be submitted on Form [CS-4339R](#), Request for Subcontractor Approval, in accordance with present procedures for subcontractors. Subcontractors performing Specialty Items for ECMS projects are to be entered on the Subcontractor, Service and DBE Supplier Request screen. Any requests which include work items with ZZ codes will be approved by the Prequalification Office.

If there are any questions concerning work classifications, please contact the Bureau of Project Delivery, Contract Management Section, Prequalification Office at (717) 787-3733.

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WORK	CODE	CLASSIFICATION
EARTHWORK	A	Clearing and Grubbing
	B	Building Demolition
	C	New Roadway Excavating and Grading
	C1	Other Excavation and Grading (Roadway Patches, Drainage, Structure Related, etc.)
	C2	Drilling and Blasting
	C5	Anchors
	C6	Drilling
BASE COURSE	C4	Rubblizing
	D	Rigid Base Course
	E	Flexible Base Course
PAVEMENT	F	Asphalt Pavement
	F1	Asphalt Pavement Patching & Repair
	F2	Asphalt Joint and Crack Sealing
	F3	Milling, Rumble Strips, Scarification Asphalt or Concrete
	F4	Asphalt Surface Treatments, Seal Coats
	G	Rigid Pavement
	G1	Rigid Pavement Patching and Repair
	G2	Diamond, Carbide Grinding Concrete or Asphalt
	G3	Spall Repair
	G4	Joint Rehabilitation, Sawing & Sealing Concrete or Asphalt; Including Concrete Grooving
	W	Railroad Construction
	INCIDENTAL CONSTRUCTION	B1
C3		Geotextiles
H		Drainage, Water Main, Storm Sewer
H1		Pipe and Culvert Cleaning
H2		Pavement Base Drains
J		Guide Rail, Steel Median Barrier, Fences
J1		Concrete Median Barrier
J2		Fencing, Railings
J3		Impact Attenuating Devices
K		Curbs, Sidewalks, Inlets, Utility holes
K1		Masonry Work
K2		Concrete and Masonry Coatings
L		Slabjacking, Subsealing
ROADSIDE		M
	M1	Selective Tree Removal, Trimming
	M2	Silt Barrier Fence, Gabions, Erosion Control
	M3	Seeding and Soil Supplements
	N	Building Construction and Related Trades
	N1	Related Building Trades

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WORK	CODE	CLASSIFICATION
TRAFFIC ACCOMMODATIONS & CONTROL	O	Pavement Markings
	O1	Raised, Recessed Pavement Markers
	O2	Plastic Applications
	O3	Paint Applications
	P	Highway/Sign Lighting, Signal Control
	P1	CCTV, RWIS, Automated Anti Deicing Systems
	P2	Highway Advisory Radio System (HAR)
	P3	Dynamic Message Signs (DMS)
	P4	Integrated Communications Systems
	P5	Level 1 System Integrators (Hardware)
	P6	Level 2 System Integrators (Software)
	P7	Level 3 Integrators (Hardware/Software)
	P8	Highway/Sign Lighting, Electrical
	Q	Maintenance and Protection of Traffic
	R	Sign Placement (Post/Structure Mounted)
R1	Sign Structures (Refer to Pub. 408, Section 948)	
STRUCTURES (Bridges)	S	Cement Concrete Bridges Over 120 ft.
	S1	Cement Concrete Bridges up to 120 ft. and Steel Bridges with Straight Girders up to 120 ft.
	S2	Repair and Rehabilitation of Structures Concrete or Steel
	S3	Modified Concrete Deck Overlays
	S4	Bridge Culverts, Pedestrian Bridges, Timber Bridges
	S5	Structural Walls
	S6	Erection of Prestressed Concrete Beams
	S7	Rebar Installation
	S8	Transportation Tunnels
	S9	Bridge Deck Placement or Repair
	S0	Marine Repair
	T	All Steel Bridges with Curved Girders or Over 120 ft.
	T1	Bridge Removal
	T3	Erection of Fabricated Steel Members
	T4	Welding
	T5	Bearing Pads and Seals
	T6	Expansion Dams
	T7	Bridge Drainage
	T8	Shear Studs, Metal Bridge Deck Forms
	T9	Parapets
	U	Pile Driving
	U1	Caissons (Refer to Pub. 408, Section 1006.3(k))
	V	Field Steel Surface Preparation and Painting
	V1	Shop Steel Painting
V2	Disposal of Bridge Waste/Containment/Worker Health and Safety	

REPLACES B.3.3	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 3	PAGE 3-1
DATED 04/01/2019	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT PARTNERING				

Partnering is required for all projects except for local, emergency, or maintenance projects. (DF box culverts, line painting, crack sealing, raised pavement markers, etc.) The following guidelines and procedures are provided for the Department's Partnering Process.

Project Selection:

- The three levels of partnering facilitation (Internal Facilitation, Semi-Formal Facilitation, and Formal Facilitation) are included in the bid proposal as follows:
 - Item 0690-0001 Internal Facilitation - 1000 Dollar
 - Item 0690-0002 Semi-Formal Facilitation - 6000 Dollar
 - Item 0690-0003 Formal Facilitation - 10000 Dollar
- The level of partnering facilitation will also need to be included as a part of [Form CS-101](#), Inspector's Field Office and Inspection Facilities Project Development Checklist.
- If the contractor does not agree with the partnering facilitation type selected after being awarded the project, the project's Assistant Construction Engineer (ACE), or Representative, and the Contractor Project Manager shall complete [Form CS-9](#) – Project Facilitation Type Score Sheet to determine the level of partnering facilitation that will be required for the project. This determination shall be completed at the preconstruction conference.

Partnering Process:

The Partnering process will initially be as follows:

- All Design, bid, and letting requirements, procedures, and policies will remain the same.
- If required to hold a Kick-off Partnering Workshop, the ACE and Contractor Project Manager shall meet prior to the workshop to select potential dates, a location, and a facilitator for the workshop. Also, create an agenda, develop presentations and a list of attendees, and discuss objectives for partnering on the project.
- If required, the Kick-off Partnering workshop shall be held within 30 days of the Notice to Proceed, but not later than 10 days after work has started.

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- If required, the District and the Contractor will mutually arrange for a Kick-off Partnering Workshop as follows:
 - If using a facilitator, the facilitator must be mutually acceptable to the Contractor and the Department. The District must concur with the Contractor's selection.
 - Key project "stakeholders" will attend. A Workshop attendee checklist is found on page B.3.3-3.
 - The workshop agenda will consist of a discussion of partnering principles, development of the escalation matrix, development of a project charter with defined goals and objectives, and development of a defined problem solving procedure and evaluation process.
 - For semi-formal facilitation, the workshop will be held for a minimum of ½ day. For Formal facilitation, the workshop will be held for a minimum of one full day.
 - Location will be a neutral site and in close proximity to the project site.
 - At the end of the partnering workshop, the participants shall sign a Partnering Charter. The Partnering Charter includes all the principles and commitments made during the partnering session and the project goals and identified values of the team.
 - A structured partnering follow-up plan should result from the partnering workshop that will be followed for the duration of the project and that can effectively assist the project managers in the successful completion of the project.
 - Facilitator and partnering session evaluations will be completed by participants at the end of the Kick-off Partnering Workshop.
- The Department agrees to reimburse 50% of the invoice costs for the facilitator workshop and session costs, monthly partnering evaluation survey service cost, cost for partnering skills development and trainer and training site cost (if necessary).

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When invitations to the workshop are prepared, the following Representatives should be considered:

Local Officials:

City Manager/Engineer
Borough Manager/Engineer
Township Manager/Engineer
Chamber of Commerce Representative

Consultant Designer:

Owner/President
Vice President
Design Engineer
Squad Leader

Contractor Officials:

Owner/President
Vice President
Superintendent
Project Manager
Lead Foreman

Consultant Inspection:

Owner/President
Vice President
Construction Engineer
Project Engineer
Lead Inspector

Sub-Contractor Officials:

Owner/President
Vice President
Superintendent
Project Manager
Lead Foreman

PennDOT Officials:

District Executive
ADE for Construction
ADE for Design
ADE for Maintenance
Assistant Construction Engineer/Manager
Construction Services Engineer
District Bridge Engineer
District Materials Engineer/Manager
Structure Controls Engineer
Liaison Engineer
Design Services Engineer
Plans Engineer
Squad Leader
Traffic Engineer
Environmental Engineer
Utilities Engineer
Grade Crossing Engineer
Project Engineer
Lead Inspector
Project Office Manager
Geotechnical Engineer
Materials Engineer
Chief of Surveys
Mining Engineer
County Maintenance Manager

Supplier Officials:

Owner/President
Vice President
Manager
Sales Representative

Utilities:

Electric
Gas
Water
Sewer
Telephone
Cable

Other:

Federal Highway Administration
Pennsylvania Turnpike Commission
Department of Environmental Resources
Archeology
Historical
Parks & Recreation
Fish and Game Commission
Railroads (Norfolk Southern, Amtrak, CSX, etc.)

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Transit Authorities (SEPTA, CAT, etc.)

Note: This list is not intended to be conclusive. Any party impacting the project should be invited to the Partnering Workshop.

REPLACES B.3.4	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 3	PAGE 4-1
DATED 04/01/2020	PROJECT OFFICE MANUAL	DATE April 1, 2021		
SUBJECT CONSTRUCTION VALUE ENGINEERING				

The requirements and procedures for Construction Value Engineering (VE) are as specified in Publication 408, Section 104.04, Value Engineering. This section permits Contractors to apply cost reduction proposals and cost saving techniques to highway and bridge projects.

In addition to the requirements as specified in Publication 408, Section 104.04, the following procedures apply in evaluating the Contractor's VE proposals:

CONSTRUCTION VALUE ENGINEERING (VE) CONCEPT PROPOSALS

- The District will be responsible to review and accept/reject all Construction VE Concept Proposals received from the Contractors.
- The Contractor will submit the Construction VE Concept Proposal through the Pennsylvania Project Collaboration Center's (PPCC) Value Engineering-Concept workflow.
- The VE Concept Proposal should contain sufficient information to provide concept evaluation and review. The Contractor does not need to develop detailed design specifics until after receiving approval to proceed. However, in cases involving major design changes, the Concept Proposal will require more detail, so a proper evaluation can be made.
- Rejection or acceptance to proceed for all Construction VE Concept Proposals is the responsibility of the Assistant District Executive for Construction (ADE-C) on behalf of the District Executive (DE).
- Acceptance of the Contractor's VE Concept Proposal authorizes the Contractor to proceed in preparing an official Construction VE Detailed Proposal. Concept approval does not imply the Department's acceptance of the Construction VE Detailed Proposal.
- After concept acceptance is given, the Contractor will schedule a project meeting to determine the necessary steps in developing, submitting and reviewing the VE Detailed Proposal. This meeting could include, but is not limited to, a discussion of review timelines and approval milestones, engineering requirements, and drawings to be submitted with the VE Detailed Proposal.

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CONSTRUCTION VALUE ENGINEERING (VE) DETAILED PROPOSALS

- The District will be responsible to review and accept/reject all Construction VE Detailed Proposals received from the Contractors.
- The Contractor is to submit, through PPCC, a Construction VE Detailed Proposal following the procedures as specified in Publication 408, Section 104.04, including an acceptable cost justification for all items of Extra Work being proposed for incorporation into the contract. The District will ensure costs associated for consultant review of the proposal are calculated into the actual net savings if applicable. The Contractor may request an oral presentation in addition to its written submission.
- The Contractor will submit the Construction VE Detailed Proposal to the to the project's Assistant Construction Engineer (ACE) on behalf of the District Construction Unit through PPCC's Value Engineering-Detailed Proposal workflow.
- Once accepted by the ACE, the District VE Coordinator and VE team, if utilized, (use of VE team is optional) will be responsible for coordinating the review and will present the proposal and recommendations of either approval or rejection to the DE.
- The District may need to assemble a VE team to review and evaluate the VE Detailed Proposal. The VE team could include multiple disciplines (e.g., bridge, traffic, maintenance) and management within the district as well as members of the project's design team (including consultants).
- If the District requires assistance from the Bureau of Project Delivery (BOPD) in the review of the proposal, add those BOPD individuals to the CO-(VE) Comments Reviewer role in PPCC. This will enable the District to submit a request for comment. BOPD to review concurrently with the District.
- On Federal Oversight Projects, while the District reviews the proposal, the District VE Coordinator will submit a request for comment in PPCC to the District's Federal Highway Administration (FHWA) Transportation Engineer for their concurrence or comments.
- The ADE-C on behalf of the DE will notify the Contractor, in PPCC, of either acceptance or rejection, of the VE Detailed Proposal. If the acceptance is conditional, the notification to the Contractor in PPCC will note the conditions. If rejected, the notification to the Contractor in PPCC must include the reasons for rejection.

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DISTRICT CONSTRUCTION UNIT IMPLEMENTATION

- Compensation to the Contractor will be made as specified in Publication 408, Section 110.07. One-half of the actual net cost savings associated with an approved Construction VE Detailed Proposal is to be paid to the Contractor.
- The “Value Engineering – Initial Payment” will be made as a contract adjustment and is to be processed within 14 days of accepting the VE Detailed Proposal to provide payment for one-quarter of the estimated net cost savings as identified in the accepted VE Detailed Proposal.
- An authorization for contract work and work order are to be processed upon acceptance of the VE Detailed Submission. The work order will contain the items of work and quantities based on the VE Detailed Proposal. Estimates for the project will continue to be paid every two weeks and will contain quantities of the VE Detailed Proposal items as they are completed and once the work order is approved.
- The “Value Engineering – Final Payment” will be made as a contract adjustment upon completion of all items of work and all required documentation being submitted and accepted that is included as part of the VE Detailed Proposal and the processing of any follow-up work order.
- All costs incurred by the Department for consultant review of the VE Detailed Proposal must be included in the calculation of the actual net cost savings.
- The amount of the final payment is equal to one-half of the actual net cost savings associated with the VE Detailed Proposal; based on actual, field-measured item quantities; minus the amount paid to the Contractor under the “Value Engineering – Initial Payment” contract adjustment.

REPLACES B.3.5	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART B	SECTION 3	PAGE 5-1
DATED 03/01/2011		DATE April 1, 2020		
SUBJECT PAYMENT FOR MATERIAL ACQUIRED FROM CONTRACTORS				

It is sometimes necessary for the Department to acquire material from contractors when contract changes delete work for which on-hand, nonreturnable material has been purchased.

In such instances, the Department will take possession of the material for use on other contract work or work performed by Department forces.

The contractor will be reimbursed for the actual cost of the material including applicable tax and transportation charges, as evidenced by receipted invoices, plus 15% for overhead and profit as specified in Publication 408, Section 110.03(d)7.

If the acquired material was ordered by and invoiced to an approved subcontractor, an additional 5% of the invoice amount is applicable.

Payment for material acquired from a contractor will be made on an Actual Force Account basis through the establishment of an Extra Work item (Item Type Code "A") and the processing of an "Additional / Extra Work" category work order. Care must be taken in the preparation of the work order to ensure that the item is not coded for Federal participation. FHWA does not participate in costs for materials not incorporated into federal-aid projects.

REPLACES B.3.6	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART B	SECTION 3	PAGE 6-1
DATED 03/01/2011		DATE April 1, 2020		
SUBJECT PROJECT DELAYS AND DAMAGE DUE TO WEATHER-RELATED EVENTS				

As specified in Publication 408, Section 108.06(a), weather-related events warranting an emergency declaration by the Federal Government or by the Government of the Commonwealth of Pennsylvania may qualify for an extension of contract time provided it can be clearly established that the delay to the project for which a time extension is sought is not, in fact, the responsibility of the Contractor, and that the Contractor has taken all necessary precautions to protect the project from damage, as required. Furthermore, the Secretary of Transportation, or an authorized delegate, must determine, following an emergency declaration, that the emergency conditions had a direct adverse impact on one or more active construction projects. Finally, for a given project to qualify, the accepted Schedule in place at the time of the weather-related event giving rise to the emergency declaration must show work on one or more controlling operations occurring during the period in which the weather-related event took place.

Publication 408, Section 105.13(a) states that if the Representative determines the damage is due to unforeseeable causes beyond the control of the Contractor and occurs despite satisfactory precautions taken, the work will be paid for at the Department's expense as specified in Publication 408, Section 110.03.

Photographs verifying the damage should be taken prior to performing the disaster-related work.

The District's Disaster Recovery Coordinator and the PennDOT Emergency Management Manual should be consulted for proper coding, work order identification, Damage Survey Reports and procedures.

REPLACES B.4.1	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 4	PAGE 1-1
DATED 4/1/2014	PROJECT OFFICE MANUAL	DATE April 29, 2021		
SUBJECT RADIATION DOSIMETRY BADGES				

This Section applies to PennDOT personnel using or transporting nuclear gauges.

Construction's nuclear testing program is regulated by the Department of Environmental Protection (DEP) which requires each and every certified operator to wear an assigned dosimetry badge to determine their exposure to occupational radiation at **all times while operating, transporting, or handling a nuclear gauge.** Additionally, individuals who are not certified operators are required to wear a dosimetry badge when their duties encompass handling or transporting nuclear gauges.

Dosimetry badges are used to measure occupational exposure over quarterly monitoring periods. A dosimetry badge, which shows a monthly exposure rate of 100 millirem or higher, requires an investigation by the PennDOT Radiation Safety Officer and the appropriate District personnel to determine the cause of the elevated reading. Elevated readings often result from incorrect handling or storage of the dosimetry badge. Dosimetry badges should be worn at the core of the body (i.e., chest/waist level) when operating, transporting, or handling a gauge. Never wear another person's dosimetry badge. Never store a dosimetry badge near a gauge or other radiation sources or wear it to a non-work-related activity that may result in radiation exposure such as a dental appointment.

Dosimetry badges are assigned to designated individuals and exchanged quarterly. Following exchange, promptly return exposed badges in properly marked packages to:

Via United Parcel Service (UPS) or Federal Express (FedEx)	Via United States Postal Service (USPS)
PA Dept of Transportation Materials Testing Laboratory 82 Dogwood Ave Harrisburg PA 17110 Attention: Radiation Safety Officer	PA Dept of Transportation Materials Testing Laboratory 81 Lab Lane Harrisburg PA 17110-2543 Attention: Radiation Safety Officer

Further shipping guidance is provided in the transmittal letter included with the replacement dosimetry badge(s) shipped to the District program contact for exchange.

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Personnel may refer to the PennDOT "Nuclear Gauge Operator's Safety Training Manual" or check with designated District personnel to resolve questions regarding dosimetry badge monitoring requirements. Copies of the "Nuclear Gauge Operator's Safety Training Manual" and other information are available from:

Brandon Carson (717) 787-2933 brancarson@pa.gov

Charles Alcorn (717) 346-0493 calcorn@pa.gov

Non-compliance may result in fines and/or civil penalties by the DEP and could jeopardize PennDOT's license that allows operators to use nuclear gauges.

REPLACES B.4.2	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART B	SECTION 4	PAGE 2-1
DATED 4/1/2020		DATE April 29, 2021		
SUBJECT OPERATION, HANDLING, AND STORAGE OF NUCLEAR GAUGES				

This Section applies to PennDOT personnel using nuclear gauges.

Authorized Users

Do not operate any gauge unless you have been properly trained in its operation and have been authorized by the PennDOT Radiation Safety Officer (PennDOT RSO) to do so. Only PennDOT licensed operators can operate PennDOT owned nuclear gauges. PennDOT operators may be authorized for just the backscatter method of operation or both the backscatter and direct transmission methods of operation.

Contractors and consultants have their own nuclear gauges and trained operators. Contractors and consultants are responsible for the proper use and operation of their gauges on PennDOT projects. If a PennDOT employee observes a contractor or consultant operating a nuclear gauge improperly on a PennDOT project, the employee shall report the observation to their immediate PennDOT supervisor for appropriate corrective action. If the concerns cannot be resolved between the contractor or consultant's personnel including, as may be required, the contractor or consultant's Radiation Safety Officer and PennDOT's District personnel, the PennDOT RSO shall be contacted.

Authorization for Direct Transmission Method of In-Place Nuclear Density and Moisture Content

Separate District Approval is required to perform the direct transmission method of operation. In addition, each nuclear gauge operator must have special training to perform the direct transmission method to determine material specification compliance. To secure District Approval, the District Executive (or designee) must submit a written request to the PennDOT RSO for review and approval. The PennDOT RSO will grant District Approval for operation of nuclear gauges by the direct transmission method when at least one District personnel has received training and a nuclear gauge operator license from the PennDOT RSO for the direct transmission method. Subsequent operators are granted licenses following a combination of classroom training and documented field training by an experienced operator.

District Approval for operation of a nuclear gauge by the direct transmission method is only for applications specified in Publication 408 Specifications or applications specified in active PennDOT Standard Special Provisions. Use of the direct transmission method for applications that are not specified in either Publication 408 or PennDOT Standard Special Provisions is not authorized.

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Safe Field Use of a Gauge

Wear your dosimetry badge at all times while using or transporting a nuclear gauge (see POM Section B.4.1).

Use the gauge according to the manufacturer's instructions and recommendations.

Do not touch the unshielded source rod with any part of your body, and do not place hands, feet, or other body parts in the radiation field from an unshielded source.

Unless absolutely necessary, do not look under the gauge when the source rod is being lowered into the ground. If you must look under the gauge to align the source rod with the hole, follow the manufacturer's procedures to minimize radiation exposure.

After completing each measurement in which the source is unshielded, immediately return the source to the "Safe" shielded position.

Always maintain the gauge under constant view and immediate control when it is not in storage. At job sites, do not walk away from the gauge when it is left on the ground even if it may seem safe to do so. Protect yourself and the gauge from the danger of moving heavy equipment.

Always keep unauthorized persons at least 15 feet away from the gauge.

When not in use, the gauge should be placed in its transport case and securely locked in the operator's vehicle (or other appropriate locked storage location).

Return the portable nuclear gauge to a proper locked storage location at the end of the work shift.

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Storage of Gauges

Three Types of Storage:

Permanent: These are long-term (multiple years, over winter, multiple construction seasons) locations used to store nuclear gauges in permanent department facilities such as District/County facilities, garages, stockpiles, etc.

Temporary: Short term (one construction season) locations such as specially equipped job trailers (on project site), rental storage units, custom stand-alone storage devices, etc. All such locations must be anchored/fixed so that removal/transport is not feasible.

Vehicles: A vehicle may be used for storage, but it is recommended that this practice only be used for short periods of time or when a portable gauge is in transit. A portable gauge should only be kept in a vehicle overnight if it is not practical to provide storage in a permanent or temporary storage location. Gauges may be stored in vehicles overnight if the gauge will be used within 24 hours from the previous usage. Otherwise, storage needs to be in one of the two other storage types defined above. For security purposes during transit, the transport case shall be secured to the truck using two independent physical controls (e.g., metal chain or cable with a lock or a secured enclosure). If a locked cap is used, the gauge shall be further secured to the truck using a locked metal chain or cable.

Permanent or temporary storage locations should be secured against unauthorized access and located in an area away from non-gauge using personnel. Radiation dose in unrestricted areas must not exceed 2 mrem in any one hour, and the dose to any member of the public shall not exceed 100 mrem in a year, excluding background radiation. Permanent or temporary storage locations must be posted with (a) “Caution – Radioactive Materials” sign, (b) Pennsylvania Department of Environmental Protection Notice To Employees (Form 2900-FM-BRP003) available in both English and Spanish, (c) [PennDOT Notice to Workers](#), and (d) the procedure for Radiation Incidents (POM Section B.4.4).

Department gauges shall be stored in areas completely separate from all contractor/consultant gauges.

REPLACES B.4.3	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 4	PAGE 3-1
DATED 4/1/2020	PROJECT OFFICE MANUAL	DATE April 29, 2021		
SUBJECT TRANSPORTATION OF NUCLEAR GAUGES				

This Section applies to PennDOT personnel transporting nuclear gauges.

The United States Department of Transportation (USDOT) requires that all hazardous materials be transported according to the requirements as stated in Title 49 of the United States Code of Regulations (CFR). The portable nuclear moisture density gauges used on Department projects are considered to be a hazardous material by USDOT.

Mandatory procedures and safeguards for transport of nuclear gauges are as follows:

- Gauges shall be logged in and out on the Nuclear Gauge Transport and Testing Log when returning and removing gauges from permanent storage facilities.
- Gauge must be locked in the "safe" shielded position when placed in its container. The shutter opening for the source rod should close automatically in the "safe" position. Shutter closure is required to be checked prior to transport.
- The container supplied with the nuclear gauge meets the required Type A package standards suitable for transport when undamaged (no cracks or significant defect) and properly marked. If the container is damaged, contact the PennDOT Radiation Safety Officer (PennDOT RSO) or designee.
- The Type A package is marked with two "Radioactive Yellow II" labels affixed to opposite sides and a "USA DOT 7A TYPE A" label. If these labels are damaged or removed or illegible, contact the PennDOT RSO or designee for replacement.
- The gauge must be in the properly sealed/locked container during transport. If any closure device (hinge, hasp, latch, etc.) is broken or inoperable, contact the PennDOT RSO or designee.
- Transportation of nuclear gauges by PennDOT personnel is restricted to shipment of PennDOT owned nuclear gauges between project locations, temporary or permanent storage locations, and the Materials Testing Laboratory (for calibration or repair) on suitably configured PennDOT owned vehicles. Other destinations or modes of transport require the approval of the PennDOT RSO.
- When the gauges are not under a person's direct control (usually due to transportation rest stops, meals, or delivery to storage locations), the gauge must be secured with two independent control devices with locks that form barriers to unauthorized removal of the sealed/locked portable container housing the gauge.

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- For a pick-up truck or vehicle, use a locked non-removable box or a locked cap hiding the gauges. The box shall be secured to the truck using a locked cable or chain. If a locked cap is used, the gauge shall be secured to the truck using a locked chain or cable. These barriers to removal, unless otherwise designed, do not constitute devices to prevent movement and damage during transport.
- For permanent or temporary construction storage, the location should be a locked structure within a separate secured (e.g., locked fence) area.
- No vehicle placards are required when transporting nuclear gauges owned by PennDOT.
- The Type A package shall not be transported in the passenger area of the vehicle. If using a van, station wagon, etc., transport with the package as far as possible from occupied area of vehicle.
- For transport, secure the Type A package in the vehicle to prevent movement and possible damage during normal transportation situations. The package may be secured by straps or blocked and braced to prevent movement. To prevent unauthorized gauge removal, secure the Type A package to the vehicle with independent control devices as discussed above.
- The vehicle, when not occupied by the licensed nuclear gauge operator, shall be locked.

According to 49 CFR § 177.817, "a driver of a motor vehicle containing hazardous material shall ensure that the shipping papers (describing the hazardous material) are readily available to and recognizable by authorities in the event of accident or inspection". Specifically, the driver shall:

- Clearly distinguish the shipping papers, if they are carried with other papers of any kind, by either distinctively tabbing the papers or by having the papers appear first.
- Locate the shipping papers as follows:
 - a. When the driver is at the vehicle controls, the shipping papers must be within the driver's immediate reach while the driver is restrained by the seat belt.
 - b. When the driver is not at the vehicle's controls, the shipping papers shall be on the driver's seat in the vehicle or in the driver's door pocket.

REPLACES B.4.4	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 4	PAGE 4-1
DATED 04/01/2020	PROJECT OFFICE MANUAL	DATE April 29, 2021		
SUBJECT RADIATION INCIDENTS				

This Section applies to PennDOT personnel using or transporting nuclear gauges.

All personnel who operate, handle or transport Nuclear Testing Gauges (hereafter referred to as ‘the operator’) should be instructed in and are required to adhere to the following safety practices and notification procedures in the order they are listed, in the event of an incident/accident involving a nuclear gauge. Some examples of an incident/accident could be any of the following: theft or loss of a gauge; physical damage to a gauge by a moving vehicle; fires or explosions that damage the gauge; and an event in which equipment is disabled or fails to function as designed (e.g., the source rod of a gauge stuck in the ground or radioactive source rod cannot be pulled up into the shielded position).

1. Attend to anyone who may have been injured and, as appropriate, call 911.
2. Stop all vehicles or construction equipment involved, and do not move equipment until it is determined safe to do so by proper individuals. Cordon off a restricted area twenty (20) feet around the gauge and equipment or vehicles involved. Protect the nuclear gauge from further damage. Do not leave the gauge unattended. Keep the general public away from the immediate area of the incident until it is determined to be safe by proper individuals.
3. **IMMEDIATELY** notify the District Office or the Operator's Compaction Control Supervisor giving the location of the incident, gauge make/model, what damage has occurred with the gauge, a description of any danger or threat posed, and precautions taken.
4. The notified District Office or Compaction Control Supervisor must **IMMEDIATELY** inform the PA Department of Environmental Protection (DEP) at (717) 787-2480. The person who calls the DEP must describe the incident and document the time of the call, the date, and the name of the person contacted. Also, tell DEP that the U.S. National Response Center (NRC) and Pennsylvania Emergency Management Agency (PEMA) will be made aware of the incident. Any guidance from the DEP must also be documented and followed.
5. The District Office or Compaction Control Supervisor must then **IMMEDIATELY** inform the NRC at 1-800-424-8802 or 202-267-2675. The person who contacts the NRC must describe the incident and document the time of the call, the date, and the name of the person contacted. Inform the NRC that the DEP has been informed and PEMA will be made aware of the incident. Any guidance from the NRC must also be documented and followed.

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6. **IMMEDIATELY** after informing the DEP and NRC, PEMA must be notified by the District Office or Compaction Control Supervisor. PEMA's 24-hour contact number is (717) 651-2001 or PEMA can be reached by using their toll-free number at 1-800-424-7362. The person who contacts PEMA must describe the incident and document the time of the call, the date, and the name of the person contacted. Inform PEMA that the NRC and DEP have been made aware of the incident. Any guidance from PEMA must also be documented and followed.
7. The notified District Office or Compaction Control Supervisor must then contact one of the following individuals at the Materials Testing Laboratory:

Charles S. Alcorn
PennDOT Radiation Safety Officer
Office No. (717) 346-0493
Cell No. (717) 779-7636

Brandon Carson
PennDOT Assistant Radiation Safety Officer
Office No. (717) 787-2933
Cell No. (814) 386-2502

The theft or loss of a nuclear gauge must be reported immediately after its occurrence becomes known. Any other incident/accident involving a nuclear gauge must be reported as soon as possible but not later than four hours after the discovery of the event. It is mandatory that this procedure be followed even after normal working hours, as well as on weekends and holidays. The operator is ultimately responsible for all communications in the event the various individuals can't complete these notifications.

It is imperative that all parts of the stated notification procedures are followed. Recurrence of any type of non-compliance may place the Licensee's radioactive materials license in jeopardy. A breach of procedures will cause the DEP to assess the Licensee with a violation of its license.

All Department personnel who operate, handle, or transport gauges, and who supervise or manage any project or location where a gauge is used or stored, must be aware of the importance of following completely these notification procedures.

REPLACES B.4.5	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART B	SECTION 4	PAGE 5-1
DATED 04/01/2014		DATE April 1, 2020		
SUBJECT CONTRACTOR/CONSULTANT NUCLEAR GAUGES				

Contractors and Consultants for the Department shall abide by their company nuclear licensing documents and NOT by the directives of this POM. POM Sections B.4.1, B.4.2, B.4.3, and B.4.4 apply to PennDOT personnel using PennDOT-owned nuclear gauges.

When contractor/consultant personnel bring a nuclear gauge onto a project, the Inspector-in-Charge must confirm the existence of a current, valid nuclear license for the company the contractor/consultant represents.

Radiation Incidents

In the event of a radiation incident/accident involving a contractor/consultant nuclear gauge, the Inspector-in-Charge must confirm that the contractor/consultant has notified the contractor/consultant Radiation Safety Officer (RSO), and the Inspector-in-Charge must document this in the project record.

Gauge Storage

Contractor/Consultant gauges must be stored in secured locations separate from Department gauges.

REPLACES B.4.6	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 4	PAGE 6-1
DATED 03/01/1996	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT CONTRACTOR SAFETY PROGRAMS				

The Contractor is responsible for complying with all Occupational Safety and Health Administration (OSHA) Regulations at all times during the life of each project.

Publication 408, Section 107.08 requires the submission of a written safety program into the PennDOT Project Collaboration Center (PPCC). The District Project Safety Officer (DPSO) is responsible for reviewing all prime contractor safety programs. If the DPSO feels that any submitted program is inadequate, the District Construction Unit is to notify the contractor via PPCC and say that the safety program is inadequate. When this occurs, the DPSO should visit the project as soon as practicable after the contractor begins work to review the project safety.

REPLACES B.4.7	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 4	PAGE 7-1
DATED 04/01/2016	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT CONTRACT SAFETY COMPLIANCE GUIDELINES AND RESPONSIBILITIES				

The District Project Safety Officer (DPSO) is responsible for implementing and monitoring the District Safety Assurance Program for all construction contracts.

The DPSO will be familiar with all construction safety provisions, their application, and will advise the Inspector-in-Charge (IIC), as necessary, on matters relating to contractor compliance with safety regulations. The DPSO will ensure that the Assistant District Executive – Construction (ADE-C) is advised of a contractor's repeated failure to comply with the contract safety requirements.

1. Preconstruction

The DPSO (or designee) should attend the preconstruction conference, discuss the contractor's proposed safety program, and identify and discuss any specific safety hazards (confined spaces, fall protection, working over water, lead, asbestos, etc.) pertinent to the project and discuss any additional safety requirements.

A US Department of Labor Poster, [OSHA 3165](#) (Job Safety and Health: It's the Law), the contractor's emergency phone number (after hours contact personnel), the contractor's safety officer's name and phone number, and a listing of hazardous materials found in the workplace along with the location of the Safety Data Sheets (SDS) for these hazardous materials must be posted on the project bulletin board.

2. Project Inspection

A. Project

The Contractor is responsible for project safety.

If you see a major safety issue (life threatening), have the problem resolved immediately or stop work on that operation. If a stop work order is issued, follow up with written notification.

If you see a non-life-threatening safety concern, notify the foreman. If the problem is not corrected the next day, notify the project superintendent. If the problem still exists the next day, call the company's home office and inform the Assistant Construction Engineer/Manager (ACE/ACM). If the situation is not corrected one day after notifying the home office, the IIC is to notify the ACE/ACM and document these notifications in a Project Site Activity (PSA). The ACE/ACM will promptly contact OSHA (see ATTACHMENT for contact information) with the ADE-C's

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concurrence and provide written notification to the Contractor. **DO NOT EXPOSE YOURSELF TO A SAFETY HAZARD.**

Subsequent corrective action will be documented and reported to the DPSO. A copy of the report and subsequent corrective action will be part of the permanent project records.

Promote safe practices:

Be safe yourself - show a good example.

Encourage the contractor to hold and submit tool box talks weekly. (Note that it is encouraged that inspection staff attend these.)

Promote safety programs - Keep construction employees and the contractor informed of new or changing safety policies and regulations.

B. District

The DPSO will perform periodic safety field reviews of projects during construction. More frequent inspections may be required for those projects having high exposure to hazardous conditions, such as, multiple operations being performed concurrently within relatively confined areas, or construction operations being performed immediately adjacent to areas of public use, or to follow-up on previous findings or reports of fatalities or disabling injuries.

The DPSO will evaluate safety compliance on construction projects. As specified in Publication 408, Section 107.08, it is the contractor's responsibility to comply at all times with applicable Federal, State, and local laws, provisions, and policies governing safety and health including Occupational Safety and Health regulations for construction.

The DPSO will provide a verbal report to the IIC, following up with a written report of the review, with findings and recommendations. The report should include any corrective action taken by the time the report is prepared.

The DPSO is to perform a follow-up safety review of projects on which fatalities or disabling injuries have occurred to ensure that safety related practices and procedures for the project are being performed in compliance with contract requirements and Department procedures.

The DPSO will maintain a log of all reported disabling injuries and fatalities on construction projects, by County, State Route and Segment, Contract Number and, when appropriate, Federal Project Number. The DPSO will log the date of the follow-up review which is made to ensure that safety related practices and procedures for the project are being performed in compliance with contract requirements and Department procedures.

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The District will monitor the performance of the reporting procedures to ensure that the required information relating to fatalities and disabling injuries is being provided in a timely manner. The IIC is to communicate with the District Traffic Unit to ensure that the Unit receives its copy of each Construction Zone Vehicular Accident Report Form. The Traffic Unit can then report to the Central Office Highway Safety and Traffic Operations Division all motor vehicle accidents and traffic related disabling injuries that occur in the construction zone as described in the Project Office Manual (POM) Section C.9.13.

If consultant inspection will be utilized on a project, the District will ensure that a copy of the consultant's safety program containing their safety officer's or responsible individual's name and phone number is attached within their consultant agreement in ECMS.

3. Reports and Notifications

A. Serious Incidents

The IIC will report to the DPSO and the ACE/ACM all disabling injuries and fatalities that occur within the limits of the project signing or within a traffic queue that extends beyond the limits of the project signing.

NOTE: Disabling injuries for this procedure are defined as those that require a doctor's care at the scene of the accident or transportation to a hospital or doctor's office for treatment. Accident victims refusing or deferring treatment or transportation for treatment shall not be reported as a disabling injury.

The DPSO will notify the Bureau of Project Delivery (BOPD), Construction Quality Assurance Section (CQAS), at (717) 787-5610 and also the County Manager, about the occurrence of the following special events on Department projects:

- a. Chain reaction collisions of 15 or more vehicles.
- b. Accidents in construction and maintenance work zones resulting in death or disabling injury.
- c. School bus accidents resulting in death or disabling injury.
- d. Accidents involving the release of hazardous materials.
- e. Incidents which cause a major highway to be closed for six or more hours, except closures for maintenance and construction activities where the public and county have been notified in advance.
- f. Catastrophic events such as a bridge failure.

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- NOTES:
- 1) The CQAS will notify the FHWA Division Office of these special events by email at Pennsylvania.FHWA@dot.gov.
 - 2) The foregoing is in addition and subsequent to following Emergency Response requirements and procedures for the notification of the Pennsylvania Emergency Management Agency (PEMA) at (717) 651-2001 when an emergency situation is discovered.

B. Routine Incidents and Project Accidents

The District will ensure that the Contractor's insurance company is notified of every vehicle accident which occurs at the construction site according to POM Section C.9.14.

All accidents and near misses which involve a Department employee or Commonwealth vehicle must be reported, investigated, and appropriate corrective actions must be implemented in a timely manner as described in PennDOT Personnel Information Memorandum (PPIM) 13-156.

Accidents in construction sites which involve a consultant employee are to be reported to the consultant's safety officer or responsible individual by the District.

4. Project Safety Meeting

The IIC is responsible for ensuring that each inspector receives briefings regarding the potential hazards to the inspector's and the contractor workmen's safety and the required safety procedures that are to be followed by the inspector and the contractor for each construction operation to which the inspector is assigned.

The briefings are to consist of an initial briefing (I) and refresher briefings (R) and may include participation in contractor safety meetings as well as in meetings conducted by Department personnel. Participation in the contractor's tool box talks is encouraged.

The initial briefing should be received prior to or within two (2) working days of the inspector's first assignment to the inspection activity on the project.

Refresher briefings are to be received at intervals of approximately two (2) weeks for as long as the inspector is assigned to the activity. More frequent briefings may be required as determined by the IIC, the DPSO or their supervisors.

A consolidated record of these briefings is to be kept in a book or file marked for identification and traceable by index (or folder X) in the General File System and is to consist of the following format:

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Date of Briefing

Type (I or R) &
Subject of Briefing

Signature of Inspector

This documentation will be reviewed by the DPSO as a part of their inspection of the project to determine that adequate precautions are being taken to safeguard the inspectors.

The Contractor is responsible to monitor its own operations to see that it performs in accordance with its written project safety program. The IIC is to provide written notification to the contractor of unsatisfactory practices that are observed or that are brought to their attention and to document in a PSA or other approved source reference, notifications of such unsatisfactory practices and satisfactory resolutions thereof.

5. Child Labor Law

The Fair Labor Standards Act specifies a minimum age of eighteen for any nonagricultural occupation which the Secretary of Labor has declared hazardous, or detrimental to the health and well-being of sixteen and seventeen-year-olds. This minimum age applies even when the minor is employed by their parent or guardian.

The IIC is to request a birth certificate or certification of age when a violation is suspected. The prime contractor is to be advised, and the prime contractor must direct removal of any person in violation.

6. PROCUREMENT NOTE

Occupational Safety and Health Administration (OSHA) regulations pertaining to construction are contained in Federal Regulations for Labor, CFR 29 Parts 1910, General Industry, and 1926, Construction.

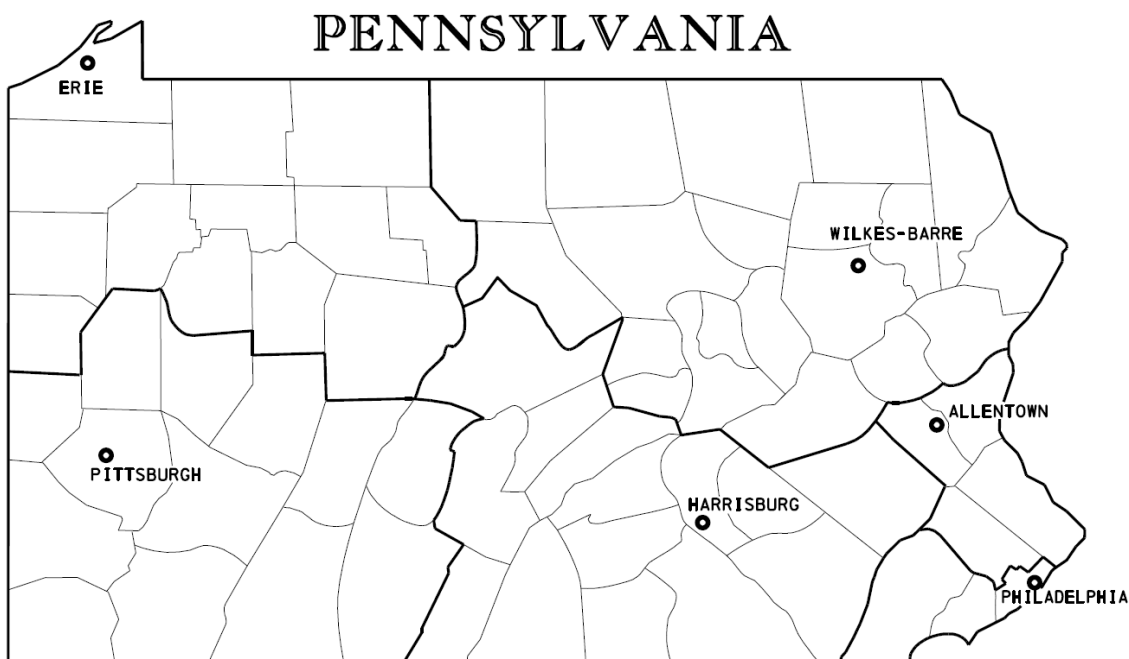
These regulations are available on OSHA's website <https://www.osha.gov/law-regs.html>

Specific questions can be addressed by a local OSHA office. See Attachment, pages B.4.7-6 thru B.4.7-7 for area OSHA offices.

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ATTACHMENT

**U.S. Department of Labor
Area Offices for the Occupational Safety and Health Administration**



Allentown Area Office
 Saucon Valley Plaza
 3477 Corporate Parkway, Suite 120
 Center Valley, PA 18034
 Telephone: (267) 429-7542

Philadelphia Area Office
 U.S. Department of Labor – OSHA
 100 Penn Square
 East Suite 1240
 Philadelphia, PA 19107
 Telephone: (215) 597-4955

Erie Area Office
 U.S. Department of Labor – OSHA
 1128 State Street, Suite 200
 Erie, PA 16501
 Telephone: (814) 874-5150

Pittsburgh Area Office
 U.S. Department of Labor – OSHA
 William Moorhead Federal Building, Room 905
 1000 Liberty Avenue
 Pittsburgh, PA 15222
 Telephone: (412) 395-4903

Harrisburg Area Office
 U.S. Department of Labor – OSHA
 43 Kline Plaza
 Harrisburg, PA 17104-1529
 Telephone: (717) 782-3902

Wilkes-Barre Area Office
 U.S. Department of Labor – OSHA
 The Stegmaier Building, Suite 410
 7 North Wilkes-Barre Boulevard
 Wilkes-Barre, PA 18702-5241
 Telephone: (570) 826-6538

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**U.S. Department of Labor Regional Office
for the
Occupational Safety and Health Administration**

REGION III (Washington DC, DE, MD, PA, VA, WV)

U.S. Department of Labor – OSHA
The Curtis Center – Suite 740 West
170 S. Independence Mall West
Philadelphia, PA 19106-3309
Telephone: (215) 861-4900

REPLACES B.4.8	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 4	PAGE 8-1
DATED 04/01/2014	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT ENVIRONMENT				

Introduction:

The Department's policy is to provide transportation and transportation related facilities and services in a manner that will make travel safer and more efficient, yet will preserve the quality of the environment while complying with federal, state and local environmental laws, regulations and procedures.

Throughout project development, construction and post-construction, the Department strives to reach a satisfactory solution - not only among resource and regulatory agencies, but also the public - regarding environmental issues and the specific measures needed to lessen environmental impact. Comprehensive public and agency involvement ensures that projects respond to transportation's needs with a minimum of community, environmental and quality-of-life impacts, while enabling the Department to better fulfill the promise of its mission:

Mission:

"It is the Department's Mission to provide excellent transportation systems, products and services in an environmentally responsible manner, and to promote economic vitality and enhance the quality of life."

Mitigation Commitments:

The District must implement all mitigation measures as described in the project's contract documents. Mitigation measures described in a project's contract documents must not be changed without the written approval of the District Environmental Manager and any additional approving Authority.

Mitigation commitments are binding, and project personnel should be made aware of the mitigation commitments made and incorporated into the project's design. Project personnel must have a thorough understanding of the Department's responsibilities and must know clearly their role in fulfilling those responsibilities. [Publication 10X \(Design Manual, Part 1X, Appendices to Design Manuals 1, 1A, 1B, and 1C, Appendix T\)](#) outlines the Environmental Commitments and Mitigation Tracking System (ECMTS) Process which is a tool built into ECMS to monitor and document the successful implementation of environmental commitments and mitigation measures agreed to during a project's environmental compliance and approval process. Security roles in ECMS identify project team members, including Department personnel, consultants, and contractors assigned with the responsibilities to ensure compliance is achieved.

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Avoidance measures for impacts to all environmental resources, including natural and cultural resources that are identified on the permit drawings must be fully implemented during the construction of the project. This is not optional as the avoidance measures are requirements to avoid impacts to these protected resources.

Once constructed as specified in the contract documents, mitigation measures must be monitored and maintained by the contractor through final inspection and completion of the contract.

Scope Changes:

Scope changes are any changes to the original project concept, made during construction. Such changes need to be carefully evaluated so as not to increase impacts to the natural, cultural and/or human environment. The following are a few examples of areas which are particularly critical/sensitive as related to project scope changes:

- Streams/Watersheds
- Floodplains/Wetlands
- Agricultural Resources
- Air/Noise/Vibration Receptors
- Public Facilities/Services
- Park and Recreation Facilities
- Utilities
- Historic Properties
- Archaeological Sites
- Graveyards
- Waste Sites
- Threatened and Endangered Species

During construction, the Inspector-in-Charge must notify the District Environmental Manager of any unanticipated involvement with environmental resources, hazards and/or substantial changes in the project's scope of work, before actions are undertaken.

REPLACES B.4.9	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART B	SECTION 4	PAGE 9-1
DATED 04/01/2014		DATE April 1, 2020		
SUBJECT PERMITS				

The Department wants to conserve and maintain the natural, scenic and aesthetic value of the environment and to assure its residents and visitors of clean air and pure water. One way this mandate is met is through a system of permits, licenses, registrations and certifications.

The following permits are common to transportation construction projects. Copies of all applicable permits should be included in the project files:

- Blaster's License 25 PA Code § 210.1-6, 211.1-78
- Explosives Storage Permit 25 PA Code § 211.78
- Explosives Purchase Permit 25 PA Code § 211.78
- U.S. Nuclear Regulatory Commission Material License 10 CFR § 80-1711
- Earth Disturbance Permit 25 PA Code §102
- National Pollutant Discharge Elimination System (NPDES) Permit 25 PA Code §102, 92a
- Bridge Permit 23 CFR § 650.805, 650.807
- Section 404 Permit for Discharge of Dredged or Fill Material 33 CFR §320-331
- Water Obstruction and Encroachment Permit 25 PA Code § 105
- Floodplain Management 25 PA Code § 106
- Submerged Lands License Agreement 25 PA Code § 105.31-35
- Emergency Permit for Activities in a Waterway or Body of Water 25 PA Code § 105.64
- Federal 401 Water Quality Certification 40 CFR § 121
- USFWS Biological Opinion/Incidental Take Statement or Permit 50 CFR Part 402
- PFBC Biological Opinion Take Permit 58 PA. CODE § 75.1-4
- Storage Tank Installer Certification 25 PA Code Chapter 245
- Storage Tank Inspector Certification 25 PA Code Chapter 245
- Storage Tank Company Certification 25 PA Code Chapter 245
- Above Ground and Underground Storage Tank Registration 25 PA Code Chapter 245
- Open Burning Permit Inside on Air Basin 25 PA Code Chapter 129.14

Except for the USACE Section 404 Permit and the Incidental Take Permits, these permits are most often approved and issued by the Pennsylvania Department of Environmental Protection in conjunction with the following:

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Advisory Council on Historic Preservation (COUNCIL)
 Federal Highway Administration (FHWA)
 Pennsylvania Historical and Museum Commission (PHMC)
 U.S. Army Corps of Engineers (USACE)
 U.S. Coast Guard (USCG)
 U.S. Environmental Protection Agency (EPA)
 U.S. Nuclear Regulatory Commission (NRC)
 U.S. Fish and Wildlife Service (USFWS)
 Pennsylvania Department of Conservation and Natural Resources (PDCNR)
 Pennsylvania Fish and Boat Commission (PFBC)
 Pennsylvania Game Commission (PGC)
 County Conservation Districts (CCD)

Avoidance measures for impacts to threatened and endangered species that are identified on the permit drawings must be fully implemented during the construction of the project. This is not optional as the avoidance measures are requirements to avoid impacts to the threatened and endangered species.

Many of the Department's bridge replacement projects require Aids To Navigation (ATON), which warn waterway users of the changing conditions ahead as well as help guide these users through or around the project area. Under Chapter 113 of the PA Fishing and Boating Regulations, placement of the aids to navigation requires an approved ATON Plan which is processed by the PA Fish & Boat Commission (PFBC). The Department submits ATON plans to the PFBC when Department projects will obstruct any portion of a recreational boating waterway. For the purposes of ATON, a recreational boating waterway is one where motorized boating, canoeing and kayaking are possible during suitable flow conditions. Additional information on ATON may be found in Publication 13M, Design Manual Part 2: Highway Design.

REPLACES B.4.10	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 4	PAGE 10-1
DATED 04/25/2013	PROJECT OFFICE MANUAL	DATE April 1, 2021		
SUBJECT RESPONSIBILITIES AND DOCUMENTATION REQUIREMENTS FOR EROSION AND SEDIMENT POLLUTION CONTROL				

Overview

Erosion and sedimentation are normal geologic processes which are accelerated by construction activities such as the removal of vegetative cover, soil disturbance, and significant changes in topography. These effects can be minimized by thoughtful planning and scheduling of construction activities.

The Pennsylvania Department of Environmental Protection's (DEP) Chapter 102 Regulations require all persons, municipalities and agencies engaged in earthmoving activities to develop, implement and maintain effective Erosion and Sediment Pollution Control (ESPC) measures that protect waters of the Commonwealth from construction site runoff. DEP refers to these measures as Erosion and Sediment Control Best Management Practices (E&S BMPs). E&S BMPs must be implemented for all earth disturbance activities.

Several principles are key to preventing sediment pollution from reaching waterways. These include:

- Staging and sequencing construction operations to minimize areas stripped of growth, including taking special precautions to prevent construction equipment and operations from causing or accelerating erosion (e.g., allowing excessive wheel rutting).
- Controlling erosion at the source.
- Controlling runoff leaving the project area.
- Keeping water originating outside the project separate from that originating within.

A written ESPC Plan is required for earth disturbances that exceed 5,000 square feet. The purpose of an ESPC Plan is to identify potential erosion problems and to define effective measures to be used in conjunction with construction operations to minimize erosion and sediment pollution. An ESPC Plan is also a condition of several permits commonly associated with PennDOT construction projects, including:

- National Pollutant Discharge Elimination System Permit for Stormwater Discharges Associated with Construction Activities (NPDES Permit).
- Erosion and Sediment Control Permit (E&S Permit).
- Chapter 105 DEP Water Obstruction and Encroachment Permit (WEOP).

The NPDES Permit and E&S Permit are authorized under 25 Pa Code Chapter 102 and are commonly referred to as Chapter 102 Permits.

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An ESPC Plan prepared for a PennDOT (Department) project usually consists of:

- Maps and drawings showing the topography of the existing area; proposed alterations; locations of E&S BMPs; and instructions for inspecting, maintaining, and repairing E&S BMPs.
- A narrative report describing the project and indicating the purpose, engineering assumptions and engineering calculations for E&S BMPs.
- Detailed instruction in the contract, special provisions, and/or the plans to define staging, sequencing and scheduling of operations, and the installation and removal of E&S BMPs.

The Department normally prepares the ESPC Plan and obtains the necessary permits for the project prior to awarding a bid. The Department's Inspector-in-Charge (IIC) is responsible for overseeing strict adherence to the plan by the Contractor.

Any deviation from the approved plan, such as by adjusting the sequence of operations or substituting an E&S BMP type, requires approval by the Department and either DEP or the delegated County Conservation District (CCD) prior to initiating the related work. The IIC can authorize changes without approval by the designated agency to address a pollution event or prevent an imminent pollution event, but the changes must be communicated to the agency within 48 hours.

As specified in Publication 408, Section 107.28, the Contractor may submit an alternate plan that will equally or better control erosion and runoff. When the Contractor chooses to do this, work may not start until the alternate plan is approved by the Department and either DEP or the delegated CCD.

The Contractor must install, maintain and monitor all required E&S BMPs throughout the duration of the construction project. Construction inspection personnel must ensure that the Contractor keeps all E&S BMPs maintained and properly functioning. When the inspector observes a condition that is not compliant with the permit and/or the ESPC Plan, the inspector must document the condition and take the appropriate steps to ensure that the Contractor promptly addresses it.

Do not allow borrow or wasting of material on any project prior to the project receiving all required approvals and permits. The appropriate E&S BMPs must be installed prior to start of these operations. Under no circumstances will waste material be placed within the 100-year floodplain or outside of approved waste disposal area limits. Waste materials are also strictly prohibited from being stored in areas adjacent to, or within 50 feet of, waters of the Commonwealth.

For compliance with Project Action Items for ESPC Plans, Ch. 102 NPDES Permits, DEP Ch. 105 WOEP Permits, Exx-9999 Permits and U.S. Army Corps Of Engineers (USACE) / Section

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404 Permits and PASPGP-# Permits; refer to the Construction Project Permit Summary Chart at the end of this Section on Page 10-12.

Responsibilities for Projects with a Chapter 102 Permit

Preconstruction Conference

A Preconstruction Conference with Department and Contractor representatives is normally held at the District office prior to the Notice-to-Proceed. At this conference, the Contractor must submit items related to the Chapter 102 permit, including:

- A signed Co-Permittee Acknowledgement Form for Chapter 102 Permits. The Department will also sign this form and submit it to DEP or the delegated CCD (whoever approved permit coverage). The form is available in DEP's [eLibrary](#).
- Identification of the licensed professional (Professional Engineer, Geologist, Land Surveyor or Landscape Architect) registered in the State, and if applicable, their designee, to be present onsite and responsible for implementing critical stages of the approved Post Construction Stormwater Management (PCSM) Plan.
- A Preparedness, Prevention and Contingency (PPC) Plan.

Environmental Preconstruction Meeting

The Department Representative shall also coordinate an Environment Preconstruction Meeting at the project site prior to any earth disturbance activities. All invited attendees are to be given at least seven (7) calendar days notice, unless otherwise specified. The following people must attend this meeting: Assistant Construction Engineer (ACE/ACM or designee), IIC, Design Project Manager (or designee), Contractor and the Contractor's licensed professional (or designee). Either DEP or the delegated CCD, and a Department District Environmental Team Member, must be invited. This meeting is an opportunity to discuss key items related to the Chapter 102 permit, such as:

- Acknowledgement by either DEP or the delegated CCD of the previously submitted Co-Permittee Acknowledgement Form for Chapter 102 Permits.
- Requests by the Contractor to revise the ESPC Plan, such as substitution of E&S BMPs and sequencing revisions.
- Proposed waste and borrow sites.
- A procedure for submitting notices to either DEP or the delegated CCD of any incidents causing or threatening pollution.
- Permission to perform post-rainfall visual site inspections on Monday for events that occur between Friday and Sunday.
- Suspending visual site inspections during winter shut down.

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The Department Representative shall arrange for someone to take meeting minutes and distribute them to all invitees within 14 calendar days of the meeting, unless otherwise specified. A copy of the minutes shall be kept in the ESPC file folder at the project field office.

Visual Site Inspections (SSA Program Field Inspections)

Weekly, post-rainfall, and corrective action visual site inspections are a requirement of all Chapter 102 permits. Weekly inspections are routine and scheduled at the discretion of the IIC. Rainfall-triggered inspections must be conducted within 24 hours after each measurable stormwater event (0.25 inches or more of rainfall). Anytime a deficiency in implementation of the ESPC Plan or PCSM Plan is observed, an inspection must be conducted to document it and prompt a corrective action. Visual site inspections begin when earth disturbance commences and must continue until the receipt and approval of the permit's Notice of Termination (NOT) by either DEP or the delegated CCD.

As Co-Permittees, both the Department and the Contractor are responsible for ensuring that visual site inspections are completed. The Department inspector will normally take the lead, while the Contractor is to participate and acknowledge the inspection report completed by the Department inspector.

DEP requires that visual site inspections be documented on their form titled Chapter 102 Visual Site Inspection Report (VSIR). Department and consultant inspectors shall use the VSIR mobile application (available in PennDOT Apps) to document inspections electronically. The inspection report is saved to the Engineering and Construction Management System (ECMS) Project Information-screen, Construct-tab, Visual Site Inspection-link. If the inspector does not have access to the mobile application at the time of the inspection, the VSIR form shall be completed on paper and saved in the project files. The form is available in DEP's [eLibrary](#).

Each project field office must have a rain gauge supplied by the Department. Documentation of inspections that are triggered by rainfall must include an estimate of rainfall depth within the past 24 hours. The rain gauges should have a 5-inch capacity with easy to read gradation readings of 0.1 inches and be constructed of weather resistant heavy gauge plastic.

Addressing Deficiencies

The summary table in the Compliance Response Policy (CRP) contains the sequence of actions to be taken by the Department to ensure Contractor compliance. The CRP table can be viewed in [Appendix A](#). The CRP table must be followed for projects covered by a Chapter 102 Permit. For other projects, the Department should use the CRP table as guidance and take actions best calculated to promptly achieve compliance.

Under normal conditions, after being notified by the IIC, the Contractor must correct deficiencies within 24 hours if pollution has already occurred. If pollution has the potential to

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occur, the Contractor must correct deficiencies no later than the end of the next business day. Otherwise, if rain is forecasted, repairs must be made before the rainfall occurs.

When a deficiency in one of the first two categories in the CRP table occurs, either the DEP or the delegated CCD must be contacted (via phone or personal contact) by the Department as soon as possible, but no later than four hours after being notified. The VSIR documenting the non-functioning BMP(s), or other non-compliance, must be sent to either DEP or the delegated CCD within five calendar days unless otherwise specified. These two categories are for deficiencies that either have resulted or could result in a “significant discharge of pollutants” to waters of the Commonwealth. In general, if the deficient condition has or could lead to a release of concentrated pollutants (e.g., sediment-laden runoff, concrete wash water) across the right-of-way or directly into a surface water, it would fall into one of these categories. This may include missing, inoperable, or ineffective BMPs.

Upon reduction, loss, or failure of any E&S BMP, the Contractor must take action to restore, repair, or replace the BMP or provide an alternative method of treatment consistent with the CRP table. Such restored BMP or alternative treatment must be at least as effective as the original BMP when properly installed. Sufficient actions must be undertaken to ensure that there are no pollutants or pollution discharged to the waters of the Commonwealth. This requirement applies whenever a BMP is rendered ineffective, regardless of whether the cause or source of the reduction, loss or failure is within or beyond the control of the Department or Contractor.

District Self Inspections and CQAS Stormwater Self-Audits

In 2018, as part of a consent agreement with the USEPA, the Department agreed to implement a Stormwater Self-Audit (SSA) Program to improve the efficacy of construction stormwater runoff inspections. The program applies to any project that has active earth disturbance activities and is required to obtain coverage under an NPDES Permit. A memo summarizing the SSA Program can be viewed in [Appendix A](#).

The aforementioned visual site inspections (VSIRs) that are performed throughout the life of the project are referred to as “Field Inspections” in the SSA Program memo. To ensure that field inspections are being performed correctly and consistently within each District, the District Offices conduct “District Self-Inspections” using the VSIR mobile application. District Self-Inspections can be announced or unannounced and are performed independently from the project’s Field Inspections. The person conducting the District Self-Inspection cannot be the same person who is performing the project’s Field Inspections; nor can the individual performing the District Self-Inspections be part of the regular project inspection team. At least one District Self-Inspection must be performed on all active construction projects with an NPDES Permit every year.

The Bureau of Project Delivery’s (BOPD) Construction Quality Assurance Section (CQAS) performs a “Stormwater Self-Audit” for all construction projects with active earth disturbance and an NPDES Permit each construction season. The self-audit is part of a larger Construction Operations Review (COR) that covers all aspects of environmental compliance. The Stormwater

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Self-Audit is unannounced and includes a review of previous inspection reports and corrective actions taken at the site. A representative portion of the site is identified and inspected by CQAS staff using a separate checklist to document findings. CQAS Stormwater Self-Audit information is saved into the Quality Assurance Reporting System (QARS).

NPDES Notice of Termination

Once a project with a general or individual NPDES Permit has reached substantial completion as specified in Publication 408, Section 107.28, the Contractor must submit to the Department Representative:

- DEP Notice of Termination (NOT) Form ensuring Sections 3 and 5, Appendix B, and Section 4 of the NOT Completeness Review and Fieldwork Checklist are fully executed.
- As-built record Post Construction Stormwater Management (PCSM) Plan drawings prepared/stamped/signed by the Contractor's licensed professional (or designee).
- Final certification prepared/stamped/signed by the Contractor's licensed professional (or designee).
- Contractor's executed portion of the paper or electronic version of the Environmental Commitments and Mitigation Tracking System (ECMTS) Construction Tracking Signature Sheet or the completed ECMS Mitigation Tracking Matrix List; whichever is applicable to the project.
- Any other necessary documentation required for submission of the NOT.

The Contractor may also provide a completed DEP Co-Permittee Liability Release Form. **Do not submit this form to DEP with the NOT.** The form is submitted to DEP only in the rare circumstance that there are no cited Contractor related non-compliance issues and the Department has nonetheless failed to gain approval of the NOT for some other reason 75 calendar days after submitting it. Most site conditions that prevent approval of the NOT are Contractor related non-compliance issues; a common example is failure to obtain 70% uniform perennial vegetative growth. Always contact the BOPD's Environmental Policy and Development Section (EPDS) Chief, CQAS Chief and the Office of Chief Counsel (OCC) before submitting a Co-Permittee Liability Release Form to DEP.

The Department Representative shall complete the remainder of the DEP NOT Form and submit it to either DEP or the delegated CCD (DEP in Forest County and Philadelphia County). The submission should include any pertinent Earth Disturbance Inspection Reports (EDIRs) or other Agency correspondence that supports the NOT. Upon acknowledgement by either DEP or the delegated CCD, the Representative shall update the DEP NOT information in KEeS.

Responsibilities for Projects without a Chapter 102 Permit

This section describes responsibilities for projects that do not require a Chapter 102 permit but do require an ESPC Plan pursuant to another DEP permit, such as those authorized under 25

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Pa Code Chapter 105. In general, the Contractor is responsible for implementing the ESPC Plan, while the Department is responsible for oversight of the Contractor's adherence to the plan.

The Department shall conduct weekly visual site inspections using the VSIR mobile application throughout the duration of active earth disturbance. Inspections are not required within a set timeframe following rainfall events, nor are they required during dormant periods, such as winter shut down. Weekly inspections may cease when the site has achieved final stabilization.

When deficiencies are noted, the Department shall take actions best calculated to promptly achieve compliance. Use the CRP as a guideline for acceptable response timeframes and options for enforcing them on the Contractor.

For projects without a Chapter 102 or 105 permit, but with and ESPC Plan, inspect and maintain BMPs as required by the ESPC Plan General Notes and/or Sequence Of Operations/Construction. The role of the Department inspector is to ensure that the Contractor implements the ESPC Plan. Regardless of project scope or size, any discharge of pollution from the project site into waters of the Commonwealth is a violation of the Clean Streams Law. As such, the Department Representative must diligently observe and respond to potential pollution concerns.

Documentation

Keep all documentation that is generated for the purposes of complying with the ESPC Plan in the project's ESPC File. In this file, keep records of any meetings with the CCD or DEP, and any decisions that are made during these meetings. Keep a copy of all VSIRs. Fax a confirmation sheet, or retain a copy of an email, showing the VSIR-report was sent to the CCD. For Chapter 102 permits, all VSIRs containing deficiencies in the first two categories of the CRP must be reported to the CCD. Failure to comply with this requirement may be a violation of the permit and could result in a notice of violation assessed by the CCD or DEP.

The ESPC Plan required under a Chapter 102 permit must be made available to the public upon request under Section 607 of the Clean Streams Law and 25 Pa. Code Chapter 92a of DEP's regulations. The ESPC Plan must be available at the site of the construction activity at all times.

The IIC, or designee, will assist the District Compliance Manager (or designee) with the required information for the end of calendar year report to the Department Compliance Manager. This information will include, but not be limited to, Field Inspection dates and inspection discrepancy findings.

Permit Compliance and Enforcement

DEP's normal practice is to seek voluntary compliance for Chapter 102 permit violations. When violators express their willingness to correct violations, DEP's efforts focus on assisting the violator to correct any violation(s). Work with DEP and the CCD to have the Contractor restore

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damaged areas, maintain BMPs, repair non-functioning BMPs, and complete any other actions required to bring the project site back into compliance with the applicable permit(s). If the regulatory agencies are not satisfied with the Contractor’s voluntary compliance, they may initiate an enforcement action.

Who Handles Enforcement Actions

DEP or the CCD may enforce Chapter 102 permit violations, depending on the extent of the authority that DEP has delegated to that CCD. NPDES permit violations may also be enforced by the United States Environmental Protection Agency (USEPA).

The CCD is usually the agency responsible for performing site inspections and responding to complaints related to Chapter 102 permits. In most cases the CCD will be the initial agency on site. The CCD will determine if they have enforcement jurisdiction when there is a violation. If the CCD does not have jurisdiction, they will contact the appropriate jurisdictional agency.

Earth Disturbance Inspection Reports (EDIRs)

CCDs perform compliance inspections of permitted construction sites routinely and in response to public complaints. Their inspections are documented in an EDIR, which is different than DEP’s VSIR. When the CCD determines that the project site fails to meet one or more permit conditions, the CCD will give the Department Representative a signed copy of the EDIR that includes a description of the issue(s) and the statement below. The EDIR also includes the CCD’s recommendations on resolving the deficiencies, which are called “compliance assistance measures.”

“Inspection of this project has revealed site conditions which constitute violations of 25 Pa. Code Chapters 92a and/or 102 and the Clean Streams Law, the act of June 22, 1937, P.L. 1987, 35 P.S. §691.1 et seq.”

Upon receipt of the EDIR, email the copy to the IIC, ACE/ACM, District Compliance Manager (District Executive or their designee) and the Contractor, plus ensure a copy is uploaded into KEeS.

The IIC and Contractor will participate in the next visual site inspection and enter the deficiencies from the EDIR into VSIR mobile application. When all deficiencies have been resolved, the Department Representative shall send the CCD a copy of the VSIR that includes a description of when and how each deficiency was resolved.

Conflict Resolution

The following process shall be followed to resolve disputes with the government agencies responsible for enforcing the permits discussed above.

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1. Project personnel, both Department and Contractor, should be monitoring site conditions for compliance with the Chapter 102 permit. Immediately upon discovering a deficiency, the Department will document it in the VSIR mobile application and initiate actions in accordance with the CRP ([Appendix A](#)).
2. Upon notification of a Category 1 or 2 deficiency (per the CRP), the CCD may visit the project and view progress. If a deficiency has not been resolved, the CCD will notify the agency having jurisdiction and complete an EDIR noting any non-compliance issue and corrective measures. The EDIR normally indicates a timeframe for the Contractor to address the deficiencies (referred to as violations) and a date for a follow-up inspection.
3. The CCD may return to the project for a follow-up inspection. If deficiencies have been resolved, the CCD will typically note in a new EDIR that no violations were observed. If any deficiencies have not been resolved, the CCD will note them in the EDIR and inform the Department Representative and Contractor that the Regional Office of DEP will be notified and requested to assist in the enforcement matter. The CCD may contact the respective DEP Funded Position to assist with compliance and coordinate a date for a second follow-up inspection.
4. If DEP and CCD staff conduct the second follow-up inspection and find that compliance has been achieved, they will then normally note in a new EDIR that no violations were observed. However, they may also enter the violation(s) into DEP's [eFACTS system](#).
5. If the remedies in the CRP have been exhausted, and District staff are unable to achieve "voluntary" compliance, the issue will be elevated to the BOPD - EPDS Chief. Provide copies of all inspection reports and compliance efforts to date.
6. Situations/violations that cannot be resolved at the regional level with assistance from the Transportation Coordinator and the EPDS Chief will be elevated to the Deputy Secretary-level.

Authority for DEP to Stop Work

Where DEP staff determines that violations merit it, DEP staff have authority to issue a Compliance Order to the Department requiring the Contractor to cease all earth moving activities on the project, except for earth moving activities required to bring the project into compliance with the Chapter 102 permit. USEPA also has authority to issue stop work orders for NPDES Permit violations. CCDs do not have the authority to issue stop work orders. A stop work order could be issued for the following reasons, but this list is not exclusive:

- A site where a pollution event has occurred.
- A site that has the "potential" to pollute.
- A site that is operating without a permit.

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- A site where “voluntary” compliance cannot be achieved.

Notice of Violation (NOV)

DEP or the CCD may issue an official NOV if they are unsatisfied with the voluntary compliance efforts. This is more than an inspection report with deficiencies noted. It will state “Notice of Violation” and be assigned a DEP case number. An official NOV is usually the result of a serious violation, which resulted in or had the potential to cause significant environmental harm or public health/safety issues. Issuance of an official NOV typically results in DEP imposing punitive action beyond correcting the non-compliance issue or the environmental harm.

When an official NOV is issued by DEP or the CCD, the responsible District must submit a copy of the NOV within 48 hours to both the BOPD-EPDS Chief and the OCC. If an NOV occurs on a project with a Chapter 102 Permit, the District must also enter the information into KEES.

Exx-9999 Permits

The Exx-9999 Permit is an agency programmatic permit issued by DEP to PennDOT Engineering District Offices for maintenance activities located along various streams within the State. The IIC must perform the following actions to ensure that the Contractor fully understands what is required to be in compliance with the Exx-9999 Permit when work is authorized for a particular project.

If the project has an Exx-9999 programmatic permit, or does not have a written ESPC Plan, the project must still use the appropriate BMPs to prevent environmental pollution.

- At the Preconstruction Conference, discuss the requirements of the Exx-9999 Permit, the Sketch Plan, and the E&S BMPs that must be constructed and maintained in accordance with the permit and PennDOT Publication 464, *Maintenance Field Reference for Erosion and Sediment Controls*.
- The Contractor must develop and submit a written ESPC Plan for PennDOT review and approval prior to commencing any field activities. If the project exceeds 5000 square feet, submit the ESPC Plan to the DEP, or the delegated CCD, for approval. The ESPC Plan should be based on, and include, the Sketch Plan provided by PennDOT for in-stream E&S BMPs. The written ESPC Plan must contain Sketch Plans for each work site that include the following: all staging areas; all waste areas; all access points / roadways to the work area; all of the areas where work is to be performed (including tree and brush removal); the upstream and downstream limits of the proposed activities; and a complete list and exact location of the E&S BMPs to be used. The Contractor must maintain a copy of the approved ESPC Plan on site at all times. The Contractor must notify PennDOT and/or the DEP, or the delegated CCD, in writing if the ESPC Plan is revised.
- The Contractor will be responsible to notify the Pennsylvania Fish and Boat Commission (PAFBC), the DEP, and the CCD 10 calendar days (unless otherwise specified) in advance of starting any construction activities.

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- The Department IIC will be responsible for monitoring Contractor compliance with the 10-calendar day notification requirement prior to the start of any construction activities.
- The Department IIC is to be familiar with PennDOT Publication 464, *Maintenance Field Reference for Erosion and Sediment Controls*, as well as how to access an electronic copy of this publication.
- The Department IIC will be responsible for Visual Site Inspection Reports and reporting Contractor compliance with the approved ESPC Plan. Document the findings of these inspections in the VSIR mobile application or on the DEP VSIR form. If the Contractor is not in compliance, work shall cease until the Contractor is back in compliance with the approved ESPC Plan.

Partnering with Other Agencies

Employees of other agencies are to be extended every courtesy and assistance when they are working on Department projects. Take advantage of the environmental expertise of the District Environmental Team, the BOPD's EPDS and CQAS staff, and the Bureau of Maintenance and Operations (BOMO) - Maintenance Technical Leadership Division staff to train and assist construction inspection personnel and Contractors in complying with environmental laws and regulations. We are all working toward the same goal of providing an excellent transportation product and service to our customers in an environmentally responsible manner.

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Construction Project Permit Summary Chart

Project Action Items	Projects with ESPC Plans only	Ch. 102 NPDES Permits	DEP Ch. 105 WOEP and Exx-9999 Permits	USACE / Section 404 & PASPGP-# Permits
Environmental Pre-Construction Meeting	As per ESPC Plan General Notes	YES	NO	NO
Transferee / Co-Permittee Application Form	NO	YES	NO	NO
Pre-Construction Notification Form	NO	YES – Transferee / Co-Permittee Application Form	YES – Acknowledgment of Appraisal Of Permit Conditions Form required for Ch. 105 WOEP	YES – USACE Construction Notification Form
Weekly and Rainfall Event VSIR Required	As per ESPC Plan General Notes	YES	YES – VSIR required for Exx-9999	NO
District Self-Inspection	NO	YES	NO	NO
CQAS Stormwater Self-Audit	NO	YES	NO	NO
Identification of Licensed Professional	NO	YES	NO	NO
PPC Plan	NO	YES	NO	NO
Environmental Commitments and Mitigation Tracking System	Project-specific as per ECMS	Project-specific as per ECMS	Project-specific as per ECMS	Project-specific as per ECMS
As-Built Post Construction Stormwater Management Plan	NO	YES	NO	NO
Close-Out	As per ESPC Plan General Notes	YES – NOT Form	YES – DEP WOEP Completion Report	YES – Permit Compliance, Self Certification Form for PASPGP-# Permits

REPLACES B.4.11	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 4	PAGE 11-1
DATED 04/01/2015	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT WETLANDS				

The term "Wetland" describes, in a collective way, what are more commonly known as marshes, bogs, swamps, wet meadows and shallow ponds. There are several technical definitions of wetlands. For regulatory and legal purposes, the Commonwealth of Pennsylvania (25 PA Code, CH. 105) uses the following:

"Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions...."

Wetlands are identified by three basic conditions:

- Hydrophytic Plants - Plants adapted to life in saturated soil conditions.
- Hydric Soils - Soils that are characterized by their wetness.
- Wetlands Hydrology - The presence of water at or near the surface at some time during the growing season.

Based on the vegetation, several types of wetlands have been described as:

- Forested Wetlands - wet habitats where large woody trees (over 20 feet in height) find a home.
- Scrub Shrub Wetlands - inhabited by wood shrubs and small trees (less than 20 feet in height).
- Emergent Wetlands - vegetated by grasses, sedges, rushes, and other herbaceous plants that emerge from the water or soil surface.
- Open Water Wetlands - standing water bodies typically absent of wetland vegetation and typically with greater than 18 inches of water. Open water wetlands may have a vegetated fringe.

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Dams, water obstructions and encroachments in bodies of water of the Commonwealth, including **Wetlands**, are regulated by both State and Federal statutes. The United States Army Corps of Engineers (USACE) regulates these activities under the authority of the Clean Water Act "404" Permit Program (1972), and the Pennsylvania Department of Environmental Protection (PA DEP) regulates these activities under the authority of the Dam Safety and Encroachment Act's Chapter "105" Permit Program (1978). Some of the more commonly regulated activities include, but are not limited to:

Filling Wetlands	Dredging Bodies of Water
Construction of Bridges	Construction of Levees
Construction of Dams	Alteration of Stream Banks
Construction of Docks	Construction of Roads

Before commencing with any activity in a stream, river, floodway, lake, pond or wetland, the appropriate permits must be secured and available on the project. To simplify the process the PA DEP and the USACE have developed a Joint Permit Application. Although there is a single application form, each agency (PA DEP and USACE) conducts its own project review and issues or denies permits accordingly. Applicants must have **both** permits on file before beginning any operation.

The Contractor should read, understand and assure compliance with the permit conditions to avoid any potential problems and/or enforcement actions for non-compliance.

PennDOT Publication 325, Wetland Resources Handbook, provides additional information on wetlands. In particular, Publication 325, Chapter 12, provides guidance on addressing wetland permit conditions during the project construction phase.

REPLACES B.4.12	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 4	PAGE 12-1
DATED 04/01/2015	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT OPEN BURNING				

Open Burning is defined as any fire that emits contaminants directly into the outdoor atmosphere and not through a flue.

Open burning of materials is not permitted in designated high population areas or "Air Basins" which are defined in Pennsylvania's Air Pollution Control Act (P.L. 989, No. 245 Amended Oct. 26, 1972) and include the Commonwealth's larger cities and surrounding municipalities. There also may be Municipal restrictions which apply. If necessary, consult with the District Environmental Manager. It is permitted outside of these areas if the emissions are not seen or an ill-smelling odor is not noticed outside of the property where the burning occurs. Open burning may not interfere with the reasonable enjoyment of life or property and may not be harmful to humans, animals, plants or property.

In keeping with the present-day concern to avoid and/or reduce air pollution, the problem of disposal of dried stumps, roots (free of dirt) and brush during the clearing and grubbing operation becomes extremely important. Burning is permitted in a basin subject to the following requirements: [PA Code 25 § 129.14(d)2.]

- Air curtain destructors are to be used when burning, clearing and grubbing wastes.
- Each proposed use of air curtain destructors is to be reviewed and approved by the Department in writing with respect to equipment arrangement, design and existing environmental conditions prior to commencement of burning. Proposals approved under this subparagraph need not obtain plan approval or operating permits under Chapter 127 (relating to construction, modification, reactivation and operation of sources).
- Approval for use of an air curtain destructor at one site may be granted for a specified period not to exceed 3 months, but may be extended for additional limited periods upon further approval by the Department.
- The Department reserves the right to rescind approval granted if a determination by the Department indicates that an air pollution problem exists. If an air pollution problem is created by the operation of this unit, the Department of Environmental Protection will take enforcement action, if necessary.

When open burning is permitted as specified in Publication 408, Section 213, the following must be complied with:

- Burning must be kept under control at all times for the duration of the burn.

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- Burning is not to take place within 40 feet of remaining vegetation.
- The sites of fires shall be reconditioned as specified in Publication 408, Section 105.14.

The contractor is not to perform any of the above operations without prior written authorization from the Deputy Secretary for Highway Administration or authorized designee and, if applicable, the Federal Highway Administration.

REPLACES B.4.13	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 4	PAGE 13-1
DATED 04/01/2019	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT CULTURAL RESOURCES				

Commitments that mitigate the impacts of eligible historic properties (also referred to as Cultural Resources) under Section 106 of the National Historic Preservation Act are legally binding when contained within agreement documents or spelled out within environmental documents. Examples of agreement documents include: Memoranda of Agreement, Programmatic Agreements, Letters of Agreement, Memoranda of Understanding, and Letters of Understanding. Examples of environmental documents include: Categorical Exclusions, Environmental Assessments, and Environmental Impact Statements. (e.g., CE, BRPA) which are also legally binding. It is very important that the District's Construction Project Manager carefully monitor any conditions that are placed on the construction activities and the fulfillment of commitments made to minimize or mitigate such effects in the project area.

For those projects requiring changes of contract commitments for this mitigation, the construction contractor is to coordinate with the District Environmental Manager to ensure compliance. This should also include a field visit to review and discuss the requirements and how they will be met in the field. The District Environmental Manager must notify the Bureau of Project Delivery (BOPD) Cultural Resources Professional (CRP) Archaeologist assigned to the District. Construction is to cease in the area specific to the potential changes. A work order may or may not be required.

In the event of "Unanticipated Discoveries," defined as previously unidentified archaeological resources or above-ground historic properties that were previously believed to be unaffected by the project but may now be affected due to changes in project design or implementation, the following notification procedure will be followed. Note: If there is a project-specific agreement document, stipulations in that document will supersede the following guidance.

1. Construction will cease immediately in the immediate area of the discovery to avoid disturbance. The District is to notify the BOPD, Environmental Policy and Development Section (EPDS) and FHWA of the discovery. Notification of the BOPD CRP Archaeologist assigned to the District constitutes notification of the BOPD. Construction activities will continue in the subject areas after the District receives approval from the BOPD CRP Archaeologist assigned to the District and FHWA.
2. The District is responsible for stabilizing and protecting the area of the discovery.
3. The District, in consultation with EPDS and FHWA, shall arrange to have the District's CRP visit the site within 48 hours of the discovery to determine the nature of the archaeological resources.

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4. The Pennsylvania Historical and Museum Commission (PHMC) and federally recognized Tribes/Nations that may attach religious or cultural significance to the discovery will be notified within 72 hours of the discovery by the Bureau of Project Delivery CRP Archaeologist assigned to the District. PHMC and federally recognized Tribes/Nations that may attach religious or cultural significance to the discovery shall be provided an opportunity to meet in the field with the FHWA, Office of Chief Counsel (OCC), Real Property Division, EPDS, and the District to assess the discovery and consult on the plan of action.
5. The CRP shall develop a plan of action based on consultation with the District, EPDS, PHMC, FHWA, and federally recognized Tribes/Nations that may attach religious or cultural significance to the discovery. When human remains or gravesites are involved, contact the OCC, Real Property Division as soon as possible to determine if any court orders are necessary. The Real Property Division will assist in obtaining any required court orders.
6. Within 96 hours of the discovery, EPDS, through the CRP, shall provide the PHMC and federally recognized Tribes/Nations that may attach religious or cultural significance to the discovery with the plan of action for review and comment. FHWA may also notify the Advisory Council on Historic Preservation (ACHP) and request interim comments within 48 hours.
7. If the PHMC and federally recognized Tribes/Nations that may attach religious or cultural significance to the discovery decline to meet or do not comment on the plan within 48 hours of receipt, FHWA shall proceed with the implementation of the plan of action taking into consideration, to the extent feasible, the comments of the ACHP.
8. The Project is to prepare a work order to address time and cost for the effects of the "Unanticipated Discoveries."

Human Remains, Grave Monuments, and Grave-Related Materials/Artifacts

The policy of the Department is to treat all identified human remains, grave monuments, and grave-related materials/artifacts in a respectful and responsible manner that takes into consideration scientific data and cultural values. When feasible, human remains, grave monuments, and grave-related materials/artifacts shall be preserved in-place rather than excavated for study or reburial. State law (9 P.S. §8) prohibits new highway alignments through cemeteries or burial grounds.

Human remains, potential human remains, burial-related monuments, and other grave-related items may be discovered on a project during either design or construction. If a known cemetery or burial ground is in the immediate vicinity of the project area, it is the responsibility of the CRP and Environmental Manager to establish a Plan of Action that is sensitive and respectful to the human remains that are contained within. If monuments will be temporarily moved prior to

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construction to prevent inadvertent damage, a Monument Conservation Plan would also be required (NPS Preservation Brief 48 should be used as a guideline [2016]). This plan would document the preconstruction location and condition of the monuments, provide recommendations on moving and resetting, and document the post-construction condition. A copy of that Plan of Action must be reviewed by the construction inspector, Assistant Construction Engineer, and contractor prior to start of work, and a copy must be kept in the construction trailer until the completion of the project. It is recommended that the District CRP attend the preconstruction meeting.

The remainder of this guidance is for circumstances where human remains have not been anticipated within the project area.

1. If human remains or likely human remains, grave monuments, or grave-related materials/artifacts are discovered on a project site, work shall cease immediately and the vicinity of the discovery shall be secured both against the elements and against potential vandalism. The items should also be shielded from public view.
2. The contractor shall notify the construction inspector, who shall then contact the District Environmental Manager and/or the District-assigned CRP archaeologist with the following information:

Name of project

Name and contact information of construction inspector

Date and time of the discovery

Nature of the discovery, e.g., what was located

Whether construction has been stopped and the site secured

3. If the human remains appear to be recent, the State Police shall be notified. Otherwise, the county coroner shall be notified. The list of current county coroners is available at: http://pacoroners.org/coroners_list.php.

Note: the coroner will be the one responsible for “releasing” the remains if they will be moved. Otherwise, a court order would be needed.

As per PA Code and discussions with PA Office of Vital Records, a court order is necessary to disinter/reinter remains that will be “exposed to the air,” which would be the case for any burials old enough that the coffin disintegrated and/or if they cannot be disinterred/reinterred within 72 hours. A court order provides a blanket "disinter" permit, which is needed in situations where the total number of individuals is not known. Disinter/reinter permits are secured from the local registrar. Pennsylvania Code, Title 28 Chapter 1 Section 1.25.

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4. The Environmental Manager and/or assigned CRP archaeologist shall notify the Project Manager, PennDOT's Office of Chief Counsel, Real Property Division, (where appropriate), FHWA, the PA State Historic Preservation Office (SHPO), and any Federally Recognized Tribes with an interest in the area. With specific regard to Federally Recognized Tribes, relevant tribes shall be notified unless the remains are known to be recent. The Environmental Manager is responsible for keeping a call list in the District Office, which is to be maintained by the CRP Archaeologist. A copy of the Discovery of Human Remains Checklist (attached) shall be provided to FHWA within 24 hours of discovery. Most funeral directors and some coroners have storage facilities where remains can be stored until reinternment.

5. If remains will be disinterred/reinterred, a qualified funeral director will need to be contacted. PennDOT should prepare a record of the removal indicating the date of removal and the site or place to which the removal was made. Copies of those records should go to the PHMC, local historical/genealogical societies, other interested parties, and the Office of Vital Records.

Additional guidance can be found in National Register Bulletin 41, *Guidelines for Evaluating and Registering Cemeteries and Burial Places* and the PA SHPO Guidelines for Archaeological Investigations in Pennsylvania, Appendix E, *Policy on Human Remains*.

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Discovery of Human Remains Checklist (to be provided to FHWA) – Page 5

Project Name and description:

Project status Archaeology Preliminary Design ____
 Archaeology Final Design/construction ____
 Construction activities ____

Date and time of discovery _____

Name and title of individual making discovery _____

 Contact information _____

Discovery was: unexpected ____ expected ____ (if expected provide workplan)

Nature of discovery, i.e., what was found:

What is the setting of the discovery, e.g., historic home, industrial setting, farm/rural?

- Construction work has ceased in the immediate vicinity of the discovery
- Work site has been secured
- Pennsylvania State Police have been notified

 Contact information _____

- Coroner has been notified

 Contact information _____

- Environmental Manager has been notified

 Contact information _____

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Discovery of Human Remains Checklist (to be provided to FHWA) – Page 6

- CRP Archaeologist has been notified

Contact information _____

- PA SHPO has been notified

Contact information _____

- Associated church or cemetery association has been notified (where applicable)

Contact information (Name of Contact, Phone, e-mail)

- Federally Recognized Tribe(s) has been notified

Contact information (Tribe, Name of Contact, Phone, e-mail)

- Is there a project-specific mitigation commitment related to burials?

Other information:

Preparer (name) _____ Date _____

Contact information _____

REPLACES B.4.14	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 4	PAGE 14-1
DATED 04/01/2014	PROJECT OFFICE MANUAL	DATE April 1, 2017		
SUBJECT HAZARDOUS WASTES				

Hazardous Wastes are substances that, in sufficient quantities and concentrations, pose a threat to human life, human health or the environment when improperly stored, transported, treated or disposed.

A waste is characteristically a "Hazardous" waste if it exhibits any of the following properties:

IGNITABLE - A liquid (other than an aqueous solution containing less than 24 percent alcohol by volume) and has a flash point of less than 140°F determined by a Pensky-Martens Closed-Cup Tester or a Seta Flash Closed-Cup Tester,

A nonliquid capable of causing fire through friction, absorption of moisture or spontaneous chemical changes, and that burns vigorously and persistently when ignited.

Ignitable, compressed gas.

Oxidizer.

CORROSIVE - As a solution, shows a pH of 2 or less, or 12.5 or greater.

As a liquid, corrodes steel faster than 0.250 inch/year at 130°F.

REACTIVE - Normally unstable and readily undergoes violent change without detonating.

Reacts violently with water.

Forms potentially explosive mixtures with water.

When mixed with water, generates dangerous quantities of toxic gases, vapors or fumes.

Cyanide or sulfide that generates dangerous quantities of toxic gases, vapors or fumes when exposed to pH conditions between 2 and 12.5.

Capable of detonation or explosive reaction if subjected to strong initiating source or if heated under confinement.

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Capable of detonation, explosive decomposition or reaction at normal temperatures and pressures.

Forbidden, Class A or Class B explosive.

TOXIC - Is determined to be characteristically toxic, per the Toxicity Characteristic Leaching Procedure Test.

Mixtures of hazardous and non-hazardous waste are also labeled hazardous. The hazardous waste designation does not include low-level radioactive waste, polychlorinated biphenyls or asbestos which are covered under separate state and federal rules.

When it is not promptly possible to determine if a suspect waste material will be a hazardous waste, the material shall be managed as a hazardous waste until the determination is made that indicates it is not a hazardous waste.

For site remediation that is required prior to roadway construction, a Waste Management Plan (WMP) shall be developed and included in the contract. The WMP will include specifications, plans and special provisions detailing the selected remedial action. Included within the WMP and special provisions may be detailed specifications for some or all of the following:

- Scope of Work
- Health and Safety Plan
- Site Work Plan
- Site Air Monitoring
- Sampling and Analytical Requirements
- Contaminated Material Handling
- Excavation and Storage of Contaminated Material
- Personnel Protection Requirements
- Site Control
- Employee Training

The Department also recognizes that at sites not suspected of being contaminated, as a result of previous investigative efforts, contaminated materials may be unexpectedly encountered. In such cases, the following procedures are intended to minimize worker and public exposure, limit the migration of contaminants, and allow for the mobilization of trained and qualified staff to the site. They should be utilized for sites where contamination is unexpectedly encountered or suspected:

- Upon recognition that contamination has been encountered or suspected, all activities in the area of the contamination are to cease in a safe and controlled manner.
- After ceasing operations and securing the area, the Inspector-In-Charge will immediately contact the District Environmental Manager who will make the

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necessary notifications. Notifications shall include the Pennsylvania Department of Environmental Protection (PA DEP), local fire or emergency response teams or a qualified consultant engineer.

- Under no circumstance shall workers perform activities for which they have not been adequately trained. In such cases, the contractor shall secure the site until appropriate personnel can enter the site to complete the remediation efforts.

Site security is the responsibility of the Contractor. The security measures taken will be dependent upon such factors as: accessibility of the site to the public; the potential for endangerment of public health or safety; and site terrain. As a minimum, a physical deterrent against unauthorized site entry, such as barricade fencing and/or high visibility barricade tape, shall be supplied and erected by the Contractor around the entire site perimeter.

When a Consultant Remedial Construction Monitor is not on the project or until such time as one is acquired, documentation of the complete history of the remedial activities, including any required revisions to the established plans, must be maintained through daily field logs of the following criteria:

- That cleanup objectives are met.
- That health and safety of all employees involved in remedial activities is being maintained.
- That waste material removed from the site is being properly disposed of and documented.

Waste transported for off-site treatment, storage or disposal must be transported by a licensed transporter and accompanied by a manifest, and a United States Environmental Protection Agency (EPA) shipping form which is obtained from PA DEP or the state of destination. The manifest travels with the hazardous waste from the point of generation to the point of final disposal and is completed at each step of the journey. It identifies the type and amount of hazardous waste shipped, the generator, and the permitted facility that will receive the waste. It also contains all necessary information for proper handling of the waste during shipping. If the remediated hazardous material is not immediately removed from the site, the contractor must store it in an approved container(s), and the storage containers must be in a locked and secure location.

Additional details on hazardous waste management can be found in PennDOT [Publication 611 Vol 1](#).

REPLACES B.4.15	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 4	PAGE 15-1
DATED 04/01/2017	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT HAZARDOUS WASTE MANIFESTS				

When a hazardous waste is discovered on a construction site, an appropriately qualified consultant engineer is required to prepare the site assessment and clean-up plan. The consultant will oversee the actual clean-up operation and will complete necessary manifests. The Inspector-in-Charge (IIC) is to sign the manifest on behalf of the District Executive for the Department. The Department is listed on the manifest as the "Generator". Any employee signing a hazardous waste manifest is required to be trained every three years in accordance with the Hazardous Materials Regulations 49 CFR 172.704 (c) (3). [Publication 611, Vol 1](#) (Waste Management Guidance Manual for Project Delivery) has further information on hazardous waste manifests.

The IIC is to oversee and ensure that the testing, clean-up, removal, and loading of the hazardous or residual waste is properly completed. The IIC shall review the completed manifest and assure that the information entered therein is consistent with the following:

- Site assessment
- Clean-up plan prepared by the consultant engineer
- Laboratory test results
- EPA hazardous waste generator ID number
- Approvals and guidance provided by the consultant engineer or its inspectors
- Additional information provided by the contractor or its subcontractors
- Additional site-specific knowledge possessed by the IIC.

See page B.4.15-6 for a copy of the Manifest Form, Environmental Protection Agency Form [8700-22](#).

If everything appears in order, the IIC shall sign the manifest, place an asterisk after their signature and add the following:

"My certification is subject to the attached Additional Information Sheet."

If the IIC has not received the aforementioned triennial hazardous waste training within the last three years, a Department representative with the required training must be found to sign the manifest.

The IIC shall complete the attached form entitled "Additional Information," which is on page B.4.15-4. The manifest number must also be entered on the Lab Report. Seven copies of the Additional Information Sheet and the Lab Report shall be securely attached to the manifest.

NOTE: When disposing of bridge painting blast waste, use the Additional Information Sheet on page B.4.15-3.

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If information is incorrect or the IIC has questions, the District Environmental Manager shall be immediately notified and appropriate action taken to correct the problem before signing the manifest. If there is any reason to suspect wrongdoing, the manifest should not be signed and the District Environmental Manager is to be consulted for guidance.

Closeout Checklist

- A copy of the manifest and its attachments is retained by the IIC in the project file.
- Each District shall establish a central file and filing system for the retention of all original manifests and related documents. *
- A copy of the manifest and related documents must be mailed to:
 - SEMP Section
 - Maintenance Technical Leadership Division
 - PA Department of Transportation
 - Bureau of Maintenance & Operations
 - 400 North Street - 6th Floor | Harrisburg PA 17120

***All documents pertaining to the hazardous waste, including the manifest and attachments, must be kept for a minimum of twenty years.**

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*You May Photocopy This Form

ADDITIONAL INFORMATION SHEET

My certification on the Hazardous Waste Manifest on behalf of the Pennsylvania Department of Transportation is based upon lab test results, the site assessment and previous remediation records (if applicable) and upon information provided to me and to the Department of Transportation by the _____, its subcontractors,

Name of Construction Contractor

_____, and the _____

Name of Consultant Engineer (if applicable)

Name of Testing Laboratory

which I believe to be true and accurate.

A copy of the laboratory report and test results are attached. The manifest or form to which this Additional Information Sheet is attached was completed by

_____.

Name of Consultant Engineer of firm completing the manifest or form to which this Additional Information Sheet is attached

The waste is used blast waste from the preparation of the steel bridge superstructure for painting at the Pennsylvania Department of Transportation highway construction site. The material has been collected and stored at a temporary storage area for proper disposal.

_____ for Manifest Number _____
Signature

Title

Date

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*You May Photocopy This Form

ADDITIONAL INFORMATION SHEET

My certification on behalf of the Pennsylvania Department of Transportation is based upon lab test results, the site assessment and previous remediation records (if applicable) and upon information provided to me and to the Department of Transportation by the

_____, its subcontractors,
Name of Construction Contractor

_____, and the _____
Name of Consultant Engineer (if applicable) Name of Testing Laboratory

which I believe to be true and accurate.

A copy of the laboratory report and test results are attached. The manifest or form to which this Additional Information Sheet is attached was completed by

Name of Consultant Engineer of firm completing the
manifest or form to which this Additional Information
Sheet is attached

The waste was discovered on a Pennsylvania Department of Transportation highway construction site and is being excavated for proper disposal. The Department of Transportation did not produce this waste, but acquired the property which contains the waste through eminent domain or in lieu thereof.

_____ for Manifest Number _____
Signature

Title

Date

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(EXAMPLE OF COMPLETED FORM)

*You May Photocopy This Form

ADDITIONAL INFORMATION SHEET

My certification on the Hazardous Waste Manifest on behalf of the Pennsylvania Department of Transportation is based upon lab test results, the site assessment and previous remediation records (if applicable) and upon information provided to me and to the Department of Transportation by the John Doe and John Doe Construction Company, its subcontractors,
Name of Construction Contractor

Jim Doe and Jim Doe Consultants, Inc., and the Robert Doe Laboratory
Name of Consultant Engineer (if applicable) Name of Testing Laboratory

which I believe to be true and accurate.

A copy of the laboratory report and test results are attached. The manifest or form to which this Additional Information Sheet is attached was completed by

Remington Doe Testing and Consultants, Inc..
Name of Consultant Engineer of firm completing the
manifest or form to which this Additional Information
Sheet is attached

The waste is used blast waste from the preparation of the steel bridge superstructure for painting at the Pennsylvania Department of Transportation highway construction site. The material has been collected and stored at a temporary storage area for proper disposal.

_____ for Manifest Number MI 1562586
Signature

Assistant District Engineer, Engineering District 1-0
Title

February 28, 1991
Date

Please print or type.

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number			
5. Generator's Name and Mailing Address			Generator's Site Address (if different than mailing address)					
Generator's Phone:								
6. Transporter 1 Company Name				U.S. EPA ID Number				
7. Transporter 2 Company Name				U.S. EPA ID Number				
8. Designated Facility Name and Site Address				U.S. EPA ID Number				
Facility's Phone:								
9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))			10. Containers No. Type	11. Total Quantity	12. Unit WT/Vol.	13. Waste Codes	
1.								
2.								
3.								
4.								
14. Special Handling Instructions and Additional Information								
<p>15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.</p>								
Generator's/Offeror's Printed/Typed Name				Signature		Month	Day	Year
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Date leaving U.S.: _____								
17. Transporter Acknowledgment of Receipt of Materials								
Transporter 1 Printed/Typed Name				Signature		Month	Day	Year
Transporter 2 Printed/Typed Name				Signature		Month	Day	Year
18. Discrepancy								
18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection								
18b. Alternate Facility (or Generator)						Manifest Reference Number:		U.S. EPA ID Number
Facility's Phone:								
18c. Signature of Alternate Facility (or Generator)						Month	Day	Year
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)								
1.	2.	3.	4.					
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a								
Printed/Typed Name				Signature		Month	Day	Year

REPLACES B.4.16	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 4	PAGE 16-1
DATED 03/01/2011	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT UNDERGROUND STORAGE TANKS				

Underground Storage Tank (UST) sites are considered by the Department to represent a high potential for the presence of contaminated soil and groundwater. Contamination from USTs migrates away from the original source and often can extend beyond the UST site boundaries. For these reasons, UST sites deserve special attention relative to site evaluation procedures. In most cases, older UST sites may be considered contaminated until proven otherwise.

The only absolute way to determine whether USTs and associated piping have leaked is to excavate and remove the tanks and piping followed by confirmatory soil sampling and analysis.

The Department recognizes that there are instances where USTs may be encountered unexpectedly. The following procedures are to be followed where USTs are encountered or suspected during construction:

All activities are to cease within the affected area, and the area is to be made secure by an effective physical barrier, to prevent unaware employees or the public from wandering into the area. If an open excavation is present, fencing is required to prevent unauthorized employees or the public from trespassing or falling into the hole.

The Inspector-in-Charge (IIC) is to immediately contact the District Environmental Manager who will make the necessary notifications, and follow-up, since UST trained personnel must evaluate the situation.

The initial removal of a UST or contaminated soil does not necessarily signify the end of site cleanup activities, due to the possibility that laboratory test results for confirmatory soil samples will exceed regulatory cleanup standards. Therefore, construction activities shall not resume until the IIC has obtained approval to do so from the District Environmental Manager or their representative. Note: Please refer to PennDOT Publication 281, Waste Site Evaluation Procedures for the Highway Project Development Process, Section 7.3, Sampling Guidance for UST Closure-Via-Removal, for the appropriate confirmatory soil sampling protocol.

Currently, there are specific guidelines from the PA Department of Environmental Protection (DEP) for performing UST closures and subsequent investigations if a release has occurred. Further, there are guidelines for subsequent contaminated soil and groundwater cleanup operations. These guidelines provide a solid basis for the performance of actual site investigations to determine the presence or absence of contamination at an UST site under these procedures.

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Underground Storage Tank (UST) remediation can involve dangerous conditions with the possibility of exposure to various toxic materials. Exposure routes include skin and respiratory pathways. One of the major concerns in dealing with UST removals is the potential for combustible or flammable environments. Workers can be exposed to flammable and explosive materials and atmospheres, resulting in dangerous conditions if not handled properly. Only properly trained personnel are to be allowed to conduct such activities.

When dealing with flammable and combustible material, personnel must be aware of potential pathways of these materials. Depending on the location of a potential release, hazardous materials can migrate into underground facilities such as basements, utility conduits, sewers, wells, and other areas. The urgency of the hazard depends on several factors: how much liquid or vapor is involved; where it is found; how it is confined; sources of ignition; and the type of material.

General precautions include no smoking or other sources of ignition, including sparks from excavating equipment, allowed on-site during any UST activities. Although gasoline and refined petroleum products usually have a strong, distinctive odor, it cannot be assumed: if there is no odor, there is no contamination. Often, highly weathered petroleum presents no detectable odor.

When the potential danger for fire or explosion exists, all unnecessary personnel must be kept away from the site. Only properly trained, equipped personnel should be allowed on-site.

On-site personnel must display an informed, cooperative attitude and must be made aware of the potential dangers. Danger greatly increases when people are unfamiliar with the characteristics of flammable or explosive materials. A lack of cooperation can result in fatal mistakes. On-site operations must be conducted in the best possible manner protective of life and property.

Confined spaces represent a significant health and safety issue related to USTs. Special precautions must be implemented prior to any entry into a confined space, and such entry can only be conducted by properly trained personnel. Adequate monitoring of the confined space must be conducted prior to entry. Under no circumstances shall unqualified personnel be allowed in a confined space.

REPLACES B.4.17	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 4	PAGE 17-1
DATED 04/01/2017	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT ASPHALT MODIFIED WITH ASBESTOS				

Pavements containing asbestos should not be disturbed. Simply overlaying these layers without disturbing them is the best management option. However, if the material must be disturbed, the following management guidelines must be followed:

1. Before the start of work, an air emissions control plan and Health and Safety Plan (HASP) must be developed by an appropriately trained and certified Health and Safety (H&S) professional, e.g., a Certified Safety Professional (CSP) or Certified Industrial Hygienist (CIH).
2. The PA DEP Regional Office must be notified at least 10 working days before the project begins. Notification must be made by submitting the standard Asbestos Abatement and Demolition/Renovation Notification Form (2700-FM-BAQ0021) as required in 40 CFR Part 61 Subpart M Section 145 (b). The notification must be accompanied by an air emission control plan if 160 square feet or more of asbestos-containing pavement will be disturbed. There are additional notification and permit application requirements for asbestos projects in Allegheny County and the City of Philadelphia. Refer to Publication 611, Volume 1 for details.
3. All project personnel (Department, Consultants, and Contractors) must receive written notification that the asphalt contains asbestos.
4. The road surface and all equipment used in the sawing, milling and/or removal process must be heavily watered. Dry operations are not permitted. The national emission standard for asbestos disturbance is to exhibit no visible emissions to the ambient (outside) air.
5. If the material qualifies as clean fill under the PA DEP Management of Fill Policy, then it may be placed on Department right-of-way and buried in an area where it will not be disturbed by future land use or construction activities. If the material must be transported away from the generation site for disposal, it is regulated as a residual waste and must be taken to an approved landfill by a licensed transporter. Each District must submit DEP Form U (Request to Process or Dispose of Residual Waste) to the applicable PA DEP Regional Office. A list of all PA DEP Regional offices and phone numbers is on page B.4.17-3. Each PA DEP Regional Office has a list of approved landfills.

Initial monitoring of the removal operation must be performed in order to determine the airborne concentrations of asbestos to which workers are exposed. If there are visible emissions or if monitoring indicates that concentrations are above the Permissible Exposure Limit (PEL), STOP WORK. Consult with a certified Health and Safety professional to determine what

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measures must be taken to eliminate visible air emissions or to reduce worker exposure to within the PEL. The following control methods must be used in order to achieve compliance:

1. Use of asbestos vacuum cleaners, equipped with High Efficiency Particulate Air (HEPA) filter dust collection systems, to clean the roadway as milling and removal operations progress.
2. All asbestos containing material kept adequately wet at all times.
3. Prompt disposal of collected asbestos-containing wastes.

In areas where these control methods are insufficient to reduce worker exposure to or below the PEL, properly fitted HEPA-filter respiratory protection must be used. All respirators worn by workers must meet the appropriate NIOSH standard. Department policy dealing with respirator use is in Publication 445M. For more complete information concerning regulations for worker safety when dealing with asbestos, please refer to 29 CFR Parts 1926, et al.

It is also required that in heavily developed areas, local residents and property owners be informed of the operation, and be advised to avoid exposure to dust generated by removal and milling processes. The certified H&S professional will determine whether additional air monitoring stations are warranted for the protection of nearby residents.

All records shall be maintained in accordance with PennDOT's Records Retention and Disposition Schedule, Item Nos. 812/812E.

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PA DEP FIELD OPERATIONS REGIONAL OFFICES

Office	County Responsibility
Northwest Office - (814) 332-6945 230 Chestnut Street Meadville, PA 16335-3481	Armstrong, Butler, Clarion, Crawford, Elk, Erie, Forest, Indiana, Jefferson, Lawrence, McKean, Mercer, Venango, and Warren
North Central Office - (570) 327-3636 208 West Third Street, Suite 101 Williamsport, PA 17701	Bradford, Cameron, Centre, Clearfield, Clinton, Columbia, Lycoming, Montour, Northumberland, Potter, Snyder, Sullivan, Tioga, and Union
Northeast Office - (570) 826-2511 2 Public Square Wilkes-Barre, PA 18701-1915	Carbon, Lackawanna, Lehigh, Luzerne, Monroe, Northampton, Pike, Schuylkill, Susquehanna, Wayne, and Wyoming
Southwest Office - (412) 442-4000 400 Waterfront Drive Pittsburgh, PA 15222-4745	Allegheny, Beaver, Cambria, Fayette, Greene, Somerset, Washington, and Westmoreland
South Central Office - (717) 705-4700 909 Elmerton Avenue Harrisburg, PA 17110-8200	Adams, Bedford, Berks, Blair, Cumberland, Dauphin, Franklin, Fulton, Huntingdon, Juniata, Lancaster, Lebanon, Mifflin, Perry, and York
Southeast Office - (484) 250-5900 2 East Main Street Norristown, PA 19401	Bucks, Chester, Delaware, Montgomery, and Philadelphia

REPLACES B.4.18	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART B	SECTION 4	PAGE 18-1
DATED 04/01/2017		DATE April 1, 2020		
SUBJECT PENNDOT LEAD PAINT REMOVAL CHECKLIST: CONSTRUCTION - SECTION 9073, 9075, 9077, AND 9079				

Section 9073 - Waste Management

A. Submittals (Section 9073)

1. Waste management submittals identified in Section 9073 must be submitted to the Department for review and acceptance prior to start of work. The submittal requirements are summarized in item 2 below.
2. The following submittals are required a minimum of 21 calendar days prior to the start of paint removal.
 - a. Waste Handling Plan - addresses the overall handling and disposal of waste. Plan must include the following minimum information:
 - 1) Procedures for the handling and storage of all waste on site.
 - 2) Procedures for the packaging of all waste for transportation.
 - 3) Preparedness, Prevention, and Contingency Plan (PPCP) for the handling and clean up of spills, together with emergency telephone numbers and a 24-hour Contractor contact.
 - 4) Procedures for the collection of representative samples of waste for testing to determine if it is hazardous. If steel abrasives are used, the paint debris is classified as hazardous for lead even though it passes the TCLP test.
 - 5) The laboratory testing and analysis procedures that will be used.
 - b. Notification of Resource Conservation and Recovery Act (RCRA) Subtitle C Activity – EPA/PA DEP requires [Notification of RCRA Subtitle C Activity EPA Form 8700-12](#) (see Appendix A for form) be submitted and an EPA RCRA ID Number be obtained prior to generating, transporting, recycling, treating, storing or disposing of hazardous waste. Signature(s) are required from the Contractor’s responsible person(s). The Department’s responsible person(s) must sign the RCRA notification form prior to submission to PA DEP. The anticipated turnaround time is approximately 7 – 10 business days from PA DEP receipt.

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To request an EPA RCRA ID Number, submit EPA Form 8700-12 to PA DEP at:

Pennsylvania Department of Environmental Protection
Bureau of Waste Management
Division of Hazardous Waste Management
P.O. Box 69170
Harrisburg, PA 17106-9170

Note: Signatures must be original. Stamped or photocopied signatures are not acceptable.

- c. Transporter Information - information must be provided for the proposed transporters of all waste (hazardous, non-hazardous, residual, and waste water). Minimum information must include:
 - 1) Name, address, and qualifications.
 - 2) Type of waste being hauled by the transporter (i.e., hazardous, non-hazardous, residual, or waste water).
 - 3) License or permit number. Note that for work in Allegheny County, solid waste transportation vehicles must be permitted per Article VIII.
- d. Hazardous Waste Recycle/Disposal Information:
 - 1) Verify that only licensed recycling or TSD facilities are used.
 - 2) Name and address of recycler/disposer.
 - 3) Original signed letter stating that the facility is legally authorized to accept the waste, has the capability to treat and dispose of the waste, and will assure that it is disposed properly.
 - 4) Permit Number, and phone contact in the State Regulatory Agency where the Disposal Site is located.
- e. Residual and Non-Hazardous Waste Disposal Information:
 - 1) Name and address of permitted residual waste disposer.
 - 2) Name and address of permitted non-hazardous waste disposer.
 - 3) Permit Number, and phone contact in the State Regulatory Agency where the Disposal Site is located.

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- f. Waste Water Disposal Information:
 - 1) Name and address of the disposer of waste water.
 - 2) Original signed letter stating that the facility will accept the waste water, and has the capability to handle and properly dispose of it.
 - 3) Permit Number, and phone contact in the State Regulatory Agency where the Disposal Site is located.

- g. Laboratory Qualifications - Minimum information for the laboratory conducting the waste sampling and analysis:
 - 1) Name, address, and contact telephone number.
 - 2) Experience and qualifications.
 - 3) PA DEP Laboratory Certification in accordance with the PA Laboratory Accreditation Act.

B. Department Requirements Prior to Project Start up (Section 9073)

- 1. Review all submittals.
- 2. Verify an EPA RCRA ID Number has been obtained prior to production of hazardous waste.
- 3. Approve all waste storage locations (assist Contractor in the selection of the storage sites, if needed).
- 4. Verify that waste is transported at the established frequency.

C. Department Requirements After Project Start up (Section 9073)

- 1. Observe the collection of waste samples for testing.
- 2. Advise the Contractor if the Department wants subsequent shipments of waste sampled and tested. Unless stipulated otherwise, the initial classification of the waste will be used for all shipments of the same waste stream.
- 3. Verify that the Department receives the original laboratory test report, and that the report is issued no later than 10 calendar days after the samples were collected.

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4. Sign hazardous waste manifests prepared by the Contractor. [Note: Must have completed the HAZMAT General Awareness Manifest Training within the last 3 years, in order to sign manifests.] Steel abrasive/paint debris is classified as hazardous regardless of the TCLP results. Box 9b of the Uniform Hazardous Waste Manifest ([EPA Form 8700-22](#)) must be completed as “paint chips, hazardous” for paint debris generated through the use of steel abrasives.
5. Sign completed Waste Characterization Data Sheets prepared by the Contractor.
6. Prepare Additional Information Sheet (See page B.4.15-3) to accompany the TCLP test results.
7. Review bills of lading for non-hazardous waste.
8. Verify that waste is transported to waste treatment facility within 90 days of generation.
9. Verify receipt of Certification of Disposal for all shipments. If you do not receive a signed and dated copy of the manifest from the designated facility within 60 days from the date on which the initial transporter accepted the waste, you must submit an

exception report to: PA DEP Manifest Section
P.O. Box 8550
Harrisburg, PA 17105-8550
Tel. (717) 783-9183

Section 9075 - Containment

A. Submittals (Section 9075)

1. Containment submittals identified in Section 9075 must be submitted for Department review and acceptance prior to start of work. The submittal requirements are summarized in item 2 below.
2. The following submittals are required a minimum of 21 calendar days prior to the erection of the containment.
 - a. Detailed drawings stamped by a Pennsylvania Professional Engineer.
 - b. Data, calculations, and assumptions used for the design of the containment and ventilation system and the imposed loads on the existing structure.

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- c. The plan for staging, installing, moving, and removing the containment; and the methods of attachment that will be used. Attachment points are to be made to substantial framing members only.
- d. Provisions for lowering or securing the containment in inclement weather, for movement out of navigation lanes, and the controls exercised to prevent excessive cable sagging during installation and paint removal operation to ensure the protection of traffic (e.g., use of temporary cradles).
- e. Verify that the Contractor has identified the distance that the containment will extend below the bottom of the bridge when operation in a navigation channel, and unless otherwise directed by the Coast Guard, verify that the containment is designed to allow it to be moved out of the navigation channel within 24 hours of notification that ships needing additional clearance require passage.
- f. Plans for maintaining the navigational lighting during the work.
- g. Methods for routing run-off from existing deck drains through the containment enclosure.
- h. Plans for the collection and removal of debris from the surface of water when working over streams, rivers, lakes, and other bodies of water.

B. Department Requirements Prior to Project Start up (Section 9075)

- 1. Review all submittals.
- 2. When working over water:
 - a. Verify that the Contractor has the material and equipment for the cleaning of spills of abrasive or paint debris that might occur.
 - b. When working over a navigational channel:
 - 1) Verify that the Contractor has advised the Coast Guard of the distance that the containment will extend below the bottom of the bridge.
 - 2) Verify that the Contractor has obtained advance approval from the Coast Guard any time that the work necessitates partial or total restrictions to the movement of vessels beneath the bridge. Requests to the Coast Guard must be issued at least 30 days prior to the need to commence such activities.

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3) Verify that the Contractor has provided the Coast Guard with a 24-hour telephone number and contacts for the discussions regarding the containment system.

3. Verify that the Contractor has provided the Engineer with a 24-hour telephone number and contacts for the discussions regarding the containment system.
4. Verify that the Contractor submits certification of installation signed by a Pennsylvania Professional Engineer before work begins inside of the containment.

C. Department Requirements After Project Start up (Section 9075)

1. Verify that a minimum of 108 lux (10 footcandles) is maintained for visibility during surface preparation and painting, and that a minimum of 323 lux (30 footcandles) is maintained for inspection. Require additional lighting if the workers or inspectors have difficulty seeing.
2. Verify that bridge deck drains are not closed without explicit approval by the Department.
3. Verify that loose dust and debris have been removed from containment materials and equipment prior to relocation.
4. Verify that the Contractor's materials and equipment are thoroughly cleaned of loose dust and debris prior to removal from the project site. If adequate cleaning is not possible, verify that the materials are disposed of properly.

Section 9077 - Worker Protection

A. Submittals (Section 9077)

1. Worker Protection submittals must be submitted to the department for review and acceptance as identified in 9077.1(d) prior to start of work. The submittal requirements are summarized in item 2 below.
2. The following submittals are required a minimum of 21 calendar days prior to worker exposure to toxic metals.
 - a. Lead Health and Safety Compliance Program addressing protection from lead (per 29 CFR 1926.62) and other toxic metals in the paint. A checklist is to be included in the program that will be followed by the competent person for site inspections.
 - b. Name, experience, and qualifications of the Certified Industrial Hygienist (CIH) and competent person who will be involved in the project.

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- c. Name, address, and qualifications of the launderer, if one will be used, including a letter from the laundry indicating that it is permitted to handle clothing contaminated with lead and other toxic metals, as appropriate.
- d. Name, address, and qualifications of the laboratory and/or firm that will be used for worker and area exposure monitoring. Note that the laboratory must be American Industrial Hygiene Association (AIHA) accredited for metals analysis and/or have successfully participated for the previous 12 months at a minimum in the AIHA Environmental Lead Proficiency Analytical Testing Program (ELPAT).
- e. Acknowledgment that protective clothing and equipment, hygiene facilities, and training will be provided for two Department Representatives at each site for each shift. Also, assure fit tests for two Department Representatives at each site for each shift.

B. Department Requirements Prior to Project Start up (Section 9077)

- 1. Review all submittals.
- 2. Verify that the Department Representatives who will be wearing respirators have had the necessary medical evaluations to confirm that they are medically fit to wear the respirators.
- 3. Verify that all Department employees who will be exposed to lead or other toxic metals on the project have received the necessary training (e.g., per 29 CFR 1926.62 in the case of lead). The Contractor is required to provide this training for the Department Representatives.

C. Department Requirements After Project Start up (Section 9077)

- 1. Regulated areas will initially be established a minimum of 15 feet away from equipment and operations that are likely to generate airborne emissions of toxic metals until monitoring can be undertaken to confirm that it is properly positioned. Notify the Contractor if this initial boundary location is unacceptable (e.g., because it interferes with other operations).
- 2. After the initial monitoring of the regulated area is completed, additional monitoring is not required unless suspect visible emissions are observed, there are changes in the work practices or equipment being used, or if directed by the Department. For example, require additional monitoring if the controls that were in place at the time of the initial monitoring appear to have become lax.

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3. Verify that the Contractor monitors the exposures of Department Representatives on the project, and that all exposure results (e.g., worker exposures – blood sampling and analysis) are provided to the Department within 5 days after receipt from the laboratory.
4. Verify that the Contractor provides the Department with a letter report signed by a CIH that summarizes the results of employee examinations that are indicative of exposures to lead or other toxic metals, including any medical removal provisions. Reports with an original signature are due to the Department within 10 calendar days after issuing the test results to the employees.
5. Verify program is updated every 6 months.
6. Verify daily inspections.
7. Verify monitoring results are received. All personal Health and Safety records are confidential and must be maintained in the individual employee’s personnel file.

Section 9079 - Environmental Protection

A. Submittals (Section 9079)

1. Environmental Protection submittals must be submitted to the Department for review and acceptance identified in 9079.1(d) prior to the start of work. The submittal requirements are summarized in item 2 below.
2. The following submittals are required a minimum of 21 calendar days prior to disturbing paints containing toxic metals.
 - a. Environmental Compliance Plan - Written program for monitoring activities, including provisions for complying with the monitoring results. The plan must include:
 - 1) Program for the inspection and assessment of visible emissions and releases. Program must include the methods and frequency of observations and inspections (including compliance with local visible emissions regulations as applicable), areas and operations that will be inspected, and the names and qualifications of the observers. Program must identify and address any sensitive receptors in the project area.
 - 2) Program for final project clean up and clearance/cleanliness inspections, including a statement that all visible debris will be removed from the ground, water, and sediment as directed by the Department.

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- 3) Agreement to comply with the results of the monitoring. Program should include statements that the appropriate corrective action to the containment or work practices will be taken if the emissions criteria are found to be violated. Includes Contractor monitoring.
- b. Environmental Monitoring Programs - Provide a monitoring plan to the Department for review and acceptance a minimum of 21 calendar days prior to the disturbance of paints containing toxic metals. The plan must address the following as applicable to the project:
- 1) High Volume Ambient Air Monitoring - A written program addressing all aspects of monitoring including site selection, calibration, equipment operating, laboratory analysis, calculations, and reporting of results.
 - 2) Water/Sediment Evaluations - A written program for pre- and post-project visual evaluations of the water and sediment.
- B. Department Requirements Prior to Project Start up (Section 9079)
1. Review all submittals.
 2. In Allegheny County, coordinate the abrasive blasting permit requirements with the Solid Waste Section of the Allegheny County Health Department.
- C. Department Requirements After Project Start up (Section 9079)
1. Advise the Contractor of the type and amount of testing and monitoring that will be required. Review all test results. Ensure a copy of the test results are sent directly to the Department from the testing agency.
 2. Verify that the Contractor makes changes to the containment or work practices in the event that the monitoring, observations, or analysis show that violations of emissions criteria are occurring.
 3. Verify that the Contractor provides the Department with a written report each time work is halted due to unacceptable visible emissions or releases of material. The report is required within 48 hours of the occurrence and must include descriptions of the clean up activities and the corrective action taken to avoid a reoccurrence.
 4. Establish the frequency for removing dust or debris from surrounding property and surfaces (if required more frequently than once each day).

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5. Conduct a final inspection of the project site after all clean up activities are completed. If the final inspection is unacceptable, advise the Contractor of the extent of soil, water, and/or sediment cleanup required.
6. Verify that the Contractor provides a final letter report that presents the results of the inspections conducted to verify final project cleanliness including surrounding property, waterways, equipment, buildings, and structures. The report must also include a summary of problems or releases that occurred during the project and the clean up and corrective action taken to resolve the problem.
7. Verify that the Contractor has notified the Department any time that the release of a reportable quantity of hazardous substances has occurred. The specification identifies other agencies that must also be notified in addition to the Department.

REPLACES	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART	SECTION	PAGE
DATED		B	4	19-1
SUBJECT	PROJECT OFFICE MANUAL	DATE January 1, 2010		
ENTERING CONFINED SPACES: CONSTRUCTION				

A. Submittals

1. The Contractor is required to submit a written Project Safety Program, as specified in Publication 408 Section 107.08, for review at the preconstruction conference.
2. The program submittals must include the following, as applicable:
 - a. Written permit-required confined space program as per 29 CFR 1910.146 including procedures for conducting air monitor calibrations as required by the equipment manufacturer's instructions and a written permit-required confined space permit.
 - b. Provide air monitoring equipment calibration documentation for spaces that have actual or potential atmospheric hazards.
 - c. Written verification of rescue services availability and qualifications for permit-required confined spaces.
 - d. Written verification of annual training for internal/contractor employed rescue team, if these services are provided by the contractor for permit-required confined space rescue, including a list of employees that attended the training and the date they attended.
 - e. Procedure for assuring compliance by subcontractors and suppliers working within the project's limit of work.

B. Department Requirements Prior to Project Start up

1. Review all submittals.
2. Provide comments to Contractors on contents of the submittals, when necessary.

C. Department Requirements After Project Start up (Requirements of the Contractor from 29 CFR 1910.146).

1. Prior to entry into any space that could be considered a confined space, Department Representatives should verify the following items:
 - a. The Contractor must review/inspect the space to determine if it is a confined space, and if so, if it is a permit-required confined space. Use the Confined Space Determination Flow Chart (B/4/19-4) as a guideline to help determine if the Contractor is following 29 CFR 1910.146.

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- b. If Department Representatives will be entering a permit-required confined space, the Contractor must review their written permit-required confined space program with those Department Representatives.
- c. If the space has been evaluated using an air monitor, the results of the air monitoring are to be made available to Department Representatives
- d. If the space has been evaluated using an air monitor, the date of the last calibration of the equipment, including field verification, or “bump test” of the equipment is to be made available to Department Representatives.
- e. If the space is a permit-required confined space, the Contractor must take all appropriate steps to reduce or eliminate the hazards of the space prior to entering the space.
- f. If the space is a permit-required confined space, the Contractor must complete a written entry permit, and the completed entry permit must be posted at the entrance to the space.
- g. If the space is a permit-required confined space, the Contractor must pre-arrange for rescue services to be available within 4 minutes of the space. Trained Contractor employees may serve as the rescue team.
- h. If the Contractor will use their employees as a permit-required confined space rescue team, the Contractor must provide training to this team annually. The Contractor must provide a list of employees that attended the training and the date they attended.
- i. Prior to entering a permit-required confined space, the Contractor must review the completed entry permit with Department Representatives that will enter the space. The conditions of the entry permit (ventilation, personal protective equipment requirements, communication, etc.) must be met prior to entering the space.
- j. If any conditions of a permit-required confined space change during an entry, Department Representatives shall immediately exit the space. The space must be re-evaluated by the Contractor and if the changes are not covered by the initial entry permit, a new entry permit must be completed and issued prior to reentry.

D. Contractor Non-Conformances

1. If a non-conformance related to confined space entry is noted, or Department Representatives do not feel the Contractors program or on-site actions have appropriately addressed confined space hazards, Department Representatives are not to enter the confined spaces in question until directed by their supervisor/management.
2. If a non-conformance is noted, Department Representatives shall immediately notify the Department’s Project Supervisor.

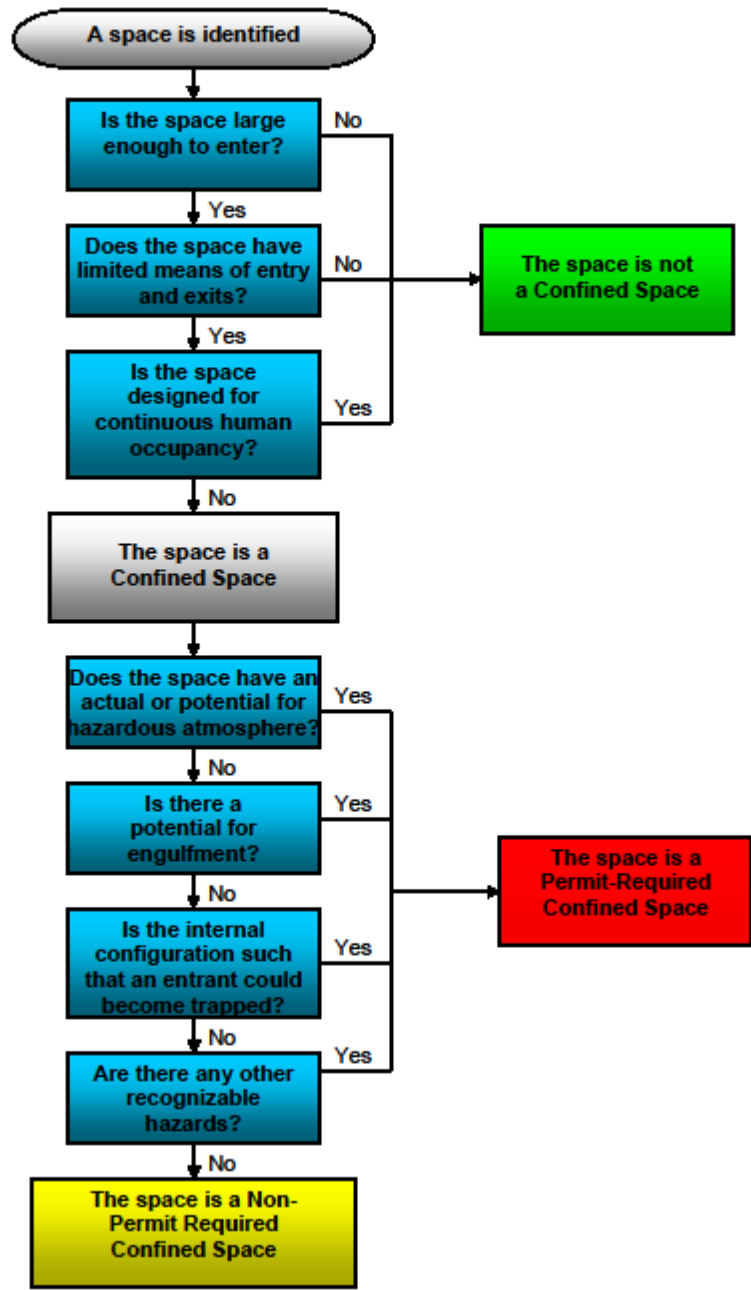
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3. The Department's Project Supervisor can either address the non-conformance or elevate the concern. The chain-of-command for elevating concerns is:
 - a. Department Project Supervisor
 - b. Department Project Manager
 - c. Department Assistant Construction Engineer/Manager
 - d. Department District Safety Coordinator

NOTE: If a non-conformance can't be appropriately addressed, using the chain-of-command above, the Assistant Construction Engineer/Manager shall contact the Contractor's home office and inform them that OSHA will be contacted and asked to conduct an inspection. Document all non-conformances and resolutions in the Project Site Activity (PSA), as appropriate.



CONFINED SPACE DETERMINATION



REPLACES B.4.20	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART B	SECTION 4	PAGE 20-1
DATED 4/1/2019		DATE April 1, 2020		
SUBJECT PA ONE CALL NOTIFICATION FOR UTILITY LINE STRIKES OR DAMAGE DURING CONSTRUCTION				

Underground utilities are to be located and marked out by the facility owner prior to construction on every project. Underground utilities that are struck or damaged during construction activities on a Department project are to be reported by the contractor, as the Excavator, and by the Department, as the Project Owner, as required by Pennsylvania's Underground Utility Line Protection Law Act 50 (P.L.852, No. 287 amended Oct. 30, 2017).

The contractor is required to notify the Department and report immediately to the facility owner any break or leak on its lines, or any dent, gouge, groove or other damage to such lines or to their coating or cathodic protection, made or discovered during construction. The contractor is also required to submit an Alleged Violation Report (AVR) to the PA Public Utility Commission through the One Call System, www.palcall.org, within ten (10) business days after previous damage is discovered or a utility line is struck or damaged on a Department construction project.

The Department is also required to submit an AVR to the PA Public Utility Commission through the One Call System, www.palcall.org, within ten (10) business days after a utility line is struck or damaged on a Department construction project. The One Call System website requires the establishment of an account in order to submit an AVR. The AVR is in a digital format with fields to be filled out completely and submitted online at the link listed above.

Each District is required to establish a policy to specify the following:

- personnel that needs a One Call System account;
- personnel to be notified when a utility is struck or damaged on a Department project or local/municipal project with Department oversight; and
- personnel responsible for submitting an AVR to ensure compliance with the law.

Information to be included on the AVR:

- County
- Municipality
- Ward (Pittsburgh, Philadelphia, Erie, Allentown only)
- Site address
- Nearest intersection
- PennDOT permit number
- Latitude/longitude
- Type of work
- Depth, method and extent of excavation
- Proposed start of work
- Contractor name/address
- Construction site photographs

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Utilities that are struck or damaged and are established as being unknown will be addressed in the summary section of the AVR. Photographs of the site are recommended to be included with the AVR and can be uploaded as attachments. An example AVR is available to be viewed on the website and can be accessed using the link provided above.

REPLACES B.6.1	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 6	PAGE 1-1
DATED 04/01/2017	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT MATERIALS CONTROL AND ACCEPTANCE ON THE PROJECT				

All materials incorporated into the work on a project must be accepted by one of the following methods:

- Certification - Material must be listed in Bulletins 14 or 15, or be a material produced at a producer listed in Bulletins 41 or 42. Materials from Bulletin listed manufacturers or producers can be accepted on certification unless otherwise specified. Publication 408, Section 106.03(b)3, requires the manufacturer or producer of the material to certify on Form [CS-4171](#) that the material meets or exceeds the specification requirements. Certain Bulletin 15 materials require the submission of supplemental Form CS-4171 certifications in addition to the Form CS-4171. Supplemental Forms CS-4171C (Coaters and Galvanizers) and CS-4171F (Fabricators) is required for Epoxy Coated and Galvanized reinforcement steel. Certain Bulletin materials require an alternate certification Form CS-4171 as specified in the particular material specification. Submission of alternate Form CS-4171B is required for daily asphalt mixture certification. Certain non-Bulletin materials, that by specification can be locally approved, require an alternate Form CS-4171LA to be submitted.
- On-Site Inspection at the point of production of the manufacturer or producer by Department representatives.
- Some materials are specifically specified to be accepted by acceptance sampling and testing. Acceptance sampling and testing is usually sampled at the point of placement, and tested on the project, in the vicinity of the project, at a material Producer's laboratory, or at the Laboratory Testing Section (LTS).
- Materials not listed in Bulletins 14 or 15, or materials not produced from producers listed in Bulletins 41 and 42, are not to be shipped to the project or incorporated into the work until approved by the Representative, as specified in Publication 408, Section 106.02(a)2.
- Construction-Aid Materials, as specified in Publication 408, Section 106.02(a)2.a, do not require Department approval for delivery and use on a project, do not need to be listed on Form CS-200 or CS-201, and do not need to be certified using Form CS-4171.

Materials delivered to the project suspected of non-compliance with the specification requirements should be sampled and sent to LTS for testing to determine if the quality of the materials meets the specifications.

Department Representatives are required to monitor and maintain 'custody' of any material samples, collected on behalf of the Department, from point of sampling through delivery to the Department designated testing laboratory.

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Regardless of the acceptance criteria, three levels of responsibility for the Control of Materials exist: 1) Quality Control, 2) Acceptance Sampling and Testing, and 3) Quality Assurance Monitoring, Sampling and Testing.

Quality Control (QC):

Contractors, suppliers and manufacturers are responsible for the quality control of materials. They are to perform necessary QC sampling and testing in order to determine that the material control and construction meet the specification requirements.

Acceptance Sampling and Testing:

The Department or its representative is responsible to perform the required acceptance sampling and testing in accordance with POM Section B.6.5 to determine the acceptability of the materials being incorporated into the work.

Quality Assurance Monitoring:

The Department also has the responsibility to perform the necessary Quality Assurance Reviews of the construction activities and to sample materials on a random basis to provide an independent assessment of both the QC and the acceptance sampling and testing programs to determine if materials and construction operations meet the specification requirements.

Each of these acceptance criteria will be discussed in more detail in either this POM Section B.6, Materials Control on Projects, or in POM Section B.7, Materials Control Off- Project.

REPLACES B.6.2	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART B	SECTION 6	PAGE 2-1
DATED 03/01/2011		DATE April 25, 2013		
SUBJECT MINIMUM QUALITY CONTROL PLAN TO MONITOR MATERIAL ACCEPTANCE				

I. Project Documentation

- A. Computer-generated checklist (page B.6.2-3) for all items, which indicates the method of field acceptance.
- This list is to be signed and dated on the last page (page B.6.2-4) by the Inspector-in-Charge when all items are verified and all material certifications are received.
- B. A Material Deviation and Disposition Form (page B.6.2-5) will be maintained and upon completion of the project turned into the District Materials Engineer/Manager.
- C. A Project Materials Form for each material item of the computer-generated checklist, except for construction aggregates, which will have a Project Materials Form for each aggregate size (e.g., AASHTO No. or PennDOT No.) on the project. A computer-generated Project Materials Form requiring the same information as page B.6.2-6 may be used.
- Each day material is received, the required information will be entered onto the appropriate Project Material Form.

II. Responsibility

A. Project Engineer

- Initial each Project Material Form for acceptance prior to paying estimate. Verify certifications are on file for all material quantities being paid on the estimate.

B. District Documentation Unit

- Review project records for accuracy of record and certification requirements at least once on small projects and once every six months on large scale projects.
 - Project Materials Acceptance Review report (page B.6.2-7) is to be completed only when deviations are noted, signed by designated personnel, and entered into the project records.

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C. Assistant Construction Engineer/Assistant Construction Manager

- Review material documentation on a monthly basis by making random item reviews.
 - Project Materials Acceptance Review report (page B.6.2-7) is to be completed only when deviations are noted, signed by designated personnel, and entered into the project records.

D. District Materials Unit

- Review material documentation for compliance of certifications and acceptance testing at least once during the on-going construction and perform a complete review of records prior to signing Form [TR-4238A](#). This should be done prior to the Final Inspection.
 - Project Materials Acceptance Review report (page B.6.2-7) is to be completed only when deviations are noted, signed by designated personnel, and entered into the project records.

III. Action Points

A. Missing or incomplete material certification Form [CS-4171](#).

- The Contractors will be given a maximum of two weeks from the receipt of notification to obtain any missing certifications.

B. Federal-aid participation will be suspended in the material and work item when material is incorporated into the work without certification.

C. If several instances occur on the same project, the work quality can be declared "unsatisfactory" by FHWA and all project progress payments will be suspended.

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Pennsylvania Department of Transportation
Certification

ECMS Number: 81607

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Item Number	Test	Cert	ACT 3	File	Comments
0203 - 0001	<u>NA</u>	<u>NA</u>	<u>NA</u>	—	_____
0204 - 0001	<u>NA</u>	<u>NA</u>	<u>NA</u>	—	_____
0204 - 0100	<u>NA</u>	<u>NA</u>	<u>NA</u>	—	_____
0212 - 0001	<u>NA</u>	—	<u>NA</u>	—	_____
0212 - 0003	<u>NA</u>	—	<u>NA</u>	—	_____
0305 - 0004	—	—	<u>NA</u>	—	_____
0350 - 0106	<u>NA</u>	—	<u>NA</u>	—	_____
0350 - 0108	<u>NA</u>	—	<u>NA</u>	—	_____
0350 - 0120	<u>NA</u>	—	<u>NA</u>	—	_____
0409 - 0482	—	<u>NA</u>	<u>NA</u>	—	_____
0460 - 0001	<u>NA</u>	—	<u>NA</u>	—	_____
0491 - 0070	<u>NA</u>	<u>NA</u>	<u>NA</u>	—	_____
0501 - 0020	—	—	—	—	_____
0501 - 0201	—	—	—	—	_____
0503 - 0001	<u>NA</u>	—	<u>NA</u>	—	_____
0504 - 0001	<u>NA</u>	—	—	—	_____
0605 - 2010	<u>NA</u>	—	—	—	_____
0605 - 2070	<u>NA</u>	—	—	—	_____

*Item that is not in the Item Catalog. Determine requirements offline.
Record material deviations on attached form.

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Pennsylvania Department of Transportation

Certification

ECMS Number: 81607

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Item Number	Test	Cert	ACT 3	File	Comments
9990 - 0011	A	_____	_____	_____	_____
9990 - 0012	E	_____	_____	_____	_____
9990 - 0013	A	_____	_____	_____	_____
9990 - 0014	E	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

I hereby certify that all items have been verified and all material certifications have been received.

_____ Date _____
 Inspector-in-Charge

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Pennsylvania Department of Transportation
Certification

ECMS Number: 81607

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Item Number Test Cert ACT 3 File Comments

Date	Material	Lab/Form#	Deviation	Disposition
___/___/___	_____	_____	_____	_____
___/___/___	_____	_____	_____	_____
___/___/___	_____	_____	_____	_____
___/___/___	_____	_____	_____	_____
___/___/___	_____	_____	_____	_____
___/___/___	_____	_____	_____	_____

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Project Materials Form

Item Number: 0203 - 0001 Fund: 01 Cost Function: 2629
CLASS 1 EXCAVATION

Page: 1

ECMS #: 81607
 SR: 2083 (A01)

Price/Unit: \$25.00 CY
 Original Qty: 620.00 Final Qty: _____

Date Received	Quantity		Date Sampled	Test	Cert	ACT 3	Remarks
	Received	Total		P/F	Y/N	Y/N	
/ /	- -	- -	/ /	NA	NA	NA	
/ /	- -	- -	/ /	NA	NA	NA	
/ /	- -	- -	/ /	NA	NA	NA	
/ /	- -	- -	/ /	NA	NA	NA	
/ /	- -	- -	/ /	NA	NA	NA	
/ /	- -	- -	/ /	NA	NA	NA	
/ /	- -	- -	/ /	NA	NA	NA	
/ /	- -	- -	/ /	NA	NA	NA	
/ /	- -	- -	/ /	NA	NA	NA	
/ /	- -	- -	/ /	NA	NA	NA	
/ /	- -	- -	/ /	NA	NA	NA	
/ /	- -	- -	/ /	NA	NA	NA	
/ /	- -	- -	/ /	NA	NA	NA	
/ /	- -	- -	/ /	NA	NA	NA	
/ /	- -	- -	/ /	NA	NA	NA	
/ /	- -	- -	/ /	NA	NA	NA	
/ /	- -	- -	/ /	NA	NA	NA	
/ /	- -	- -	/ /	NA	NA	NA	

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PROJECT MATERIALS ACCEPTANCE REVIEW

CONTRACT: 083054		FED. PROJECT:		ROUTE: SR 0016 (002)	
REVIEW DATE:		REVIEWED BY:		CONTRACTOR:	
ACCEPTANCE DEVIATIONS				DATE CORRECTED	
COMMENTS:					
PROJECT INSPECTOR :				DATE :	
MATERIALS ENGINEER :				DATE :	
A.D.E. CONSTRUCTION:				DATE :	

REPLACES B.6.3	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART B	SECTION 6	PAGE 3-1
DATED 04/01/2019		DATE April 1, 2020		
SUBJECT CONSTRUCTION MATERIAL CERTIFICATION, FORMS CS-4171, CS-4171B, CS-4171C, CS-4171F, CS-4171LA, AND CS-4171S				

Construction Material Certification

Bulletin materials must be certified to be from a Bulletin source and to be in compliance with the material specification requirements, using Form [CS-4171](#), Certificate of Compliance. Bulletin materials are defined in Publication 408, Section 106.02(a)1.

As indicated in POM Sections B.6.1 and B.6.2, the contractor is required to obtain properly completed certifications for all Bulletin materials delivered to a project.

Acceptance of the manufacturer's certification is not a substitute for Verification or Assurance Sampling. In addition, the Department reserves the right to inspect and test any material. All certified material should be examined carefully at the delivery point to validate the certifications and to check the material quality with the specifications.

If the material appears questionable, sampling and testing by LTS is recommended (even if it has the appropriate Form CS-4171)

Alternate or Supplemental Certification

All material listed in Bulletin 15 will be accepted solely by certification Form CS-4171, except for specific types and classes of material. These exceptions include structural steel, aluminum, or precast/prestressed concrete products produced in a Bulletin 15 approved facility with an on-site state inspector or a state representative. The inspector or representative will stamp acceptable fabricated materials that are furnished with the Form CS-4171 prepared by the fabricator, prior to shipment to the project.

Publication 408, Sections 701 and 702, material must be certified by the bill of lading method (all product quality is verified by the Laboratory Testing Section (LTS) testing).

Daily asphalt mixtures must be certified using Form [CS-4171B](#).

Locally approved non-Bulletin materials may be certified by submission of Form [CS-4171LA](#).

Fabricators of epoxy coated or galvanized reinforcement steel must supplement Form CS-4171 with Form [CS-4171F](#) (Fabrication Facility). Epoxy coaters and galvanizers of reinforcement steel must supplement Form CS-4171 with Form [CS-4171C](#) (Epoxy Coating or Galvanizing Facility). Forms CS-4171C and CS-4171F provide traceability for the materials used in the manufacturing of epoxy coated and galvanized reinforcement.

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The manufacturers, fabricators, precasters, and producers of products containing foreign steel must supplement Form CS-4171 with Form [CS-4171S](#) to certify the foreign steel content in its products and to determine compliance with the PA Steel Products Procurement Act and FHWA Buy America. Receipts showing the cost of the domestic and foreign steel must be submitted with the Form CS-4171S.

Form CS-4171 Completion

Form CS-4171 is completed by the manufacturer, fabricator, or producer of Bulletin material provided to the project or to a distributor/supplier. When material is provided to a distributor/supplier, the distributor/supplier completes a new Form CS-4171 for the material shipped to the project.

The Originator of the Form CS-4171 always maintains the original form and provides a copy of Form CS-4171 for each direct shipment of material.

The following items must be filled in on Form CS-4171:

1. Job Description (To be completed by the party that ships the material to the project, otherwise leave blank)
 - a. County
 - b. State Route (Legal Route) and Section (Segment)
 - c. ECMS# (Contract Number)
2. Manufacturer, Fabricator, Coater, Precaster, or Producer's name and Supplier Code listed in Bulletin 14, 15, 41 or 42.
3. Publication 408 Section, AASHTO, ASTM, Federal, or other designation applicable to the material
4. Shipping destination (Manufacturer, Fabricator, Coater, Precaster, Producer, Supplier, Distributor, or Contractor)
5. Material Identity
 - a. Lot Number
 - b. Quantity shipped (include units, e.g., feet, lbs., etc....)
 - c. Material description as it appears in Bulletin 14 or Bulletin 15
6. Appropriate boxes checked for iron or steel products
7. Appropriate box checked for vendor classification
8. Vendor Identification
 - a. Name of Vendor representative
 - b. Representative's title
 - c. Company Name
 - d. Representative's signature
 - e. Date signed
9. Vendor's source (when vendor classification box #2 is checked. See instructions)

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For any materials listed in Bulletin 15 produced from ‘unidentifiable’ steel as defined in Publication 408, Section 106.01, the Bulletin 15 supplier must provide certified mill test reports or other acceptable certification from the steel producer (in addition to Form CS-4171) that positively identifies that the steel product was "melted and manufactured in the United States". For any materials that are not listed in Bulletin 15 and which contain either ‘identifiable’ or ‘unidentifiable’ steel as defined in Publication 408, Section 106.01, the contractor must furnish documentation including invoices, bills of lading, mill test reports or other acceptable certification from the supplier that positively identifies that the steel product was "melted and manufactured in the United States". To facilitate certification documentation reviews by field staff and to improve traceability, suppliers may provide additional handwritten markups on the documentation. For example, if a guide rail manufacturer’s bill of lading lists its ‘lot number’ for steel, this lot number may be marked on the appropriate mill certification document.

Form CS-4171 Submission for Project Shipments

A properly completed and signed copy of Form CS-4171 must be received for each project shipment of material.

Certification should be distributed as follows:

1. Original copy retained by the originating company
2. One copy sent with the shipment to the next destination (i.e. either to the project, to the next manufacturer, or to a distributor/supplier).
3. If a manufacturer or fabricator adds to, modifies or changes a product, it must complete a new Form CS-4171 certifying the work performed.
A copy of the new Form CS-4171 must be forwarded to the next manufacturer, to the distributor/supplier, or to the project. If items contain steel, copies of the appropriate CS-4171 forms (see Pages B.6.3-1 and B.6.3-2) and mill certifications, when required, from all different primary steel manufacturers must be forwarded as well.
4. If a distributor/supplier ships the material to the project, it must complete a new Form CS-4171 certifying that the material being supplied is the same as that provided to them by the manufacturer. The name of the manufacturer and the quantity of material provided to the project must be listed on the Form CS-4171.

The contractor may divert material from one project to another or from contractor stock, provided the material is the same as produced under the original certification and the appropriate certification documentation is provided. This is the only instance in which an original certification is required at the project along with a newly completed certification for the amount of material diverted or shipped from the contractor. (Examples #4 and #5)

Form CS-4171 is to be sent with each shipment of material(s) to the job site or submitted electronically to the project. Copies of original mill certifications or other documentation, when required and as described above, must be attached to the Form CS-4171 submitted to the Department. Electronic submission requirements for material certification documentation [e.g.,

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where to submit – PennDOT Project Collaboration Center (PPCC), resource account, etc....] should be established at the Preconstruction Conference.

Manufacturers or suppliers are permitted to submit a computer-generated certification document identical to the current Form CS-4171 (i.e. the same information in the same format as the current Form CS-4171) ONLY if the document is approved by the BOPD, Construction and Materials Division, New Products and Innovations Section. Manufacturers and suppliers who have been approved by NPI to submit a computer-generated Form CS-4171 certification document will be designated as such in Bulletin 15.

Form CS-4171 Record Retention

Manufacturers, fabricators, coaters, precasters, or producers providing materials to the project will retain copies of Form CS-4171, as well as supplemental and alternate certifications as defined on page B.6.3-1 and in Publication 408, Section 106.03(b)3.c, and all other certifications for components, sub-assemblies, or subcomponents that have been incorporated into the finished product, for a period of not less than three (3) years from the date of shipment to a Department project or from the date of shipment to a distributor supplying Department projects. These files must be available for inspection by a Department representative. Failure to have proper certifications on hand at time of inspection will be grounds for removal from Bulletin 15.

Improper or Missing Material Certification

Material is not to be incorporated into the work or paid on estimates without proper certification to verify material specification compliance.

Material listed in Bulletin 15 that is delivered to the project without the appropriate certification and documentation should be returned to the vendor or stocked in an isolated area. Do not use this material until certification is received or until Project-Specific LTS approval, as specified in Publication 408, Section 106.02(a)2.b, is obtained. If circumstances require incorporation of the material (e.g., guide rail installation), no payment is to be made until proper certification is received or Project-Specific LTS approval is obtained. Non-payment, however, cannot be used to circumvent Buy America requirements. Incorporation of any material failing to comply with Buy America requirements is not allowed on any Federal-Aid project without the prior approval of FHWA.

Material Certification Examples

The following examples are included to assist project personnel in reviewing CS-4171 forms to determine if the submitted forms meet the documentation requirements. Form CS-4171 is included (with instructions for completion) in the Appendix.

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Example 1:

(This example shows how a manufacturer of precast products, who is listed in Bulletin 15, certifies material shipped directly to a Department project.)

The manufacturer (precaster) initiates one (1) Form CS-4171 that covers the quality and quantity of the item(s) and sends a copy along with the shipment to the job site. The original Form CS-4171 is maintained on file at the manufacturer's facility as specified in Publication 408, Section 106.03(b)3. For products containing steel, copies of the original mill certifications or the CS-4171 forms from the steel manufacturer must be maintained in the same file with the original Form CS-4171 at the manufacturer's facility.

The contractor retains all certifications of quality and quantity that it receives from the manufacturer/supplier and maintains these certifications on file as per Publication 408, Section 106.03(b)3. The contractor submits a copy of the Form CS-4171 to the Department Representative for each material shipment delivered to the jobsite.

See example certification #1 attached.

Example 2:

(This example shows how a supplier, who is **not** listed in Bulletin 15, ships materials produced by a manufacturer, who **is** listed in Bulletin 15, to a Department project.)

The general supply house sends one (1) Form CS-4171 to the job site. This Form CS-4171 would cover the quality and quantity of all components and items supplied. The original Form CS-4171 is kept on file at the general supply house's main facility. The supplier is to maintain the original copy of the Form CS-4171 along with copies of all prior certifications. For products containing 'unidentified' steel (as defined in Publication 408, Section 106.01), steel other than fabricated structural steel, or precast/prestressed products receiving in-plant inspection, copies of the original mill certifications indicating the steel products were melted and manufactured in the United States are required to be furnished along with Form CS-4171 and maintained in the same file with the original Form CS-4171 at the supplier's facility as specified in Publication 408, Section 106.03(b)3.

The contractor retains all certifications of quality and quantity that it receives from the manufacturer/supplier and maintains these certifications on file as specified in Publication 408, Section 106.03(b)3. The contractor submits a copy of Form CS-4171 to the Department Representative for each material shipment delivered to the jobsite.

See example certification #2 attached.

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Example 3, Example 3.1 and Example 3.2:

(These examples show how reinforcement steel (black, epoxy coated or galvanized) is certified by the fabricator who ships the fabricated reinforcement steel to a Department project.)

The fabricator would retain copies of all certifications of quality and quantity that it receives from the epoxy coater or galvanizer (Form CS-4171 and CS-4171C, when applicable). These certifications would be kept on file as specified in Publication 408, Section 106.03(b)3 and Section 709.5. If the reinforcement is not identifiable, as defined in Section 106.01, copies of the original mill certifications indicating the steel products were melted and manufactured in the United States are required to be furnished along with Form CS-4171.

For Black Steel Reinforcement:

The fabricator initiates a new Form CS-4171 to accompany the shipment to the contractor, along with certified mill test reports, if required. On the Form CS-4171, line 5 must contain the grade of steel and size of the reinforcement, the length or type of reinforcement, the number of pieces (quantity), and the name and heat number from the original mill certification. This Form CS-4171 from the fabricator would cover the quality and quantity of all components and items supplied and would also include fabrication, cutting and bending. The original will be maintained in a file at the fabricator's location. For reinforcement that is unidentifiable, as defined in Publication 408, Section 106.01, copies of the original mill certifications and the CS-4171 forms from the steel manufacturer must also be maintained in the same file with the original Form CS-4171 at the fabricator's facility as specified in Publication 408, Section 106.03(b)3.

The contractor retains all certifications of quality and quantity that it receives from the fabricator and maintains these certifications on file as specified in Publication 408, Section 106.03(b)3. The contractor submits a copy of the Form CS-4171 and certified mill test reports, if the material is unidentifiable to the Department Representative for each material shipment delivered to the jobsite.

See example certification #3 attached.

For Fabricated Epoxy Coated Reinforcement:

The fabricator initiates a new Form CS-4171, certified mill test reports (for unidentifiable steel), and Form CS-4171F to accompany the shipment to the contractor. On the Form CS-4171, line 5 may refer to the Form CS-4171F. The Form CS-4171F must contain the fabricator's name and location, the fabricator's Bulletin 15 supplier code, the reinforcement steel specification and steel grade, a Structure Number when applicable, the fabricator's Bill of Lading number and Bill of Lading date, the designated size of the reinforcement steel, the reinforcement steel Bulletin 15 supplier code, heat number from mill certification, the epoxy coater's lot/tag number, the quantity

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and unit of measure, the epoxy coater's Bulletin 15 supplier code, the epoxy powder manufacturer's Bulletin 15 supplier code, the powder manufacturer's lot number applied to the reinforcement, and the name of the compatible epoxy patching and repair materials. Form CS-4171, certified mill test reports, and Form CS-4171F from the fabricator would cover the quality and quantity of all components and items supplied and would also include fabrication, cutting and bending. The original will be maintained in a file at the fabricator's location. Copies of the original mill certifications and/or the CS-4171 forms from the steel manufacturer must also be maintained in the same file with the original Form CS-4171 at the fabricator's facility as specified in Publication 408, Section 106.03(b)3 and Section 709.5.

The contractor retains all certifications of quality and quantity that it receives from the fabricator and maintains these certifications on file as specified in Publication 408, Section 106.03(b)3. The contractor submits a copy of the Form CS-4171, mill certifications for unidentifiable reinforcement steel and Form CS-4171F to the Department Representative for each material shipment delivered to the jobsite.

See example certification #3.1 (2 pages) attached.

For Fabricated Galvanized Reinforcement Bar:

The fabricator initiates a new Form CS-4171 and Form CS-4171F to accompany the shipment to the contractor. On the Form CS-4171, line 5 may refer to the Form CS-4171F. The Form CS-4171F must contain the fabricator's name and location, the fabricator's Bulletin 15 supplier code, the reinforcement steel specification and steel grade, a Structure Number when applicable, the fabricator's Bill of Lading number and Bill of Lading date, the designated size of the reinforcement steel, the reinforcement steel Bulletin 15 supplier code, heat number from mill certification, the galvanizer's lot/tag number, the quantity and unit of measure, the galvanizer's Bulletin 15 supplier code. The Form CS-4171, certified mill test reports and the Form CS-4171F from the fabricator would cover the quality and quantity of all components and items supplied and would also include fabrication, cutting and bending. The original will be maintained in a file at the fabricator's location. Copies of the original mill certifications and/or the CS-4171 forms from the steel manufacturer must also be maintained in the same file with the original Form CS-4171 at the fabricator's facility as specified in Publication 408, Section 106.03(b)3 and Section 709.5.

The contractor retains all certifications of quality and quantity that it receives from the fabricator and maintains these certifications on file as specified in Publication 408, Section 106.03(b)3. The contractor submits a copy of the Form CS-4171, mill certifications for unidentifiable reinforcement steel and Form CS-4171F to the Department Representative for each material shipment delivered to the jobsite.

See example certification #3.2 (2 pages) attached.

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Example 4:

(This example shows how a contractor certifies material that is transferred from one project to another.)

The manufacturer initiates one (1) Form CS-4171 that covers the quality and quantity of the item(s) and sends a copy along with the shipment to the initial job site. The original Form CS-4171 is maintained on file at the manufacturer's facility as specified in Publication 408, Section 106.03(b)3. For products containing unidentified steel, copies of the original mill certifications and the CS-4171 forms from the steel manufacturer must be maintained in the same file with the original Form CS-4171 at the manufacturer's facility.

The contractor retains all certifications of quality and quantity that it receives from the manufacturer/supplier and maintains these certifications on file as specified in Publication 408, Section 106.03(b)3. The contractor submits a copy of the Form CS-4171 to the Department Representative for each material shipment delivered to the jobsite.

To transfer material to another project, the **contractor** initiates a new Form CS-4171 that includes the QUANTITY that will be transferred to the second or subsequent projects. The contractor will also make a copy of the Form CS-4171 that accompanied the shipment when the material was originally delivered to the first project. The contractor will attach the original certification to the transfer certification, including copies of certified mill test reports for products containing unidentified steel, as defined in Publication 408, Section 106.01.

Add a note in line 5 that identifies the project that the material was transferred from.

The contractor retains all certifications of quality and quantity that it receives from the first project and must maintain these certifications on file as specified in Publication 408, Section 106.03(b)3. The contractor submits a copy of the Form CS-4171 to the Department Representative for each material shipment delivered to the jobsite.

See example certification # 4 (2 pages) attached.

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Example 5:

(This example shows how a contractor certifies material that is delivered to its stockyard and is later distributed to multiple projects at a later date.)

The manufacturer initiates one (1) Form CS-4171 that covers the quality and quantity of the item(s) and sends a copy along with the shipment to the initial job site. The original Form CS-4171 is maintained on file at the manufacturer's facility as specified in Publication 408, Section 106.03(b)3. For products containing unidentified steel, copies of the original mill certifications and the CS-4171 forms from the steel manufacturer must be maintained in the same file with the original Form CS-4171 at the manufacturer's facility.

To transfer material to a project, the **contractor** initiates a new Form CS-4171 that includes the QUANTITY that will be shipped to the jobsite. The contractor will also make a copy of the Form CS-4171 that accompanied the shipment when the material was originally delivered to the contractor's stockyard. The contractor will attach the original certification to the transfer certification, including copies of certified mill test reports for products containing unidentified steel, as defined in Publication 408, Section 106.01.

Add a note in line 5 that identifies that the material was transferred from contractor stock.

The contractor retains all certifications of quality and quantity that it receives from the manufacturer/supplier and maintains these certifications on file as specified in Publication 408, Section 106.03(b)3. The contractor submits a copy of the Form CS-4171 to the Department Representative for each material shipment delivered to the jobsite, including certified mill test reports for products containing unidentified steel.

See example certification #5 (2 pages) attached.

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Example 6:

(This example shows how a Bulletin 15 listed manufacturer, fabricator, precaster, or producer of steel products certifies material shipped directly to a Department project when the product contains domestic and foreign steel.)

The manufacturer, fabricator, precaster, or producer initiates both a Form CS-4171, which covers the quality and quantity of the item(s); and a Form CS-4171S, which documents the domestic and foreign steel content/cost of the items. The manufacturer sends a copy of both completed Forms CS-4171 and CS-4171S, including required supporting documentation, along with the shipment to the job site. For products containing ‘unidentified’ steel (as defined in Section 106.01), copies of the original mill certifications indicating that the steel products were melted and manufactured in the United States are required to be furnished along with Form CS-4171. Additionally, receipts verifying the cost of the product’s domestic and foreign steel are required to be furnished with Form CS-4171S.

The original Forms CS-4171 and CS-4171S, and supporting documentation, are maintained on file at the manufacturer's facility as specified in Publication 408, Section 106.03(b)3. For products containing steel, copies of the original mill certifications or the CS-4171 forms from the steel manufacturer must be maintained in the same file with the original Form CS-4171 at the manufacturer’s facility.

The contractor retains all certifications that it receives from the manufacturer/supplier and maintains these certifications on file as specified in Publication 408, Section 106.03(b)3. The contractor submits a copy of the Forms CS-4171 and CS-4171S with receipts to the Department’s field representative for each material shipment delivered to the jobsite.

See example certification #6 attached.

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Example #1: Page 1 of 1 - Bulletin 15 Supplier (Precaster) to Contractor

CS-4171 (3-19)



CERTIFICATE OF COMPLIANCE

- ◆ **COUNTY:** Any County ◆ **LR/SR:** 00000 ◆ **SEC/SEG:** 000 ◆ **ECMS#:** 000000
 (◆ - To be completed by the party that will ship the material to the project, otherwise leave blank.)
- I / WE hereby certify that the material listed on line 5 was:
 If a single company performs more than one operation (e.g., a company manufactures and coats guiderail), more than one box may be checked.
 Manufactured Fabricated Coated Precasted Produced

By Precaster Listed in Bulletin 15 Supplier Code in Bulletin 15
(Name of Manufacturer, Fabricator, Coater, Precaster or Producer) (Supplier Code)
- and the party listed above certifies that the material(s) on line 5 meets the requirements of
Publication 408, Section(s) 714
AASHTO, ASTM, Federal or other designation _____
- The material listed below is being shipped to: Contractor Name
(Company Name)
- | LOT NO. | QUANTITY | APPROVED MATERIAL AS LISTED IN PennDOT BULLETIN |
|-----------------|---------------|---|
| <u>08/21/18</u> | <u>2 each</u> | <u>Precast Concrete Manhole Assembly (Base, Riser, Conical Top)</u> |
| | | |
| | | |
| | | |
- CHECK HERE IF YOUR PRODUCT CONTAINS IRON OR STEEL.** I certify the material identified above conforms to Sections 106.01 and 106.10(a) of Publication 408.

CHECK ONE OF THE TWO BOXES:
 Product is 100% US steel. Product contains minimal foreign steel in accordance with Act 3 and Buy America.
Attach Form CS-4171S with receipts or invoices.

CHECK THE BOX THAT APPLIES TO YOUR PRODUCT:

'Identifiable Steel' - Steel products that contain permanent markings that identify that the material was melted and manufactured in the United States. **Only Form CS-4171 is required.**

Steel Products and Products Containing Steel with In-Plant Inspection by the Department or a Department Representative - **For 100% US steel products where in-plant inspection has verified that the steel was melted and manufactured in the United States, only Form CS-4171 is required. For products where in-plant inspection has verified minimal foreign steel in accordance with Act 3 and Buy America, attach bills of lading or shipping documents for foreign steel, and attach Form CS-4171S with supporting documentation.**

'Unidentified Steel' – Steel products that do not meet the definition of "Identifiable Steel" and do not receive in-plant inspection as defined above. **For 100% US steel products, attach supporting documentation including invoices, bills of lading and mill test reports that positively identify that the steel was melted and manufactured in the United States. For products containing minimal foreign steel in accordance with Act 3 and Buy America, attach bills of lading or shipping documents for foreign steel, and attach Form CS-4171S with supporting documentation.**
- VENDOR CLASSIFICATION (CHECK ONE BLOCK ONLY) -**

<input checked="" type="checkbox"/> #1 Manufacturer, Fabricator, Coater, Precaster Listed in Bulletin # 15, or Producer Listed in Bulletin # 14, 41 or 42 <i>I certify that the above statements are true and to the best of my knowledge, fairly and accurately describe the product(s) listed.</i>	<input type="checkbox"/> #2 Distributor, Supplier or *Private Label Company Not Listed in Bulletin # 15. Also, complete line 9 <i>I certify that the material being supplied is one and the same as provided to us by the manufacturer listed on this document and quantities listed above are accurate.</i>
--	--
- NAME (print) :** Company Representative **TITLE:** Company Title
COMPANY NAME : Bulletin 15 Precaster Name
SIGNATURE : _____ **DATE:** _____
By Responsible Company Official
- List company that sold you the material(s) documented above: _____
(Complete if you checked Block # 2 on line # 7, otherwise leave blank.) (Company Name)

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Example #2: Page 1 of 1 - Non Bulletin 15 Supplier to Contractor

CS-4171 (3-19)



CERTIFICATE OF COMPLIANCE

- ◆ **COUNTY:** Any County ◆ **LR/SR:** 00000 ◆ **SEC/SEG:** 000 ◆ **ECMS#:** 000000
 (◆ - To be completed by the party that will ship the material to the project, otherwise leave blank.)
- I / WE hereby certify that the material listed on line 5 was:
If a single company performs more than one operation (e.g., a company manufactures and coats guiderail), more than one box may be checked.

Manufactured Fabricated Coated Precasted Produced

By Bulletin 15 Manufacturer Name Supplier Code in Bulletin 15
(Name of Manufacturer, Fabricator, Coater, Precaster or Producer) (Supplier Code)
- and the party listed above certifies that the material(s) on line 5 meets the requirements of
Publication 408, Section(s) 705.4(d)1.a
AASHTO, ASTM, Federal or other designation _____
- The material listed below is being shipped to: Contractor Name
(Company Name)
- | LOT NO. | QUANTITY | APPROVED MATERIAL AS LISTED IN PennDOT BULLETIN |
|---------|-----------|---|
| X99 | 10,000 ft | Pavement Seal V-1625 |
| | | |
| | | |
| | | |
- CHECK HERE IF YOUR PRODUCT CONTAINS IRON OR STEEL.** I certify the material identified above conforms to Sections 106.01 and 106.10(a) of Publication 408.

CHECK ONE OF THE TWO BOXES:

Product is 100% US steel. Product contains minimal foreign steel in accordance with Act 3 and Buy America.
Attach Form CS-4171S with receipts or invoices.

CHECK THE BOX THAT APPLIES TO YOUR PRODUCT:

'Identifiable Steel' - Steel products that contain permanent markings that identify that the material was melted and manufactured in the United States. **Only Form CS-4171 is required.**

Steel Products and Products Containing Steel with In-Plant Inspection by the Department or a Department Representative - **For 100% US steel products where in-plant inspection has verified that the steel was melted and manufactured in the United States, only Form CS-4171 is required. For products where in-plant inspection has verified minimal foreign steel in accordance with Act 3 and Buy America, attach bills of lading or shipping documents for foreign steel, and attach Form CS-4171S with supporting documentation.**

'Unidentified Steel' – Steel products that do not meet the definition of "Identifiable Steel" and do not receive in-plant inspection as defined above. **For 100% US steel products, attach supporting documentation including invoices, bills of lading and mill test reports that positively identify that the steel was melted and manufactured in the United States. For products containing minimal foreign steel in accordance with Act 3 and Buy America, attach bills of lading or shipping documents for foreign steel, and attach Form CS-4171S with supporting documentation.**
- VENDOR CLASSIFICATION (CHECK ONE BLOCK ONLY) -**

#1 **Manufacturer, Fabricator, Coater, Precaster Listed in Bulletin # 15, or Producer Listed in Bulletin # 14, 41 or 42** #2 **Distributor, Supplier or *Private Label Company Not Listed in Bulletin # 15. Also, complete line 9**

I certify that the above statements are true and to the best of my knowledge, fairly and accurately describe the product(s) listed. *I certify that the material being supplied is one and the same as provided to us by the manufacturer listed on this document and quantities listed above are accurate.*
- NAME (print):** Company Representative **TITLE:** Company Title

COMPANY NAME: Non Bulletin 15 Supplier Name

SIGNATURE: _____ **DATE:** _____
By Responsible Company Official
- List company that sold you the material(s) documented above: Bulletin 15 Manufacturer Name
(Complete if you checked Block # 2 on line # 7, otherwise leave blank.) (Company Name)

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Example #3: Page 1 of 1 - Bulletin 15 Fabricator to Contractor

CS-4171 (3-19)



pennsylvania
DEPARTMENT OF TRANSPORTATION
www.penndot.gov

CERTIFICATE OF COMPLIANCE

- ◆ **COUNTY:** Any County ◆ **LR/SR:** 00000 ◆ **SEC/SEG:** 000 ◆ **ECMS#:** 000000
 (◆ - To be completed by the party that will ship the material to the project, otherwise leave blank.)
- I / WE hereby certify that the material listed on line 5 was:
If a single company performs more than one operation (e.g., a company manufactures and coats guiderail), more than one box may be checked.

Manufactured Fabricated Coated Precasted Produced

By Bulletin 15 Fabricator Name Supplier Code in Bulletin 15
 (Name of Manufacturer, Fabricator, Coater, Precaster or Producer) (Supplier Code)
- and the party listed above certifies that the material(s) on line 5 meets the requirements of
Publication 408, Section(s) 709.1
AASHTO, ASTM, Federal or other designation _____
- The material listed below is being shipped to: Contractor Name
 (Company Name)
- | LOT NO. | QUANTITY | APPROVED MATERIAL AS LISTED IN PENNDOT BULLETIN |
|-------------|-------------|---|
| Heat# 32876 | 25.452 lbs. | Grade 60. #8 Rebar - Marion Steel Co. |
| Heat# 43289 | 12.354 lbs. | Grade 60. #11 Rebar - ReSteel Supply Co. |
| | | |
| | | |
| | | |
- CHECK HERE IF YOUR PRODUCT CONTAINS IRON OR STEEL.** I certify the material identified above conforms to Sections 106.01 and 106.10(a) of Publication 408.

CHECK ONE OF THE TWO BOXES:

Product is 100% US steel. Product contains minimal foreign steel in accordance with Act 3 and Buy America.
Attach Form CS-4171S with receipts or invoices.

CHECK THE BOX THAT APPLIES TO YOUR PRODUCT:

'Identifiable Steel' - Steel products that contain permanent markings that identify that the material was melted and manufactured in the United States. **Only Form CS-4171 is required.**

Steel Products and Products Containing Steel with In-Plant Inspection by the Department or a Department Representative - **For 100% US steel products where in-plant inspection has verified that the steel was melted and manufactured in the United States, only Form CS-4171 is required. For products where in-plant inspection has verified minimal foreign steel in accordance with Act 3 and Buy America, attach bills of lading or shipping documents for foreign steel, and attach Form CS-4171S with supporting documentation.**

'Unidentified Steel' - Steel products that do not meet the definition of "Identifiable Steel" and do not receive in-plant inspection as defined above. **For 100% US steel products, attach supporting documentation including invoices, bills of lading and mill test reports that positively identify that the steel was melted and manufactured in the United States. For products containing minimal foreign steel in accordance with Act 3 and Buy America, attach bills of lading or shipping documents for foreign steel, and attach Form CS-4171S with supporting documentation.**
- VENDOR CLASSIFICATION (CHECK ONE BLOCK ONLY) -**

#1 **Manufacturer, Fabricator, Coater, Precaster**
Listed in Bulletin # 15, or Producer Listed in Bulletin # 14, 41 or 42

I certify that the above statements are true and to the best of my knowledge, fairly and accurately describe the product(s) listed.

#2 **Distributor, Supplier or *Private Label Company**
Not Listed in Bulletin # 15.
Also, complete line 9

I certify that the material being supplied is one and the same as provided to us by the manufacturer listed on this document and quantities listed above are accurate.
- NAME (print):** Company Representative **TITLE:** Company Title

COMPANY NAME: Bulletin 15 Fabricator Name

SIGNATURE: _____ **DATE:** _____
 By Responsible Company Official
- List company that sold you the material(s) documented above: _____
 (Complete if you checked Block # 2 on line # 7, otherwise leave blank.) (Company Name)

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Example #3.1: Page 1 of 2 - Bulletin 15 Fabricator to Contractor

CS-4171 (3-19)



CERTIFICATE OF COMPLIANCE

- ◆ **COUNTY:** Any County ◆ **LR/SR:** 00000 ◆ **SEC/SEG:** 000 ◆ **ECMS#:** 000000
 (◆ - To be completed by the party that will ship the material to the project, otherwise leave blank.)
- I / WE hereby certify that the material listed on line 5 was:
If a single company performs more than one operation (e.g., a company manufactures and coats guiderail), more than one box may be checked.

Manufactured Fabricated Coated Precasted Produced

By Bulletin 15 Fabricator Name Supplier Code in Bulletin 15
 (Name of Manufacturer, Fabricator, Coater, Precaster or Producer) (Supplier Code)
- and the party listed above certifies that the material(s) on line 5 meets the requirements of
Publication 408, Section(s) 709.1
AASHTO, ASTM, Federal or other designation _____
- The material listed below is being shipped to: Contractor Name
 (Company Name)
- | LOT NO. | QUANTITY | APPROVED MATERIAL AS LISTED IN PennDOT BULLETIN |
|-------------------------------|----------|---|
| Refer to attached
CS-4171F | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
- CHECK HERE IF YOUR PRODUCT CONTAINS IRON OR STEEL.** I certify the material identified above conforms to Sections 106.01 and 106.10(a) of Publication 408.

CHECK ONE OF THE TWO BOXES:

Product is 100% US steel. Product contains minimal foreign steel in accordance with Act 3 and Buy America.
Attach Form CS-4171S with receipts or invoices.

CHECK THE BOX THAT APPLIES TO YOUR PRODUCT:

'Identifiable Steel' - Steel products that contain permanent markings that identify that the material was melted and manufactured in the United States. **Only Form CS-4171 is required.**

Steel Products and Products Containing Steel with In-Plant Inspection by the Department or a Department Representative - **For 100% US steel products where in-plant inspection has verified that the steel was melted and manufactured in the United States, only Form CS-4171 is required. For products where in-plant inspection has verified minimal foreign steel in accordance with Act 3 and Buy America, attach bills of lading or shipping documents for foreign steel, and attach Form CS-4171S with supporting documentation.**

'Unidentified Steel' – Steel products that do not meet the definition of "Identifiable Steel" and do not receive in-plant inspection as defined above. **For 100% US steel products, attach supporting documentation including invoices, bills of lading and mill test reports that positively identify that the steel was melted and manufactured in the United States. For products containing minimal foreign steel in accordance with Act 3 and Buy America, attach bills of lading or shipping documents for foreign steel, and attach Form CS-4171S with supporting documentation.**
- VENDOR CLASSIFICATION (CHECK ONE BLOCK ONLY) -**

#1 **Manufacturer, Fabricator, Coater, Precaster Listed in Bulletin # 15, or Producer Listed in Bulletin # 14, 41 or 42** #2 **Distributor, Supplier or *Private Label Company Not Listed in Bulletin # 15. Also, complete line 9**

I certify that the above statements are true and to the best of my knowledge, fairly and accurately describe the product(s) listed. *I certify that the material being supplied is one and the same as provided to us by the manufacturer listed on this document and quantities listed above are accurate.*
- NAME (print):** Company Representative **TITLE:** Company Title
COMPANY NAME: Bulletin 15 Fabricator Name
SIGNATURE: _____ **DATE:** _____
By Responsible Company Official
- List company that sold you the material(s) documented above: _____
 (Complete if you checked Block # 2 on line # 7, otherwise leave blank.) (Company Name)

Example #3.1: Page 2 of 2 - Fabricator to Contractor

CS-4171F (10-19)

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 : _____ Bulletin 15 Fabricator Name and Location _____ Reinforcement Steel AASHTO, ASTM : Steel Type _____ Grade : Steel Grade

Fabricator's Supplier Code : _____ Bulletin 15 Code _____

Structure Number : _____ S-NNNNN _____

Bar / Wire Size	Bar / Wire Manufacturer	Supplier Code	Heat Number	Bar/Wire Manuf. Heat Number	Epoxy Coater's or Galvanizer's Lot or Tag Number	Bill of Lading (BOL):		Bill of Lading Date :		Date of BOL
						Quantity (Area, Sheets, Pounds, etc.)	Epoxy Coater's Supplier Code	Epoxy Powder Manufacturer Supplier Code	Epoxy Powder Lot Number	
1	Number	Supplier Code	Heat Number	Bar/Wire Manuf. Heat Number	Epoxy Coater's Tag Number	Quantity	Epoxy Coater's Supplier Code	Epoxy Powder Supplier Code	Epoxy Powder Lot Number	Epoxy Repair Material
2	"	"	"	"	"	"	"	"	"	"
3	"	"	"	"	"	"	"	"	"	"
4	"	"	"	"	"	"	"	"	"	"
5	"	"	"	"	"	"	"	"	"	"
6	"	"	"	"	"	"	"	"	"	"
7	"	"	"	"	"	"	"	"	"	"
8	"	"	"	"	"	"	"	"	"	"
9	"	"	"	"	"	"	"	"	"	"
10	"	"	"	"	"	"	"	"	"	"
11										
12										
13										
14										
15										
16										
17										
18										

* - This supplemental form must be completed and a copy attached to the CS-4171 "Certificate of Compliance" form by the FABRICATOR for all reinforcing steel being shipped or transferred to a PROJECT, DISTRIBUTOR, SUPPLIER, PRIVATE LABEL COMPANY or PRECAST PLANT for use in a Pennsylvania Department of Transportation funded project. Information required on line 5 of the CS-4171 may be referenced to this form.

PART B	SECTION 6	PAGE 3-16	DATE April 1, 2020
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Example 3.2: Page 1 of 2 - Fabricator to Contractor

CS-4171 (3-19)



pennsylvania
DEPARTMENT OF TRANSPORTATION
www.penndot.gov

CERTIFICATE OF COMPLIANCE

- ◆ **COUNTY:** Any County ◆ **LR/SR:** 00000 ◆ **SEC/SEG:** 000 ◆ **ECMS#:** 000000
 (◆ - To be completed by the party that will ship the material to the project, otherwise leave blank.)
- I / WE hereby certify that the material listed on line 5 was:
If a single company performs more than one operation (e.g., a company manufactures and coats guiderail), more than one box may be checked.

Manufactured Fabricated Coated Precasted Produced

By Bulletin 15 Fabricator Name Supplier Code in Bulletin 15
 (Name of Manufacturer, Fabricator, Coater, Precaster or Producer) (Supplier Code)
- and the party listed above certifies that the material(s) on line 5 meets the requirements of
Publication 408, Section(s) 709.1(e)
AASHTO, ASTM, Federal or other designation _____
- The material listed below is being shipped to: Contractor Name
 (Company Name)
- | LOT NO. | QUANTITY | APPROVED MATERIAL AS LISTED IN PennDOT BULLETIN |
|--------------------------|----------|---|
| <u>Refer to attached</u> | | |
| <u>CS-4171F</u> | | |
| | | |
| | | |
| | | |
- CHECK HERE IF YOUR PRODUCT CONTAINS IRON OR STEEL.** I certify the material identified above conforms to Sections 106.01 and 106.10(a) of Publication 408.

CHECK ONE OF THE TWO BOXES:

Product is 100% US steel. Product contains minimal foreign steel in accordance with Act 3 and Buy America.
Attach Form CS-4171S with receipts or invoices.

CHECK THE BOX THAT APPLIES TO YOUR PRODUCT:

'Identifiable Steel' - Steel products that contain permanent markings that identify that the material was melted and manufactured in the United States. **Only Form CS-4171 is required.**

Steel Products and Products Containing Steel with In-Plant Inspection by the Department or a Department Representative - **For 100% US steel products where in-plant inspection has verified that the steel was melted and manufactured in the United States, only Form CS-4171 is required. For products where in-plant inspection has verified minimal foreign steel in accordance with Act 3 and Buy America, attach bills of lading or shipping documents for foreign steel, and attach Form CS-4171S with supporting documentation.**

'Unidentified Steel' – Steel products that do not meet the definition of "Identifiable Steel" and do not receive in-plant inspection as defined above. **For 100% US steel products, attach supporting documentation including invoices, bills of lading and mill test reports that positively identify that the steel was melted and manufactured in the United States. For products containing minimal foreign steel in accordance with Act 3 and Buy America, attach bills of lading or shipping documents for foreign steel, and attach Form CS-4171S with supporting documentation.**
- VENDOR CLASSIFICATION (CHECK ONE BLOCK ONLY) -**

#1 **Manufacturer, Fabricator, Coater, Precaster**
Listed in Bulletin # 15, or Producer Listed in Bulletin # 14, 41 or 42

I certify that the above statements are true and to the best of my knowledge, fairly and accurately describe the product(s) listed.

#2 **Distributor, Supplier or *Private Label Company**
Not Listed in Bulletin # 15.
Also, complete line 9


I certify that the material being supplied is one and the same as provided to us by the manufacturer listed on this document and quantities listed above are accurate.
- NAME (print):** Company Representative **TITLE:** Company Title

COMPANY NAME: Bulletin 15 Fabricator Name

SIGNATURE: _____ **DATE:** _____
 By Responsible Company Official
- List company that sold you the material(s) documented above: _____
 (Complete if you checked Block # 2 on line # 7, otherwise leave blank.) (Company Name)

Example 3.2: Page 2 of 2 - Fabricator to Contractor

CS-4171F (10-19)



pennsylvania
DEPARTMENT OF TRANSPORTATION
www.dcd.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 : _____ Bulletin 15 Fabricator Name and Location _____ Reinforcement Steel AASHTO, ASTM : Steel Type _____ Grade : Steel Grade _____

Fabricator's Supplier Code : _____ Bulletin 15 Code _____

Structure Number : _____ S-MINNN

1	Bar / Wire Size	Bar / Wire Manufacturer Supplier Code	Heat Number	Epoxy Coater's or Galvanizer's Lot or Tag Number	Bill of Lading (BOL):		Epoxy Powder Manufacturer Supplier Code	Epoxy Powder Lot Number	Epoxy Repair Material
					Quantity (Area, Sheets, Pounds, etc.)	Quantity			
2	"	"	"	"	"	"	"	"	"
3	"	"	"	"	"	"	"	"	"
4	"	"	"	"	"	"	"	"	"
5	"	"	"	"	"	"	"	"	"
6	"	"	"	"	"	"	"	"	"
7	"	"	"	"	"	"	"	"	"
8	"	"	"	"	"	"	"	"	"
9	"	"	"	"	"	"	"	"	"
10	"	"	"	"	"	"	"	"	"
11									
12									
13									
14									
15									
16									
17									
18									

* - This supplemental form must be completed and a copy attached to the CS-4171 "Certificate of Compliance" form by the FABRICATOR for all reinforcing steel being shipped or transferred to a PROJECT, DISTRIBUTOR, SUPPLIER, PRIVATE LABEL COMPANY or PRECAST PLANT for use in a Pennsylvania Department of Transportation funded project. Information required on line 5 of the CS-4171 may be referenced to this form.

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Example #4: Page 1 of 2 - Contractor Transfer

CS-4171 (3-19)



pennsylvania
DEPARTMENT OF TRANSPORTATION
www.penndot.gov

CERTIFICATE OF COMPLIANCE

- ◆ **COUNTY:** Any County ◆ **LR/SR:** 00000 ◆ **SEC/SEG:** 000 ◆ **ECMS#:** 000000
 (◆ - To be completed by the party that will ship the material to the project, otherwise leave blank.)
- I / WE hereby certify that the material listed on line 5 was:
If a single company performs more than one operation (e.g., a company manufactures and coats guiderail), more than one box may be checked.
 Manufactured Fabricated Coated Precasted Produced

By Bulletin 15 Manufacturer Name Supplier Code in Bulletin 15
(Name of Manufacturer, Fabricator, Coater, Precaster or Producer) (Supplier Code)
- and the party listed above certifies that the material(s) on line 5 meets the requirements of
Publication 408, Section(s) 735 & 865
AASHTO, ASTM, Federal or other designation _____
- The material listed below is being shipped to: Contractor Name
(Company Name)
- | LOT NO. | QUANTITY | APPROVED MATERIAL AS LISTED IN PennDOT BULLETIN |
|---------------|---------------|--|
| <u>A00135</u> | <u>100 LF</u> | <u>PennDOT3818 18" HT Silt Fence w/Posts</u> |
| _____ | _____ | <u>Transferred from Project# 104183 SR 0119-492 Indiana County</u> |
| _____ | _____ | <u>(see attached CS-4171)</u> |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
- CHECK HERE IF YOUR PRODUCT CONTAINS IRON OR STEEL.** I certify the material identified above conforms to Sections 106.01 and 106.10(a) of Publication 408.

CHECK ONE OF THE TWO BOXES:

Product is 100% US steel. Product contains minimal foreign steel in accordance with Act 3 and Buy America. **Attach Form CS-4171S with receipts or invoices.**

CHECK THE BOX THAT APPLIES TO YOUR PRODUCT:

'Identifiable Steel' - Steel products that contain permanent markings that identify that the material was melted and manufactured in the United States. **Only Form CS-4171 is required.**

Steel Products and Products Containing Steel with In-Plant Inspection by the Department or a Department Representative - **For 100% US steel products where in-plant inspection has verified that the steel was melted and manufactured in the United States, only Form CS-4171 is required. For products where in-plant inspection has verified minimal foreign steel in accordance with Act 3 and Buy America, attach bills of lading or shipping documents for foreign steel, and attach Form CS-4171S with supporting documentation.**

'Unidentified Steel' - Steel products that do not meet the definition of "Identifiable Steel" and do not receive in-plant inspection as defined above. **For 100% US steel products, attach supporting documentation including invoices, bills of lading and mill test reports that positively identify that the steel was melted and manufactured in the United States. For products containing minimal foreign steel in accordance with Act 3 and Buy America, attach bills of lading or shipping documents for foreign steel, and attach Form CS-4171S with supporting documentation.**
- VENDOR CLASSIFICATION (CHECK ONE BLOCK ONLY) -**

#1 **Manufacturer, Fabricator, Coater, Precaster Listed in Bulletin # 15, or Producer Listed in Bulletin # 14, 41 or 42** #2 **Distributor, Supplier or *Private Label Company Not Listed in Bulletin # 15. Also, complete line 9**

I certify that the above statements are true and to the best of my knowledge, fairly and accurately describe the product(s) listed. *I certify that the material being supplied is one and the same as provided to us by the manufacturer listed on this document and quantities listed above are accurate.*
- NAME (print):** Company Representative **TITLE:** Company Title
COMPANY NAME: Contractor Name
SIGNATURE: _____ **DATE:** _____
By Responsible Company Official
- List company that sold you the material(s) documented above: Bulletin 15 Manufacturer Name
(Complete if you checked Block # 2 on line # 7, otherwise leave blank.) (Company Name)

PART B	SECTION 6	PAGE 3-19	DATE April 1, 2020
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Example #4: Page 2 of 2 - Manufacturer to Contractor

CS-4171 (3-19)



pennsylvania
DEPARTMENT OF TRANSPORTATION
www.pennDOT.gov

CERTIFICATE OF COMPLIANCE

1. **◆COUNTY:** Indiana **◆LR/SR:** SR 0119 **◆SEC/SEG:** 492 **◆ECMS#:** 104183
 (◆ - To be completed by the party that will ship the material to the project, otherwise leave blank.)

2. I / WE hereby certify that the material listed on line 5 was:
If a single company performs more than one operation (e.g., a company manufactures and coats guiderail), more than one box may be checked.
 Manufactured Fabricated Coated Precasted Produced

By Bulletin 15 Manufacturer Name Supplier Code in Bulletin 15
(Name of Manufacturer, Fabricator, Coater, Precaster or Producer) (Supplier Code)

3. and the party listed above certifies that the material(s) on line 5 meets the requirements of
Publication 408, Section(s) 735 & 865
AASHTO, ASTM, Federal or other designation _____

4. The material listed below is being shipped to: Contractor Name
(Company Name)

LOT NO.	QUANTITY	APPROVED MATERIAL AS LISTED IN PennDOT BULLETIN
<u>A00135</u>	<u>100 LF</u>	<u>PennDOT3818 18" HT Silt Fence w/Posts</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____

6. **CHECK HERE IF YOUR PRODUCT CONTAINS IRON OR STEEL.** I certify the material identified above conforms to Sections 106.01 and 106.10(a) of Publication 408.
CHECK ONE OF THE TWO BOXES:
 Product is 100% US steel. Product contains minimal foreign steel in accordance with Act 3 and Buy America. **Attach Form CS-4171S with receipts or invoices.**

CHECK THE BOX THAT APPLIES TO YOUR PRODUCT:

'Identifiable Steel' - Steel products that contain permanent markings that identify that the material was melted and manufactured in the United States. **Only Form CS-4171 is required.**

Steel Products and Products Containing Steel with In-Plant Inspection by the Department or a Department Representative - **For 100% US steel products where in-plant inspection has verified that the steel was melted and manufactured in the United States, only Form CS-4171 is required. For products where in-plant inspection has verified minimal foreign steel in accordance with Act 3 and Buy America, attach bills of lading or shipping documents for foreign steel, and attach Form CS-4171S with supporting documentation.**

'Unidentified Steel' - Steel products that do not meet the definition of "Identifiable Steel" and do not receive in-plant inspection as defined above. **For 100% US steel products, attach supporting documentation including invoices, bills of lading and mill test reports that positively identify that the steel was melted and manufactured in the United States. For products containing minimal foreign steel in accordance with Act 3 and Buy America, attach bills of lading or shipping documents for foreign steel, and attach Form CS-4171S with supporting documentation.**

7. **VENDOR CLASSIFICATION (CHECK ONE BLOCK ONLY) -**
 #1 **Manufacturer, Fabricator, Coater, Precaster**
 Listed in Bulletin # 15, or Producer Listed in Bulletin # 14, 41 or 42
I certify that the above statements are true and to the best of my knowledge, fairly and accurately describe the product(s) listed.

#2 **Distributor, Supplier or *Private Label Company**
 Not Listed in Bulletin # 15.
 Also, complete line 9
I certify that the material being supplied is one and the same as provided to us by the manufacturer listed on this document and quantities listed above are accurate.

8. **NAME (print):** Company Representative **TITLE:** Company Title
COMPANY NAME: Bulletin 15 Manufacturer Name
SIGNATURE: _____ **DATE:** _____
By Responsible Company Official

9. List company that sold you the material(s) documented above: _____
 (Complete if you checked Block # 2 on line # 7, otherwise leave blank.) (Company Name)

PART B	SECTION 6	PAGE 3-20	DATE April 1, 2020
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Example #5: Page 1 of 2 - Contractor Transfer from Stock

CS-4171 (3-19)



pennsylvania
DEPARTMENT OF TRANSPORTATION
www.penndot.gov

CERTIFICATE OF COMPLIANCE

- ◆COUNTY: Any County ◆LR/SR: 00000 ◆SEC/SEG: 000 ◆ECMS#: 000000
 (◆ - To be completed by the party that will ship the material to the project, otherwise leave blank.)
- I / WE hereby certify that the material listed on line 5 was:
If a single company performs more than one operation (e.g., a company manufactures and coats guiderail), more than one box may be checked.
 Manufactured Fabricated Coated Precasted Produced

By Bulletin 15 Manufacturer Name Supplier Code in Bulletin 15
(Name of Manufacturer, Fabricator, Coater, Precaster or Producer) (Supplier Code)
- and the party listed above certifies that the material(s) on line 5 meets the requirements of
Publication 408, Section(s) 711.2(a)
AASHTO, ASTM, Federal or other designation AASHTO M148
- The material listed below is being shipped to: Contractor Name
(Company Name)
- | LOT NO. | QUANTITY | APPROVED MATERIAL AS LISTED IN PennDOT BULLETIN |
|-------------|-----------------|---|
| <u>A199</u> | <u>100 Gal.</u> | <u>Concrete curing compound, white pigmented</u> |
| | | <u>Transferred from contractor stock (See attached CS-4171)</u> |
| | | |
| | | |
| | | |
- CHECK HERE IF YOUR PRODUCT CONTAINS IRON OR STEEL.** I certify the material identified above conforms to Sections 106.01 and 106.10(a) of Publication 408.

CHECK ONE OF THE TWO BOXES:

Product is 100% US steel. Product contains minimal foreign steel in accordance with Act 3 and Buy America. **Attach Form CS-4171S with receipts or invoices.**

CHECK THE BOX THAT APPLIES TO YOUR PRODUCT:

'Identifiable Steel' - Steel products that contain permanent markings that identify that the material was melted and manufactured in the United States. **Only Form CS-4171 is required.**

Steel Products and Products Containing Steel with In-Plant Inspection by the Department or a Department Representative - **For 100% US steel products where in-plant inspection has verified that the steel was melted and manufactured in the United States, only Form CS-4171 is required. For products where in-plant inspection has verified minimal foreign steel in accordance with Act 3 and Buy America, attach bills of lading or shipping documents for foreign steel, and attach Form CS-4171S with supporting documentation.**

'Unidentified Steel' - Steel products that do not meet the definition of "Identifiable Steel" and do not receive in-plant inspection as defined above. **For 100% US steel products, attach supporting documentation including invoices, bills of lading and mill test reports that positively identify that the steel was melted and manufactured in the United States. For products containing minimal foreign steel in accordance with Act 3 and Buy America, attach bills of lading or shipping documents for foreign steel, and attach Form CS-4171S with supporting documentation.**
- VENDOR CLASSIFICATION (CHECK ONE BLOCK ONLY) -**

#1 **Manufacturer, Fabricator, Coater, Precaster** Listed in Bulletin # 15, or Producer Listed in Bulletin # 14, 41 or 42
I certify that the above statements are true and to the best of my knowledge, fairly and accurately describe the product(s) listed.

#2 **Distributor, Supplier or *Private Label Company** Not Listed in Bulletin # 15. **Also, complete line 9**
I certify that the material being supplied is one and the same as provided to us by the manufacturer listed on this document and quantities listed above are accurate.
- NAME (print) :** Company Representative **TITLE:** Company Title
COMPANY NAME : Contractor Name
SIGNATURE : _____ **DATE:** _____
By Responsible Company Official
- List company that sold you the material(s) documented above: Bulletin 15 Manufacturer Name
(Complete if you checked Block # 2 on line # 7, otherwise leave blank.) (Company Name)

PART B	SECTION 6	PAGE 3-21	DATE April 1, 2020
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Example #5: Page 2 of 2 - Manufacturer to Contractor

CS-4171 (3-19)



pennsylvania
DEPARTMENT OF TRANSPORTATION
www.penndot.gov

CERTIFICATE OF COMPLIANCE

- ◆ **COUNTY:** Any County ◆ **LR/SR:** 00000 ◆ **SEC/SEG:** 000 ◆ **ECMS#:** 000000
 (◆ - To be completed by the party that will ship the material to the project, otherwise leave blank.)
- I / WE hereby certify that the material listed on line 5 was:
If a single company performs more than one operation (e.g., a company manufactures and coats guiderail), more than one box may be checked.
 Manufactured Fabricated Coated Precasted Produced

By Bulletin 15 Manufacturer Name Supplier Code in Bulletin 15
(Name of Manufacturer, Fabricator, Coater, Precaster or Producer) (Supplier Code)
- and the party listed above certifies that the material(s) on line 5 meets the requirements of
Publication 408, Section(s) 711.2(a)
AASHTO, ASTM, Federal or other designation AASHTO M148
- The material listed below is being shipped to: Contractor Name
(Company Name)
- | LOT NO. | QUANTITY | APPROVED MATERIAL AS LISTED IN PennDOT BULLETIN |
|-------------|-----------------|--|
| <u>A199</u> | <u>100 Gal.</u> | <u>Concrete curing compound, white pigmented</u> |
| | | |
| | | |
| | | |
- CHECK HERE IF YOUR PRODUCT CONTAINS IRON OR STEEL.** I certify the material identified above conforms to Sections 106.01 and 106.10(a) of Publication 408.

CHECK ONE OF THE TWO BOXES:

Product is 100% US steel. Product contains minimal foreign steel in accordance with Act 3 and Buy America.
Attach Form CS-4171S with receipts or invoices.

CHECK THE BOX THAT APPLIES TO YOUR PRODUCT:

'Identifiable Steel' - Steel products that contain permanent markings that identify that the material was melted and manufactured in the United States. **Only Form CS-4171 is required.**

Steel Products and Products Containing Steel with In-Plant Inspection by the Department or a Department Representative - **For 100% US steel products where in-plant inspection has verified that the steel was melted and manufactured in the United States, only Form CS-4171 is required. For products where in-plant inspection has verified minimal foreign steel in accordance with Act 3 and Buy America, attach bills of lading or shipping documents for foreign steel, and attach Form CS-4171S with supporting documentation.**

'Unidentified Steel' – Steel products that do not meet the definition of "Identifiable Steel" and do not receive in-plant inspection as defined above. **For 100% US steel products, attach supporting documentation including invoices, bills of lading and mill test reports that positively identify that the steel was melted and manufactured in the United States. For products containing minimal foreign steel in accordance with Act 3 and Buy America, attach bills of lading or shipping documents for foreign steel, and attach Form CS-4171S with supporting documentation.**
- VENDOR CLASSIFICATION (CHECK ONE BLOCK ONLY) -**

#1 **Manufacturer, Fabricator, Coater, Precaster**
Listed in Bulletin # 15, or Producer Listed in Bulletin # 14, 41 or 42

#2 **Distributor, Supplier or *Private Label Company**
Not Listed in Bulletin # 15.
Also, complete line 9

I certify that the above statements are true and to the best of my knowledge, fairly and accurately describe the product(s) listed. *I certify that the material being supplied is one and the same as provided to us by the manufacturer listed on this document and quantities listed above are accurate.*
- NAME (print):** Company Representative **TITLE:** Company Title

COMPANY NAME: Bulletin 15 Manufacturer Name

SIGNATURE: _____ **DATE:** _____
By Responsible Company Official
- List company that sold you the material(s) documented above: _____
 (Complete if you checked Block # 2 on line # 7, otherwise leave blank.) (Company Name)

PART B	SECTION 6	PAGE 3-22	DATE April 1, 2020
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Example #6: Page 1 of 2 – Manufacturer of Product containing Foreign Steel to Contractor

CS-4171 (3-19)



CERTIFICATE OF COMPLIANCE

- ◆ **COUNTY:** Any County ◆ **LR/SR:** 00000 ◆ **SEC/SEG:** 000 ◆ **ECMS#:** 000000
 (◆ - To be completed by the party that will ship the material to the project, otherwise leave blank.)
- I / WE hereby certify that the material listed on line 5 was:
 If a single company performs more than one operation (e.g., a company manufactures and coats guiderail), more than one box may be checked.

Manufactured Fabricated Coated Precasted Produced

By Precaster Listed in Bulletin 15 Supplier Code in Bulletin 15
 (Name of Manufacturer, Fabricator, Coater, Precaster or Producer) (Supplier Code)
- and the party listed above certifies that the material(s) on line 5 meets the requirements of
Publication 408, Section(s) 714
AASHTO, ASTM, Federal or other designation _____
- The material listed below is being shipped to: Contractor Name
 (Company Name)
- | LOT NO. | QUANTITY | APPROVED MATERIAL AS LISTED IN PennDOT BULLETIN |
|-----------------|----------|---|
| <u>10/14/18</u> | <u>3</u> | <u>Precast Inlet Boxes, Type 6</u> |
| | | |
| | | |
| | | |
- CHECK HERE IF YOUR PRODUCT CONTAINS IRON OR STEEL.** I certify the material identified above conforms to Sections 106.01 and 106.10(a) of Publication 408.

CHECK ONE OF THE TWO BOXES:

Product is 100% US steel. Product contains minimal foreign steel in accordance with Act 3 and Buy America.
Attach Form CS-4171S with receipts or invoices.

CHECK THE BOX THAT APPLIES TO YOUR PRODUCT:

'Identifiable Steel' - Steel products that contain permanent markings that identify that the material was melted and manufactured in the United States. **Only Form CS-4171 is required.**

Steel Products and Products Containing Steel with In-Plant Inspection by the Department or a Department Representative - **For 100% US steel products where in-plant inspection has verified that the steel was melted and manufactured in the United States, only Form CS-4171 is required. For products where in-plant inspection has verified minimal foreign steel in accordance with Act 3 and Buy America, attach bills of lading or shipping documents for foreign steel, and attach Form CS-4171S with supporting documentation.**

'Unidentified Steel' – Steel products that do not meet the definition of "Identifiable Steel" and do not receive in-plant inspection as defined above. **For 100% US steel products, attach supporting documentation including invoices, bills of lading and mill test reports that positively identify that the steel was melted and manufactured in the United States. For products containing minimal foreign steel in accordance with Act 3 and Buy America, attach bills of lading or shipping documents for foreign steel, and attach Form CS-4171S with supporting documentation.**
- VENDOR CLASSIFICATION (CHECK ONE BLOCK ONLY) -**

#1 **Manufacturer, Fabricator, Coater, Precaster Listed in Bulletin # 15, or Producer Listed in Bulletin # 14, 41 or 42** #2 **Distributor, Supplier or *Private Label Company Not Listed in Bulletin # 15. Also, complete line 9**

I certify that the above statements are true and to the best of my knowledge, fairly and accurately describe the product(s) listed. *I certify that the material being supplied is one and the same as provided to us by the manufacturer listed on this document and quantities listed above are accurate.*
- NAME (print) :** Company Representative **TITLE:** Company Title
COMPANY NAME : Bulletin 15 Precaster Name
SIGNATURE : _____ **DATE:** _____
By Responsible Company Official
- List company that sold you the material(s) documented above: _____
 (Complete if you checked Block # 2 on line # 7, otherwise leave blank.) (Company Name)

Example #6: Page 2 of 2 – Precaster of Product containing Foreign Steel to Contractor

CS-4171S (3-19)



**SUPPLEMENTAL CERTIFICATION
STEEL PRODUCTS CONTAINING FOREIGN STEEL**

This Form is to be completed by the manufacturer, fabricator, precaster, or producer of the product containing foreign steel. **Attach this completed form to the CS-4171, Certificate of Compliance, to accompany the shipment to the project.** The manufacturer, fabricator, precaster, or producer is required to maintain files of supporting receipts and mill certifications at their facility, for a period of not less than 3 years from the date of the project shipment.

ECMS# 000000 S.R. 0000 SEC. 000 County Any County

Compliance with PA Act 3 - PA Steel Products Procurement Act (Applies to All Projects)

Product Quantity	Product Description	Foreign Steel Description	Domestic Steel Cost (D)	Foreign Steel Cost (F)	25% of Total Steel Cost 0.25x(D+F)	PA Act 3 Compliance* (Is F ≤ 0.25x(D+F)?)	FHWA Buy America Compliance**
3	Precast Inlet Boxes, Type 6	Lifters and Tie Wire	\$ 150.00	\$ 30.00	\$ 45.00	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
					\$ 0.00	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
					\$ 0.00	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

*If 'Yes', Acceptable. If 'No', Not acceptable without a waiver from PennDOT.

**Coordinate with Contractor or PennDOT project personnel to ensure FHWA Buy America compliance before shipping to the project.

Receipts/Invoices for the cost of domestic and foreign steel as listed on this document must be provided.

****This Section for Department Use Only – To be Completed by the Inspector at the Project****

Total Contract Amount (\$): \$ 1,000,000.00 Contractor Name _____ Contractor Name
 Federal Project No. 0000-000-0000 or 100% State Project

Compliance with FHWA Buy America (Applies to all projects with Federal funding and to 100% State projects that are eligible for assistance under NEPA)

Total Contract Amount (\$)	Cost of Foreign Steel used on this project to date (excluding this invoice)	Cost of Foreign Steel used on this project to date (including this invoice)	0.10% of Total Contract Amount	Threshold = Greater Value of Columns 4 & 5	FHWA Buy America Compliance* (Is Total Cost of Foreign Steel ≤ Threshold?)
\$ 1,000,000.00	\$ 0.00	\$ 30.00	\$ 1,000.00	\$ 2,500.00	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

*If 'Yes', Accept. If 'No', Do not accept without a waiver from FHWA.

REPLACES B.6.5	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 6	PAGE 5-1
DATED 04/01/2020	PROJECT OFFICE MANUAL	DATE April 29, 2021		
SUBJECT MATERIALS ACCEPTED BY PROJECT SAMPLING				

This subsection includes all the materials specified to be accepted by project acceptance sampling. The samples, unless specified otherwise, are to be taken at the point of placement of the material. The testing can be accomplished directly on the project, in the vicinity of the project, at the material producer’s laboratory, or at the Laboratory Testing Section (LTS) Laboratory in Harrisburg, PA.

The following guidelines are a minimum for sampling frequencies for acceptance testing of construction materials.

The guidelines also list recommendations for sample sizes that should be sent into LTS (Section II). The materials in Section II are typically accepted by certification acceptance. The Section II materials delivered to the project suspected of non-compliance with the specification requirements should be sampled and sent to LTS for testing to determine if the quality of the materials meets the specifications. These sample sizes may differ from what is listed in the referenced standards (AASHTO, ASTM, and PTMs) because the standards list the minimum sizes needed to complete that particular test method or procedure. Department Representatives are required to monitor and maintain ‘custody’ of any material samples collected on behalf of the Department from point of sampling through delivery to the Department designated testing laboratory.

Frequencies may need to be increased as required by the level of construction.

NOTE: Sampling Location is at the point of placement unless otherwise noted.

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Section I

Materials Sampling Guidelines for Field Inspectors

<u>Material</u>	<u>Embankment and Fill</u>	<u>Subgrade</u>	<u>Pipe Backfill</u>
<u>Frequency</u>	For verification of Contractor performed PTM No. 106 test results. Contractor frequency for PTM No. 106 as specified in Publication 408, Section 206 (Proctors run initially and when material changes). For acceptance testing of moisture and density by PTM No. 402 (Nuclear Moisture Density Gauge) as specified in Publication 408, Section 206, Table B.	For verification of Contractor performed PTM No. 106 test results. Contractor frequency for PTM No. 106 as specified in Publication 408, Section 206 (Proctors run initially and when material changes). For acceptance testing of moisture and density by PTM No. 402 (Nuclear Moisture Density Gauge) as specified in Publication 408, Section 206, Table B.	For verification of Contractor performed PTM No. 106 test results. Contractor frequency for PTM No. 106 as specified in Publication 408, Section 206 (Proctors run initially and when material changes). For acceptance testing of moisture and density by PTM No. 402 (Nuclear Moisture Density Gauge) as specified in Publication 408, Section 206, Table B.
<u>Size of Sample</u>	50 lb. (PTM No. 106) N/A (PTM No. 402)	50 lb. (PTM No. 106) N/A (PTM No. 402)	50 lb. (PTM No. 106) N/A (PTM No. 402)
<u>Test Method</u>	PTM No. 106 PTM No. 402*	PTM No. 106 PTM No. 402*	PTM No. 106 PTM No. 402*
<u>Small Quantity</u>	PTM No. 106 = N/A. PTM No. 402 = In limited or restricted areas, the test rate should not exceed the rate for pipe backfill.	PTM No. 106 = N/A. PTM No. 402 = minimum one test per lift per day.	PTM No. 106 = N/A. PTM No. 402 = No nuclear gauge testing is required for pipe extensions less than 20 ft.

* Accepted by non-movement under compaction equipment if material meets the requirements of Publication 408, Section 206.2(a)1.c, 1.d, 1.e, or 1.f. Complete Form [TR-478A](#).

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Section I

Materials Sampling Guidelines for Field Inspectors

<u>Material</u>	<u>Structure Backfill</u>	<u>Subbase</u>	<u>Base Courses</u>
<u>Frequency</u>	Continuous	Continuous	See appropriate specification for type of base.
<u>Size of Sample</u>	N/A	N/A	See appropriate specification for type of base.
<u>Test Method</u>	*	*	
<u>Small Quantity</u>	N/A	N/A	Publication 408 Section 313

* Accepted by non-movement under compaction equipment. Complete Form [TR-478A](#).

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Section I

Materials Sampling Guidelines for Field Inspectors

<u>Material</u>	<u>Base Repair</u>
<u>Frequency</u>	See appropriate specification for type of base.
<u>Size of Sample</u>	See appropriate specification for type of base.
<u>Test Method</u>	
<u>Small Quantity</u>	Publication 408 Section 313 and Section 316

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<u>Coarse Aggregate</u>	AASHTO No. 10	AASHTO No. 8	AASHTO No. 67 and AASHTO No. 7	AASHTO No. 3
<u>Size of Sample</u>	2 lb.	Minimum 13 lb.	Minimum 27 lb.	Minimum 54 lb.
<u>Coarse Aggregate</u>	AASHTO No. 1	PennDOT No. 2A and OGS	AASHTO No. 57	AASHTO No. 5
<u>Size of Sample</u>	Pub 408, Section 850.2(a)1& 2. Other Applications minimum 235 lb. according to AASHTO T 11 and AASHTO T 27)	Minimum 45 lb.	Minimum 30 lb.	Minimum 32 lb.
<u>Frequency</u>	Project Verification Samples Publication 408, Section 703.5(b)3, Table F.			
<u>Test Method</u>	Grading PTM No. 616, Loss by Wash PTM No. 100, Crush Count ASTM D5821			
<u>Small Quantity</u>				

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<u>Fine Aggregate</u>	Type A	Type B	Type C
<u>Frequency</u>	Publication 408, Section 703.5(b)3, Table F.		
<u>Size of Sample</u>	1.5 lb.		
<u>Test Method</u>	Grading PTM No. 616, Loss by Wash PTM No. 100, Moisture AASHTO T 255, Fineness Modulus PTM No. 501 (Type A & Type C)		
<u>Small Quantity</u>			

Note: This page refers to gradation testing.

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<u>Cement Concrete</u>	<u>Structure</u> * **	<u>Pavement</u> * (RPS) **	<u>Lean Cement Concrete Base</u> * **
<u>Frequency</u>	Acceptance tests as specified in Publication 408. Control tests according to accepted quality control plan.	Acceptance tests as specified in Publication 408. Control tests according to accepted quality control plan.	Air and Slump 1 per truck until control is established, then, every 200 cu. yd. thereafter. Cylinders A set of 4 cylinders molded at the same time from the same load for each 100 cu. yd. or fraction thereof daily.
<u>Size of Sample</u>	PTM No. 601	PTM No. 601	PTM No. 601
<u>Test Method</u>	Air AASHTO T 196 or AASHTO T 152 Temperature ASTM C1064 Slump AASHTO T 119 Molding PTM No. 611 Compression PTM No. 604	Air AASHTO T 196 or AASHTO T 152 Temperature ASTM C1064 Slump AASHTO T 119 Molding PTM No. 611 Compression PTM No. 604 Surface Tolerance PTM No. 424 Core Thickness PTM No. 614	Air AASHTO T 196 AASHTO T 121 and ASTM C136 AASHTO T 152 Slump AASHTO T 119 Molding PTM No. 611 Compression PTM No. 604
<u>Small Quantity</u>	N/A	N/A	N/A

* NOTE - Form CS-458A must be completed and entered into the iPad App Mobile Construction Concrete Inspectors Diary (MCCID) in order to document Department inspection of cylinder breaks. This form must be in the project records within 3 days of the breaks. Also, see POM Section B.6.10.

** NOTE - Document the results of air meter calibrations in the MCCID App.

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<u>Cement Concrete (Standard)</u>	<u>Structural</u> * **	<u>Pavement</u> * **	<u>Pavement Patching Concrete</u> * **	<u>Incidental Work</u> * **
<u>Frequency</u>	Air, Temp, and Slump 1 every 100 cu. yd. thereafter. Cylinders A set of 4 cylinders molded at the same time from the same load for each 100 cu. yd. or fraction thereof daily.	Air, Temp, and Slump 1 every 500 cu. yd. thereafter. Cylinders A set of 4 cylinders molded at the same time from the same load for 500 cu. yd. or fraction thereof daily.	Air, Temp, and Slump 1 every 200 cu. yd. thereafter. Cylinders A set of 4 cylinders molded at the same time from the same load for each 200 cu. yd. or fraction thereof daily	Air, Temp, and Slump 1 every 100 cu. yd. thereafter. Cylinders A set of 4 cylinders molded at the same time from the same load for each 100 cu. yd. or fraction thereof daily.
<u>Size of Sample</u>	PTM No. 601	PTM No. 601	PTM No. 601	PTM No. 601
<u>Test Method</u>	Air AASHTO T 196 or AASHTO T 152 Temperature ASTM C1064 Slump AASHTO T 119 Molding PTM No. 611 Compression PTM No. 604	Air AASHTO T 196 or AASHTO T 152 Temperature ASTM C1064 Slump AASHTO T 119 Molding PTM No. 611 Compression PTM No. 604	Air AASHTO T 196 or AASHTO T 152 Temperature ASTM C1064 Slump AASHTO T 119 Molding PTM No. 611 Compression PTM No. 604	Air AASHTO T 196 or AASHTO T 152 Temperature ASTM C1064 Slump AASHTO T 119 Molding PTM No. 611 Compression PTM No. 604
<u>Small Quantity</u>	N/A	N/A	N/A	Not to exceed 25 cu. yd./day, for each class of concrete/project for non-critical incidental items.

* NOTE - Form CS-458A must be completed and entered into the iPad App Mobile Construction Concrete Inspectors Diary (MCCID) in order to document Department inspection of cylinder breaks. This form must be in the project records within 3 days of the breaks. Also, see POM Section B.6.10.

** NOTE - Document the results of air meter calibrations in the MCCID App.

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<u>Material</u>	<u>Asphalt Mixture Pub. 408, Sections 410, 412, & 413</u> (Standard)	<u>Asphalt Mixture Pub. 408, Sections 410 & 413</u> (RPS)	<u>Stone Matrix Asphalt Pub. 408, Section 419</u>
<u>Frequency</u>	As specified in Publication 408	As specified in Publication 408	As specified in Publication 408
<u>Size of Sample</u>	As specified in Publication 408	As specified in Publication 408	As specified in Publication 408
<u>Test Method</u>	As specified in Publication 408	As specified in Publication 408	As specified in Publication 408
<u>Small Quantity</u>	As specified in Publication 408	N/A	N/A

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Section II

Materials Tested in the LTS Laboratory

<u>Material</u>	<u>Admixtures</u>	<u>Bearing Pads- Neoprene</u>	<u>Compacted Asphalt Mixture</u>
<u>Frequency</u>	Each Lot	As specified in Publication 408, Section 1113.03(f) and according to PTM No. 312	As specified in applicable Sections of Publication 408
<u>Size of Sample</u>	1 quart	According to PTM No. 312	6-inch diameter pavement core
<u>Shipping Container</u>	Plastic bottle	Label	Box, plastic concrete cylinder molds, or PVC pipe.

<u>Material</u>	<u>Asphalt Materials PG Binders and Cutback Asphalts</u>	<u>Asphalt Materials Emulsified Asphalts</u>	<u>Precast Concrete Block</u>
<u>Frequency</u>	For Verification	For Verification	As specified in Publication 408, Section 713.2(c) - Each Lot, or as directed
<u>Size of Sample</u>	1 quart	1 quart	2 blocks
<u>Shipping Container</u>	Metal Can	Plastic Container	Box

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Section II

Materials Tested in the LTS Laboratory

<u>Material</u>	<u>Brick</u>	<u>Bridge Steel</u>	<u>Burlap</u>
<u>Frequency</u>	As specified in Publication 408, Section 713.1, and according to POM Section B.6.1	For Verification Each Lot	As specified in Publication 408, Section 711.1(d) and Section 711.1(g), and according to POM Section B.6.1
<u>Size of Sample</u>	5 bricks per lot	10" x 4"	One yard length by full width
<u>Shipping Container</u>	Box	Label	Label Do not fold

<u>Material</u>	<u>Cement</u>	<u>Calcium & Sodium Chloride</u>	<u>Caulking Mastic</u>
<u>Frequency</u>	For Verification and after Winter Storage	For Verification Each Lot	Each Lot
<u>Size of Sample</u>	1 gallon	1 quart	1 quart
<u>Shipping Container</u>	Plastic Bucket	Plastic Jar	Can

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Section II

Materials Tested in the LTS Laboratory

<u>Material</u>	<u>Curing Compound</u>	<u>Curing – Protective Covers (Polyethylene Sheeting)</u>	<u>Epoxy Resin Material</u>
<u>Frequency</u>	Each Lot	As specified in Publication 408, Section 711.1, and according to POM Section B.6.1 (Each Shipment)	Each Lot
<u>Size of Sample</u>	1 quart	Full width of roll by 3 feet length	1 quart each component
<u>Shipping Container</u>	Plastic Jar or Lined Can	Label	Plastic Jar or Lined Can

<u>Material</u>	<u>Rolled Erosion Control Products/Blankets</u>	<u>Gabion Baskets</u>	<u>Geogrid</u>
<u>Frequency</u>	As specified in Publication 408, Section 806, and according to POM Section B.6.1 (Each Lot)	As specified in Publication 408, Section 626.2, and according to POM Section B.6.1 (Each Lot)	As specified in Publication 408, Section 738 (Each Lot)
<u>Size of Sample</u>	Full width x 10 feet Do not sample within 10 feet of a roll end	3 feet square	Full width x 10 feet Do not sample within 10 feet of a roll end
<u>Shipping Container</u>	Label Do not fold. Roll material up for shipping.	Label	Label Do not fold. Roll material up for shipping.

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Section II

Materials Tested in the LTS Laboratory

<u>Material</u>	<u>Geocell</u>	<u>Geotextiles</u>	<u>Glass Beads</u>
<u>Frequency</u>	As specified in Publication 408, Section 737.1(b), and according to POM Section B.6.1 (Each Lot)	As specified in Publication 408, Section 735.1(d) or Section 610.2(a)9.f, and according to POM Section B.6.1. (Each Lot)	Each Lot for Verification
<u>Size of Sample</u>	1 Panel Panel consisting of a minimum of 10 welded seams, each having cell wall lengths of at least 6 inches on each side of the seams	6 feet by full width Do not sample within 10 feet of roll end Sample should include a full set of markings	1 quart
<u>Shipping Container</u>	Label	Label Do not fold. Roll material up for shipping.	Plastic Jar or Can

<u>Material</u>	<u>Grout: Mortar</u>	<u>Guide Rail</u>	<u>Joint Sealing Material (Silicone)</u>
<u>Frequency</u>	Each Lot	As specified in Publication 408, Sections 620, 1109 and 1119, and according to POM Section B.6.1 (Each Lot)	For Verification (Each Lot)
<u>Size of Sample</u>	1 gallon	<u>Rail</u> – 3 feet with markings (If first sample fails, submit two more samples.) <u>Post</u> – 2 feet with holes <u>Offset Bracket</u> – 1 each <u>Hardware</u> - 3 each (Separate Form TR-447 for each component)	1 gallon
<u>Shipping Container</u>	Plastic Container	Label	Plastic Container

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Section II

Materials Tested in the LTS Laboratory

<u>Material</u>	<u>Latex Emulsion</u>	<u>Load Transfer Unit</u>	<u>Neoprene Comp. Seal & Strip Seal</u>
<u>Frequency</u>	Each Lot	As specified in Publication 408, Section 530.2(b) and Section 705.3(f) and according to POM B.6.1 (Each Lot)	PV samples for acceptance as specified in Publication 408, Section 705.4(d) (each 10,000 feet of pavement seal and 3,000 feet of bridge seal) and FV samples according to PTM No. 313.
<u>Size of Sample</u>	1 quart	Welded LTU - 1 cage with 3 dowels Non-welded LTU – 1 cage Dowels Only – 3 dowels with coatings applied before delivery to LTS	5 linear feet length for PV and 1 foot for every 500 feet for FV
<u>Shipping Container</u>	Plastic Bottle	Label	Label

<u>Material</u>	<u>Lubricant</u>	<u>Premolded Expansion Joint Filler</u>	<u>Joint Backing Material</u>
<u>Frequency</u>	Each Lot	As specified in Publication 408, Section 705.1 and according to POM B.6.1 (Each Shipment)	As specified in Publication 408, Section 705.8 and according to POM B.6.1 (Each Project)
<u>Size of Sample</u>	1 quart	6 linear feet	3 linear feet
<u>Shipping Container</u>	Can or Jar	Label	Label

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Section II

Materials Tested in the LTS Laboratory

<u>Material</u>	<u>Preformed Joint Filler</u>	<u>Paper Rope</u>	<u>Paint</u>
<u>Frequency</u>	As specified in Publication 408, Section 705.1(d) and according to POM B.6.1 (Each Project)	For Verification One per Project	For Verification - Each Lot
<u>Size of Sample</u>	6 linear feet	3 linear feet	1 quart
<u>Shipping Container</u>	Label	Envelope	Lined Can

<u>Material</u>	<u>Thermoplastic Pipe</u>	<u>Supplementary Cementitious Material</u>	<u>Protective Coating</u>
<u>Frequency</u>	As specified in Publication 408 Section 601.2(a) and according to POM B.6.1 (Each Lot)	Each Shipment	Each Lot
<u>Size of Sample</u>	Up to 24-inch diameter: length of twice the diameter plus 2 corrugations Greater than 24-inch diameter: length of one diameter plus two corrugations There must be a full set of markings on the sample	1 gallon	1 quart
<u>Shipping Container</u>	Label	Plastic Bucket	Lined Can or Plastic Jar

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Section II

Materials Tested in the LTS Laboratory

<u>Material</u>	<u>Rebar</u>	<u>Rebar Plastic Support</u>	<u>Rebar, Welded Wire Fabric (Mesh)</u>
<u>Frequency</u>	As specified in Publication 408 Section 709.1 and according to Section 1002.2 and POM Section B.8.7 (Each Lot)	As specified in Publication 408 Section 1002.3(d)2.c and according to POM Section B.6.1	As specified in Publication 408 Sections 709.3 and 709.4 and according to POM Sections C.7.3 and B.6.1 (Each Lot)
<u>Size of Sample</u>	3 bars Each bar 4 feet length with a full set of markings (POM Section B.8.7)	3 bolster samples each at least 12-inch length (PTM No. 430)	3 feet by 3 feet square
<u>Shipping Container</u>	Label	Label	Label

<u>Material</u>	<u>Right-of-Way Fence Fabric</u>	<u>End Posts, Corner and Pull Posts, Line Posts, Steel Posts, Braces, Stretcher Bars, Etc.</u>	<u>Hardware, Nuts, Bolts, Washers, etc.</u>
<u>Frequency</u>	As specified in Publication 408 Section 1110. Each 150 Rolls or Fraction thereof. (PTM No. 411)	As specified in Publication 408 Section 1110.02. First 500 Lengths or Fraction thereof and One per each additional 2,500 lengths.	As specified in Publication 408 Section 1105.02 and according to POM Section B.6.1. Once if same type and material for entire project.
<u>Size of Sample</u>	Full height sample, 2 feet wide	Posts: One each –3 feet Braces: 1 each Plate: 1 each (Separate Form TR-447 for each component)	3 each of all fittings and hardware, etc. (Separate Form TR-447 for each component)
<u>Shipping Container</u>	Label	Label	Label

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Section II

Materials Tested in the LTS Laboratory

<u>Material</u>	<u>Metal Bridge Deck (Stay-in-place)- Form</u>	<u>Steel Wire/Strand (Tendons)</u>	<u>Preformed Membrane (Waterproofing & Heavy Duty) and Drain Trough</u>
<u>Frequency</u>	1 per each 200 Sections or less.	As per Publication 408 Sections 1107.02(n) and 1108.02(g) and according to Section 1107.02(n) and POM B.6.1 (Each Lot)	As specified in Publication 408 Sections 467.2, 680.2, and 1020.2(g) and according to POM B.6.1 (Each Lot)
<u>Size of Sample</u>	1 foot by full width Accessories - 2 feet lengths.	3 strands 4 feet each	3 feet by full width
<u>Shipping Container</u>	Label	Label	Label Do not fold. Roll material up for shipping

<u>Material</u>	<u>Waterstop, Copper Flashing</u>	<u>Waterstop, PVC</u>	<u>Project Specific, LTS Approved Materials</u>
<u>Frequency</u>	As specified in Publication 408 Section 705.5(c)1 and according to POM Section B.6.1	As specified in Publication 408 Section 705.5(c)2 and according to Section 705.5(c)2.c	Each Lot
<u>Size of Sample</u>	12-inch square	4 feet length and job splice consisting of minimum 12-inch splice with 6 inches of un-spliced material on each side Full set of markings	Pub 408, Section 106.02(a)2.b QC Plan and 3 rd party test data required prior to material being sampled
<u>Shipping Container</u>	Label	Label	Varies based on material being sampled

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Section II

Materials Tested in the LTS Laboratory

<u>Material</u>	<u>Direct Tension Indicators</u>	<u>Geomembrane</u>	<u>Mechanical Splice Systems for Reinforcement</u>
<u>Frequency</u>	As specified in Publication 408 Section 1105.02(d)6 and according to POM Section C.10.4	As specified in Publication 408 Section 736 and according to POM B.6.1 (Each Shipment)	As specified in Publication 408 Section 1002.2(c) and according to Section 1002.2(c) and POM Section C.7.6
<u>Size of Sample</u>	16 DTIs	Full width by 3 feet	Three assembled systems with 30 inches of reinforcement bar extending from each side of coupler, plus one unassembled system
<u>Shipping Container</u>	Label	Label Do not fold. Roll materials for shipping	Label Separate assemblies Protect coatings

<u>Material</u>	<u>Preformed Cellular Styrene</u>	<u>PTFE (Teflon)</u>	<u>Anchor Bolts</u>
<u>Frequency</u>	As specified in Publication 408 Section 501.2(r) and according to POM B.6.1	As specified in Publication 408 Section 1111.02(c) and according to Section 1111.03(e)4 (Each Lot)	As specified in Publication 408 Section 1105.02(c)2 and 3 and according to POM Section B.6.1
<u>Size of Sample</u>	1 Board	16 inches by 16 inches minimum	3 each of bolt, nut, and washer. Separate Form TR-447 for each component.
<u>Shipping Container</u>	Label	Label	Label

PART B	SECTION 6	PAGE 5-19	DATE April 29, 2021
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Section II

Materials Tested in the LTS Laboratory

<u>Material</u>	Rebar Chair (other than plastic)	Pipe Gasket	Neoprene Joint Material
<u>Frequency</u>	As specified in Publication 408 Section 1002.3(d)2.b and according to POM Section B.6.1	As specified in Publication 408 Section 705.5(b) and according to POM Section B.6.1	As specified in Publication 408 Section 1085.2(m) and according to POM Section B.6.1
<u>Size of Sample</u>	One Full Length	One Gasket	5 linear feet
<u>Shipping Container</u>	Label	Label	Label Do not bend Roll for shipping

<u>Material</u>	Pot/Disc Bearing	Fence Tie Wire	
<u>Frequency</u>	As specified in Publication 408 Section 1111.02(b) and according to Publication 408 Section 1111.03(e)4 (Each Lot)	As specified in Publication 408 Section 1016.2(a)2 in accordance with POM B.6.1	
<u>Size of Sample</u>	1 per 25 pieces	5 feet	
<u>Shipping Container</u>	Label	Label	

REPLACES B.6.6	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 6	PAGE 6-1
DATED 04/01/2014	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT ACCEPTANCE OF SMALL QUANTITIES OF MATERIALS				

Reduced inspection and acceptance procedures are permitted only for relatively small quantities of material for which standard procedures would be too costly. Specifications are not to be waived nor are materials of lower quality to be accepted.

The Contractor shall be informed by the District at the preconstruction conference of the circumstances under which this acceptance procedure will be used.

1. **PLANT-MIXED ASPHALT COURSES ---**

Less than 50 tons per day per course as specified in Publication 408, Section 413 and as follows:

The field inspector is to obtain a copy of Form TR-4276B and document that the compaction testing was performed according to PTM No. 402 or PTM No. 403 for each day density is accepted by the optimum rolling pattern procedure. For density acceptance by non-movement, the inspector must document visual non-movement of the material under the compaction equipment.

The Contractor will furnish the Department daily, from the material producer, a Form CS-4171 certifying that the material was produced in accordance with the approved job mix formula and PennDOT specifications.

2. **PORTLAND CEMENT CONCRETE ---**

Less than 25 cu. yd. per day per class of concrete for non-critical incidental items.

This procedure is not permitted for structures of any type; mainline, shoulders, and ramp paving; or other structurally critical items which may carry traffic loads.

Items that are non-critical may be included in this procedure. Some of the incidental items for which reduced inspection control may be used include:

- Paved Ditch
- Curb and Gutter
- Curb Cuts
- Raised Medians
- Pipe Headwalls
- Inlets
- Base Course Widening
- Sidewalks
- Fence Posts

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- Guide Rail Anchors
- Sign Bases (Except Overhead Structure Foundations)

The requirement for molding cylinders may be waived when small quantities acceptance is utilized. However, it is recommended that Quality Control (QC) tests for slump, plastic air and temperature are performed.

If the total quantity of Portland Cement Concrete for a contract line item exceeds 100 cubic yards, at least one set of AT cylinders shall be molded during one of the daily placements for acceptance of that day's material.

It is recommended that this policy is discussed at the Preconstruction meeting held for the project. Acceptance of small quantities of Portland Cement Concrete must be detailed in the Contractor's QC plan.

The Contractor will furnish the Department daily, from the material producer, a Form [CS-4171](#) certifying that the material was produced in accordance with the approved mix design and PennDOT specifications.

3. **EMBANKMENT ---**

Less than 1000 cu. yd. per project.

The field inspector will ensure that specification compaction equipment is used and that the contractor obtains non-movement under the equipment. Place in loose lift thicknesses as specified in Publication 408, Section 206.3. The field inspectors will document their findings on Department Form [TR-478A](#).

4. **CONSTRUCTION AGGREGATE ---**

Publication 408, Section 703.

5. **PIPE BACKFILL ---**

No nuclear testing is required for pipe extensions less than 20 ft.

No nuclear testing is required for Pa No. 2A coarse aggregate.

A maximum of 400 ft. of pipe may be placed per project.

One nuclear test will be required, for applicable embankment materials, on the first run of pipe to determine a rolling pattern which will then be used for subsequent runs of pipe provided the material, compaction equipment and supplier remain the same. The field

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inspector will document all subsequent runs utilizing this pattern on Department Form [TR-478A](#).

Due to the difficulty in obtaining a maximum dry-weight density and no density requirements, no nuclear testing will be required for Combination Storm Sewer and Underdrain backfill.

Place material in appropriate loose lift thicknesses for the type of material specified and compact to non-movement using specified compaction equipment. The field inspector will document findings on Department Form [TR-478A](#).

6. SUBBASE ---

Less than 2000 sq. yd. per project.

The field inspector will ensure that specified compaction equipment is used and that the contractor obtains non-movement under the equipment. Place in loose lift thicknesses as specified in Publication 408, Section 350.3. The field inspector will document pertinent findings on Department Form [TR-478A](#).

7. BRIDGE PAINT ---

Less than 50 gallons.

District provides Form CS-4171 and Manufacturer Certification test results to the Laboratory Testing Section (LTS) for review.

REPLACES B.6.7	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART B	SECTION 6	PAGE 7-1
DATED 03/01/1996		DATE April 1, 2020		
SUBJECT COMPACTION DENSITY - NON-MOVEMENT OF MATERIAL UNDER COMPACTION EQUIPMENT				

The intent of Form [TR-478A \(Report on Compaction Density Non-Movement\)](#) is to document the compactive effort by the contractor on any material that cannot be tested for density requirements according to AASHTO T 191 or AASHTO T 310.

When embankment, subgrade, subbase or pipe backfill material is too coarse or granular and is defined as Granular Material, Type 2 as specified in Publication 408, Section 206.2(a).1.c, Rock as specified in Publication 408 Section 206.2(a).1.d, Shale as specified in Publication 408 Section 206.2(a).1.e, Random Material comprised of Granular Material Type 2 as specified in Section 206.2(a).1.f (or whenever a viable proctor can not be obtained on the material), the compaction density is to be accepted on the basis of non-movement of the material under compaction equipment.

Form TR-478A is to be used to document the visual density testing by the inspector. The form was designed to be self-explanatory; however, some important items are as follows:

- The type of construction must be identified, one type of construction for each form.
- It is very important to document the justification for using this method of testing. Justification is more than 20% of the material is retained on the 19.0 mm (¾-inch) sieve or that a viable proctor test could not be obtained on the material being placed. Granular Material, Type 2, is material consisting of natural or synthetic mineral aggregates having less than or equal to 70% of the material passing the 3/8-inch sieve (greater than or equal 30% retained on the 3/8-inch sieve) and less than 20% passing the No. 200 sieve. Granular Type 2 Material also includes AASHTO Nos. 8 or 57 coarse aggregate, or PennDOT Nos. 2A or OGS coarse aggregate meeting the requirements as specified in Publication 408, Section 703.2, select granular material (2RC) meeting the requirements as specified in Publication 408, Section 703.3, and structure backfill.

Justification can include the inability to perform a viable proctor test on the material being placed. Space is provided on the form to calculate the percentage of plus 19.0 mm (¾-inch) sieve material. If a proctor cannot be run on the material, this should be noted in the remarks section. A gradation test is not needed for each compaction test when the material does not change.

- Note whether the compaction test passed or failed.

REPLACES B.6.8	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 6	PAGE 8-1
DATED 03/25/2013	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT RELEASE OF ASPHALT AND CEMENT CONCRETE AND AGGREGATES				

Material may be released to the project site from the asphalt or cement concrete plant or from the aggregate quarry, when the field inspector notifies the plant or quarry that conditions are acceptable. The District Materials Engineer/Manager should be notified at least twenty-four hours in advance of any anticipated releases.

REPLACES B.6.9	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART B	SECTION 6	PAGE 9-1
DATED 04/01/2014		DATE April 1, 2020		
SUBJECT CEMENT CONCRETE STRENGTH REQUIREMENTS				

Publication 408, Section 704.1(d)5, establishes the acceptance criteria for cement concrete strength requirements.

When the acceptance cylinder compressive strength does not meet the specified 28-day minimum mix design compressive strength as specified in Publication 408, Section 704, Table A, or the 28-day quality control compressive strength test is less than the 28-day structural design compressive strength as specified in Publication 408, Section 704, Table A, the procedure specified in Publication 408, Section 110.10 is to be used to determine material acceptance and payment.

REPLACES B.6.10	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART B	SECTION 6	PAGE 10-1
DATED 04/01/2014		DATE April 1, 2020		
SUBJECT FORM CS-458A, COMPRESSIVE STRENGTH - PORTLAND CEMENT CONCRETE				

Form [CS-458A](#) is the required test report form for concrete cylinders. It is a comprehensive report to summarize compressive strength data. The form is used to provide a proper audit trail for determination of loading, form work removal, cure removal, acceptance and payment.

The Inspector-in-Charge (IIC) or their delegate is to complete each Form CS-458A by entering the information required by the form in the iPad App Mobile Construction Concrete Inspectors Diary (MCCID). Record the compressive strength for each cylinder break to the nearest 10 psi. The technician's name may be printed on a paper copy of the form. However, the technician's signature must be placed in the MCCID App. This will preclude taking Form CS-458A to the site of actual concrete placement. All other signature blocks will contain actual signatures.

The IIC is to review the completed Form CS-458A in the MCCID App to verify the strengths meet contract requirements and that any specification deviations, have corrective actions addressed in the comment section prior to acceptance and payment. This procedure will allow for review by FHWA Engineers and others.

The District Materials Engineer/Manager (DME/DMM) is to review the Form CS-458A in the MCCID App to ensure that the IIC properly completes the form. The DME/DMM should also verify that proper quality levels are being attained.

The Construction Quality Assurance Section (CQAS) representative will be reviewing the Form CS-458As to target future evaluations of the associated contractors and suppliers with lower quality levels.

REPLACES B.6.11	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 6	PAGE 11-1
DATED 04/01/2020	PROJECT OFFICE MANUAL	DATE April 1, 2021		
SUBJECT ASPHALT CORE REMOVAL AND SUBMISSION				

Publication 408 requires the contractor to drill cores for density acceptance at the sampling location selected by the inspector according to PTM No. 1, PTM No. 729, and PTM No. 746. All coring is to be done as directed and under the inspector's supervision. The proper location is the intersection of the X and Y coordinates according to PTM No. 1. The inspector should mark the core location with a cross or 6-inch dot. The core must be taken at this location. If damage occurs during removal, follow Publication 408, Section 413.3(j)4.c.

Inspection personnel should inspect asphalt core samples to assure proper identification throughout the sampling and testing process. The contractor is responsible for drilling and identifying the cores in the presence of an inspector and providing sample containers for transport. The Inspector-in-Charge is responsible for taking immediate possession of the cores and for transporting them to a Department pick-up point within three days for shipment to the Laboratory Testing Section (LTS). Projects that do not get the samples delivered to LTS within three weeks will receive a Written Response Required (WRR) notification and the Inspector-in-Charge will be required to respond in writing detailing the reason for the delay. Responses will be sent to Bureau of Project Delivery, Construction Quality Assurance Section Chief.

Be sure that cores are stored in the proper environment while awaiting delivery. Overheating, impact, or sitting cores on uneven surfaces can damage cores and prevent accurate test results.

REPLACES B.6.12	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 6	PAGE 12-1
DATED 04/01/2014	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT GRANULAR FILL FOR MECHANICALLY STABILIZED EARTH WALLS				

This section concerns the sampling and testing of granular fill material for use in mechanically stabilized earth walls according to the specifications. The testing required includes gradation, petrographic analysis, resistivity, chemical analysis for chloride and sulfate content, pH determination, Atterburg limits, wash test, unit weight and a direct shear test. In addition, a proctor test is needed to determine the moisture content to be used in the direct shear test. Make sure the samples that are being submitted contain enough finer material to run all of the above tests. This is especially true of the No. 57 size aggregate which is sometimes submitted for this use.

In order for the Laboratory Testing Section (LTS) to perform all the required tests, each sample submitted is to consist of the following:

- 3 bags of approximately 40 pounds each, containing a normal specimen representing the complete gradation.

REPLACES B.6.13	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART B	SECTION 6	PAGE 13-1
DATED 04/01/2014		DATE April 1, 2020		
SUBJECT PROCEDURE FOR APPROVAL OF HIGHWAY AND SIGN LIGHTING MATERIAL				

I. Lighting Material Submission

A. General

Publication 408, Section 1101.01, requires that suppliers certify lighting poles, nuts, bolts, and associated hardware. All highway lighting material items require the submission of catalog cuts and/or shop drawings for approval.

Approval of the catalog cuts, drawings and manufacturer's specifications reasonably assures acceptance of the actual material at the time of delivery. However, the Engineer may reject or take test samples of the material at this time. If deficiencies are discovered in the field, the deficient material shall be rejected and replaced with acceptable material. Large quantities of cable or conduit should be occasionally and randomly sampled for testing by the Department.

B. Basis of Acceptance

The material must comply with project requirements, in order to be accepted.

C. Submission Content

1. Submit material separately for each project.
2. Include a transmittal letter containing the county, state route, segment (section), ECMS or MPMS number, and submission distribution.
3. Submit dimension sheets, schematic diagrams and outlines only when these data are needed to ensure compliance with project requirements.
4. Include manufacturer's letters as supplements to catalog cuts, drawings and manufacturer's specifications, if additional information is required for consideration during review. The letter must specify the specification reference and project.
5. Only material manufactured by established and reputable firms will be approved.
6. Identify each material cut by item number.
7. Indicate the material's use when it is not otherwise obvious, for example, "Conduit for direct burial," "Cable for non-burial," "Circuit breakers for sign structures."

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8. Indicate additional optional features being provided, for example, "Finish to be galvanized," "Hardware to be stainless steel."
9. Materials that do not conform to Standard Drawings or Specifications must be marked and accompanied by Special Provision and applicable drawings.
10. Changes to standard products should not be made on a catalog cut or drawing. Any changes require a letter from the manufacturer stating the change.
11. Accessories, such as tools and minor devices necessary for material installation and not included in Standard Specifications or Special Provisions, are not to be submitted for Central Office Review. These accessories will be accepted based on installation practices of the industry.
12. Material approval does not include size, dimensions, rating, quantity, class and installation, although replies to material submission may question these factors if an error is believed. The contractor is responsible for the material's correct size, dimensions, rating, quantity, class and installation.

II. Lighting Material Approval Procedure

- A. The contractor must submit an original PDF of the catalog cut, drawing and manufacturer's specifications for the material with a cover letter to the District, Attention: Assistant Construction Engineer.
- B. The District shall review the submission, add relevant comments, then forward the submission to the Highway Lighting group in the Bureau of Maintenance and Operations – Maintenance and Technical Leadership Division. E-mail materials submissions to: RA-pdHwyLighting@pa.gov. The Highway Lighting group will review the catalog cuts, drawings and manufacturer's specifications and, when appropriate, obtain Federal Highway Administration approval.
 1. If the material is approved, the submitted PDF will be stamped "Approved" and returned to the District.
If the material is not approved, the submitted PDF will be stamped "Not Approved" and returned to the District.
- C. The Assistant Construction Engineer is to forward all information on the reviewed material to the Inspector-in-Charge on the project.
- D. If the material is not approved, the contractor must submit new PDF catalog cuts, drawings and manufacturer's specifications. The approval procedure will then be repeated.

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III. Material Substitute Procedure

- A. Material proposed as a substitute will be submitted using the same procedure as Part II.
- B. Material submitted as a substitute will be considered only under the following conditions:
 - 1. The specified material is no longer available. Two letters from reputable manufacturers stating that the specified material is no longer available are required with the substitute material submission.
 - 2. The delivery period is unacceptable to the work schedule, and the delay in delivery is not the contractor's fault. Two letters from reputable manufacturers stating their best delivery dates are required with the substitute material submission.
 - 3. The difference in material cost between the specified and substitute material can be determined. Added cost of the substitute material will be absorbed by the contractor; cost savings of the substitute material will be returned to the Department.
 - 4. The difference in labor cost between the specified and substitute material can be determined. Added labor cost of the substitute material will be absorbed by the contractor; labor cost savings of the substitute material will be returned to the Department.

REPLACES B.6.15	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART B	SECTION 6	PAGE 15-1
DATED 04/01/2017		DATE April 1, 2020		
SUBJECT QUALITY ASSURANCE REVIEWS				

The purpose of the Department's Quality Assurance (QA) program is to evaluate the quality of materials and the construction operations through an unbiased and independent review of project quality control and acceptance sampling and testing systems.

Construction Quality Assurance Section (CQAS) Teams make random visits to construction projects, asphalt and Portland Cement Concrete plants, aggregate quarries, cement mills, refineries, Bulletin 15 Approved Suppliers, and miscellaneous manufacturers on a statewide basis. The CQAS Teams perform in-depth inspections and evaluations at the plants, quarries and projects. They observe sampling and testing procedures to assure conformance with Department policies and procedures. The reporting of these evaluations is made utilizing the Quality Assurance Reporting Systems (QARS). Quality Assurance samples will be lifted by the CQAS Teams. These samples, in addition to being a comparison to quality control and acceptance tests, provide data to be used by the quality assurance data bank to analyze existing specifications and develop new ones.

The QARS checklists cover construction operations, material operations, sampling and testing operations, and support operations. Copies of the checklists are available upon request through the Assistant Construction Engineers/Managers and at P:\penndot shared\BOCM\QA Checklists. Listings of the individual checklists are also found in Appendix A of this publication.

REPLACES B.6.16	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 6	PAGE 16-1
DATED 04/02/2018	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT PROCEDURES FOR QUALITY ASSURANCE CONCRETE CYLINDER SAMPLES				

Concrete cylinders will be molded as part of the Quality Assurance operation review process in accordance with the Quality Assurance Manual, Publication 25, and as specified in Publication 408, Section 704.1(d)7. The cylinders will be tested for 28-day compressive strength and hardened concrete entrained air content. The purpose of the Quality Assurance (QA) samples is to check the strength potential of the concrete mix design, check the accuracy of the equipment used for project acceptance testing, and to evaluate the hardened concrete entrained air content relative to specification requirements and corresponding plastic concrete test results performed on the same sample.

The QA sample shall consist of molding five (5) concrete cylinders. Prior to molding the cylinders, plastic slump and air tests will be performed on the concrete sample. The Contractor's Certified Concrete Field Technician will perform the concrete testing and mold QA cylinders for the Construction Quality Assurance Section (CQAS) representative. The CQAS representative will witness the concrete testing and molding of the QA cylinders.

Quality Assurance cylinders are to be field cured, according to PTM No. 611, Section 11.2, for the specified curing period for the structural element they represent, and shall be identified in accordance with PTM No. 611, Section 12. When curing of the cement concrete is discontinued, relocate the cylinders to a preapproved secure area and continue curing in a manner consistent with the contractor's 28-day field cured quality control cylinders.

Conduct 28-day compressive strength testing on two (2) of the cylinders according to PTM No. 604 using the same equipment used for acceptance testing. The compressive strength of the sample will be determined as the average of the compressive strength of the two (2) individual cylinders.

Form [TR-447](#), "Sample Identification Form", will be completed by the CQAS representative at the time of the review and left with the Project Inspector. The original copy of this form must accompany the QA cylinders being shipped to the LTS. The bar code stickers from the bottom of Form TR-447 must be attached to the outside of each shipping box, indicating the appropriate sample increment.

Maintain the cylinders at the project for approximately 21 days prior to shipment to LTS. Ship the remaining three (3) Quality Assurance cylinders to LTS in time for 28-day compressive strength testing according to PTM No. 604 and testing for hardened air content according to PTM No. 623. The contractor is to furnish packaging material and package cylinders under the direction and supervision of the Project Inspector.

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The cylinders must be in a moist condition, placed in plastic bags and sealed to prevent drying during shipping. Ship the cylinders in individual containers cushioned with suitable material to prevent damage and freezing during handling and transportation. The total weight of each container, cylinder, and cushioning material must not exceed 50 lbs. QA cylinders may be shipped to the LTS via Pony Express or by commercial carrier.

The LTS will return the shipping containers to the pickup location via Pony Express, if the Contractor places the following additional information on the outside of the container:

Return To: [Company Name]
SR and Section
District and County Code of the pickup location.

The test results will be reported on Form [CS-458A](#), "Report of Compressive Strength of Portland Cement Concrete", and the information will be entered by the Inspector-in-Charge (IIC) or their delegate into the iPad App Mobile Construction Concrete Inspectors Diary (MCCID) for the District Materials Engineer/Manager (DME/DMM) to review.

The results of the 28-day compressive strength test and hardened concrete entrained air content test conducted by the LTS will be reported to the District. The District will be responsible for comparing the results of tests conducted by the project to those conducted by the LTS for the corresponding QA sample. The comparison of these results will aid in determining the accuracy of the equipment used for project acceptance testing. The District should also compare the QA sample test results to the concrete strength reported on Form [TR-4221A](#), "Concrete Mix Design Form", to verify the compressive strength of the Master Design. Any significant variations resulting from the comparison of test results must be investigated to determine possible causes and, when necessary, appropriate actions implemented to correct deficiencies.

It is important that the QA concrete cylinder samples be properly molded, handled, cured, packaged and delivered to the LTS in a uniform manner, in accordance with this policy. This will aid in assuring that reliable test results are achieved.

REPLACES B.6.17	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART B	SECTION 6	PAGE 17-1
DATED 04/01/2014		DATE April 1, 2020		
SUBJECT FIELD ADJUSTMENT OF CONCRETE MIXES				

As specified in Publication 408, Section 704, water may only be added to concrete mixes from a concrete plant's water measuring system. However, due to errors that may occur in the moisture content of the aggregates at the start of a batching operation or due to unforeseen circumstances at or in route to a jobsite, the need may arise to add water to correct the slump of the mix at the project site.

The decision to add water to a mix at a project site must be made by the contractor's PennDOT certified field testing technician. The Department Representative will determine the maximum amount of water that can be added. The addition of water must be done under the supervision of the Department Representative.

Water may only be added to trucks at the start of the batching operation or due to unforeseen circumstances that may occur during the concrete placement. The producer should be informed immediately whenever field adjustments are required. Allow the producer sufficient time to make necessary adjustments at the plant. Concrete shall be mixed to the approved proportions in the design. Water shall not be withheld deliberately.

The addition of water is limited to 1 gallon per cubic yard of concrete in the truck, and the total water in the mix cannot exceed the maximum water/cement ratio of the trial mix on the design. The addition of water is only permitted to be added at the beginning of the full load after the initial testing is complete. All mix adjustments must be recorded in the iPad App Mobile Construction Concrete Inspectors Diary (MCCID). After the additional water has been loaded into the mixing drum, the drum must be turned an additional 30 revolutions or more at mixing speed. The total number of mixing revolutions cannot exceed 300. The concrete must be resampled and retested for slump, temperature, and plastic air content and meet the specification requirements prior to incorporating into the work. In addition, compressive strength cylinders must be molded from the retested material.

Transit truck mixers must be inspected annually, including the truck-mounted water systems, and documentation (See Form [CS-4337](#)) must be presented to the Inspector prior to adjusting the mix.

Specific details regarding the field adjustment of concrete mixes must be included in the contractor's concrete quality control plan. Districts that do not currently permit the field adjustment of concrete mixes may continue this policy.

This policy is not intended for use with Bridge Decks. For Bridge Decks, do not add water to concrete in the field. Adjustment of slump may be allowed by adding water reducer at the job site if a comprehensive procedure detailed in the QC plan has been submitted and accepted by the DME/DMM for this purpose as specified in Publication 408, Section 1001.3(h).

REPLACES B.6.18	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 6	PAGE 18-1
DATED 04/01/2020	PROJECT OFFICE MANUAL	DATE April 1, 2021		
SUBJECT INDEPENDENT ASSURANCE PROCEDURES - CONCRETE				

The Bureau of Project Delivery (BOPD), Construction Quality Assurance Section (CQAS) will administer the Independent Assurance program at construction projects receiving concrete for paving, patching, shoulders, or structures. The Independent Assurance program provides an unbiased and independent evaluation of the sampling and testing personnel, the testing equipment, and the sampling and testing procedures used in the Department's concrete acceptance program. Independent Assurance samples will be tested by the BOPD, and the test results will be compared with companion test results run at the project to verify that results are within established tolerance limits.

The BOPD, CQAS will annually perform a minimum of ten (10) Independent Assurance reviews in each District where practical on construction projects receiving concrete for paving, patching, shoulders, or structures. Included among these reviews are federal-aid projects on the National Highway System (NHS) meeting the following minimum project quantities:

Pavement / Shoulders / Patches: 1 Review > 20,000 yd² (combined quantity for each contract)

Structural Concrete: 1 Review > 1,000 yd³

Note: Projects receiving concrete from the same source for paving, patching, shoulders, and structures require only 1 review.

Projects for review are not limited to federal-aid projects on the NHS.

CQAS will determine the projects to be reviewed. Independent Assurance sampling and testing will normally be performed in conjunction with a Quality Assurance review of the construction operation.

Sampling and testing will be performed by a PennDOT certified field testing technician.

During the review, the CQAS representative and the contractor's PennDOT certified field testing technician will take a temperature from the same sample. A comparison will be performed to evaluate the precision of the thermometers. Corrective measures will be implemented immediately if the temperatures are outside the tolerance.

Air meters must be calibrated a maximum of two weeks before beginning concrete placement. Recalibrate all air meters every two weeks during concrete placement. Document the results of air meter calibrations in the iPad App Mobile Construction Concrete Inspectors Diary (MCCID).

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Independent Assurance plastic air content testing will be performed by a CQAS PennDOT certified field testing technician. The contractor’s technician will perform plastic air testing with the equipment used for acceptance testing. From the same sample of concrete, the CQAS technician will perform plastic air testing using the contractor's back-up air meter. A comparison will be performed to evaluate the precision of the plastic air content testing. Corrective measures will be implemented immediately if the results are outside the tolerance.

The CQAS PennDOT certified field testing technician will also mold five (5) Quality Assurance cylinders from one of the samples tested for plastic air content. The cylinders will be field cured with the 28-day quality control cylinders used for acceptance. Two (2) cylinders will be tested for compressive strength at 28 days on the compression machine used for acceptance and verification testing. The compressive strength of the sample will be determined as the average of the compressive strength testing of two (2) individual cylinders.

Three (3) cylinders will be forwarded to the Laboratory Testing Section (LTS) in time for 28-day compressive strength testing and for hardened air content. The hardened air content will be for informational purposes.

Upon receipt of the 28-day compressive strength test results from the project and LTS, a CQAS representative will compare the test results to the Independent Assurance precision tolerances specified below.

As a part of the Independent Assurance review, a CQAS representative will review project records to insure verification and acceptance test results have remained within the prescribed precision tolerances.

Independent Assurance Precision Tolerances

Temperature	± 5° F
28-day Compressive Strength	± 500 psi
Plastic Air Content	± 1.0%

When test results vary from the allowed precision tolerances or problems with sampling and testing personnel or equipment are discovered, CQAS will immediately inform the Project Manager. The District will perform an investigation of the discrepancies and take appropriate corrective action where necessary. The District will inform CQAS with the results of their investigation and what corrective actions were taken. Where necessary, a CQAS representative will perform a follow-up review to insure all deficiencies have been corrected.

Independent Assurance review results will be maintained by CQAS for each District. The BOPD will summarize the Independent Assurance review results at the conclusion of each construction season and submit the results to FHWA in an annual report.

REPLACES B.6.19	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 6	PAGE 19-1
DATED 04/01/2020	PROJECT OFFICE MANUAL	DATE April 1, 2021		
SUBJECT INDEPENDENT ASSURANCE PROCEDURES - ASPHALT SOURCES				

The Bureau of Project Delivery (BOPD), Construction Quality Assurance Section (CQAS), will administer the Independent Assurance program at asphalt sources supplying Department construction projects. The Independent Assurance program provides an unbiased and independent evaluation of the sampling and testing personnel, the testing equipment, and the sampling and testing procedures used in the Department's asphalt acceptance program. Independent Assurance samples will be tested by the BOPD and the test results will be compared with companion test results run at the source by the source technician to verify that results are within established tolerance limits.

During each construction season the BOPD, CQAS, will perform a minimum of ten (10) Asphalt Independent Assurance reviews in each District where practical, at asphalt sources shipping base courses, binder courses, or wearing courses to Department projects. In Districts where the number of active asphalt sources are limited, a minimum of one (1) but no more than two (2) Asphalt Independent Assurance reviews will be conducted at each source per construction season. Included among these reviews are asphalt sources shipping material to federal-aid projects on the National Highway System (NHS) meeting the following minimum project quantities:

Asphalt Wearing Course: 1 Review > 100,000 yd² [or equivalent tonnage]

Note: The plant may be producing base, binder, or wearing courses at the time of the review and satisfy this requirement.

Asphalt Independent Assurance reviews are not limited to asphalt plants shipping to federal-aid projects on the NHS.

CQAS will determine the sources to be reviewed. Independent Assurance sampling and testing will normally be performed in conjunction with a Quality Assurance review of the plant operations.

With one of the Quality Assurance samples lifted during the review, a companion sample will be lifted and tested by the plant technician. The companion sample will normally be lifted with the first QA increment. The Form [TR-447](#) will designate which increment was lifted with the companion sample.

During the review, the CQAS representative and the plant technician will take a minimum of three (3) temperatures from the same location. A comparison will be performed to evaluate the precision of the thermometers. Corrective measures will be implemented immediately if the temperatures are outside the tolerance.

The plant technician will test the companion loose box sample and the results will be recorded by the CQAS representative.

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Sampling and testing at the source will be performed by a PennDOT Certified Asphalt Plant Technician.

Upon receipt of the test results from the Laboratory Testing Section (LTS), a CQAS representative will compare the test results to the Independent Assurance precision tolerances specified below.

Independent Assurance Precision Tolerances

Temperature	± 5° F	
Asphalt	± 0.5 %	
	<u>Sieve Size</u>	<u>Maximum Difference Between Test Results</u>
Gradation	2.36 mm (No.8) and larger	6 %
	1.18 mm (No.16) through 150 µm (No.100)	4 %
	75 µm (No.200)	2 %

When test results vary from the allowed precision tolerances or problems with sampling and testing personnel or equipment are discovered, CQAS will immediately inform the District Materials Engineer/Manager. The District will perform an investigation of the discrepancies and take appropriate corrective action where necessary. The District will inform CQAS with the results of their investigation and what corrective actions were taken. Where necessary, a CQAS representative will perform a follow-up review of the source to insure all deficiencies have been corrected.

Independent Assurance review results will be maintained by CQAS for each District. The BOPD will summarize the Independent Assurance review results at the conclusion of each construction season and submit the results to FHWA in an annual report.

REPLACES B.6.20	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 6	PAGE 20-1
DATED 04/01/2019	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT INDEPENDENT ASSURANCE PROCEDURES - AGGREGATE SOURCES				

The Bureau of Project Delivery (BOPD), Construction Quality Assurance Section (CQAS) will administer the Independent Assurance program at aggregate sources supplying Department construction projects. The Independent Assurance program provides an unbiased and independent evaluation of the sampling and testing personnel, the testing equipment, and the sampling and testing procedures used in the Department's aggregate acceptance program. Independent Assurance samples will be tested by the BOPD, and the test results will be compared with companion test results run at the aggregate source to verify that results are within established tolerance limits.

During each construction season, the BOPD, CQAS will perform a minimum of ten (10) Aggregate Independent Assurance reviews in each District where practical at aggregate sources shipping material to Department projects. Included among these reviews are aggregate sources shipping material to federal-aid projects on the National Highway System (NHS) meeting the following minimum project quantities:

No. 2A Aggregate Subbase: 1 Review > 50,000 yd²

No. 57 Structure Backfill: 1 Review > 5,000 yd³

Note: The source does not need to be producing or shipping material at the time of the review to satisfy this requirement. Material must be obtained from a Department approved stockpile. Sources shipping material for both items require only 1 review. Sources shipping to multiple projects meeting the above requirements require only one review per construction season.

Aggregate Independent Assurance reviews are not limited to aggregate sources shipping to federal-aid projects on the NHS. Independent Assurance reviews are also not limited to No. 2A or No. 57 aggregate types.

The CQAS will determine the sources to be reviewed. Sampling and testing for Independent Assurance will be coordinated with the District Materials Engineer/District Materials Manager (DME/DMM) or their staff to coincide with a scheduled District Quality Assurance (DQA) review, or at a mutually agreed upon time with the DME/DMM or their staff, such as when the District is at the source to test project verification samples.

The following process will constitute an Independent Assurance review. An Independent Assurance sample (n=1) will be taken from an approved Department stockpile at a source supplying aggregate to a Department project, under the direction and supervision of the DME/DMM or their staff. The Independent Assurance sample will be split according to AASHTO

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R 76 to obtain two (2) equivalent samples for testing. In addition, a representative sample will be obtained for an IA Wash Test by the Laboratory Testing Section (LTS).

To obtain the required minimum sample size after splitting, the initial sample for each aggregate type must be as follows:

Aggregate	Sample Size
No. 3	130 lbs.
No. 5	80 lbs.
No. 57	75 lbs.
No. 67	65 lbs.
No. 7	65 lbs.
No. 8	30 lbs.
No. 10	5 lbs.
No. 2A	100 lbs.
No. OGS	100 lbs.

Only one (1) aggregate type is required to be tested per each Independent Assurance review.

Sampling and testing at the source will be performed by certified aggregate technicians.

One sample will be tested by the DME/DMM or their staff at the source and one sample will be tested by the source technician, both using the same equipment. The sample tested by the source technician will then be rebagged and sent for testing to the BOPD, LTS. Samples will be tested for conformance to Publication 408, Section 703, Tables C & D, plus the Crushed Fragments Test of Table B, when applicable.

A CQAS representative does not need to be present for the entire process of Independent Assurance sampling and testing at the source. Whenever a CQAS representative does not witness any portion of the process of Independent Assurance sampling and testing at the source, the test results obtained at the source by the DME/DMM or their staff and the source technician should be forwarded to the appropriate CQAS representative in a timely manner.

Arrangements for the transportation of the Independent Assurance sample to LTS will be coordinated by a CQAS representative with the DME/DMM or their staff. The CQAS representative coordinating the review will complete the Form [TR-447](#) for the LTS sample and identify it as an Independent Assurance sample. The method used to perform the Wash Test (Manual or Automatic Aggregate Washer / Plain Water or Wetting Agent) should be reported in the remarks section of the Form TR-447.

Test results from the source will be compared to the Independent Assurance precision tolerances by CQAS immediately upon receipt from the District. Those results will then be

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compared with the test results obtained by LTS for compliance with the Independent Assurance precision tolerances.

Independent Assurance Precision Tolerances

	<u>Sieve Size</u>	<u>Maximum Difference between Test Results</u>
Gradation	2.36 mm (No. 8) sieve and larger	6 %
	1.18 mm (No. 16) through	4 %
	150 μm (No. 100) sieves	2 %
	75 μm (No. 200) sieve	2 %
Coarse Aggregate Crush Count	---	12 %

When test results vary from the allowed precision tolerances or problems with sampling and testing personnel or equipment are discovered, CQAS will immediately inform the DME/DMM. The District will perform an investigation of the discrepancies and take appropriate corrective action where necessary. The District will inform CQAS with the results of their investigation and what corrective actions were taken. Where necessary, a CQAS representative will perform a follow-up review of the source to insure all deficiencies have been corrected.

Independent Assurance review results will be maintained by CQAS for each District. The BOPD will summarize the Independent Assurance review results at the conclusion of each construction season and submit the results to FHWA in an annual report.

REPLACES B.6.21	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 6	PAGE 21-1
DATED 04/01/2015	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT PLANT ADJUSTMENT OF CONCRETE MIXES				

As specified in Publication 408, Section 704, Air Entraining Admixture (AEA) 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 AEA to correct the air content of the mix at the plant prior to the mixture being shipped to the project.

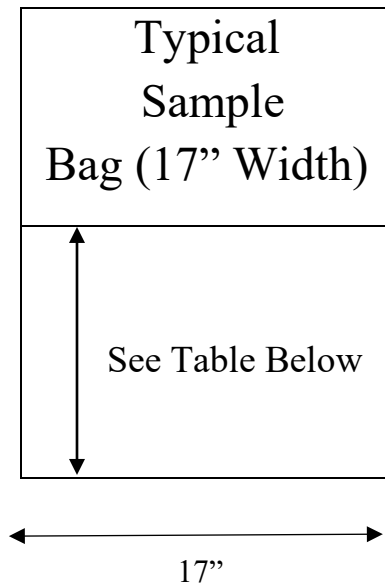
The decision to add additional AEA to a mix at the production source must be made by the producer's certified concrete plant technician. Additional AEA may only be added to the first three trucks at the start of the batching operations. The producer should make appropriate adjustments prior to batching 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.

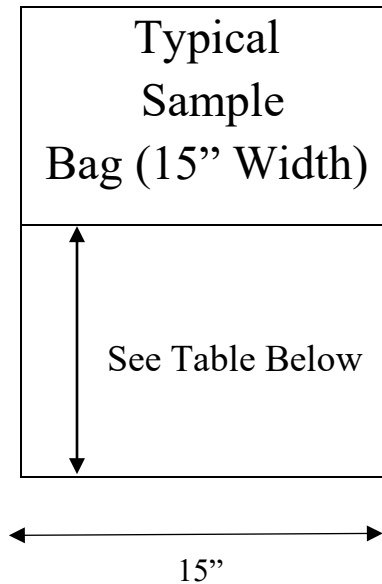
REPLACES B.6.22	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART B	SECTION 6	PAGE 22-1
DATED 04/02/2018		DATE April 1, 2020		
SUBJECT GUIDELINES FOR FILLING AGGREGATE SAMPLE CONTAINERS				

The following is a guide for filling aggregate sample containers (woven polypropylene bags or 5-gallon plastic or metal buckets with lids) with a sample of aggregate material for laboratory testing. This guide will help ensure the acceptable amount of aggregate sample material is obtained and submitted for laboratory testing. The guide will also help prevent overfilling the sample containers with too much aggregate sample material, to enable easy and safe handling of the filled sample containers.



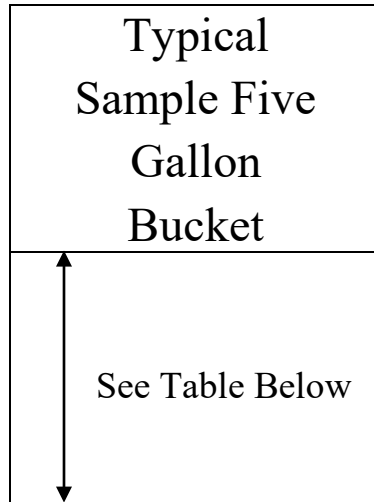
Material	Inches from Bottom of 17" Wide Bag	Approximate Weight to be Submitted in Each Bag
Coarse Aggregate	14	50 lbs.
Fine Aggregate	20	50 lbs.
Anti-Skid materials	12	50 lbs.
AASHTO # 3	11	30 lbs. (2 bags required to = 1 increment)
AASHTO # 1	14	40 lbs. (6 bags required to = 1 increment)

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Material	Inches from Bottom of 15" Wide Bag	Approximate Weight to be Submitted in Each Bag
Coarse Aggregate	15	50 lbs.
Fine Aggregate	20	50 lbs.
Anti-Skid materials	13	50 lbs.
AASHTO # 3	11	30 lbs. (2 bags required to = 1 increment)
AASHTO # 1	14	40 lbs. (6 bags required to = 1 increment)

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Material	Inches from Bottom of 5-Gallon Bucket	Approximate Weight to be Submitted in Each Bucket
Coarse Aggregate	14	50 lbs.
Fine Aggregate	15	50 lbs.
Anti-Skid materials	12	50 lbs.

REPLACES B.6.23	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART B	SECTION 6	PAGE 23-1
DATED 04/01/2019		DATE April 1, 2020		
SUBJECT VERIFICATION PROCESS FOR RIDE QUALITY OF NEWLY CONSTRUCTED PAVEMENTS				

Publication 408, Section 404 and Section 507, respectively address the evaluation of asphalt and concrete pavement surface profiles and the determination of the ride quality incentive associated with the pavement surface profile. In addition, standard special provisions provide for the evaluation of ride quality across bridge decks and approach slabs and the payment of ride quality incentives. These specifications and special provisions require the contractor to determine the ride quality of the finished pavement surfaces.

In the presence of the Inspector, the contractor must measure the pavement surface profile using a Light Weight Profiler (LWP) according to PTM No. 428. The LWP operator must be certified. A printed copy of the distance calibration, laser height verification results, and bounce test results must be submitted to the PennDOT Representative each day prior to taking the measurements. The resultant final International Roughness Index (IRI) data must be provided to the Representative within 24 hours of the conclusion of each test. The required IRI data consists of the final raw binary data files, a summary printout of the final IRI value calculated for each pass as generated by the equipment performing the test, and the final processed data. The printout from the inertial profiler must include the following information:

- Date and time of day
- Operator and equipment identification
- Weather conditions: temperature, cloud cover, and wind
- Surface description: type of pavement and condition
- Location and description of section: Job ID, lot, lane, wheel path, beginning and ending stationing, and direction measured
- Lot length
- Software version: both the LWP and the reporting software
- Data filter settings
- High-pass filter setting = 100 ft.
- Lot IRI value: the average of the IRI values for the two wheel paths for each lot will be the IRI for the lot
- IRI values for excluded areas

The Department uses the contractor's IRI data to evaluate ride quality and pay an appropriate incentive.

In addition, PennDOT conducts an annual verification process for acceptance of pavement rideability as measured using the IRI. 23 Code of Federal Regulations (CFR) requires a verification of at least 10% when using data obtained by the contractor in an acceptance decision. To achieve the 10% requirement, the verification process will be performed on at least one project per District per construction season.

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Based on a report listing all projects that include the standard specification or a special provision for the evaluation of ride quality and payment of incentive, the BOPD Construction Quality Assurance Section Chief will identify which projects are subject to the annual verification, and notify the Assistant District Executive – Construction (ADE-C) in each District as well as the Bureau of Maintenance and Operation’s Roadway Inventory and Testing Unit (RITU), by June 30th of each year. Notification provided to the ADE-C and RITU should include the contract number, project contact person (generally IIC or ACE), physical length, and expected duration of the projects subject to verification. Projects involving asphalt pavement, concrete pavement, bridge decks and approach slabs ride quality evaluation are all subject to verification.

The verification will not entail retesting, but rather a re-analysis by RITU of the raw (unfiltered) binary data collected by the contractor and used to determine the IRI values. For the projects to be verified, once paving items are completed and the ride quality is evaluated by the contractor, the District will submit the completed PennDOT [Form M-7](#), Contractor IRI Data Collection Form, and a file containing the final raw (unfiltered) binary data collected for each wheel path to RITU. For multi-year projects, the information should be submitted for the portion of the project completed in the year subject to verification. Each pass shall be clearly labeled and include county, state route, project number, lot number, and wheel path conforming to PTM No. 428. The data file must be in “ERD” or PPF format, conforming to PTM No. 428. Submit via email to the Roadway Inventory and Testing Unit Chief using the Resource Account link, [PD, IRI Data Collection](#), or via email address (RA-PDIRIDATACOLLECT@pa.gov) or submit in electronic format on a CD or data stick to:

Pennsylvania Department of Transportation
Bureau of Maintenance and Operations
Roadway Inventory and Testing Unit
IRI Verification
907 Elmerton Avenue
Harrisburg, PA 17110

All data must be submitted to RITU by December 15th each year. RITU will analyze the raw (unfiltered) binary data and compare the IRI results to those reported by the contractor. RITU will provide the results of the IRI verification to the Construction Quality Assurance Section Chief by February 1st of the following year, who will then notify the Districts of the results and any follow-up action that must be taken.

REPLACES B.7.2	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 7	PAGE 2-1
DATED 04/01/2016	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT LICENSED PUBLIC WEIGHMASTER				

A licensed public weighmaster is required by current construction and maintenance aggregate contracts and for asphalt plants utilizing a recording truck scale.

A licensed public weighmaster must sign all weigh tickets to certify that the mass (weight) of each material, as determined by the truck scale, is correct. Any licensed public weighmaster who falsifies a delivery ticket, or who delegates their authority to any person not licensed as a public weighmaster, or who pre-signs a delivery ticket before performing the act of weighing, shall be guilty of a misdemeanor as stipulated in Section 21 of Act 64.

In case of recorder failure of the truck scale in an asphalt plant, the Department requires the signature of the public weighmaster on the delivery ticket.

All licensed public weighmasters are permitted to weigh at all locations owned by their employer.

For all asphalt and aggregate shipments originating outside the Commonwealth of Pennsylvania, each District Materials Engineer/Manager shall contact all vendors in their area of responsibility to determine the name(s) of the individual(s) who will be attesting to the accuracy of the masses (weights) recorded. This person(s) shall sign the delivery ticket. PennDOT will accept the certification procedure of other States to meet our requirements.

The public weighmaster license identity number can be used as identification of the respective weighmaster responsible for the accuracy of weight included on the weigh ticket. The personal license identity number can be used by the public weighmaster as a secure electronic signature. Contingent with the implementation of this new procedure, the following security procedures must be in place:

1. Each public weighmaster must have personal, exclusive password protection on the computer.
2. An Electronic or Hard Copy of each ticket is to be maintained at the plant and be made accessible to the Department representative.
3. The public weighmaster's name and license number must be provided on the ticket along with all other information currently required in the Project Office Manual (POM).
4. Once in use, the computer system must have an automatic security time-out feature in place to revert to a password sign-on screen if the computer stands idle for more than 15 minutes.

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5. The producer's Quality Control Plan must indicate the use of the electronic record, and must establish a policy strictly prohibiting sharing of the licensed public weighmaster identification with any other staff. The policy must include the repercussions of misuse or abuse of this electronic procedure.

REPLACES B.7.3	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART B	SECTION 7	PAGE 3-1
DATED 04/01/2017		DATE April 1, 2020		
SUBJECT PLANT AND PROJECT TECHNICIAN EVALUATION				

Asphalt Plant and Field Technicians

For asphalt plant technicians, Publication 408 [Section 413.2(e)1.b] requires the Producer to provide a certified Asphalt Level 1 Plant Technician during mixture production and to provide an Asphalt Level 2 Plant Technician on-call during mixture production. The Level 1 and Level 2 Plant Technicians are to meet and be certified according to the requirements of Publication 351. Performance of technicians should be reviewed during each plant inspection and these performance review(s) should be used as the basis for PennDOT sign-off of technicians to attend the PennDOT/NECEPT Asphalt Plant Technician Certification Program courses to be initially certified or to be used as the basis for PennDOT sign-off of technicians requiring certification renewal.

For asphalt field technicians, Publication 408 [Section 413.3(h)1.d] requires the Contractor to provide a certified Asphalt Field Technician during placement of all asphalt mixtures. The Asphalt Field Technicians are to meet and be certified according to the requirements of Publication 351. Performance of technicians should be reviewed during each paving operation and these performance review(s) should be used as the basis for PennDOT sign-off of technicians to attend the PennDOT/NECEPT Asphalt Field Technician Certification Program courses to be initially certified or to be used as the basis for PennDOT sign-off of technicians requiring certification renewal.

For asphalt plant or field technicians whose performance is deemed to be potentially substandard or include potential intentional misrepresentation of test results or documentation, the Performance Review Process in Publication 351 should be referenced for the proper procedure to follow to determine if any action is required against the technician's certification status.

Concrete Plant Technicians

For concrete plant technicians, Publication 408 [Section 704.1(d)2] requires a concrete technician properly instructed and trained to develop the concrete design, to control the quality and gradation of aggregates used, to perform required concrete tests, and to control the operations and concrete deliveries so that the completed mixture conforms to the specifications at the point of placement.

The District Materials Engineer/Manager (DME/DMM) is responsible for evaluating cement concrete plant technicians. The evaluation is used to determine the technician's qualifications and to assure the District Plant Supervisor or project personnel of the technician's abilities to perform the work in accordance with specifications and required testing procedures.

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The plant technician may be evaluated at the annual plant inspection or in conjunction with a District Quality Assurance inspection. The evaluation may be updated at the producer's request if the technician improves or gains experience in their Quality Control responsibilities. Adverse performance should be reported to the DME/DMM for corrective action.

If the technician's evaluation or lack of evaluation is questioned, the Bureau of Project Delivery, Chief Materials Engineer, may review the situation for disposition.

Concrete Field Technicians

For concrete field technicians, Publication 408 [Section 704.1(d)2.a] requires the Contractor to provide an ACI/PennDOT certified field testing technician during placement of material to perform the required acceptance testing. The Concrete Field Technicians are to meet and be certified according to the requirements of Publication 536.

For concrete field technicians whose performance is deemed to be potentially substandard or include potential intentional misrepresentation of test results or documentation, the Performance Review Process in Publication 536 should be referenced for the proper procedure to follow to determine if any action is required against the technician's certification status.

Aggregate Technicians

For aggregate technicians, Publication 408 [Sections 703.1(b)1 and 703.2(b)1] requires the Producer to provide a PennDOT Certified Aggregate Technician who will test fine aggregate and coarse aggregate at the source according to the requirements listed in Bulletin 14. The Aggregate Technicians are to meet and be certified according to the requirements of Publication 725.

For aggregate technicians whose performance is deemed to be potentially substandard or includes potential intentional misrepresentation of test results or documentation, the Performance Review Process in Publication 725 should be referenced for the proper procedure to follow to determine if any action is required against the technician's certification status.

REPLACES B.7.4	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 7	PAGE 4-1
DATED 03/01/2011	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT PLANT DOCUMENTATION AND CORRECTIONS				

The following documentation policies are required for proper record keeping and corrections to any documentation at all aggregate sources, asphalt, and Portland cement concrete plants.

1. No (photocopied) forms with changed dates are to be used as source documents for testing not performed. This has been and will continue to be judged as forging of Department records. Severe measures are warranted and will be imposed when this condition is found.
2. All paper Department forms that carry a Department number are to be completed in black ink. Only worksheets may be completed in pencil. All electronic Department forms including all forms in the Electronic State Book are to be completed with the same care as paper forms.
3. When an error on a paper form is discovered by either Department or Industry personnel, a line is to be drawn through the incorrect entry and the correct data written above the lined-out entry. The correction will be initialed and dated by the person making the change.
4. When an error on an electronic form is discovered by either Department or Industry personnel, the incorrect entry should be deleted and the correct data recorded. The correction must be recorded on the paper Form CS-705, Electronic Changes Form, with the following information: details on what specific form and entry was corrected, the name of the person making the correction, the date and time of the correction, and the previously recorded incorrect entry. This form must be filled out and signed in black ink by the person making the change. At the end of the production season, the paper form shall be scanned and kept as an electronic record with the rest of the Electronic State Book.

District and Construction Quality Assurance Section (CQAS) representatives will be reviewing plant records to assure that properly approved procedures are being used.

REPLACES B.7.5	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART B	SECTION 7	PAGE 5-1
DATED 04/01/2020		DATE April 1, 2021		
SUBJECT MINIMUM QUALITY CONTROL PLAN FOR ASPHALT MIXTURES				

Publication 408, Section 413.2(e), Mixture Composition for Standard and RPS Construction, requires the producer to test the materials, proportions, and the mixture at the asphalt mixture plant laboratory in order to verify conformance with the uniformity specified. These requirements may be modified or there may be additional requirements in other Publication 408 Sections, including but not limited to Sections 313, 316, 360, 410, 412, 413, 419, 420, 450, and 489. The producer must also design an asphalt mixture that meets all Department requirements. A copy of the completed mix design is to be submitted to the District Materials Engineer/Manager (DME/DMM) at least three weeks before the planned start of mixture production.

The Department reserves the right to review any design through plant production, prior to using the design for Department work.

Each asphalt mixture producer must prepare and submit a quality control plan to the DME/DMM for review annually at least three weeks before the planned start of mixture production. The purpose of this requirement is to ensure that the producer will consistently produce a uniform and quality product within Department specifications.

The following Quality Control (QC) Plan is the minimum plan designed to meet these standards:

A. QC Organization Chart.

1. Names of personnel responsible for QC.
2. Area of responsibility of each of the following individuals:
 - a. Plant Superintendent
 - b. QC Manager
 - c. Technicians (include certification number)
 - d. Other
3. List outside agencies, e.g., testing laboratories and a description of services provided.

B. Testing Plan with Action Points:

1. Production lot size 1,000 Tons.
2. Sample according to PTM No. 1.

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3. Minimum Daily Testing.
 - a) Section 413 Superpave:
 - i) 50 tons to less than 150 tons: asphalt content, gradation and theoretical maximum specific gravity.
 - ii) 150 tons or more: asphalt content, gradation, theoretical maximum specific gravity and volumetrics.

4. Asphalt Content: PTM No. 757, PTM No. 702, or PTM No. 742
 - a) Frequency: Minimum Daily Testing and according to PTM No. 1 for each established plant lot size. (Minimum daily testing may coincide with lot sample).
 - i) After three tests, check multiple sample compliance ($n \geq 3$): Table A (Publication 408, Section 413).
 - ii) After five tests, check running average compliance ($n \geq 3$): Table A (Publication 408, Section 413).
 - iii) Action Point = JMF \pm 0.2%
 - iv) Plot straight-line charts at $n=1$ and $n=5$

5. Gradation: PTM No. 757 and AASHTO T 30, PTM No. 739 or PTM No. 743
 - a) Frequency: Minimum Daily Testing and according to PTM No. 1 for each established plant lot size. (Minimum daily testing may coincide with lot sample).
 - i) After three tests, check multiple sample compliance ($n \geq 3$): Table A (Publication 408, Section 413).
 - ii) After five tests, check running average compliance ($n \geq 3$): Table A (Publication 408, Section 413).
 - iii) Action Point = JMF \pm 1.0% on the 75 μ m (No. 200) sieve; \pm 3.0% on the 9.5 mm (3/8 inch) to the 150 μ m (No. 100) sieves; \pm 5.0% on the 12.5 mm (1/2 inch) and larger sieves.
 - iv) Plot straight-line charts for 2.36 mm (No. 8) and 75 μ m (No. 200) sieves at $n=1$ and $n=5$, plot all other sieves at $n=1$ and $n=5$.

6. Theoretical Maximum Specific Gravity: AASHTO T 209 as modified according to Bulletin 27, Appendix I.
 - a) Frequency: Minimum Daily Testing and according to PTM No. 1 for each established plant lot size. (Minimum daily testing may coincide with lot sample).
 - i) Condition and test according to the current Bulletin 27, Appendix I.
 - ii) Plot on straight-line chart. (Action Point \pm 0.020).

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iii) Form [CS-4171B](#) Certification: List the most recent theoretical maximum specific gravity or average value as specified in Bulletin 27.

7. Volumetrics:

a) Publication 408, Section 413, Superpave Material:

- i) Frequency: Minimum Daily Testing and according to PTM No. 1 for each established plant lot size. (Minimum daily testing may coincide with lot sample).
 - a. Perform volumetric analysis using the mixture composition results from the same sample. Mix Design mixture composition values are not valid for volumetric analysis during production.
 - b. Prepare a minimum of two specimens (AASHTO T 312).
 - c. Determine bulk specific gravity (PTM No. 715).
 - d. Calculate Air Voids (AASHTO R 35). (Use most recent theoretical maximum specific gravity or average value as specified in Bulletin 27).
 - e. Calculate Voids in the Mineral Aggregate (VMA) according to AASHTO R 35 and as specified in Bulletin 27, Appendix I.
 - f. Check compliance with Publication 408, Section 413 Table B:
 - 1. Air Voids – each specimen must meet the +/-2% tolerance and the average of the two specimens must meet the multiple specimen tolerance of +/- 1.5%
 - 2. VMA – each specimen must meet the minimum VMA tolerance for the appropriate mixture nominal maximum aggregate size.
 - g. Record the individual and average Air Voids test results in the eCAMMS Electronic State Book (ESB).
 - h. Record the individual VMA test results in the eCAMMS ESB.
 - i. Record Lab Density and Fines/Asphalt Ratio (F/A) test results in the eCAMMS ESB.
 - j. Plot Air Voids, VMA, and F/A test results on straight-line charts.
 - k. Establish action points for voids and VMA to be within Publication 408 Specification limits. F/A may be monitored during production also.

8. Aggregate Stock Gradations: PTM No. 616, AASHTO T 27, and AASHTO R 90

a) Frequency: Weekly for each aggregate type and source used.

9. Hot Bin Gradations: PTM No. 743

a) Frequency: Weekly to determine screening efficiency.

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10. Apparent Moisture Content: PTM No. 749

- a) Frequency: Daily on each completed mixture containing a coarse aggregate with a water absorption exceeding 2.0%.

11. Check Recording Pyrometers (Batch plant – Bulletin 27/1-6)

- a) Frequency: Daily (Drum or other – Bulletin 27/1-6 & 1-14)
- b) Date: Record the production date on each pyrometer chart.

12. Mix Temperature

- a) Frequency: Daily on the first load and a minimum of five loads.
 - i) Document mix temperatures on all copies of the delivery ticket.
(Asphalt plant delivery tickets as described in POM B.7.6 – 2, 3)

13. RAP Material

- a) Moisture Content: AASHTO T 255
 - i) Frequency: A minimum of Once Daily.
- b) Extraction for AC and gradation: PTM No. 757 or PTM No. 702 and PTM No. 739
 - i) Frequency: One for each 1,000 tons of RAP used or weekly.
- c) Refer to POM, Part B, Section 7, Page 22-1 for additional minimum requirements when incorporating greater than 15% RAP and less than or equal to 35% RAP in an asphalt mixture.

14. Drum Mix and Continuous Volumetric Proportioning Plants

- a) Aggregate Gradations: PTM No. 616, AASHTO R 90, AASHTO T 27, and AASHTO R 76
 - i) Frequency: Daily when shipping 50 tons or more of completed mix. Aggregates will be sampled from asphalt mixture plant stockpiles.
- b) Aggregate Moistures: AASHTO T 255 and Bulletin 27/1-13
 - i) Fine Aggregate
 - a. Frequency: A minimum of Twice Daily.
Aggregates will be sampled from asphalt mixture plant stockpiles.
 - ii) Coarse Aggregate
 - a. Frequency: A minimum of Once Daily.
Aggregates will be sampled from asphalt mixture plant stockpiles.

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- c) Gate Calibration (Bulletin 27/1-5,1-14)
 - i) Frequency: Annually for each type of material used or more frequently if required.
- d) Bituminous Pump Calibration (Bulletin 27/1-15)
 - i) Frequency: Start of season and every four months thereafter or more frequently if required.
- e) Belt Weight Scale Calibration (Bulletin 27/1-14,15)
 - i) Frequency: Start of season and then biweekly thereafter.

15. Plant Calibration and Verification Procedures

- a) 50 pound test weight certification. (Bulletin 27/1-10)
 - i) Frequency: Every three years by an outside agency.
- b) Plant Scale Check: PTM No. 410
 - i) Frequency: Full scale check at start of season and biweekly thereafter.
- c) Truck Scale Certification (Bulletin 27/1-8)
 - i) Frequency: Annually by an outside agency.
- d) In event of failure of automatic proportioning or recording devices:
 - i) All provisions and criteria of Bulletin 27, Chp.1, Sec. 3.7.4 will apply.
- e) Calibrate anti-strip meter to meet $\pm 1.0\%$ tolerance at start of season and every four months thereafter.

16. Laboratory Equipment Calibrations and Verifications:

- a) Volumeters, Bitumenometers, and Pycnometers: PTM No. 703, PTM No. 704
 - i) Frequency: Twice a year. The first calibration will be conducted prior to mix design and production each year.
- b) Ignition Oven: PTM No. 757
 - i) Frequency: Annual calibration by the original manufacturer or by other outside agencies.
- c) Gyrotory Compactor: AASHTO T 312 (Bulletin 27/1-2, 3)
 - i) Frequency: Perform calibrations and verifications as specified in AASHTO T 312 following manufacturer's recommendations.

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- d) Internal Angle Calibration
 - i) Frequency: Initially calibrated to 1.16 ± 0.02 degrees and recalibrated at least every 12 months or more frequently depending on high use or manufacturer's recommendations.

 - e) Gyrotory Specimen Molds
 - i) Frequency: Inspect molds prior to mix design and production each year and regularly throughout the production season. New molds shall have an inside diameter of 149.90 to 150.00 mm. The inside diameter of in-service molds shall not exceed 150.2 mm. All ram and end plate faces (the sides presented to the specimen) shall be flat to meet the smoothness requirement according to AASHTO T 312, Section 4.2, and shall have a diameter of 149.50 to 149.75 mm.

 - f) Weighing Devices Certification
 - i) Frequency: Annually by an outside agency.

 - g) All other equipment will be calibrated at start of season and when needed.

 - h) Document all calibrations, certifications and verifications.

 - i) The producer will specify what procedures will be followed to provide required testing, in a timely manner, in case of any testing device/equipment failure.
17. Annual JMF Verification: [Publication 408, Section 413.2(e), and Bulletin 27/2A-10]
- a) Verify each JMF within the first two days of production.
 - b) Perform asphalt content, gradation and volumetric tests.
 - c) Additional samples lifted according to PTM No. 1 for each established plant lot size.
 - i) Publication 408, Section 413, Superpave:
 - a. If the mixture does not conform to the single and multiple sample tolerances of Publication 408, Section 413, Tables A and B within the first two days of production, suspend shipping the mixture to the project.
 - b. Do not ship to the project until after the Representative reviews and verifies that results conform to the single and multiple sample tolerances of Publication 408, Section 413, Tables A and B.
 - c. During JMF verification, mixture acceptance is according to the approved acceptance level of Publication 408, Section 413, Table C.

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18. Corrective Action:

- a) Corrective action shall be taken, and the action shall be documented if one or more of the following occurs:
- a. Publication 408, Section 413:
 1. Single sample (n=1) results for the 2.36 mm (No. 8) sieve, the 75 μ m (No. 200) sieve, or asphalt content are not within Publication 408, Section 413 Table A tolerances.
 2. The average of multiple samples ($n \geq 3$) for percent passing any sieve or asphalt content as specified in Publication 408, Section 413.2(e)1.d, are not within Publication 408, Section 413, Table A tolerances.
 3. Temperature of the mixture is not within Publication 408, Section 413, Table A tolerances
 4. Voids do not meet the single (n=1) or multiple (n>2) specimen tolerances as specified in Publication 408, Section 413, Table B.
 5. VMA is not within the single (n=1) specimen tolerances of Section 413 Table B.
 6. IA or QA sample results tested at the producer's plant are not within tolerances as specified in Publication 408, Section 413, Tables A or B.
 7. After taking corrective actions, the completed mixture will be sampled within 150 tons of production.
 - (i) After sampling, the mixture will be tested and results provided to the Representative within 500 tons of production.
 - (ii) If less than three samples are tested for mixture composition, determine conformance with Publication 408, Section 413, Table A, by comparing each result to the multiple sample tolerances.
 - (iii) If the mixture does not conform to the single and multiple sample tolerances as specified in Publication 408, Section 413, Table A and the single and multiple specimen tolerances as specified in Publication 408, Section 413, Table B, suspend production and shipping to the project and determine the cause of the problem.
 - (iv) Provide a written explanation of the problem and a proposed solution to the Department.
 - (v) After the Representative reviews the proposed solution and authorizes production to continue, resume production and perform JMF verification.
 - (vi) During corrective actions and JMF verification, mixture acceptance is according to the approved acceptance level as specified in Publication 408, Section 413, Table C.

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19. Plot all laboratory results from LTS for QA and District Quality Assurance (DQA) samples.
 - a) Compare these results to companion samples run at the plant.
 - b) Document finding of comparison.
20. Certification of materials to project within one working day on Form [CS-4171B](#). Form CS-4171B shall be completed daily for both acceptance levels as specified in Publication 408, Section 413, Table C.

C. Materials Storage and Handling

1. Aggregate/RAP/RAM stockpiles. [Publication 408, Section 413.3(c)]
 - a) Refer to POM, Part B, Section 7, Page 22-1 for additional minimum requirements when incorporating greater than 15% RAP and less than or equal to 35% RAP in an asphalt mixture.
2. Cold-feed systems for aggregates/RAP/RAM [Publication 408, Section 413.3(c)]
3. Additives or modifiers for mixture. (Bulletin 27/2A-11)
4. Modified asphalt/liquid additive storage tanks. (Bulletin 27/2A-11)
5. Surge/storage silos for mixture. No more than one mixture represented by a single JMF maybe stored in a surge/storage silo at any given time. Bulletin 27, Appendix G provides details concerning system approval, sampling, submission, and reporting.
6. All measuring and conveying devices, including calibration procedures.
7. Haul vehicle loading and tarping procedures. [Publication 408, Section 413.3(d)]
8. Truck weighing policy meeting the requirements outlined in Bulletin 27/1-8 & POM. B.7.2-1).

D. Plant Book Documentation – Use of the eCAMMS ESB (as per POM B.7.6-1 to 6-3)

1. The plant book shall be maintained in an electronic version (eCAMMS ESB). Temporary electronic versions (Excel spreadsheet versions) may be acceptable to the DME/DMM.
 - a. The entire temporary electronic plant book shall be backed up daily by a method acceptable to the DME/DMM.

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- b. The Department Representative shall have access to the temporary electronic plant book.
- c. The temporary electronic plant book shall be printed if requested by the Department Representative.
- d. The temporary electronic plant book shall be printed and/or saved to CD as requested by the Department Representative at the end of the production season.

These are the minimum process control requirements and may be added to, or the frequency increased, by the producer or the Department Representative, to assure compliance.

REPLACES B.7.6	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART B	SECTION 7	PAGE 6-1
DATED 04/01/2017		DATE April 1, 2020		
SUBJECT ASPHALT PLANT RECORDS AND DOCUMENTATION				

Both the plant inspector and producer must annually maintain documentation at the plant. Update all documentation on a daily basis. The producer is responsible for source documentation and production control in accordance with the reviewed Quality Control (QC) Plan. Testing procedures are found in Publication 19, Field Test Manual, and the AASHTO Standard Specifications.

Plant Inspector's Documentation

On a daily basis, keep Form [CS-4346](#), Items Quantity Book (or its equivalent), as a Plant Master Diary. Record all entries in black ink. Include the following information:

1. Date, Weather, Temperature Range
2. Inspector's Name, Title, Hours Worked
3. Visitors
4. Material Tests Performed and / or Witnessed
5. Material Deviations
6. Unusual Occurrences, Comments concerning Plant Operation, Conditions, Record Keeping
7. Inspector's Signature

Producer's Documentation

The producer is responsible to maintain one set of test records as documentation for all projects supplied from that plant.

Records to be kept in the eCAMMS system include:

- Plant Summary
- Burnoff (Asphalt Content, Gradation), Gmm and Volumetrics and/or Centrifuge and Volumetrics (depending on test method)

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Records to be completed and kept in the Electronic State Book (ESB) include:

- Scale Check
- Laboratory Testing Section (LTS) Sample Submission Records
- Hot-Bin Gradations
- Material Test Results for Coarse Aggregate
- Material Test Results for Fine Aggregate
- Reclaimed Asphalt Pavement (RAP) Burnoff Results and Moisture
- Daily Orders and Releases Record
- Equipment Calibration Record

Details of the documentation procedures for eCAMMS and the ESB must be included in the plant Quality Control Plan submitted for review annually.

In eCAMMS, the producer must monitor straight-line diagrams which show material control at the plant.

Plant Approval, Form [TR-498](#), Approved Master Designs, Approved QC Plan and Certifications are to be on file at the Plant. All technicians must carry a valid NECEPT certification card during mixture production.

Production Acceptance

The producer's delivery ticket must accompany material released from a plant for acceptance on a project. The ticket shall contain the following information:

1. Contract Number, State Route and Section or Purchase Order
2. Asphalt Plant Bulletin 41 Supplier Code
3. County and District
4. Material Type and JMF Number
5. Date and Time
6. Total Amount of Material
7. Truck Number

The plant inspector must sign the first and last delivery tickets. The last ticket shall also show the total number of tickets issued and the words "Last Load." If there is no plant inspector present, the producer's technician is to sign the first and last tickets. Enough copies of each ticket are to be

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supplied for record keeping and payment. If printout equipment is out of service, see Bulletin 27, Chapter 1, Subsections 3.7.4 and 4.4.1.

These requirements also apply when asphalt material is shipped from a storage bin or silo. A weighmaster, in accordance with requirements outlined in POM Section B.7.2, shall be provided by the producer. The weighmaster's signature on each delivery ticket is required to certify the weight of the material as determined by the recording truck scale.

The producer is to include QC test results for all acceptance values as specified in Publication 408, Section 413.2(i)2.b, when completing Form [CS-4171B](#).

Form CS-4171B must be sent to the Project Inspector-in-Charge within one working day to certify the material. The contractor must provide the Representative a copy of a signed Bill of Lading for asphalt material on the first day of paving and when the batch number changes.

REPLACES B.7.8	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART B	SECTION 7	PAGE 8-1
DATED 04/25/2013		DATE April 1, 2020		
SUBJECT MINIMUM DISTRICT QUALITY ASSURANCE PLAN - ASPHALT PLANTS				

1. The District Materials Engineer/Manager (DME/DMM) or a member of their staff will visit each active Asphalt Plant once a year. In addition, a visit will be made to each plant for each (30) thirty production days for Department work.
2. A visit will include a detailed review of the Producer's quality control activities utilizing a District Quality Assurance (DQA) check-off list. All findings and corrective actions will be documented in the Plant Master Diary and a copy of the DQA check-off list will be filed with the plant records.

When DQA samples are taken, the technician must also take a companion quality control sample for comparison purposes. DQA sample test results are to be entered on the straight-line analysis charts for comparison purposes.

3. District Verification Sampling:
 - a. For material that is being shipped for Department work, witness the technician perform all the required acceptance tests at least once a year. The Plant Technician is to document test results in the Electronic State Book as a DQA plant verification test. In addition, document any observed deviations in the testing procedures in the Plant Master Diary.
 - b. When deviations from the testing procedures are observed, or when otherwise considered necessary, submit a sample (n=3) to the Laboratory Testing Section (LTS) identified as a Plant Verification (PV) sample. Witness the technician perform all the required tests on a companion sample for one of the three increments. When sample results are received from LTS, compare the results with the companion results from the producer and submit a copy of the companion results to the LTS.
4. Records Review:
 - a. All quality control test results will be checked for compliance to approved QC plan frequencies.
 - b. Plant facilities will be reviewed for compliance to Bulletin 27, Chapter 1.
 - c. Straight-Line charts will be reviewed, and documentation will be made of any noted trends and whether appropriate action was taken.

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- d. Compare the results of all previous District/Central Office quality assurance samples from LTS to the results of the companion samples performed by the technician for uniformity and document all comments.
- e. Technician's plant documentation system and plant delivery ticket will be reviewed for compliance with POM Section B.7.5.

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**DISTRICT QUALITY ASSURANCE
ASPHALT PLANT INSPECTION**

PRODUCER _____ LOCATION _____

BULLETIN 41 CODE _____ REPORT # _____

DATE OF REVIEW _____ DATE OF LAST REVIEW _____

NUMBER OF PRODUCTION DAYS BETWEEN REVIEWS _____

Y N N/A

- | | | | |
|-----|-----|-----|--|
| () | () | () | 1. The current Report TR-498 on file at the source. (Bulletin 27, Bulletin 41) |
| () | () | () | 2. Master designs on file and being used for shipments. (Pub 408, Section 413) |
| () | () | () | 3. Inspectors/Laboratory facilities meet Publication 408 requirements. (Section 413.3) |
| () | () | () | 4. All required lab equipment on hand and working. (Bulletin 27) |
| () | () | () | 5. Laboratory scales & balances have annual calibration stickers attached. (Bulletin 27)
Calibration Date _____ |
| () | () | () | 6. Approved QC Plan on file and being followed. (Pub 408, Section 413; POM B.7.5) |
| () | () | () | 7. Approved technician controlling the operations.
Technician's Name: _____
NECEPT No. _____ Expires _____
Technician's Name: _____
NECEPT No. _____ Expires _____

(Pub 408, Section 413) |
| () | () | () | 8. PTM No. 1 used for all sampling & recorded in records. (Pub 408, Section 413) |
| () | () | () | 9. All testing performed according to the applicable testing procedures. (Pub 408, Section 413; Bulletin 27) |

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- () () () 10. AASHTO T-209 ran at proper time to keep running average. (Pub 408, Section 413; Bulletin 27)
- () () () 11. Asphalt determinations, gradations, Air Voids, VMA and VFA test, and AASHTO T-209 results documented and plotted on straight-line charts. (POM B.7.5)
- () () () 12. Action points established on straight-line charts. (POM B.7.5)
- () () () 13. DQA and QA sample results compared to plant tests and plotted on straight-line charts. (POM B.7.5)
- () () () 14. Plant meets requirements of Bulletin 27, Chapter 1, for safety, production, and stockpile storage.
- () () () 15. Plant meets A/R or truck scale requirements of Bulletin 27.
- () () () 16. Pyrometers working properly and charts kept on file unless equipped with paperless recorder. (Bulletin 27)
- () () () 17. Superpave Gyratory Compactor (SGC) calibrated according to AASHTO T 312. (Bulletin 27)
Calibration Date _____
- () () () 18. Gyratory compactor molds within allowed dimensions (Bulletin 27).
Date Checked _____
- () () () 19. Internal angle standardized at a maximum frequency of every 12 months. (AASHTO R 18-10)
Calibration Date _____
- () () () 20. Plant has Bill of Loading for AC in the file and copy sent to project as required. (Pub 408, Section 413)
- () () () 21. Truck beds are free of foreign substances and have acceptable tarps to protect entire load. (Pub 408, Section 413)
- () () () 22. Truck beds properly insulated or heated when applicable. (Pub 408, Section 413)
- () () () 23. Temperature checks on completed mixes within specifications and taken as per QC plan. (Bulletin 25; Pub 408 Section 413)

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- () () () 24. Delivery ticket has all required information including mix design JMF number. (POM B.7.6)
- () () () 25. Plant records and documentation kept up to date. (POM B.7.5)
- () () () 26. Asphalt pump or meter calibrated before start of production and every four months thereafter. (POM B.7.5)
Calibration Date _____
- () () () 27. Cold feed checked and adjusted to keep minus 2.36 mm (#8) material within tolerance. (Bulletin 27)
- () () () 28. Batch scale calibration weights calibrated every three years. (Bulletin 27, POM B.7.5)
Calibration Date _____
- () () () 29. Timers functioning properly. (Bulletin 27)
- () () () 30. Batch size within allowed tolerance of rated capacity. (Bulletin 27)
- () () () 31. Aggregate, asphalt and filler components batched within allowed tolerance. (Bulletin 27)

DEVIATIONS FOUND: _____

CORRECTIVE ACTION TAKEN: _____

FOLLOW-UP REVIEW REQUIRED: _____ (YES) _____ (NO)

ADDITIONAL COMMENTS: _____

INSPECTION CONDUCTED BY: _____ DATE: _____

*TECHNICIANS SIGNATURE: _____ DATE: _____

REVIEWED BY: _____ DATE: _____

* Technician is required to sign. Leave a copy of this review at the plant.

REPLACES B.7.9	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART B	SECTION 7	PAGE 9-1
DATED 04/01/2017		DATE April 1, 2020		
SUBJECT MINIMUM QUALITY CONTROL PLAN FOR PORTLAND CEMENT CONCRETE				

Publication 408, Section 704.1(c), requires each producer to make trial mixtures and computations for each class of concrete, including the molding, curing and testing of test specimens and to prepare and compute each design according to ACI 211. Each design must meet all Department requirements.

A copy of each completed mix design must be submitted to the District Materials Engineer/Manager (DME/DMM) prior to its use on a Department project.

The Department reserves the right to review any design through plant production prior to using the design for Department work.

Each producer of Portland Cement Concrete is required to submit a Quality Control (QC) plan to the DME/DMM at the project's start and at least annually thereafter. The purpose of this requirement is to ensure that the producer will consistently produce a uniform and high quality product within Department specifications.

The following QC Plan is a minimum plan designed to meet these standards. The QC Plan is to also state that the frequency of sampling and testing will be increased whenever borderline material is encountered:

- | | |
|--|---|
| I. Raw Aggregate Testing | Minimum Testing Frequency |
| A. Fine Aggregate | |
| 1. Gradation and Fines Modulus | Daily when restocking bins - PTM No. 616. |
| 2. Minus 75 μ m (No. 200) material | Every five dry gradings or once weekly - PTM No. 100. |
| 3. Percent of moisture | Beginning of work and every 4 hours thereafter or as required - AASHTO T 255 and ASTM C 70. |
| B. Coarse Aggregate | |
| 1. Gradation | Daily when restocking bins - PTM No. 616. |
| 2. Minus 75 μ m (No. 200) material | Every 5 gradations or once weekly - PTM No. 100. |
| 3. Percent of moisture | Beginning of work and every 4 hours thereafter or as required - AASHTO T 255. |
| 4. Crush count (Gravel) | Weekly, or daily when restocking bins - ASTM D 5821. |

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5. % of solids

Beginning of season or as necessary due to extreme aggregate changes.

II. Batch Scale Checks

Minimum Testing Frequency

- A. Aggregate scale
- B. Cement scale
- C. Water scale

According to PTM No. 410, Biweekly*
According to PTM No. 410, Biweekly*
According to PTM No. 410, Biweekly*

* Complete scale check at start of season

III. Calibration of equipment

Minimum Testing Frequency

- A. Volumetric Mixing Plants
- B. Transit mix trucks
- C. Water meters (Batch, Slump, Adjust and Wash Down)
- D. Plant admixture dispensers
- E. Cubic meter (cubic feet) buckets
- F. Air meter
- G. Cylinder Compression machine
- H. Moisture Meter
- I. 22.6 kg (50 lbs.) weights

Start of season and change of materials.
Start of season and as necessary, Form [CS-4337](#).
Start of season and as necessary.
Start of season and as necessary.
Start of season and as necessary.
Start of season and minimum bi-weekly.
Once per year by private calibration service.
Once per month.
Minimum of once every three years, or more often when DME/DMM deems necessary. Calibration by Department of Agriculture or private calibration service.

Note: Equipment calibrations will be documented and kept in the Plant Book.

IV. Temperature Checks

- A. Aggregate
 - 1. Hot weather
 - 2. Cool and cold weather
- B. Cement
- C. Water
- D. Concrete mixture

V. Concrete Mixture

- A. Slump Tests

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- B. Air Content Tests
- C. Yield Tests
- D. Molding Cylinders (Optional)

VI. Documentation

A. Concrete Plant Book

Maintain as defined in POM Section B.7.10

B. Straight-line Analysis Charts

1. Fine Aggregate
2. Coarse Aggregate

Note: Action points will be established on critical test values.

3. Plotting Quality Assurance (QA) and District Quality Assurance (DQA) results for comparison with QC companion sample.

C. Certifications

1. Admixtures
2. Cement
3. Fly ash
4. Slag Cement
5. Certification of Small Quantities
6. Silica fume
7. Aggregate Certification Yearly for Quality Requirements as specified in Publication 408, Section 703.6, on Form CS-4171

REPLACES B.7.10	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART B	SECTION 7	PAGE 10-1
DATED 04/01/2020		DATE April 1, 2021		
SUBJECT CONCRETE PLANT RECORDS AND DOCUMENTATION				

The producer's name and plant address are required on the outside cover of the Material Plant Book. The producer will maintain the plant book as one book containing one set of test records as documentation for all projects supplied. Form [CS-4211](#), Table of Contents, lists all forms required for the plant book.

The producer is responsible for source documentation and production control in accordance with the approved Quality Control Plan. All testing procedures are found in Publication 19, Field and Laboratory Testing Manual or appropriate AASHTO or ASTM test methods.

Plant Inspector's Documentation

Keep, on a daily basis, Form [CS-4346](#), Items Quantity Book, as a Plant Master Diary, in black ink, and include the following information:

1. Date, Weather, Temperature Range
2. Inspector's Name, Title, Hours Worked
3. Visitors
4. Material Tests Performed
5. Material Deviations
6. Unusual Occurrences, Comments concerning Plant Operation, Conditions, Record Keeping
7. Inspector's Signature

Producer's Documentation

The producer is responsible for completion of the following form which will comprise the Material Plant Book. Use separate copies for coarse and fine aggregate gradations. For coarse aggregate, use the last row for percent solids or dry-rodded mass (weight). For fine aggregate, use the last row for fineness modulus.

Form CS-4211	Table of Contents
Form CS-4211A	Material Test Result
Form CS-4211B	Project Summary Record

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Form CS-4211C	Scale Check
Form CS-4211D	Plant Summary
Form CS-4211E	LTS Sample Submission Record
Form CS-4211F	Compression Test Record
Form CS-4211I	Aggregate No. 57
Form CS-4211J	Aggregate No. 8
Form CS-4211K	Fine Aggregate
Form CS-4211L	Aggregate No. OGS
Form CS-4211M	Aggregate No. 67
Form CS-4211N	Aggregate No. 2A
Form CS-4221A	Moisture Test Results
Form CS-4221B	Material Temperature Record
Form CS-4221C	Daily Orders and Releases Record
Form CS-4221E	Equipment Calibration Record

In addition, the producer is to keep straight-line diagrams or statistical quality control charts which show material control at the plant. The producer must also plot Quality Assurance samples when the results are received from the Laboratory Testing Section.

Plant Approval Form [TR-4109](#), Technicians Evaluation/Certification, Current Approved Master Designs, Properly Completed Certifications and an Approved Quality Control Plan are to be on file at the plant.

Production Acceptance

The producer's original delivery ticket (or a copy of the recordation ticket) must accompany material released from a plant for acceptance on a project. The ticket is to contain the following information:

1. Contract number, complete state project number or purchase order number
2. The concrete plant supplier code
3. Method of concrete mixing (i.e., central or truck)
4. Class of concrete, JMF number, and trial mix number (i.e., trial #1, 2, etc.)
5. Number of cubic yards
6. Time of completion of mixing
7. Truck number

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8. Number of mixing revolutions, if applicable
9. Total amount of water in pounds used in each truck.
10. The weight in pounds of the total cementitious materials
11. The types of additives and amount used in each truck (i.e., water reducer, Air-Entraining Admixture (AEA), retarder, etc.)

Submit the plant delivery slip and batcher-mixer slip (according to AASHTO M 157) to the Inspector-in-Charge.

The plant inspector or the producer's technician must sign the first and last delivery ticket. The last ticket will also show the total number of tickets issued and the words "Last Load." If there is no plant inspector, the producer's technician is to sign the first and last ticket. Enough copies of the tickets are to be supplied for record keeping and payment.

NOTE: Job Plants - A ticket printed by an automatic clock is to be provided giving time, date and number of cubic yards.

REPLACES B.7.12	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART B	SECTION 7	PAGE 12-1
DATED 04/25/2013		DATE April 1, 2020		
SUBJECT MINIMUM DISTRICT QUALITY ASSURANCE PLAN - PORTLAND CEMENT CONCRETE PLANTS				

1. The District Materials Engineer/Manager (DME/DMM) or a member of their staff will visit each Portland Cement Concrete Plant at least once for every (20) twenty days of production for Department work.
2. A visit will include a detailed review of the Producer's quality control activities utilizing a District Quality Assurance (DQA) check-off list. All findings and corrective actions will be documented in the Plant Master Diary and a copy of the check-off list will be filed with the plant records.

When DQA samples are taken, the technician must also take a companion quality control sample for comparison purposes. DQA sample test results are to be entered on the straight-line analysis charts for comparison purposes.

3. District Verification Sampling:
 - a. When considered necessary, but at least at the time of plant reinspection and then once a year, pull one sample (n=3) each of fine and coarse aggregate. The samples are to be tested for gradation and wash by the DME/DMM or a member of their staff.
 - b. Witness the technician perform all required tests on a companion sample for one of the three increments for each material.
4. Records Review:
 - a. All quality control test results will be checked for compliance to approved Quality Control (QC) Plan frequencies.
 - b. Plant facilities will be reviewed for conformance to AASHTO M 157.
 - c. Plant stocking area will be reviewed to assure the aggregates are properly stocked and prepared before use.
 - d. Straight-line charts will be reviewed and documentation will be made of any noted trends and whether appropriate action was taken.
 - e. Compare the results of all previous District/Central Office quality assurance samples from LTS to the results of the companion samples performed by the technician for uniformity and document all comments.
 - f. Technician's plant documentation system and plant delivery ticket will be reviewed for compliance with POM Section B.7.10.
 - g. The system of communication used between the projects receiving the material and the plant technician will be reviewed and comments made as to its adequacies.

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**DISTRICT QUALITY ASSURANCE
CEMENT CONCRETE PLANT INSPECTION**

PRODUCER _____ LOCATION _____

REPORT # _____ DATE OF REVIEW _____

DATE OF LAST REVIEW _____

NUMBER OF PRODUCTION DAYS BETWEEN REVIEWS (20 DAYS MAX.) _____

- | Y | N | N/A | |
|-----|-----|-----|--|
| () | () | () | 1. The current Form TR-4109 on file at the source. |
| () | () | () | 2. Master designs on file and being used for shipment. |
| () | () | () | 3. Inspectors/Laboratory facilities meet Publication 408 requirements. |
| () | () | () | 4. All required lab equipment on hand is calibrated and working properly. |
| () | () | () | 5. Laboratory scales & balances have annual calibration stickers attached. |
| () | () | () | 6. Approved Quality Control (QC) Plan on file and being followed. |
| () | () | () | 7. Approved technician is available and controlling the work. |
| () | () | () | 8. All testing performed according to applicable PTMs. |
| () | () | () | 9. Aggregate test results meet Publication 408, Section 703, requirements. |
| () | () | () | 10. Fineness Modulus meets Publication 408, Section 703.1(c) requirements. |
| () | () | () | 11. Unit weight / % solids determined as required. |

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Y	N	N/A	
()	()	()	12. Batch weight of slag coarse aggregate adjusted if daily determination of bulk specific gravity \pm 0.5kg (1 lb.) from design.
()	()	()	13. Action points established on straight-line charts.
()	()	()	14. DQA and QA sample results compared to plant test results and plotted on straight-line charts.
()	()	()	15. Compression testing according to PTM No. 604 and calculations correct.
()	()	()	16. Neoprene caps do not exceed allowable 100 number of tests.
()	()	()	17. Difference between any sets of cylinders less than 6.9 MPa (1,000 psi).
()	()	()	18. Plant meets requirements conforming to AASHTO M 157 for production and stockpile storage.
()	()	()	19. Aggregates stored and controlled as specified in Publication 408, Sections 106.05(b) and 106.05(c).
()	()	()	20. Scales checked according to PTM No. 410.
()	()	()	21. Batcher/Mixer slip properly completed.
()	()	()	22. Batch masses (weights) adjusted for free moisture on aggregates.
()	()	()	23. Materials used in mixes from suppliers listed on designs.
()	()	()	24. Batch masses (weights) posted at the scales during operations?
()	()	()	25. Do scales return to zero after batching is complete?

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Y N N/A

- | | | | |
|-----|-----|-----|---|
| () | () | () | 26. Temperature checks taken and documented when required. |
| () | () | () | 27. Transit trucks and water meters calibrated and approved. |
| () | () | () | 28. Department plant records and documentation according to POM Section B.7.10 and the plant QC Plan. |
| () | () | () | 29. Current certifications on file for required materials. |

DEVIATIONS
FOUND:

CORRECTIVE ACTION TAKEN:

FOLLOW-UP REVIEW REQUIRED: _____ (YES) _____ (NO)

ADDITIONAL COMMENTS:

INSPECTION CONDUCTED BY: _____ DATE: _____

*TECHNICIANS SIGNATURE: _____ DATE: _____

REVIEWED BY: _____ DATE: _____

* Technician's signature is required. Leave a copy of this review at the plant.

REPLACES B.7.13	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART B	SECTION 7	PAGE 13-1
DATED 04/01/2019		DATE April 1, 2020		
SUBJECT CONSTRUCTION AGGREGATES				

Construction aggregates are accepted by the Department by the certification process commonly referred to as ‘certification acceptance’. This acceptance is based on Quality Control tests conducted by the producer at the quarry and District Quality Assurance Source Verification samples (stockpile verification) tested by the Department plant inspector. Refer to Publication 408, Section 703.5(b).

Subbase aggregate placed under roadway and shoulders on the project is subject to additional testing, as is any size of aggregate which is visually suspect for its intended use regardless of the estimated project quantity. No. 2A aggregate used as shoulder backup material, pipe backfill or other uses is not to be included for testing. These additional tests are project verification samples that are taken at the point of placement and tested by the Department representative, if quantities exceed minimum threshold amounts. These samples may be tested at the producer’s location or on the project if a soils lab is present. Refer to Publication 408, Section 703.5(b)3, Table F. This table indicates the number of project verification (FV)* samples that must be taken for various amounts of each type (gradation) of coarse aggregate. Each sample consists of three increments or three bags (n=3). Publication 408, Section 703.5(b)3, Table F, is based on estimated total project quantities (of each aggregate type) at the beginning of the project. The table is not a progressive table that is advanced through, row by row, as quantities placed on the project accumulate. Sampling points (targets) should be established in the initial stages of the project and posted so that inspectors are aware of their responsibility to capture project verification increments at the proper time and tonnage. The running total of each aggregate will also need to be maintained so the inspector will be able to anticipate when a sampling point is reached. The aggregate should be sampled according to PTM No. 639 or AASHTO R 90.

The increments that compose a sample must be randomly selected, using PTM No. 1 under the direction and supervision of the inspector. Regardless of how the increment locations are calculated, the important point is that the increments that make a sample are unbiased and randomly selected.

*Note: The abbreviation “FV” is used here to maintain consistency with the sample classifications listed on the reverse side of a Form TR-447 except these samples are not sent to LTS for testing and completing a Form TR-447 is not required.

TYPICAL SAMPLE PROCEDURE

The contractor will furnish the inspector or Project Manager with an estimate of tonnage for each type of aggregate at the beginning of the project. If the project is to use 1000 or more tons of No. 2A aggregate for subbase under the roadway or shoulders, the inspector should select project verification samples. The inspector then refers to Publication 408, Section 703.5(b)3, Table F. The estimated project quantities provided by the contractor (or determined by the inspector) are

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compared with the “Aggregate Quantities” column of Table F. “Aggregate Quantities” should be considered as the total quantity of subbase under the roadway or shoulders that will be used throughout an entire project lifespan. The inspector will then determine how many total numbers of samples will be required over the life of the project.

It is recommended but not required that the contractor’s person who lifts the field verification samples seek training from a certified aggregate technician. This can help to minimize potential issues and ensure that a proper sample is obtained for testing.

The following examples are presented to clarify several different scenarios, based on different total project quantities that an inspector may encounter. Project verification sample locations must be based on tonnage. Once those tonnage locations are determined however, several methods may be employed to randomly select the increments such as time, tons, square area, or distance as long as the method is unbiased and random.

I. SINGLE SAMPLE PROCEDURE (1000 to 1999 tons)

The contractor informs the inspector or Project Manager that an estimated total amount of 1200 tons of 2A subbase is needed for this project. The first row of Publication 408, Section 703.5(b)3, Table F, indicates a quantity of 1,000 tons to less than 2,000 tons will require one sample consisting of three increments (n=3).

The 1200 tons of subbase can be broken down into three equal “sublots” of 400 tons each. Divide the total 1200 tons by the number of increments in your sample (n=3) to determine the quantity of each “sublot”. Next, go back to PTM No. 1 and select the next three random numbers in order. Multiply each of the three ‘x’ factors from PTM No. 1 by the tonnage of the “sublot” to determine the sample ton for the individual increments. This method is illustrated in Example A.

EXAMPLE A – Increments by ton

Estimated 2A subbase for project = 1200 tons

CALCULATING THE “SUBLOTS”

STEP A - Go to TABLE F and determine that for 1200 tons of this aggregate gradation, one (1) sample consisting of three (3) increments is required for a project verification sample.

Divide 1200 tons by three increments to get 400 tons/increment.

1200 tons ÷ 3 increments = 400 tons/increment

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CALCULATING THE SAMPLING POINTS

STEP B - To determine the sampling point to lift the first increment, go to PTM No. 1 and select a number randomly. Start with any PTM No. 1 number, for this example select 30. The 'x' factor = 0.63 from Table I. Multiply that number by the increment tonnage to determine the target ton to sample for that increment. At this time, also note the succeeding numbers in sequence, 31 and 32, where the 'x' factor is 0.53 and 0.99 respectively.

Increment No. 1 target ton to sample = Tons in "sublot" multiplied by the 'x' factor

Increment No. 1 target ton to sample = $400 \times 0.63 = 252^{\text{nd}}$ ton

The sample increment may be selected from any part of the hauling unit that contains the target tonnage, in this case, the hauling unit containing the 252^{nd} ton.

STEP C - The next two numbers in sequence from 30 (31 and 32) in PTM No. 1 are used to calculate the second and third "sublot" sample points. To determine the subsequent increment locations remember to add the quantities of the previous "sublot"(s).

STEP D - $400 \times 0.53 = 212^{\text{th}}$ ton of "sublot" No. 2

Add the total tonnage for "sublot" No. 1 to the target ton for increment No. 2 to determine the sampling point from the total tonnage.

Add $400 + 212 = 612^{\text{th}}$ ton

The second increment would come from the hauling unit containing the 612^{th} ton.

STEP E - $400 \times 0.99 = 396^{\text{th}}$ ton of "sublot" No. 3

Add the total tonnage of the previous two sublots to the target ton for increment No. 3 to determine the sampling point from the total tonnage.

Add $400 + 400 + 396 = 1196^{\text{th}}$ ton

The third increment would come from the hauling unit containing the 1196^{th} ton.

These three increments represent one sample and are to be placed on one Form TR-4126A and tested for compliance.

II. MULTIPLE SAMPLE PROCEDURE (2,000 to less than 10,000 tons)

The contractor on a project informs the inspector or Project Manager that an estimated 2,100 tons of 2A subbase is needed for this project. For a project quantity greater than 2,000 tons but less than 10,000 tons, two samples consisting of three increments each ($n=3$) are required. Compare the anticipated total project tonnage of each material gradation to Publication 408, Section 703.5(b)3, Table F, to determine the number of samples needed. A multiple sample project is explained in Example B. The following example illustrates the procedure for computing multiple samples based on an estimated project quantity of 2,100 tons.

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EXAMPLE B – Increments by ton

Estimated 2A material for project = 2,100 tons. Therefore, according to Table F, two samples are needed.

CALCULATING THE “VERIFICATION LOTS” AND “SUBLOTS”

STEP A – First divide the project tonnage by the number of samples needed. The estimated 2,100 ton project total is divided by 2 samples.

$2,100 \div 2 = 1,050$ tons of 2A in each “verification lot”.

Three increments will be taken from the first “verification lot” of 1,050 tons delivered to the project. Three more increments will be taken from the second “verification lot” of 1,050 tons delivered to the project. Sample points for each 1,050 tons delivered will be performed as in Example A. Since three increments come from each 1,050 ton then divide each 1,050 into three equal “sublots”.

$1,050 \div 3 = 350$ ton in each “sublot”.

CALCULATING THE SAMPLING POINTS

STEP B - The target ton for the first increment is determined by first going to PTM No. 1 and selecting a number randomly, for example select number 63. The ‘x’ factor is = 0.66 from Table I.

Increment No. 1 target ton to sample = $350 \text{ ton} \times 0.66 = 231^{\text{st}}$ ton.

Increment No.1 will come from the hauling unit containing the 231^{st} ton.

STEP C – The next five numbers in sequence from 63 (64, 65, 66, 67 and 68) in PTM No. 1 are used to calculate the second and third “sublot” sample points. To determine the subsequent sampling points, remember to add the quantities from the previous “sublot”(s).

STEP D - The target ton for the second increment is determined by selecting the next consecutive number from the PTM No. 1 Table which in this case is number 64. The ‘x’ factor is = 0.89

Increment No. 2 target ton to sample = $350 \text{ ton} \times 0.89 = 312^{\text{th}}$ ton in the 2nd “sublot”.

Increment No.2 sampling point = $350 + 312 = 662^{\text{nd}}$ ton.

Increment No. 2 will come from the hauling unit containing the 662^{nd} ton of 2A.

STEP E - The target ton for the third increment is determined by selecting the next consecutive number from the PTM No. 1 Table which is 65. The ‘x’ factor is = 0.67

$350 \text{ ton} \times 0.67 = 235^{\text{th}}$ ton in the third “sublot”.

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The target ton to sample would then be $350 + 350 + 235 = 935^{\text{th}}$ ton.

The final increment completing the first “verification lot” would come from the hauling unit containing the 935^{th} ton.

That completes the sampling points/target tons for the first “verification lot” of 1,050 out of the estimated 2,100 tons for the project.

The second “verification lot” will be sampled in the same way. The “sublot” size remains the same at 350 tons, except that 1,050 ($2,100 \div 2$) will be added to the target ton so that the three random increments fall into the second “verification lot”.

STEP F - The target ton is determined by selecting the next number from Table I of PTM No. 1 which is 66. The ‘x’ factor is = 0.02

$350 \text{ ton} \times 0.02 = 7^{\text{th}}$ ton in the first “sublot” of the second “verification lot”.
 $1,050 + 7 = 1,057^{\text{th}}$ ton. This is the target ton for the first increment of the second “verification lot”.

STEP G - The next number in the sequence from Table I of PTM No. 1 is 67. The ‘x’ factor is = 0.93

$350 \times 0.93 = 326^{\text{th}}$ ton.
 $1,050 + 350 + 326 = 1,726^{\text{th}}$ ton. This is the target for the second of three increments needed for the second “verification lot” of subbase.

STEP H - Continuing the sequence, the next number is 68. The ‘x’ factor is = 0.40.
 $350 \times 0.40 = 140^{\text{th}}$ ton.
 $1,050 + 350 + 350 + 140 = 1,890^{\text{th}}$ ton. This is the final increment of the second “verification lot”.

III. MULTIPLE SAMPLE PROCEDURE (10,000 tons to 25,000 tons)

The contractor informs the inspector or Project Manager that an estimated 19,000 tons of 2A subbase/pipe backfill is needed for a project. For a project quantity equal to or greater than 10,000 tons but less than 25,000 tons three samples (of $n=3$) are required. Compare the anticipated total project tonnage of each material gradation to Publication 408, Section 703.5(b)3, Table F, to determine the number of samples needed. The following example illustrates the procedure for computing three samples based on an estimated project quantity of 19,000 tons.

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CALCULATING THE “VERIFICATION LOTS” AND “SUBLOTS”

EXAMPLE C – Increments by ton

Estimated 2A material for project = 19,000 tons. Therefore, according to Table F, three samples are needed.

STEP A - Divide the project tonnage by the number of samples needed. The 19,000 ton project total is divided by 3 samples.

$19,000 \div 3 = 6,333$ tons of 2A material in each “verification lot” delivered to the project.

Three increments will be taken from the first 6,333 tons delivered to the project. Three more increments will be taken from the second 6,333 tons delivered to the project and another three increments from the last 6,333 tons delivered to the project. Sampling points for each 6,333 tons delivered will be performed as in Example B except additional steps will be added to calculate sampling points for a third “verification lot”. Since three increments come from each 6,333 ton “verification lot” then divide each 6,333 into three equal “sublots”.

$6,333 \div 3 = 2,111$ ton in each “sublot”.

CALCULATING THE SAMPLING POINTS (First Verification Lot)

STEP B – The target ton is determined by first going to PTM No. 1 and selecting a number randomly, for example select number 23. The ‘x’ factor is = 0.06 from Table I.

Increment No. 1 target ton to sample = $2,111 \text{ ton} \times 0.06 = 127^{\text{th}}$ ton placed on project.
The first increment would come from the hauling unit containing the 127^{th} ton.

STEP C – The next sequence number from PTM No. 1 would be 24. The ‘x’ factor is = 0.03 from Table I.

Increment No. 2 target ton to sample = $2,111 \times 0.03 = 63^{\text{rd}}$ ton.

Increment No. 2 sampling point = $2,111 + 63 = 2,174^{\text{th}}$ ton.

Increment No. 2 will come from the hauling unit containing the $2,174^{\text{th}}$ ton.

STEP D – The next sequence number from PTM No. 1 would be 25. The ‘x’ factor is = 0.55 from Table I.

Increment No. 3 target ton to sample = $2,111 \times 0.55 = 1,161^{\text{st}}$ ton.

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Increment No. 3 sampling point = 2,111 + 2,111 + 1,161 = 5,383rd ton.

Increment No. 3 will come from the hauling unit containing the 5,383rd ton and is the final increment in the first of three “verification lots”.

CACULATING THE SAMPLING POINTS (Second Verification Lot)

STEP E – The next sequence number from PTM No. 1 would be 26. The ‘x’ factor is = 0.64 from Table I.

Increment No. 1 target ton from the second “verification lot” = $2,111 \times 0.64 = 1,351^{\text{st}}$ ton

Increment No. 1 sampling point from the second “verification lot” = $6,333 + 1,351 = 7,684^{\text{th}}$ ton.

Increment No. 1 of the second “verification lot” will come from the hauling unit containing the 7,684th ton.

STEP F – The next sequence number from PTM No. 1 would be 27. The ‘x’ factor is = 0.30 from Table I.

Increment No. 2 of the second “verification lot” = $2,111 \times 0.30 = 633^{\text{rd}}$ ton.

Increment No. 2 sampling point from the second “verification lot” = $6,333 + 2,111 + 633 = 9,077^{\text{th}}$ ton.

Increment No. 2 of the second “verification lot” would come from the hauling unit containing the 9,077th ton.

STEP G – The next sequence number from PTM No. 1 would be 28. The ‘x’ factor is = 0.51 from Table I.

Increment No. 3 target ton of the second “verification lot” = $2,111 \times 0.51 = 1,077^{\text{th}}$ ton.

Increment No. 3 sampling point from the second “verification lot” = $6,333 + 2,111 + 2,111 + 1,077 = 11,632^{\text{nd}}$ ton.

The third increment No. 3 of the second “verification lot” would come from the hauling unit containing the 11,632nd ton.

CALCULATING THE SAMPLING POINTS (Third Verification Lot)

STEP H – The next sequence number from PTM No. 1 would be 29. The ‘x’ factor is = 0.29 from Table I.

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Increment No. 1 target ton of the third “verification lot” = $2,111 \times 0.29 = 612^{\text{th}}$ ton.

Increment No. 1 sampling point from the third “verification lot” = $6,333 + 6,333 + 612 = 13,278^{\text{th}}$ ton.

Increment No. 1 of the third “verification lot” would come from the hauling unit containing the $13,278^{\text{th}}$ ton.

STEP I – The next sequence number from PTM No. 1 would be 30. The ‘x’ factor is = 0.63 from Table I.

Increment No. 2 target ton of the third “verification lot” = $2,111 \times 0.63 = 1,330^{\text{th}}$ ton.

Increment No. 2 sampling point from the third “verification lot” = $6,333 + 6,333 + 2,111 + 1,330 = 16,107^{\text{th}}$ ton

Increment No. 2 of the third “verification lot” would come from the hauling unit containing the $16,107^{\text{th}}$ ton.

STEP J – The next sequence number from PTM No. 1 would be 31. The ‘x’ factor is = 0.53 from Table I.

Increment No. 3 target ton of the third “verification lot” = $2,111 \times 0.53 = 1,119^{\text{th}}$ ton.

Increment No. 3 sampling point from the third “verification lot” = $6,333 + 6,333 + 2,111 + 1,119 = 18,007^{\text{th}}$ ton.

Increment No. 3 of the third “verification lot” would come from the hauling unit containing the $18,007^{\text{th}}$ ton.

IV. MULTIPLE SAMPLE PROCEDURE (Each additional increment of 25,000 tons)

The contractor informs the inspector or Project Manager that an estimated total amount of 91,000 tons of 2A subbase is required for this project. The third row of Publication 408, Section 703.5(b)3, Table F, indicates that for a quantity between 10,000 tons to less than 25,000 tons, three samples (consisting of three increments in each sample) are required. Also, since the estimated quantity is more than 25,000 tons, an additional sample (n=3) for each 25,000-ton increment is required as can be seen in the fourth row of Publication 408, Section 703.5(b)3, Table F. The first three samples will be taken out of the first 25,000 tons delivered as illustrated in Section III Example C. With the first 25,000 tons taken care of, the final step is to compute the number of samples needed for each additional 25,000 tons.

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EXAMPLE D – Increments by ton

STEP A - Take the estimated total for the project and subtract 25,000.

$91,000 - 25,000 = 66,000$ tons remaining for each 25,000 ton “verification lot”.
(the first 25,000-ton increment)

STEP B - $66,000 - 25,000 = 41,000$ tons remaining for the next 25,000 tons (25,001 to 50,000).
(the second 25,000-ton increment)

STEP C - $41,000 - 25,000 = 16,000$ tons remaining for the last additional portion of 25,000 tons.
(the third 25,000-ton increment)

STEP D - Since there now remains less than 25,000 tons, the last sample will be taken from that portion. In this example a sample (n=3) will be taken from the last 16,000 tons delivered to the project.

STEP E - Continue the PTM sequence used for the first 25,000 tons. For illustrative purposes continue the PTM No. 1 sequence from Section III, the next PTM number would be 32.

The 25,000 ton of subbase may be considered a “verification lot” and can be broken down into three equal “sublots” of 8,333 tons each. Each 8,333 tons would have an increment taken. The tonnage to sample would be figured as in Section I, with the exception being that the “sublot” size used would be 8,333 tons as opposed to 300 tons. Also, the PTM “x” factor would be 0.99. So, taking this into consideration, the following will be the first of three increments for a sample for the first 25,000 ton increment.

STEP A – Target ton to sample = $8,333 \times 0.99 = 8,250$ ton into the 25,000-ton increment.

Sampling point = $25,000 \text{ ton} + 8,250 = 33,250^{\text{th}}$ ton delivered to the project

STEP B – Target ton to sample = $8,333 \times 0.02$ (the PTM “x” factor for 33) = 167

$167 + 8,333 + 25,000 = 33,500^{\text{th}}$ ton delivered to the project

STEP C – Target ton to sample = $8,333 \times 0.61$ (the PTM “x” factor for 34) = 5,083

Sampling point = $5,083 + 8,333 + 8,333 + 25,000 = 46,749^{\text{th}}$ ton delivered to the project

STEP D – Target ton to sample = $8,333 \times 0.76$ (0.76 = the “x” factor for 35) = 6,333

Sampling point = $25,000 + 25,000 + 6,333 = 56,333^{\text{rd}}$ ton delivered to the project would be the first increment for the second 25,000th ton increment.

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STEP E – Target ton to sample = $8,333 \times 0.87$ (the “x” factor for 36) = 7,250

Sampling point = $7,250 + 8,333 + 25,000 + 25,000 = 65,583^{\text{rd}}$ ton delivered to the project and so on and so forth. For the final sample take 16,000 tons and dividing into three “sublots” = 5,333 tons in each “sublot”. Compute the sampling points as in the above examples.

GENERAL NOTES

All verification testing will be performed by the inspector. All increments of each sample are to be tested. Increments should be tested immediately upon lifting if a lab is convenient and should not wait for other increments to be lifted before tests are performed. As a minimum, tests are to include PTM No. 616 and PTM No. 100. ASTM D 5821 “Standard Test Method for Determining the Percentage of Fractured Particles in Coarse Aggregate” would have to be included in the case of gravel aggregate. All test results are to be provided within 5 days of the material sampling.

Completed Form TR-4126As are requisite documentation for payment justification, along with certifications (Form CS-4171), delivery tickets, calculations, etc.

For all sample/increment locations, use the ‘y’ factor of each PTM No. 1 number to determine the location across the width of the placement of where to lift the sample increment. Multiply the ‘y’ factor by the width of the placement for the distance left or right as indicated by PTM No. 1. Take all samples prior to any grading or compaction according to PTM No. 639 or AASHTO R 90.

Remember to select sample locations randomly. Never start each day at the beginning of PTM No. 1. Start at a different location each day or continue picking consecutive numbers from the table.

A sample may be taken at any time questionable or marginal material is observed. If the material appears to be segregated, overly fine, or overly coarse, or deemed to contain excessive deleterious material, immediately obtain a bag of material when such material is observed. The sample can always be discarded if not ultimately tested, but can be difficult to locate after the fact. The Department is not obligated to accept material that is deficient just because of certification acceptance. If such samples reveal that the material being shipped to the project is deficient, the District Materials Engineer/Manager (DME/DMM) can investigate the source and implement corrective action in accordance with the specifications and Bulletin 14 if necessary.

In the event that project quantities change to the extent that a final increment would not be reached to provide at least three increments for the “verification lot”, adjust the “verification lot” quantity and re-compute the sampling point so three increments are tested and statistically evaluated. Justify through documentation the reason for adjusting sampling points.

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FAILURES

Anytime that a project verification sample (n=3) has a $PWL < 90$, discontinue certification acceptance of the material and begin lot acceptance as specified in Publication 408, Section 703.5(b)3.

For subbase acceptance lots (n=3) where the $PWL < 90$, follow Publication 408, Section 703.5(b)3, and determine the degree of non-conformance (DNC) of the lot. Two examples are shown below to illustrate how to determine the DNC for the lot.

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EXAMPLE E – Degree of Non-conformance for a non-gravel source

Step 1 Requires Gradation (no crush count) and PWL computations according to PTM No. 6. A PWL for crush count will be 100, since this is a non-gravel source.

Sieve Size	Spec Limits	Incr 1	Incr 2	Incr 3	Average	Standard Deviation	PWL
2-inch	100	100	100	100	100	0	100
3/4-inch	52-100	99	100	98	99	1.0	100
3/8-inch	36-70	68	66	69	68	1.5	100
No. 4	24-50	48	47	51	49	2.1	64
No. 16	10-30	31	33	32	32	1.0	0
No. 200	0-10.49	12.52	11.03	10.99	11.51	0.872	0
Crushed Fragments	55-100						100

$464/7 = 66.3$
or **PWL = 66**

Step 2: Since $PWL < 90$, Degree of Non-Conformance calculation will be performed

Sieve Size	Spec Limits	Incr 1	Incr 2	Incr 3	Average	Differences for Non-Conforming Averages (1)	Multiplier factor from tables G & I	Product of difference and multiplier (2)
2-inch	100	100	100	100	100		1	0
3/4-inch	52-100	99	100	98	99		1	0
3/8-inch	36-70	68	66	69	68		1	0
No. 4	24-50	48	47	51	49		1	0
No. 16	10-30	31	33	32	32	2	1.5	3.0
No. 200	0-10.49	12.52	11.03	10.99	11.51	1.02	2.5	2.55
Total = 5.55								

- (1) For each sieve where the lot average falls out of spec, the absolute difference between the lot average and spec limit will be calculated.
- (2) Each difference on a sieve will be multiplied by the factors in Publication 408, Section 703.5(b)3, Table G.

Add the products in right hand column to provide the total Degree of Non-Conformance for the acceptance lot. Use Publication 408, Section 703.5(b)3, Table H, to determine lot disposition. This example would result in a 7% reduction in the unit price paid for the non-conforming acceptance lot.

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EXAMPLE F – Degree of Non-conformance for a gravel source

Step 1 Requires gradation, crushed fragments and PWL computations from PTM No. 6

Sieve Size	Spec Limits	Incr 1	Incr 2	Incr 3	Average	Standard Deviation	PWL
2-inch	100	100	100	100	100	0	100
3/4-inch	52-100	99	100	98	99	1.0	100
3/8-inch	36-70	55	46	52	51	4.6	100
No. 4	24-50	38	37	41	39	2.1	100
No. 16	10-30	20	21	22	21	1.0	100
No. 200	0-10.49	6.45	6.69	5.89	6.34	0.411	100
Crushed Fragments	55-100	42	49	56	49	7.0	23

$623/7 = 89.0$
or **PWL = 89**

Step 2: Since $PWL < 90$, Degree of Non-Conformance calculation will be performed

Sieve Size	Spec Limits	Incr 1	Incr 2	Incr 3	Average	Differences for Non-Conforming Averages (1)	Multiplier factor from tables G & I	Product of difference and multiplier (2)
2-inch	100	100	100	100	100		1	0
3/4-inch	52-100	99	100	98	99		1	0
3/8-inch	36-70	55	46	52	51		1	0
No. 4	24-50	38	37	41	39		1	0
No. 16	10-30	20	21	22	21		1.5	0
No. 200	0-10.49	6.45	6.69	5.89	6.34		2.5	0
Crushed Fragments	55-100	42	49	56	49	6	1.0	6.0
Total = 6.0								

- (1) For each parameter (sieve or crushed fragments) where the lot average falls out of spec, the absolute difference between the lot average and spec limit will be calculated.
- (2) Each difference on a parameter will be multiplied by the factors in Publication 408, Section 703.5(b)3, Table G.

Add the products in right hand column to provide the total Degree of Non-Conformance for the subbase acceptance lot. Use Publication 408, Section 703.5(b)3, Table H, to determine lot disposition. This example would result in a 7% reduction in the unit price paid for the non-conforming acceptance lot.

REPLACES B.7.14	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 7	PAGE 14-1
DATED 03/01/2011	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT MINIMUM QUALITY CONTROL PLAN FOR AGGREGATE SUPPLIERS				

The producer must submit a quality control plan to the District Materials Engineer/Manager (DME/DMM) annually. The purpose of this requirement is to ensure that the producer will consistently produce a uniform and high quality product within Department specifications.

The following Quality Control Plan is a minimum plan designed to these standards.

A. Sampling and Testing Frequencies

The minimum testing frequency for all aggregate types will be at least one sample daily for the first 500 tons and one sample for each additional 1,000 tons. Tests are to include, if applicable:

1. Gradations PTM No. 616
2. Wash Test PTM No. 100
3. Crush Count ASTM D 5821
4. Unit Weight AASHTO T 19 (To be tested twice a year or as required)

Tests other than gradations may be reduced to once weekly after uniformity has been established. For high volume aggregate production such as subbase material, sampling frequency may be increased to 1,000 tons daily and one for each additional 2,000 tons. All changes to sampling/testing frequencies must be approved by the DME/DMM.

B. Department Stockpiles

Establish and positively identify aggregate stockpiles intended for Department use. At a minimum, the respective grading (AASHTO or PennDOT) and specific use (if appropriate) will be provided.

C. Material Failures

Increase production testing frequencies to at least double the minimum required in Section A above until uniformity is established over five consecutive production days. Document all actions taken when failures are noted.

D. Certification

Certify each day's shipments for each aggregate size to each project shipped, as specified in Publication 408, Section 106.03(b)3.

E. Calibration of Mechanical Sieve Shaker

Calibrate mechanical sieve shaker according to PTM No. 608 at the start of the season and when directed.

REPLACES B.7.15	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART B	SECTION 7	PAGE 15-1
DATED 04/02/2018		DATE April 1, 2020		
SUBJECT AGGREGATE PLANT RECORDS AND DOCUMENTATION				

The Material Plant Book must have the producer's name and plant location on the outside cover. It should be maintained as one book containing one set of test records as documentation for all projects supplied. Form [CS-4211](#), Table of Contents, lists all forms required for the plant book.

The producer is responsible for source documentation and production control in accordance with the approved quality control plan. All testing procedures are found in Publication 19, Field and Laboratory Testing Manual or appropriate AASHTO or ASTM test methods.

Plant Inspector's Documentation

The plant inspector should keep, on a daily basis, Form [CS-4346](#), Items Quantity Book, as a Plant Master Diary, in black ink, and shall include the following information:

1. Date, Weather, Temperature Range
2. Inspector's Name, Title, Hours Worked
3. Visitors
4. Material Tests Performed
5. Material Deviations
6. Unusual Occurrences, Comments Concerning Plant Operation, Conditions and Record Keeping
7. Inspector's Signature

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Producer's Documentation

The producer is responsible for completing the following forms which constitute the Material Plant Book:

Form CS-4211	Table of Contents
Form CS-4211A	Material Test Result Records
	Separate copies must be used for each aggregate size.
Form CS-4211B	Project Summary Record
	Separate sheet for each aggregate type.
Form CS-4211D	Plant Summary *
Form CS-4211E	LTS Sample Submission Record
Form CS-4211I	Aggregate No. 57
Form CS-4211J	Aggregate No. 8
Form CS-4211K	Fine Aggregate
Form CS-4211L	Aggregate No. OGS
Form CS-4211M	Aggregate No. 67
Form CS-4211N	Aggregate No. 2A
Form CS-4221C	Daily Orders and Releases Record
Form CS-4221E	Equipment Calibration Record (Including PTM 608)
Form CS-4221G	Anti-Skid Summary & Moisture Record

* - The Form [CS-4211D](#) Plant Summary data is also to be entered in the eCAMMS Electronic State Book (ESB) under the menu option for Plant Summary Shipment Entry.

The Producer is responsible for entering Plant Summary data into the eCAMMS ESB under the menu option for Plant Summary Shipment Entry. In the eCAMMS ESB, the Producer is to enter daily shipment data under the proper contract type and enter the data within 48 hours of shipping aggregate material.

The Producer's Plant Technician is also responsible for establishing straight line diagrams or statistical quality control charts for each aggregate size which is to include action points for critical test values.

Plot all District/Central Office Quality Assurance samples results along with all the companion sample results conducted by the Plant Technician. Comments will be made and documented on all LTS test results compared to companion sample results as to uniformity between laboratories.

Form [TR-430A](#) - Aggregate Source Evaluation Report, Technicians Evaluation/NECEPT Certification and a current approved Quality Control Plan shall be on file at the Plant.

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Production Acceptance

The original producer delivery ticket (or a copy of the recordation ticket) must accompany aggregates released from a quarry or accepted on a project. The ticket must contain the following information:

1. Contract Number, State Route and Section or Purchase Order
2. County and District
3. Type Aggregate
4. Date
5. Truck Number
6. Mass (Weight), Gross, Tare, Net
7. Signature of Licensed Public Weighmaster

REPLACES B.7.16	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 7	PAGE 16-1
DATED 04/01/2019	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT MINIMUM DISTRICT QUALITY ASSURANCE PLAN - AGGREGATE SOURCES				

1. The District Materials Engineer/Manager (DME/DMM) or a member of DME/DMM staff will visit each source shipping for Department use at least once a year. Also, the District will conduct one visit per month to each source shipping a minimum of **10,000 tons** per size of aggregate for Department use.
2. A visit will include District verification sampling and testing and a detailed review of the quarry's quality control activities utilizing a District Quality Assurance (DQA) check-off list. All findings and corrective actions will be documented in the Plant Master Diary and a copy of the check-off list will be filed with plant records.

For sources shipping less than 10,000 tons each month, perform a minimum of one visit for each 30 days of shipping for Department use. These visits will include a detailed review of the quarry's quality control activities utilizing a DQA check-off list. All findings and corrective actions will be documented in the Plant Master Diary and a copy of the check-off list will be filed with plant records.

Assure that the District Verification sample test results are entered on the straight-line analysis charts for comparison purposes to the most recent production test results.

3. District Verification Sampling and Testing.

The District Representative will:

- a. Direct the supplier to obtain a sample (n=3) from the stockpiles designated for Department use. Assure that each sample from the stockpile is obtained according to AASHTO R 90 or from mini stockpiles. When the mini-stockpile method is chosen, the following procedure will be used:
 - The District Representative will assure that the loader operator places approximately 10 tons of aggregate into a mini-stockpile on a suitable surface, and uses the loader bucket to strike off the top of the mini-stockpile.
 - The District Representative will assure that the supplier obtains sufficient material from random locations on the mini-stockpile using a square faced shovel to do the necessary sampling.

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- b. Assure that all required tests are performed on equipment provided for Department use as specified in Publication 408, Sections 703.1(b) and 703.2(b), Publication 408. Evaluate material not meeting specifications as specified in Publication 408, Section 106.03(a)3 to determine the percent within limits (PWL) for each sieve that does not meet the specifications, including the 75 μm (No. 200) sieve. Average the results of all sieve analysis tests and, when applicable, the crush count and wash test to determine the PWL. If results show less than 90% PWL, direct the supplier to immediately cease all shipments from that stockpile. Direct the supplier to build a new stockpile for that type of material for Department use.

Notify the supplier immediately to increase the quality control testing and to construct a minimum stockpile of 300 to 500 tons or the quantity remaining on the order. Do not permit shipments by certification from this stockpile until a Department representative evaluates all test data and verifies the test results.

4. Records Review:

The District Representative will:

- a. Assure that all quality control test results comply with approved QC Plan frequencies.
- b. Review straight-line charts and document any noted trends and whether appropriate action was taken.
- c. Compare the results of all previous Central Office Quality Assurance samples from LTS to the results of the companion samples performed by the technician for uniformity and document all comments.
- d. Assure that the technician's plant documentation system and plant delivery tickets comply with POM Section B.7.15.

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**DISTRICT QUALITY ASSURANCE
AGGREGATE SOURCE INSPECTION CHECK-OFF LIST**

PRODUCER _____ LOCATION _____
 BULLETIN 14 CODE _____ REPORT # _____

DATE OF REVIEW _____ DATE OF LAST REVIEW _____

- | Y | N | N/A | |
|-----|-----|-----|--|
| () | () | () | 1. Is the current Form TR-430A on file at the source? |
| () | () | () | 2. Do Inspectors/Laboratory facilities meet Publication 408 requirements? |
| () | () | () | 3. Do Laboratory scales and balances have annual calibration stickers attached?
Calibration Date: _____ |
| () | () | () | 4. Is all required lab equipment on hand and working properly? |
| () | () | () | 5. Does the plant technician have required PTMs, ASTM, or AASHTO Standards available for review and use? |
| () | () | () | 6. Is the Technician certified?
Technician's Name: _____
NECEPT # _____ Exp. Date: _____ |
| () | () | () | 7. Is the plant technician performing the tests properly? |
| () | () | () | 8. Is the technician able to perform their technical duties without outside interference? |
| () | () | () | 9. Is a current copy of the approved Quality Control Plan on file? |
| () | () | () | 10. Is Quality Control Plan being followed? |
| () | () | () | 11. Are quarrying, dredging, or processing plant operations satisfactory? |

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- | Y | N | N/A | |
|-----|-----|-----|---|
| () | () | () | 12. Are stockpiles intended for Department use identified? |
| () | () | () | 13. Are source verification samples lifted according to AASHTO R 90 __ , or Mini-stockpiles __ ? (Check one) |
| () | () | () | 14. If used, was mini-stockpile constructed and sampled properly? |
| () | () | () | 15. Are aggregate samples reduced to testing size, according to AASHTO R 76? |
| () | () | () | 16. Is Unit Weight, according to AASHTO T 19, tested twice a year or as required? |
| () | () | () | 17. Is the Plant Master Diary being kept current? |
| () | () | () | 18. Are Quality Assurance and District Verification sample results plotted on the straight-line charts? |
| () | () | () | 19. Are production samples and field verification samples documented on Form CS-4211 and plotted on the straight-line charts? |
| () | () | () | 20. Are production samples selected prior to stockpiling? |
| () | () | () | 21. Do straight-line charts have action points established on critical screens? |
| () | () | () | 22. Are Form CS-4171 certifications filled out properly? |
| () | () | () | 23. Does weighmaster have a valid license?
Exp. Date: _____ |
| () | () | () | 24. Is licensed public weighmaster signing all delivery tickets or following the electronic signature security procedures in POM B.7.2? |
| () | () | () | 25. Do truck scales have a valid annual certification? |

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- | Y | N | N/A | |
|-----|-----|-----|--|
| () | () | () | 26. Were truck scales checked for zero balance, cleanliness, and freedom of action and documented in the Plant Master Diary? |
| () | () | () | 27. Are trucks tared by weighmaster once each day, or more when weather conditions warrant? |
| () | () | () | 28. Is the mechanical sieve shaker(s) calibrated according to PTM No. 608? |
| () | () | () | 29. Do any unsafe conditions exist that warrant corrective action? |

DEVIATIONS
FOUND: _____

CORRECTIVE ACTION TAKEN: _____

FOLLOW-UP REVIEW REQUIRED: _____ (YES) _____ (NO)

ADDITIONAL COMMENTS: _____

INSPECTION CONDUCTED BY: _____ DATE: _____

*TECHNICIAN'S SIGNATURE: _____ DATE: _____

REVIEWED BY: _____ DATE: _____

* Technician's signature is required. Leave a copy of this review at the plant.

REPLACES B.7.17	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 7	PAGE 17-1
DATED 04/02/2018	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT LISTING OF AGGREGATES IN BULLETIN 14				

The following policy is applicable for listing of aggregate sources in Bulletin 14:

- A. After testing of a qualification sample is completed, a copy of the test report is sent to the District Materials Engineer/District Materials Manager (DME/ DMM). This report includes a statement as to whether or not the material has met the appropriate specifications. When relevant, revised detailed statistics on test results will also be sent.
- B. After reviewing the results, as well as any pertinent field data, the DME/DMM is to send a letter to the Laboratory Testing Section (LTS) recommending acceptance or non-acceptance of the material. Upon receipt, the LTS will issue a letter to the producer informing them as to whether or not their material will be listed in Bulletin 14.

Listing and Sampling of Gradations other than No. 9, No. 8, No. 57, and No. 2A Coarse Aggregate and Type A, B, and C Fine Aggregate in Bulletin 14

The following sampling and Bulletin 14 listing criteria will be used for coarse and fine aggregate materials, as noted below:

1. If a source is approved for type A coarse aggregate use, no sample of No. 1, No. 3, No. 5, No. 67, or No. 7 size material needs to be submitted to the LTS for evaluation and approval. If a source is approved for No. 8 coarse aggregate, no samples of No. 89 size material needs to be submitted. If a source is approved for No. 9 coarse aggregate, no samples of No. 10 size material needs to be submitted. If a source is approved for No. 2A coarse aggregate, no samples of No. OGS material need to be submitted for evaluation and approval. The DME/DMM needs to only check the gradation of the material in question, and if the DME/DMM is then satisfied, the material type will be approved for use upon submission of a revised Form [TR-430A](#) to the LTS.
2. If a fine aggregate source is approved for Type A use, no samples of Type C fine aggregate need to be submitted to the LTS. The District needs only check the gradation; and if they are satisfied, the mortar sand will be automatically approved for use. If the District so desires, Type C fine aggregate will be listed in Bulletin 14 upon receipt of a revised Form TR-430A to the LTS.
3. For 2RC material, if a source is an approved Type A, B, or C coarse aggregate source, no samples need to be sent into the LTS. The DME/DMM needs to only check the gradation of the material in question, and if the DME/DMM is then satisfied, the material type will be approved for use upon submission of a revised Form TR-430A to the LTS. If the 2RC material is not from an approved aggregate source already listed in Bulletin 14, it must

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be submitted to the LTS for initial qualification and then every other year for requalification.

4. For Rock Lining material, if a source is an approved Type A coarse aggregate source, no samples need to be sent into the LTS. The DME/DMM needs to only check the gradation of the material in question, and if the DME/DMM is then satisfied, the material type will be approved for use upon submission of a revised Form [TR-430A](#) to the LTS. If the Rock Lining material is not from an approved aggregate source already listed in Bulletin 14, it must be submitted to the LTS for initial qualification and then every other year for requalification. When submitting Rock Lining Samples, R-3 rock may be submitted for testing. If the sample passes, the source will be approved for all sizes of Rock Lining.

If you have any questions, please contact the Bureau of Project Delivery, Laboratory Testing Section at (717) 787-2489.

REPLACES B.7.18	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 7	PAGE 18-1
DATED 04/01/2017	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT FORM CS-430 "NOTIFICATION OF INSPECTION"				

Form [CS-430](#) "Notification of Inspection" was issued to the Engineering Districts to provide prefabrication notice to the Bridge Design and Technology Division (BDTD), Structural Materials Section(SMS) 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 Form CS-430s received by the 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. The latest release of ECMS has allowed the submission of Source of Supply (Form CS-200) online. With this release, Notification of Inspection (Form CS-430) forms may be submitted when selecting the material supplier. Submitting Form CS-430 through ECMS's Source of Supply work flow is the SMS's preferred mode of receiving notification. Alternate methods of submitting the form include submission through PPCC, where a resource account (ra-pdstructmatls@pa.gov) was created and a PPCC role was added to facilitate the workflow. However, the SMS will still receive the form via e-mail at the noted address. 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. Please complete the form in its entirety including but not limited to ECMS number, Project Let date, Fabricator name AND location (and/or Bulletin 15 code), Structure number, BR Keys, and full/complete WBS element code.

Instructions on how to submit the form are located at the bottom of Form CS-430. As noted above, ECMS Source of Supply is the preferred method for submission. Please refer to the [ECMS Quick Guide, Page 20](#) for instructions on completing Form CS-430 through ECMS.

Acceptable Methods of Submitting NOI (send to only one):

ECMS Source of Supply: ([ECMS Quick Guide, Pg. 40](#)) [Preferred]

PennDOT Project Collaboration Center (PPCC): ppcc.penndot.gov

E-Mail: ra-pdstructmatls@pa.gov

WBS elements can be found in two main areas in ECMS. The WBS element can be found by selecting the "Contract" link in the Award column or by selecting the "Construction Items" link in the "Construct" column. If using the "Construction Items" link, the WBS can be found by navigating to and selecting the specific item number for the product. After selecting the item

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number, the new screen will contain “Funding Information”. In that location, the WBS element will be available.

To properly enter the WBS element on the form, exclude the first letter and the last number of the full WBS element. Begin to fill in the boxes, left to right, with the appropriate number of characters or letters, and be sure to include all leading zeros. Characters include both digits and alpha characters.

- SYS – 1 character
- SR/WO – 5 characters
- SPUR – 1 character
- PHA – 1 character
- SECT – 3 characters
- ORGN – 4 characters
- ALLOT – 3 characters
- CST. FCT – Always 9415
- S# - Structure number (found in lower right corner of structure drawings)
- BRKey - Found under the Structures tab in ECMS

Ex.

P-100012T7345-0700-373-1

WBS Element

June 21, 2018

Bid Opening


~~**P-100012T7345-0700-373-1**~~

WBS Element

June 21, 2018

Bid Opening

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CS-430 (2-19)		Email Completed Form								
		NOTIFICATION OF INSPECTION						(REPRODUCE LOCALLY) Fillable Fields/Print		
SYS	SR OR WO	SPUR	PHA	SECT	ORGN	ALLOT	CST. FCT	S#	BRKey	COUNTY
1	00012	T	7	345	0700	373	9415	S#	BRKey #	County Name
* CMS/ECMS No.: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> (if yes) #					ECMS #		Project Value: \$			

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 SMS. Best practices include:

- discussion with the Contractor at the preconstruction 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.
- Required submission of the Form CS-430 through ECMS Source of Supply for all projects.

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

REPLACES B.7.19	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 7	PAGE 19-1
DATED 04/1/2015	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT INSPECTION OF NEOPRENE COMPRESSION SEAL AND STRIP SEAL PRODUCTION LOTS FOR APPROVAL				

Bridge and pavement neoprene compression seal and strip seal lots must be approved prior to delivery to PennDOT projects. A seal lot is a continuous production not exceeding 10,000 linear feet for pavement seals, and not exceeding 3,000 linear feet for bridge seals. Inspection of neoprene compression seal and strip seal delivered to a project includes review of the Final Testing Report issued by the Laboratory Testing Section (LTS) to the manufacturer. The Lab Findings section of the test report accompanying the delivery must state the lot is “Approved for use on PennDOT jobs”.

To secure approval, the manufacturer must provide a Plant Verification (PV) sample for each lot to LTS for testing. Approval of the lot is contingent upon the sample meeting the requirements for the applicable methods of test. The Final Test Report shows the scope of testing and, should the sample meet all requirements, the approval of the lot for use on PennDOT jobs. The Final Test Report for the lot sample is released to the manufacturer via eCAMMS. The manufacturer must provide a copy of the Final Test Report for the applicable lot with the shipment to a PennDOT project or to their customer who ordered the material.

Your staff may rely on the LTS Final Test Report approval to accept seal shipments, subject to rejection for other questions arising upon inspection as specified in Publication 408, Section 106.02(b).

REPLACES B.7.20	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART B	SECTION 7	PAGE 20-1
DATED 04/01/2017		DATE April 1, 2020		
SUBJECT GUIDELINES: DISTRICT TRUCK WEIGHT MONITORING				

On pages B.7.20-2 to B.7.20-8 is the Department's Truck Weight Monitoring Policy titled, "Guidelines: District Truck Weight Monitoring".

As a guide, a producer's quality control plan should be acceptable if it includes identification of the licensed weight master, the independent calibration service used along with the frequency of calibration, and the method and frequency of internal checks of scale accuracy. Additionally, the gross weight and loading procedures used to assure compliance with gross weight and axle weight requirements for all vehicles should be submitted.

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GUIDELINES: DISTRICT TRUCK WEIGHT MONITORING

I. OBJECTIVE

The District Truck Weight Monitoring Program is to provide the Department information relating to the accuracy of the truck scales used by vendors and the weights of trucks and their contents that are delivering construction and maintenance materials for which the Department is being billed on a weight basis and for checking compliance with axle and gross weight limits established in Chapter 49 of the Pennsylvania Consolidated Statutes Title 75, Vehicles (Vehicle Code), or as posted by the Department, for the enforcement of Publication 408, Section 107.23(b).

II. PURPOSE

The information is required for the following reasons:

- A. To provide the Department indication of the reliability of the measurement of the weights for which it is being billed.
- B. To enable the Department to initiate appropriate action for its best interests when the need for corrective action is indicated.
- C. To enable the Department to continue to use the program as an alternative procedure approved by the Division Administrator for the Federal Highway Administration in lieu of the validation of haul tickets for materials paid by weight at both the point of loading and the point of delivery (NS 23 CRF 635A).
- D. To enable the assessment of liquidated damages as specified in Publication 408, Section 107.23(b), Weight Limits and Weighing.

III. BACKGROUND

As the Department increased its requirements for contractors to establish improved and acceptable quality control plans and procedures, the Districts were encouraged to reduce their resident inspection at the sources of supply and to implement a District Quality Assurance (DQA) operation.

Consequently, beginning in 1983, the use of the resident Department weight checker activity began to diminish, and the Department increasingly relied upon vendor-supplied certified weight persons, automated/recorded scale weights and random checking by DQA Teams and District Mobile Weight Teams. The Department was paying in excess of 90 million dollars annually for construction and maintenance materials purchased on the basis of weight measurements supplied

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by vendors. The principal purchases measured by this method included asphalt mixes, aggregates, sodium chloride and anti-skid.

The District's mobile weigh teams functioned primarily for the spot-weighing to include weekly random checks of trucks traveling from procedures of asphalt materials to contract construction projects.

Based upon the experience that has been gained, these guidelines are being issued to provide direction to the Districts for implementing cost effective truck weight monitoring.

IV. GENERAL REQUIREMENTS

A. Each producer/source of materials supplying items invoiced to the Department by weight, is required to provide and effectively implement a Quality Control (QC) Plan for truck weight control. It will be submitted to the District for review at least annually. The QC Plan should include but not be limited to the following:

1. A procedure and frequency is to be established for checking truck axle weights.
2. A procedure and frequency is to be established for checking loading methods.

Supplies out of tolerance (See V.D.) or not following their QC Plan will be suspended from supplying material until such time as they take the necessary action to return to compliance. Repeated failure to comply with the QC Plan may result in removal from the approved list of material suppliers in the applicable bulletins.

B. Districts are to establish a Quality Assurance Program that will:

1. Review the producer's QC Plan.
2. Monitor and assure producer's truck weighing is in compliance.
3. Monitor producer's loading procedures and assure axle weights are in compliance.
4. Weigh trucks for compliance as needed.
5. Coordination with Motor Carrier Division enforcement will be established to supplement the District program when appropriate.

C. Each District shall provide and operate a Team led by a properly trained Department employee (permanent employment status) to weigh trucks delivering materials, including aggregates, asphalt mixtures, sodium chloride and anti-skid to maintenance and construction sites. The Team shall record its findings on Form CS-6105, "District-Weigh Team Record".

Each District shall implement action based upon the findings of the Team to notify the contractors and the vendors, who provide the invoiced weights, of the deviations and required responses, to notify the construction of maintenance supervisors for the

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assessment of liquidated damages in accordance with the Specifications and to recommend action, when appropriate and with justification, to the Bureau, to affect the prequalified or the approved status of the violating contractors and vendors.

Each District shall submit an Annual Report (calendar year) by March 15, to the Bureau of Project Delivery, using the format shown on the attached form titled, "Annual District Truck Weight Monitoring Report" or using the automated year-end report. Automated year-to-date reports can be selected (P1) from the menu screen of the Weigh Team System. The Weight Team System is an on-line user application for storing data generated by the District Weigh Team, for accessing data files in CMS 2, FMIS and MORIS and for producing reports.

Comments regarding the information required in the Annual Report are as follows:

1. Tonnage Billed Column - Enter the total tonnage of material for which the District has made and is in the process of making payment either through the estimate (construction contracts) or the invoice (purchase orders) procedure.
2. Tonnage Weighed Column - Enter total net weight tonnage from the Weigh Team Records.
3. Number Trucks Weighed (net Weight) Column - Enter total number of trucks that were weighed to check Invoice Weights.
4. % Trucks Short Weight Column - This column is to show the percent of trucks weighed that were apparently delivering less (more than 3% less) Material Weight than that for which the Department was being billed.
5. Total No. Trucks Weighed Column - Enter the total number of trucks weighed - includes the number in the column described in Comment No. 3, above, as well as the number checked only for overweight.
6. % Trucks Liquidated Damages Column - This column is to show the percent of all the trucks that were weighed for which liquidated damages were assessable.
7. Federal-Aid Projects - The information to be provided under this heading is only for Federal-aid projects and is required so that the District Truck Weight Monitoring Program may be considered to be an acceptable alternate weighing program per the requirements of FHPM 6-4-1-6./NS23CFR635A
8. Number Trucks Weighed - Column under the "Federal-Aid Projects" category is to show only the number of trucks that were weighed for net weight checks on Federal-aid projects.

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9. Costs of Weighing - Information to be provided under this heading will help management to evaluate the program.

In order to track all costs of the District Truck Weight Monitoring Program, a cost function, 9845 - District Truck Weight Monitoring Program, has been established specifically for this activity. Cost Function 9845 is available in the following appropriations and programs.

<u>APPROPRIATION</u>	<u>PROGRAM</u>
185	371, 372, 373, 374, 375, 376, 377, 378
187	381, 383, 611, 612, 711, 712, 714, 822
289	361, 362, 391, 3921, 392

All costs relating to this program should be charged to the appropriate work order (already established) and coded to the Cost Function referenced above. For instance, if the material being weighed is salt for winter services, the weighing activity should be charged to the FMIS blanket work order in Appropriation 187, Program 712; if the material being weighed is being used on a highway construction project, then the weighing activity should be charged to the appropriate Appropriation 185 FMIS construction work order established in the Program 370 series.

10. The "Comments" section at the bottom of the report is intended for clarification of the preceding entries, if the data is influenced by unusual circumstances, to help the reader avoid misinterpretation or misunderstanding. A brief statement of evaluation should be included relating to the purposes described in Section II of the Guidelines as well as a statement comparing the operation anticipated for the new year versus the past year. Comments should be included relating to the resolution of the shortweights.

Because of the apparent limited space, the comments may be continued on the reverse side of the form or on a second page.

- D. The Bureau will provide an annual summary report to the Deputy Secretary for Highway Administration.
- E. Each District Executive will determine the work unit the responsible for this program, but it is recommended that the items detailed in Part B1, 2 and 3 of these guidelines be performed by the District Materials Engineer/Manager and their staff and that Part B4 of these guidelines may be considered a separate audit function, if desired.

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V. PROCEDURES

- A. Weighing Equipment - Each Team is to be equipped with a set of at least 12 scales - Haenni WL 100, or approved equal. The Bureau of Office Services utilizes the approved specifications for purposes of procurement.

Scales are to be tested for accuracy at the Truck Weight Enforcement Scale Maintenance and Certification Facility at Harrisburg [Phone (717) 787-8776]. A Scale Weight Test Report will be issued showing that the scale has been tested and the finding.

The frequency of scale testing should be set so that weighings on the Haenni scales occur within ninety (90) days of the testing, for the existing GEC MD-500 scales (until replaced by Haenni scales or approved equals) weighings are to be performed within (30) days of testing.

- B. Team Leadership - The Leader of the Team is to be of permanent employment status, with a supervisor classification and properly trained.

The leader is to receive training consistent with the attached outline of a training program approved by the Motor Carrier Division. Training is to be provided by the Division or by others who have been trained by the Division. The trainer is to notify the District Engineer of the trainees who have successfully completed the training. Successful completion of the training is to be acknowledged by the District by entering the name of the trainee under the ATRA screen acronym, TRKWGTMON.

Each Leader is to be provided resource information consisting of a copy of the current Subchapter C of Chapter 49 of the Vehicle Code, a copy of the Guidelines and a copy of the Trucker's Handbook (Publication 194).

- C. Frequency and Nature of Checking - The intent of the checking is to discover if there is indication of fraudulent practice or of unacceptable weighing practice, to respond to requests for weighing arising from suspicion of registered gross and/or axle overloads and to enable the assessment of liquidated damages as specified in Publication 408, Section 107.23(b), Weight Limits and Weighing.

The District Engineer shall assure that procedures are established and followed by Construction and Maintenance personnel to provide the Team Leader timely notification of material deliveries.

The frequency of checking should be related to the nature of discovery, to the nature of contractor/vendor response, to the quantity of tonnage being received and to the frequency of requests for overload checking.

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Checking for overload is to include those trucks delivering all types of construction materials to Department projects, whether or not the Department is invoiced on a tonnage basis, whenever there is reason for suspicion of violation of gross or axle weight limits as described in Publication 408, Section 107.23(b).

D. Overloads, Shortweights and Responses

1. Overloads - If the vehicle is discovered to exceed the registered gross, and/or axle weight limits after deducting the 3% tolerance from the determined weight, the following action is to be taken:

- a. Liquidated damages are to be determined only for the weight violation that is the largest and for the amount of the determined weight (minus the tolerance) that exceeds the allowable weight (see the attached examples). Allowable weights are to be obtained from Chapter 49 of the Vehicle Code.

If weighing is performed at the source, the operator can be permitted to readjust the load to bring axle weights into compliance before traveling on the roadway. NO ADJUSTMENT will be permitted when weighing is at the delivery point.

- b. The rate of assessment of liquidated damages is to be as specified in Publication 408, Section 107.23(b), that is, the sum of \$50.00 for each 500 lbs. or part thereof.
- c. A remark is to be noted on the Weigh Team's report that the weight (gross or axle - after subtracting a tolerance of 3%) exceeds the weight limit established in Chapter 49 of the vehicle code.

NOTE: The tolerance is not to be added to the weight limit, the tolerance is to be subtracted from the Team's scale reading.

- d. Copies of the report are to be distributed promptly as in Section E. Documentation.

2. Shortweights and Responses - If the invoice weight exceeds by more than 3% of the net weight that is determined by the mobile weigh team, the deviation shall be described as excessive.

The vendor shall be notified in writing confirming:

- a. The determination of the excessive deviation.
- b. The need to take prompt corrective action.

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- c. The need to respond in writing to the District Project Engineer within 30 days of the notification to describe the corrective actions and safeguards that were implemented and the time at which they were implemented.
- d. The need to provide a corrected billing, or to furnish material at no charge (as directed by the Department, to compensate the Department for the weight in excess of 3% that was invoiced but not received.

Notes:

- 1. If repeated excessive deviations are discovered, the Contractor and the vendor should be notified that failure to adequately respond may be considered cause to reject subsequent deliveries and to recommend suspension or removal of the prequalification of the approved status of the Contractor and/or vendor.
- 2. Overload or Net Weight violations committed by those delivering to contract construction projects should be noted under the "Remarks" section of the Past Performance Report filed for that project.

E. Documentation

- 1. Form [CS-6105](#), District Weight Team Record, shall be issued for each weighing with copies distributed to the contractor, truck driver, District Materials Engineer/Manager, Project Engineer or Maintenance Manager and inspector or vendor, if the vendor doing the weighing is not the contractor.
- 2. The "Remarks" block of the form should describe follow-up action that is required of the contractor/vendor in accordance with subparagraph D.

REPLACES B.7.21	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART B	SECTION 7	PAGE 21-1
DATED 04/01/2017		DATE April 1, 2020		
SUBJECT EXTRA CEMENT CONCRETE				

Publication 408, Section 1001.3(k)3.a, provides for the use of 25% more cement than the quantity specified for the concrete class being used on an exception basis if approved by the District Materials Manager/District Materials Engineer (DMM/DME). This is specifically for concrete placements made in or under water.

The extra cement is actually considered cementitious material including fly ash, slag cement, and silica fume. These replacements can be made in the same proportions as established in the master mix design being used.

When extra cement (cementitious material) is added to the load, some additional water may be added to the mix, not to exceed the maximum water/cement ratio for the class of concrete specified. Maximum allowable extra water is calculated as follows:

$$E = 0.5 \times A \times \frac{W}{(C + P)}$$

Where:

- E = extra weight of water
- W = total weight of water in design
- C = total weight of cement in design
- P = total weight of supplemental cementitious material (fly ash, slag cement, or silica fume) in design
- A = extra cementitious weight

The intent is to put up to one-half of the water normally used for this additional weight of cementitious material in this mix in order to provide a stiffer paste which will be more resistant to scour and compensate for eventual loss or dilution of paste by water. By specification, the maximum allowable slump for use in the field under this condition is 2 ½ inches.

An Air Entrainment Agent (AEA) is normally dosed based on 100 lbs. of cement, but can be varied due to conditions such as ambient temperature and haul time. Therefore, additional AEAs will most likely have to be added to compensate for the extra cement in order to have plastic air content within specification for field placement. Acceptance criteria for plastic air content are not waived for extra cement concrete regardless of its structural use or location.

This procedure will increase the volume of concrete and should be considered by the inspector if computing yield and by the contractor when calculating and ordering concrete in a placement. A separate mix design is not necessary unless required by the DMM/DME.

REPLACES B.7.22	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 7	PAGE 22-1
DATED 01/01/2009	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT MINIMUM QUALITY CONTROL REQUIREMENTS FOR INCOMING RAP STOCKPILES AND PROCESSED RAP STOCKPILES AT ASPHALT MIXTURE PLANTS				

These Reclaimed Asphalt Pavement (RAP) stockpile requirements are a supplement to the Project Office Manual (POM), Part B, Section 7, Page 5-1, Minimum Quality Control (QC) Plan for Asphalt Mixtures when an asphalt mixture producer proposes to produce asphalt mixture containing greater than 15% RAP and less than or equal to 35% RAP. These minimum stockpile requirements are intended for both incoming RAP material (raw RAP) and processed RAP material where the processed RAP material is processed and stockpiled prior to being incorporated into the plant production process. These minimum quality control guidelines do not address incoming RAP material that is processed in-line as part of the plant production process and directly incorporated into the plant production process.

Each asphalt mixture producer intending to produce asphalt mixture containing greater than 15% RAP and less than or equal to 35% RAP, must include these supplemental minimum requirements in their QC Plan under POM Section B.13., RAP Material or Section C.1., Aggregate/RAP/RAM Stockpiles of the POM, Part B, Section 7, Page 5-1.

The following QC Plan is the minimum plan designed to meet these standards:

A. Stockpile Preparation of Incoming RAP Material (Raw RAP)

1. Prepare stockpile area by constructing a level pad. Construct the pad according to the aggregate storage requirements as specified in Publication 408, Section 106.05(b) for use in stockpiling incoming RAP Material (Raw RAP).
2. Producer is responsible to monitor the unprocessed RAP stockpile to prevent the incorporation of contaminated or deleterious material into the stockpile. This type of material must be immediately removed from the stockpile.
3. Do not incorporate plant waste material consisting of uncoated or partially coated aggregate material discarded from the asphalt mixture plant during mixture transition or plant start-up.
4. When RAP material is to be used in wearing courses, the Producer is responsible for monitoring, documenting (SRL and quantity), and segregating (separate stockpiles) the incoming RAP material for SRL from both PennDOT projects and other projects (commercial, municipal, etc.).
5. For a specific designated unprocessed RAP stockpile to be utilized in a wearing course, PennDOT will provide the producer with the SRL of the wearing course(s) to be milled from PennDOT projects (This information is typically provided in the pavement history part of the contract documents). The producer

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will be responsible for maintaining the integrity of the SRL for that designated stockpile.

B. Processing and Sampling of RAP Stockpile (Processed RAP)

1. Prepare a stockpile area by constructing a level pad. Construct the pad according to the aggregate storage requirements as specified in Publication 408, Section 106.05(b), for use in stockpiling processed RAP material.
2. The maximum size of aggregate in the processed RAP shall be no greater than the maximum aggregate in the Job Mix Formula (JMF).
3. During processing, a representative sample of the processed RAP material shall be taken every 500 tons to determine the asphalt content, aggregate gradation, and effective specific gravity (Gse) of the processed RAP material.
4. After obtaining and testing ten (10) samples of the processed RAP material, calculate the average result for each individual sieve, asphalt content, and effective specific gravity (Gse) for the ten (10) samples. These calculated values will serve as a baseline for the aggregate gradation and asphalt content. Each additional RAP sample will be evaluated against the baseline criteria. If the asphalt content varies more than +/- 1.0% from the baseline value, this material will not be added to the stockpile and further production should be halted or placed on a separate stockpile until material can be produced within this guideline. If the gradation of a sample results in a significant variation from the baseline aggregate gradation; production should be halted or placed on a separate stockpile until the production process has been corrected. Significant variation in gradation is defined as a sample gradation that would result in the completed Asphalt Mixture varying outside the Publication 408, Section 413, Table A, multiple sample ($n \geq 3$) gradation tolerances if the processed RAP was incorporated into the completed mixture at 35%. Maintain an overall average and standard deviation of all samples for each standard sieve size, asphalt content, and the effective specific gravity (Gse) of the processed RAP stockpile.
5. Identify the processed RAP stockpile if being utilized in a wearing course for a Designated Project.
6. All processed RAP stockpiles designated for a specific project must be approved by the District before the material is utilized in the production of an approved JMF. This is to ensure that the designated stockpile complies with the projects aggregate and SRL requirements.

REPLACES B.7.23	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 7	PAGE 23-1
DATED 04/02/2018	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT GUIDANCE FOR MITIGATING PERMANENT CONCRETE MIXTURES TO PREVENT DELETERIOUS ALKALI SILICA REACTIVITY (ASR)				

Scope:

This POM Section is intended to provide several examples of developing a mix design that will be compliant with Publication 408, Section 704, to effectively mitigate ASR. It is not intended to address all aspects of mixture proportioning or adjustments during trial batching.

The contractor and their concrete supplier are responsible in designing a mixture that meets all Department requirements. A copy of each mix design used for concrete delivered to the project must be submitted to the District Materials Engineer/District Materials Manager (DMM/DME) or Chief Structural Materials Engineer, as applicable, prior to its use in the work. In the future, concrete mix designs will have workflow for submittal and approval through eCAMMS, including the ability to print approved mix designs.

Mitigating ASR:

As specified in Publication 408, Section 704, for permanent concrete, concrete mixtures containing one or more aggregates (Reactivity Class R1, R2 or R3) must be mitigated to prevent deleterious ASR. R0 aggregates are considered non-reactive and do not require mitigation, however, supplementary cementitious materials may be incorporated for other beneficial purposes such as improving permeability.

In order to determine how the mixture must be proportioned, and in some cases, based on the selected means of mitigation, the following must be known:

- **Prescriptive Mitigation**
 - Aggregate reactivity level of each aggregate
 - Type of cement
 - Blended cements may require additional mitigation if the percentage of SCM in the blended cement is less than that required by specification.
 - Alkalinity, when and if used as part of the mitigation process.
 - Low alkali cement (less than 0.70%), when used allows for the reduction of one prevention level except for R1 aggregates
 - Type or types of Supplementary Cementitious Material(s) (SCMs)
 - Alkalinity of fly ash or fly ashes used, e.g., Class C and F can be combined or a fly ash and slag cement, etc..
 - Structure classification (as defined in Section 704 based on asset type and service life).

Using the above, the prevention level is determined, and the mixture designed using the minimum amount of SCM(s) from Table G as specified in Publication 408, Section 704.

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- **Preventive (Performance) Mitigation**

○ Used when:

- Prescriptive measures, i.e. SCMs are not provided in the specification using a Bulletin 15 approved metakaolin or lithium admixture and the other specific mix components.
- Use of blended cements with an SCM (mass replacement) percentage less than that indicated for prescriptive mitigation.
- Use of lower levels of SCMs in the mixture than indicated in Section 704.
 - Preventive mitigation must be tested in accordance with ASTM C1293 and produce an expansion less than or equal to 0.04% at two years.
 - SCM and cement (type for type) substitutions are permitted. Aggregate substitutions are not permitted.

Mitigation Examples:

Prescriptive Approach:

Example 1. A contractor requires a mix design for cast in place plain cement concrete curb (Publication 408, Section 630). Class A concrete is required, and both the fine and coarse aggregates are Reactivity Class R1. Publication 408, Section 704, Table A, requires a cement factor of 564 to 752 lbs./cy. The mix design will utilize zero-slump concrete. From Table D, the Risk Level is Level 2 and the asset is Structure Class S2 from Table F. Therefore, from Table E, the minimum Prevention Level is Prevention Level W. Two options will be presented; however, other options may be available provided they meet the requirements from Publication 408, Section 704.

Option 1: Blended cement: A blended cement having a minimum of 15% Class F or C fly ash with alkali level ≤ 3.0 , 20% Class F or C fly ash with alkali levels > 3.0 to ≤ 4.5 or 25% slag cement will meet the minimum prevention level. The maximum alkali level for the SCM incorporated in the blended cement must be verified from Form TR-7015 to ensure the limit is not exceeded.

Option 2: A Type 1 cement is used with an alkali level above 0.70% and less than 1.25%. Any of the prescriptive percentages of SCMs from Publication 408, Section 704, Table G, for prevention Level W may be used. Example 2, Option 2 below and Note 8 from Publication 408, Section 704, Table G, describe how to calculate the minimum amount of silica fume required, if used to meet the minimum prescriptive mitigation level.

Summary of Options:

- Blended cement containing the minimum mass percentage of SCM from Table G, Prevention Level W based on the alkali level of the SCM.
- Cement with an alkali level less than 1.25% and the minimum mass percentage of SCM from Table G, Prevention Level W.

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Example 2: A prestressed concrete beam supplier wishes to produce a mixture using the prescriptive amount of SCM(s) as specified in Publication 408, Section 704, Table G, of Section 704. For prestressed beams (Structure) class S3 is required and the supplier is using a fine aggregate with Reactivity Class R0 and a coarse aggregate with Reactivity Class R2. Two options will be examined, one with a blended cement Type 1P cement and additional SCM and the other using Type 1 Portland cement.

From Table D, because there is an R2 aggregate, the Risk Level is Level 3.

From Tables E and F, using a Structure classification of S3 for the beams and the Risk Level of 3, the Prevention Level is 'Y'.

From Table G and Prevention Level Y, the base limits using single SCMs are defined.

If the supplier wishes to use a blended cement containing a known percentage of an SCM and/or combine SCMs such as Fly ash and Silica fume, Note 3 from Publication 408, Section 704, Table G, must be followed when combining SCMs to ensure the minimum mass replacement percentages are used. Options 1 and 2 below will describe how these are calculated.

Option 1: Blended type 1P (20) with 20% Class F fly ash having a fly ash alkalinity less than or equal to 3.0%.

- Requirements:

- The beam supplier knows from experience that 800 lbs of cement are required to meet the higher detensioning and 28-d strength requirements for prestressed beams. With 20% of the blended cement being contributed as fly ash, the amount of cement is calculated as $800 \times 0.80 = 640$ lbs./cy. of cement of which the additional 160 lbs. within the blend is Class F fly ash.
- The 20% Class F fly ash included in the blended cement does not meet Prevention Level Y as indicated in Publication 408, Section 704, Table G, therefore, additional mitigation is required.
 - If additional Class C fly ash were separately incorporated along with the blended cement, the additional amount of Class C fly ash required would be calculated as follows:
 - Class F contribution: $20/25 \times 100 = 80\%$. Therefore, the Class C contribution must be 20% of the required amount if used alone (20% minimum) or 0.20×30 or 6% additional Class C fly ash by volume, e.g., $0.06 \times 640 \sim 38$ lbs/cy.
 - The CaO and alkalinity limits of Publication 408, Section 704, Table G must not be exceeded. The CaO limit can be verified from Form TR-7012.
 - The required mass replacement if the additional SCM chosen was slag cement if combined with the blended cement would be calculated as: $0.20 \times 50 = 10\%$ resulting in an additional 64 lbs./cy of slag cement cy ($0.10 \times 640 = 64$).
 - If silica fume were added as the second SCM, Table G requires the percentage by mass of silica fume to be calculated based on the weight of the Portland cement and alkali level of the Silica Fume. The maximum

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alkalinity limit of the silica fume (1.0%) is used in this calculation. If a lower alkali level for the silica fume supplier is used for the material to be trial batched and produced, the maximum alkali level must be indicated on the mix design form and cannot be exceeded during production. This example therefore assumes an alkali limit of 1.0% for the silica fume.

- The base minimum percentage of silica fume (if used alone) must first be calculated from the cement portion of the blended cement and silica fume alkalinity as follows: $640 \times 1.0/100 = 6.40$.
 - Now the minimum mass percentage can be calculated using the weighted factor of 1.8 from Table G and Prevention Level Y as: $1.8 \times 6.40 = 11.5\%$.
 - Since the blended cement contributes only 80% of the required SCM amount, the remaining 20% of fly ash is calculated as $0.20 \times 13.5 = 2.3\%$ silica fume or $0.23 \times 640 \sim 15$ lbs./cy.
- Forms TR-7011, TR-7012, TR-7013, TR-7014 and TR-7015 must be reviewed during production to ensure the SCMs included in the blended cement and the additional SCM in the ternary mixture do not exceed the maximum alkali level.
 - If the supplier wishes to use less than the prescriptive amount of SCMs specified in Publication 408, Section 704, Table G, the mixture must be tested in accordance with the preventive approach using ASTM C1293 without exceeding 0.04% expansion after two years.

Option 2: The same asset type (S3) and one lower reactivity class aggregates (both R1's) are used, however, a non-blended cement is used. From Tables E and F, using a structure classification of S3 and the Risk level of 2, the prevention level is X. Two scenarios will be addressed:

- Cement with alkali limit above 0.70% can be used along with one or more of the SCMs as specified in Publication 408, Section 704, Table G.
- If a cement with an alkali limit less than or equal to 0.70% is used, the prevention level can be reduced one level, i.e. to level W and again one or more SCMs used for mitigation as illustrated in Example 1 be used.
 - In this case the concrete supplier must indicate that the low alkali option and reduced prevention level are being used and indicate so on the concrete mix design. Form TR-7011 for cement received during production must indicate that the alkali level remains at or below 0.70%.

Summary of Options:

Example 2, Option 1:

- Blended Type 1 cement (20% Class F fly ash) and 6% Class C fly ash combined as a percentage of the Portland cement within the blend.
- Blended Type 1 cement (20% Class F fly ash) and 10% Slag Cement
- Blended Type 1 cement (20% Class F fly ash) and 2.3% Silica Fume
- Blended Type 1 cement only: 2 year ASTM C1293 concrete prism testing required with a maximum expansion of 0.04%.

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Example 2, Option 2:

- Portland cement (alkali greater than 0.70%) with prescriptive amount of SCM(s) from Table G for prevention level X.
- Portland cement (alkali less than 0.70% with prescriptive amount of SCM(s) for prevention level W from Table G.

Example 3. A concrete supplier is required to supply a AAA-P bridge deck mix design using a non-reactive fine aggregate (R0) and two blended coarse aggregates (both R2's) to meet the aggregate optimization criteria. Neither blended cements nor low alkali cements are available to the supplier and concerns exist with high SCM replacement levels. The DMM/DME has approved a higher cement factor (660 lbs.) can be used in the mixture due to the higher SCMs needed and concerns with strength gain as the project will involve a late season placement.

From Table E, the required level of prevention is Level Y. Concerned about the potential for scaling, the District, Contractor and supplier have agreed to develop a mixture that would avoid the use of slag cement at a 50% replacement level. The supplier elects to produce two mixes. One with 25% Class F fly ash and one with silica fume only.

Option 1: 660 lbs. of Type 1 cement along with 25% fly ash are used. No further calculations are required. Contract provisions for other mixture qualifications however, such as aggregate optimization, shrinkage and rapid chloride permeability testing must be performed. Form TR-7012 should be reviewed during production to ensure the 3.0% maximum alkali limit for the Class F fly ash is not exceeded.

Option 2: 660 lbs. of Type 1 cement are used in combination with Silica fume. Table G requires a minimum of 7% silica fume or 1.8 x LBA, whichever is greater. The Bulletin 15 silica fume provider indicated that they will guarantee a maximum alkali content of 0.55%.

- o The base minimum amount of Silica fume is first calculated as follows: $660 \times 0.55/100 = 3.63$.
 - Now the minimum mass percentage can be calculated using the weighted factor of 1.8 from Table G and Prevention Level Y as: $1.8 \times 3.63 = 6.5\%$. ($6.5\% < 7\%$) which is the minimum required amount.)
 - The minimum amount of silica fume required, therefore, is 7.0%. Because the calculated amount is based on a maximum alkali content of 0.55%, this must be indicated on the mix design and quality control test results supplied by the silica fume manufacturer during production to ensure this value is not exceeded. This is a somewhat high amount of silica fume for a bridge deck application that may result in finishability issues. The District has indicated that the contractor must assess finishability prior to placement.
 - o Form TR-7014 must be reviewed during production to ensure the 0.55% alkalinity limit is not exceeded

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Summary of Options:

- Type 1 cement and 25% Class F fly ash
- Type 1 cement and 7.0% silica fume

Please note that these are only three examples with several options provided solely for guidance as to how the ASR mitigation or remediation requirements can be met. Any and all of the options provided in Publication 408, Section 704, may be used at the contractor or supplier's discretion.

In addition, please note that mix designs approved for a particular prevention level can be substituted for use where a lower prevention level is required provided minimum/maximum cement factors and any other applicable specification requirements are met.

REPLACES B.8.1	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART B	SECTION 8	PAGE 1-1
DATED 04/25/2013		DATE April 1, 2015		
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 Turnaround 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](#).

REPLACES B.8.2	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART B	SECTION 8	PAGE 2-1
DATED 04/01/2020		DATE April 1, 2021		
SUBJECT SAMPLE IDENTIFICATION FORM TR-447				

A Form [TR-447](#) is completed for every material sample.

When a sample is collected, the Inspector or Engineer is responsible for completion of a Form TR-447. It is a three-part form; one copy is sent to the Laboratory Testing Section (LTS) with the sample; one copy is sent to the District office or is kept by the Construction Quality Assurance Section (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 Form TR-447 number and an increment number. Caution is urged in the placement of these bar code stickers. Place bar code stickers where they have an increased chance of staying attached to the sample and where they will not cause difficulty in scanning by LTS.

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

Filling out a Form TR-447:

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

Format Codes:

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

Material Code (Matl Code):

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

Format: ###
Example: 203

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Material Class:

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

Format: @@@@
Example: A8

Sample Classification (S Class):

Enter the Sample Classification for the sample. See the backside of Form [TR-447](#) for Sample Class listing.

Format: @@
Example: QA

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: 03/26/2018

Number of Increments (# of Inc):

Enter the total number of increments for the sample.

Format: ##
Example: 03

Lot/Batch Number:

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

Format: @ (30)
Example: 00000006A

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Tank #:

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

Format: @ (10)
Example: 2

Lot/Batch Size & Units:

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

Format: Size and Units: @ (30)
Example: 300 LF

Contractor Terminated Lot:

Check the box whenever the Contractor has elected to terminate an asphalt pavement acceptance lot as defined and specified within Percent Within Limits (PWL) specifications or standard special provisions (PWL-LTS or PWL-HOLA).

Format: @ (checkbox)
Checkbox Example: ✓

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.)

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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

Aggregate Usage by Sect 703 Table D: (refers to Publication 408, Section 703, Table D)

Format: @ (100)
Example: Asphalt Seal Coat w Precoated Agg

Construction Item #:

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

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

Product Evaluation/Product Evaluation Qualification (PE/PEQ):

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: @@-@@@@@
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

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Related Sample:

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

Format: L #####
 Example: A002915

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 Form TR-447.

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Refer to POM Section B.8.7 for more detailed instruction on completion of Form 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: 2016

Version (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

Purchase Order Number (PO Number):

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

Format: @ (20)
Example: 00011688

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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

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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 – Consultant, Contractor, Manufacturer, PennDOT Employee, Producer, Other:

Check the appropriate box for Consultant, Contractor, Manufacturer, PennDOT Employee, or Producer, or enter the appropriate type under ‘Other’ of the person who actually physically collected the sample.

Consultant, Contractor, Manufacturer, PennDOT Employee, or Producer Format:

@ (checkbox)

Other Format: @ (15)

Checkbox Example: ✓

Other Example: Municipality

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.

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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

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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 Code (County):

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

Format: # #
 Example: 07

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State Route (SR):

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

Format: # # # #
Example: 0022

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

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Center Offset (CTR 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

Left/Right Indicator (L/R):

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: 05/23/18

AASHTO T 209:

For asphalt samples, enter the daily Theoretical Maximum Specific Gravity (Gmm) value as determined by the Asphalt 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 (JMF).

Format: # # # #

Example: 2018

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JMF Number:

Enter the specific mix number of the supplier's Job Mix Formula for an asphalt mixture or the Master Mix Design for cement concrete.

Format: @@@@
Example: W125221H1

Design Thickness:

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

Format: #.#
Example: 1.500

Plastic Air Content (Concrete Air):

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

Format: #.#
Example: 7.2

Concrete Slump:

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

Format: #.#.#
Example: 74.5

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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 Form TR-447. Refer to POM Section B.8.7 for more detailed instruction on completion of Form TR-447 for epoxy coated reinforcement.

Format: Free-form Text

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SAMPLE CLASSIFICATIONS

The following chart lists the sample classification codes used by CAMMS. These codes are defined on the back of Form [TR-447](#).

<u>Code</u>	<u>Sample Classification</u>
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

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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		

REPLACES B.8.3	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART B	SECTION 8	PAGE 3-1
DATED 04/01/2015		DATE April 1, 2020		
SUBJECT COST REIMBURSEMENT SYSTEM FOR 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 Bureau of Project Delivery, Systems Management Section, at (717) 787-1037.

REPLACES B.8.4	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART B	SECTION 8	PAGE 4-1
DATED 04/01/2017		DATE April 1, 2020		
SUBJECT DISTRICT OR BUREAU REQUESTS FOR AMENDED eCAMMS TESTING REPORTS				

District or Bureau requests for correction or amendment of an eCAMMS Final Testing Report for a material sample tested by the Bureau of Project Delivery, Construction and Materials Division, Laboratory Testing Section (LTS) (i.e., eCAMMS Owing Lab = LTS), other than an asphalt mixture acceptance sample or an asphalt density acceptance sample, 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 or amendment of an eCAMMS Final Testing Report for an asphalt mixture acceptance sample or an asphalt density acceptance sample.

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 Owing Lab = ALA), contact the appropriate District Materials Unit who generated the ALA Final Testing Report.

REPLACES B.8.7	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 8	PAGE 7-1
DATED 04/01/2015	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT SAMPLING AND INSPECTION OF REINFORCEMENT BAR (REBAR) INCLUDING INSTRUCTIONS FOR FORM TR-447				

To ensure timely communication with the appropriate parties in the event of sample failure on testing of a reinforcement bar (aka rebar) for cement concrete construction, it is necessary to have a complete and accurate sample identification information setup on eCAMMS. Completion of the TR-447 Sample Setup for epoxy coated or galvanized rebar requires the entry of specific information beyond that set forth in POM Section B.8.2, Sample Identification Form TR-447. Reinforcement bars can be epoxy coated, galvanized, stainless steel, uncoated (black), or corrosion-resistant steel. It may be necessary to add as many as five (5) parties to the “Associated Parties” of the eCAMMS TR-447 Sample Setup to properly identify the (a) rebar manufacturer, (b) epoxy powder supplier, (c) epoxy coater or galvanizer (d) manufacturer of compatible patching/repair material for epoxy coating, and/or (e) fabricator. Where eCAMMS is unavailable and/or a paper [Form TR-447](#) is employed, the Associated Parties are listed in the “Remarks” section of the paper Form TR-447. By adding and identifying the role of each supplier to the sample record, the Laboratory Testing Section (LTS) can better facilitate identification of the responsible party in the event of a sample failure.

The identity of each Bulletin 15 approved suppliers and their role in the production of the rebar are reported on the Form CS-4171 certificates of compliance discussed below. When creating the new sample on eCAMMS, each supplier should be listed as an Associated Party on the Form TR-447 Sample Setup. In addition, one or more “Party Purposes” should be added to the supplier’s Party Detail for the sample.

For rebar, the relevant Party Purposes available include:

- Reinf. Steel Manufacturer (Reinforcement Steel Manufacturer)
- Powder Manufacturer (for Epoxy Powder)
- Epoxy Coater
- Galvanizer
- Fabricator (of shapes and assemblies)
- Epoxy Repair Mat’l Mfgr. (Material Manufacturer)

The final supplier in the manufacturing chain provides the documentation that identifies (name and supplier code) each party that manufactured, coated, galvanized, repaired, or further processed (fabricated) the rebar. As more fully discussed under POM Section B.6.3, Construction Material Certification, the final supplier completes and submits a Form [CS-4171](#), *Certificate of Compliance*, for the reinforcement bar delivered to the job site. If the reinforcement bar has been coated with epoxy or galvanized, but not fabricated) the supplier supplements the completed Form CS-4171 that accompanies the shipment with Form [CS-4171C](#), *Supplemental Certification for Epoxy Coated or Galvanized Reinforcement Steel – Epoxy Coating or Galvanizing Facility*. If epoxy coated or galvanized reinforcement bar has undergone further fabrication, the supplier

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supplements the completed Form CS-4171 that accompanies the shipment with Form [CS-4171F](#), *Supplemental Certification for Epoxy Coated or Galvanized Reinforcement Steel – Fabrication Facility*. Only one supplemental form is required. The certification(s) include(s) the name and Supplier Code for each party in the manufacturing chain. Each of these parties should be approved suppliers found in Bulletin 15, Section 709.1—Reinforcement Bars.

A copy of the Form CS-4171 and any supplements (Form CS-4171C or Form CS-4171F) for the rebar selected for testing should accompany the sample delivered to LTS or, preferably, a scan or photograph should be uploaded to the Form TR-447 sample record on eCAMMS as an attachment. This is to permit verification and timely identification of affected heat, tag, and lot numbers should there be a failure.

POM Section B.6.5, Materials Accepted by Project Sampling, requires verification testing by LTS of each lot of reinforcement bar on the project. Each manufacturing run of a specific bar size is a separate lot. The verification samples are taken at the point of placement (unless otherwise specified) and each sample is comprised of three (3) increments (n=3) from the lot. An increment is a segment of rebar with a minimum length of four (4) feet. Each of the three sample increments should be collected from a different randomly selected reinforcement bar from the same lot bearing identical mill marks (producer, bar size, type steel, and grade). Each sample increment should include a section of the reinforcement bar that includes the mill marks rolled into the bar at the time of manufacture.

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

In addition to the verification of lots by testing at LTS, the rebar should be visually and physically inspected at the job site. Listed below are some causes for rejection in the field of epoxy coated or galvanized rebar unless the defect(s) can be repaired by the contractor or fabricator prior to placement. Inspect each bundle for:

- Signs of rust appearing under the epoxy coating or galvanizing.
- Damage that might have occurred during fabrication or through mishandling.
- Uncured epoxy.
- Visible cracks in the coating
- Uncoated or partially coated areas or ends for epoxy coated and galvanized rebar.
- Excessive epoxy patching end repair material that bonds bundled bars together.
- Cracks or flaking of the galvanized coating particularly at bends.
- Galvanized reinforcing bars that are “frozen” together.
- The presence of tears or sharp spikes in the galvanizing, which make the bar hazardous to handle.

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In the event of rejection, the contractor must be informed that repairs are required prior to placement or replacement rebar must be provided. The contractor or the fabricator may perform required field repairs at their discretion. Guidance is provided in POM Section C.7.3 on the handling, repair, and storage of reinforcement prior to placement including repair of epoxy-coated and galvanized rebar. The LTS will test (a) reinforcement steel for loss of cross-sectional area due to rust, (b) damaged rebar, (c) rebar that has been repaired in the field, or (d) for other reasons upon request. However, rejection of obvious defects identified during field inspection should not be delayed pending the results of testing.

LTS tests reinforcement bars according to certain requirements of AASHTO M 31, *Deformed and Plain Carbon and Low-Alloy Steel Bars for Concrete Reinforcement*; ASTM A767, *Zinc-Coated (Galvanized) Steel Bars for Concrete Reinforcement*; ASTM A775, *Epoxy-Coated Steel Reinforcing Bars*; ASTM D3963, *Fabrication and Jobsite Handling of Epoxy-Coated Steel Reinforcing Bars*; and ASTM A780, *Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings*. In general, if the first increment tested meets specification requirements in these procedures, then additional testing is not performed on the remaining increments. Testing of all three increments will be performed—regardless of tests results for the first increment—if requested in the "Remarks" section of the paperless TR-447 Sample Setup or paper Form TR-447.

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

- Tensile Strength
- Yield Strength
- Elongation
- Bend Test for Ductility of Steel
- Coating Thickness (body of rebar)
- Coating Continuity (holiday detection)
- Bend Test for Coating Flexibility
- Percentage of Damaged Surface Area (ASTM D3963 for Jobsite)
- Percentage of Patched Surface Area (ASTM D3963 for Jobsite)
- Percentage of Repaired Damaged Coating (ASTM A775 for Coater)
- Coating Thickness (end repair) *
- Check for Mill Bar Markings

* End Repair Epoxy Coating Thickness is a routine test for fabricated epoxy coated bars or 30-inch tie bars. When LTS receives a segment of straight rebar four (4) feet long, it is not apparent whether the specimen was cut from a fabricated bar or cut from an unfabricated bar. If the sample is not fabricated and evaluation of the sample ends should not be performed, the inspector should document this instruction in the "Remarks" section of the paperless TR-447 Sample Setup or the paper Form TR-447.

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

- Tensile Strength
- Yield Strength
- Elongation
- Bend Test for Ductility of Steel & embrittlement
- Galvanizing Thickness (magnetic thickness gauge)
- Check for Mill Bar Markings

Any single or combination of routine test(s) can be requested in the "Remarks" section of Form 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" section.

The "Remarks" section of Form TR-447 may be used for other thorough, concise instructions such as:

- 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 results meet the specification, the other two (2) increments (end repairs, etc.) will not be tested.

The ends of reinforcement bars that were cut to obtain a sample increment should not be repaired. Do not direct the contractor to perform any end repair to the cut end of epoxy coated or galvanized reinforcement bar sample sections, nor allow the contractor to modify any end repairs made by the fabricator if the sample is to evaluate the rebar as supplied by the fabricator. This also applies to epoxy coated mechanical rebar splices.

When preparing coated rebar samples for shipment, take care to protect the coated surfaces and end repairs from damage during transport. Layers of newspaper wrapped over the repaired rebar and secured with masking tape should be sufficient to protect properly cured repairs.

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

- The contractor may perform rebar end repairs with epoxy patching material that is approved in Bulletin 15, Section 709.1, for the specific epoxy powder used to coat the rebar

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or, they may request to call the fabricator's representative to the field to administer end repair using bulletin 15 approved materials. The contractor or the fabricator may perform required field repairs at their discretion.

- Normally the contractor only repairs a small fraction of the rebar.
- Repaired rebar should be sampled and sent to LTS as Sample Classification "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 sample increments if specifically requested in the "Remarks" section of Form TR-447—such as "Test Fabricator's End Repairs – All Increments".
- LTS needs a minimum of three (3) increments (rebar sections with representative ends) for proper evaluation.
- Absent specific instructions, LTS only tests the end repair coating thickness of the first increment unless the results for the first increment falls outside the specification range. If the first increment fails, LTS tests all the increments for end repair coating thickness. To request testing of end repair coating thickness of all increments—regardless of first increment results—provide thorough, concise instructions in the "Remarks" section of Form TR-447 such as:
 - Test Fabricator's End Repairs on all increments. Plus All Routine Tests.
 - Test Contractor's End Repairs on all increments. Plus All Routine Tests.

Instructions for TR-447 Sample Setup

A separate TR-447 Sample Setup on eCAMMS is required for each lot representing only one rebar manufacturer, bar size, coater or galvanizer, and fabricator. The general instructions for Form TR-447, *Sample Identification*, is found under POM Section B.8.2. When creating a TR-447 Sample Setup on eCAMMS for rebar, the Material Code selected from the drop down menu should be "231 (Rebar)". The Material Class selected from the drop down menu (Figure 1) may be "BLACK" for uncoated rebar, "EPOXY" for rebar coated with epoxy, or "GALV" for rebar which has been galvanized. The eCAMMS sample setup should also identify the Sample Classification (Figure 2). The Sample Classification for an initial sample from a shipment of rebar to a job site is "FV – Field Verification". The Sample Classification for a sample taken to investigate a previously reported test failure is "IV – Investigation". Refer to POM Section B.9.3 for further discussion of investigation samples. Reference is made to POM Section B.8.2 for a list of other available Sample Classifications.

Sample Details

Material Code/Class: 231 (Rebar) [dropdown] [dropdown] Templates: [dropdown] **Apply Template**

Place Collected: [text] Date Collected: [calendar] Show Only My Templates:

of Increments: [text] Sample Class: [dropdown] Aggregate Usage: [dropdown]

Sample Group: [dropdown] Lot/Batch: [text] Lot/Batch Size: [text] [dropdown]

Tank #: [text] Location Code: [text] Terminated Lot: Partial Lot:

Product Name: [text] Construction Item #: [text] PE/PEQ: [text]

Evaluations: [dropdown] **Add** Reduced Testing: [dropdown]

[Refresh]

Application # [text] **Delete**

No records to display.

Figure 1—Sample Details (Selection of Material Code/Class)

Sample Details

Material Code/Class: 231 (Rebar) [dropdown] EPOXY [dropdown] Templates: [dropdown] **Apply Template**

Place Collected: [text] Date Collected: [calendar] Show Only My Templates:

of Increments: [text] Sample Class: [dropdown] Aggregate Usage: [dropdown]

Sample Group: [dropdown] Lot/Batch Number: [text] Lot/Batch Size: [text] [dropdown]

Tank #: [text] Location Code: [text] Terminated Lot: Partial Lot:

Product Name: [text] Construction Item #: [text] PE/PEQ: [text]

Evaluations: [dropdown] **Add** Reduced Testing: [dropdown]

[Refresh]

Application # [text] **Delete**

No records to display.

CMS/ECMS Contract and WBS

CMS/ECMS Contract #: [text] **Load CMS/ECMS Contract** **Reset CMS/ECMS Contract And WBS**

Sample Class dropdown menu items:
 FV - Field Verification
 IA - Independent Assurance
 IF - Information
 IP - Internal Proficiency Sample
 IV - Investigation
 LC - Local Confirmation
 LV - Local Verification
 PE - Product Evaluation
 PR - Proficiency Sample
 PS - Preliminary
 PV - Plant Verification
 QA - Quality Assurance

Figure 2—Sample Details (selection of Sample Class from drop down menu)

The following discusses the field review of the supplemental information on Form [CS-4171F](#) (See Figure 3) and its use in creating the paperless TR-447 Sample Setup on eCAMMS and/or paper Form TR-447. A similar procedure should be followed for Form CS-4171C, except there would be no fabricator.

- 1) Reinforcement Bar Manufacturer (all rebar samples)
 - a. Match the mill mark rolled into the rebar with the mill mark for the manufacturing facility found in the [Rebar Mill Symbols](#) document linked to in Bulletin 15, Section 709.1, noting the company name and location.

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- b. Look up the rebar manufacturer’s Supplier Code reported on the Form CS-4171F in Bulletin 15, noting the company name and location.
 - c. Verify the manufacturing facility company name and location identified by the mill mark corresponds to Bulletin 15 information for the Supplier Code reported on the Form CS-4171F. If the mill mark does not correspond to information for the Supplier Code reported on the CS-4171F, immediately notify the Contractor to resubmit the CS-4171F with the correct Bulletin 15 Supplier Code that corresponds to the mill mark on the shipped bar.
 - d. For paperless TR-447 Sample Setups, the rebar manufacturer shown on the mill markings on the rebar should be added to the TR-447 Sample Setup as an Associated Party with the Party Details edited to show the appropriate Party Purpose—Reinf. Steel Manufacturer (Figures 4 and 5). In the “Product Name” field of TR-447 Sample Setup enter the bar size, and grade of steel (e.g., No. 3, ASTM A615 Gr 60). See ❶ in Figure 3 and Figure 6 below.
 - e. Where eCAMMS is unavailable and/or a paper TR-447 is employed, in the “Remarks” section of the Form TR-447, enter the manufacturer’s full Bulletin 15 Supplier Code (e.g., MFR: CMCSC 15) that corresponds to the mill markings found on the sampled rebar specimens or on the full lengths of rebar from which the samples were taken. See ❶ in Figure 3 and Figure 10 below. In the “Product Name” field of the paper Form TR-447 enter the bar size, and grade of steel (e.g., No. 3, ASTM A615 Gr 60).
- 2) Epoxy Powder Manufacturer and Epoxy Repair Material Manufacturer (epoxy coated rebar samples)
- a. Verify the Supplier Codes for the manufacturer of the epoxy powder and well as the compatible epoxy coating repair material used to coat and repair the rebar reported on Form CS-4171F correspond to approved supplier codes listed in Bulletin 15.
 - b. For paperless TR-447s, the epoxy powder manufacturer and the epoxy repair material manufacturer should be added to the TR-447 Sample Setup as Associated Parties with the Party Details edited to show the appropriate Party Purpose. See ❷ in Figures 3 and Figures 4 and 5 below.
 - c. Where eCAMMS is unavailable and/or a paper Form TR-447 is employed, in the “Remarks” section of Form TR-447, enter the epoxy powder manufacturer’s full Bulletin 15 Supplier Code (e.g., POWDER MFR: VALSP215) and the repair material manufacturer’s Bulletin 15 Supplier Code (e.g., REPAIR MFR: VALS415). See ❷ in Figure 3 and Figure 10 below.

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- 3) Epoxy Coater or Galvanizer (epoxy coated or galvanized rebar samples)
 - a. Verify the Supplier Code for the epoxy coater (or galvanizer) reported on Form CS-4171F corresponds to an approved supplier code for an epoxy coater (or galvanizer) listed in Bulletin 15.
 - b. For paperless TR-447s, the epoxy coater (or galvanizer) should be added to the TR-447 Sample Setup as an Associated Party with the Party Details edited to show the appropriate Party Purpose—Epoxy Coater (or Galvanizer). See ❸ in Figure 3 and Figures 4 and 5 below.
 - c. Where eCAMMS is unavailable and/or a paper Form TR-447 is employed, in the “Remarks” section of Form TR-447, enter the epoxy coater’s (or galvanizer’s) full Bulletin 15 Supplier Code (e.g., EPOXY COATER: REST2 15 or GALVANIZER: YOUNG 15). See ❸ in Figure 3 and Figure 10 below.

- 4) Reinforcement Bar Fabricator (samples of rebar that has been cut, welded, formed or otherwise processed after the original manufacture, excluding coating or galvanizing)
 - a. Verify the Supplier Code for the fabricator reported on Form CS-4171F corresponds to an approved supplier code for a rebar fabricator listed in Bulletin 15.
 - b. Check if the Supplier Code reported on the Form CS-4171 accompanying the shipment agrees with the fabricator's Supplier Code reported on the Form CS-4171F accompanying the shipment. This is to verify that the final party in the supply chain is the fabricator and there are no subsequent parties are in the chain of supply.
 - i. If these Supplier Codes differ, the discrepancy should be investigated to ensure the Form CS-4171F fully identifies all parties in the chain of supply. This is to ensure all parties in the chain can be verified as listed in Bulletin 15 and are properly added as Associated Parties in the TR-447 Sample Setup.
 - ii. If additional Bulletin 15 approved parties are identified in the supply chain, they should be added to the TR-447 Sample Setup as an Associated Party with the Party Details edited to show the appropriate Party Purpose.
 - iii. Unapproved parties in the supply chain would necessitate rejection of the rebar absent documented special provisions and/or an approved deviation.

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- c. For paperless TR-447s, the fabricator should be added to the TR-447 Sample Setup as an Associated Party with the Party Details edited to show the appropriate Party Purpose — Fabricator. Also provide a brief description of what fabrication was performed (e.g., Fabricator cut rebar, formed and welded assemblies, and coated exposed surfaces). See ④ in Figure 3 and Figures 4, 5, 7, and 8 below.
 - d. Where eCAMMS is unavailable and/or a paper Form TR-447 is employed, in the “Remarks” section of Form TR-447 enter the fabricator’s Bulletin 15 Supplier Code (e.g., FABRICATOR: REST2 15). Also provide a brief description of what fabrication was performed (e.g., Fabricator cut rebar, formed and welded assemblies, and coated exposed surfaces). See ④ in Figures 3 and 10 below.
- 5) A complete and accurate Form TR-447 Sample Setup allows LTS to perform required testing with minimal delays. Additional information, such as the identity of the party who performed field end repairs, the extent of fabrication performed, or detailed instructions on testing should be included in the “Remarks” section of the Form TR-447.
- 6) Copies of the Forms CS-4171, CS-4171C, CS-4171F, special provisions, or other documentation may be included in the sample ID envelope or, preferably, scans or photographs should be uploaded as an attachment to the eCAMMS Form TR-447 sample record.

Note that the following illustration of a CS-4171F (Figure 3) and paper Form TR-447 (Figure 10) is for epoxy coated rebar. The paper Form 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 Form TR-447.

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

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

Reinforcement Steel AASHTO, ASTM: A615 Grade: 60

Re-Steel Supply, Philadelphia PA

Fabricator & Location: REST2 15

Fabricator's Supplier Code: 8-12046

Structure Number: _____

Bar / Wire Size	Bar / Wire Manufacturer Supplier Code	Heat Number	Epoxy Coater's or Galvanizer's Lot or Tag Number		Epoxy Coater or Galvanizer Supplier Code		Epoxy Powder Manufacturer Supplier Code		Epoxy Repair Material
			Quantity (Area, Sheets, Pounds, etc.)	Bill of Lading (BOJ)	Supplier Code	Supplier Code	Supplier Code	Lot Number	
1 3	CIMCRS 15	2000596	351	1756	REST2 15	VALSP415	VALSP415	9T86007650	VALSP315
2									

2 For paperless TR-447s, add the Epoxy Powder Manufacturer and the Epoxy Repair Material Manufacturer as Associated Parties.

For paper TR-447s enter the Supplier Code in the "Remarks" area of the Form TR-447 with the label "POWDER MFR" and "REPAIR MFR".

The Supplier Code for the epoxy powder and repair companies are verified as approved in Bulletin 15.

The Powder Manufacturer Supplier Code and the Epoxy Powder Lot Number will not be entered on this Form CS-4171F for galvanized rebar.

3 For paperless TR-447s, add the Epoxy Coater or Galvanizer as an Associated Party.

For paper TR-447s enter the Supplier Code in the "Remarks" area of the Form TR-447 with the label "COATER:"

The Supplier Code for the coater is verified as approved in Bulletin 15.

4 For paperless TR-447s, add the Fabricator as an Associated Party.

For paper Form TR-447s, enter the Fabricator's Supplier Code in the "Remarks" area of the Form TR-447 with the label "FABRICATOR."

This code is also found on Line 2 of Form CS-4171. If the codes are different, use the code on the Form CS-4171F to fill in the "Remarks" area. Verify as approved in Bulletin 15

1 For paperless TR-447s, add the Rebar Manufacturer as an Associated Party.

For paper Form TR-447s, enter the Manufacturer's Supplier Code in the "Remarks" Section of the Form TR-447 with the label "MFR."

The Supplier Code information is verified against Bulletin 15 and the mill marks rolled into the bar. Enter the Bar Size, Specification, and Grade in "Product Name" section of the Form TR-447.

Figure 3—Example of Form CS-4171F

Associated Parties: Suppliers, Contractors, Partners, QA Engineers

Show End-Dated Parties

Party Code: **Add Party** **Find Party**

Bill To	Account	Party Code	Party Name	Address	Party Purposes	Locations	Edit	Delete
	NUCR2 15		Nucor Steel, Auburn Division	P.O. Box 2008 25 Quarry Road Auburn, NY 13021	Supplier		Edit	X
	7		Central Office	81 Lab Lane PO Box 2926 Harrisburg, PA 17105-2926			Edit	X

Figure 4—Associated Parties Section of New Sample/Increment Setup - Sample General

Figure 4 shows the Associated Parties after the addition of Nucor Steel; however, the Party Purpose for Nucor is shown as “Supplier” rather than “Reinf. Steel Manufacturer”. To update the Party Purpose, click on Edit to show the Sample: Party Details (Figure 5). Then select the correct Party Purpose from the dropdown menu. Each supplier’s party details may be edited to add one or more Party Purpose(s) from the dropdown menu—merely check the box(es) for the applicable Party Purpose(s) (Figure 5) and save.

Figure 5—Sample: Party Details (Pop-up from clicking on Associated Party Edit)

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Sample Details

Material Code/Class: 231 (Rebar) EPOXY Templates: **Apply Template**

Place Collected: Date Collected:

of Increments: Sample Class: FV - Field Verification Aggregate Usage:

Sample Group: Lot/Batch Number: Lot/Batch Size:

Tank #: Location Code: Terminated Lot: Partial Lot:

Product Name: Construction Item #: PE/PEQ:

Evaluations: **Add**

Application #	Delete
No records to display.	

Figure 6—Product Name (Bar size, specification, and grade)

The Product Name (Figure 6) is accessible immediately upon selecting New Sample / Increment Setup. As the selected Material Code [231 (Rebar)] and Class (Black, Epoxy, or Galvanized) have already been selected, the remaining information shown under Product Name is the Bar Size, ASTM Specification, and Grade.

Remarks

Contact Method	Severity	Note	Post Finalization Comment	Client Report	Last Updated	Edit	Delete
No records to display.							

Figure 7—Sample Setup Remarks Section

The remarks section is accessible immediately upon selecting New Sample / Increment Setup. It can be used to communicate a wide range of information by adding a note. Merely click “+ Add Note Log Entry” to access the Note field shown in Figure 8. Type the note into the provided field (Figure 8) and select save to store the Remark (Figure 9)

Remarks

+ Add Note Log Entry Refresh

Contact Method	Severity	Note	Post Finalization Comment	Client Report	Last Updated	Edit	Delete
Contact Method:	Severity:	Note:					
		Fabricator cut rebar, formed and welded assemblies, and coated exposed surfaces					
Client Report:	<input type="checkbox"/>						

Save Cancel

No records to display.

Figure 8—Add Note or Log Entry (Shown with Note)

Select Save (Figure 8) to store the Note (Figure 9).

Remarks

+ Add Note Log Entry Refresh

Contact Method	Severity	Note	Post Finalization Comment	Client Report	Last Updated	Edit	Delete
		Fabricator cut rebar, formed and welded assemblies, and coated exposed surfaces	<input type="checkbox"/>	<input type="checkbox"/>			

Figure 9—Saved Note

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TR-447 (3-17)

penNSYLVANIA
DEPARTMENT OF TRANSPORTATION

STATE IDENTIFICATION

Mail Code: **231** Material Class: **EPOXY** S Class: **FV** Lab Serial Number: **A742350**

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

Location Code: _____ Place Collected: **PROJECT** Date Collected: _____ # of Imp: **03** Retest Sample: _____

Tank # _____ Construction Item # _____ PE/PEG _____ Product Name: **#3 ASTM A615 GR 60**

WORK BREAKDOWN STRUCTURE (WBS)

Contract Number: **E** MF: _____ S: _____ SR or WC: _____ Sp: _____ P: _____ Sec: _____ Org: _____ Program: _____ PC: _____ Supplier (Party) Code: **REST2 15**

Pav 408 Year: _____ Var: _____ Section: _____ Special Provision: Yes PO Number: _____

Sampled By

Title: _____ First Name: **JOE** Middle Name: _____ Last Name / Suffix: **INSPECTOR**

Phone Number: **555-555-5555** Ext: _____ Certification ID: _____ Email Address: _____

Consultant: _____ Contractor: _____ Manufacturer: _____ PennDOT Employee: _____ Producer: _____ 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: _____ Number: _____

Design Thickness: _____

Concrete Slump: _____ Temp: _____

Self Consolidating Concrete J-Ring: _____ Slump Flow: _____ VSI: _____

Remarks: **MFR: CMCSC 15, POWDER MFR: VALSP215, REPAIR MFR: VALS415, EPOXY COATER: REST2 15 Fabricator cut rebar, formed and welded assemblies, and coated exposed surfaces.**

LAB

Figure 10—Example of Form TR-447

REPLACES B.8.8	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART B	SECTION 8	PAGE 8-1
DATED 04/01/2020		DATE April 1, 2021		
SUBJECT DISTRICT REQUESTS FOR AMENDED eCAMMS TESTING REPORTS FOR ASPHALT MIXTURE AND ASPHALT DENSITY ACCEPTANCE SAMPLES				

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

When a released eCAMMS Testing Report for an Asphalt Mixture or Asphalt Density acceptance sample (Sample Class = AS) tested and released by LTS is incorrect due to an erroneous eCAMMS TR-447 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 Asphalt Unit Manager and copy the LTS Asphalt Testing Lab Manager. The LTS Engineer of Tests and the appropriate LTS Asphalt 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] of the Asphalt Testing Lab, under the direction of [Name of Engineer of Tests], Engineer of Tests.”). 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 Form 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 a released eCAMMS Testing Report for an Asphalt Mixture and/or Asphalt Density acceptance sample (Sample Class = AS) tested and released by LTS is incorrect due to an erroneous eCAMMS TR-447 Sample Set-Up data entry for any other data item not specifically

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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 Asphalt Testing Lab Manager and copy the LTS Asphalt Unit Manager. The appropriate LTS Asphalt Testing Lab Manager can be identified by the statement at the bottom of each eCAMMS 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 Asphalt Testing Lab Manager.

For revision/correction/amendment of information on an eCAMMS Testing Report for an Asphalt Mixture and/or an Asphalt Density acceptance sample tested and released by an Asphalt Local Acceptance laboratory (i.e., eCAMMS Owing Lab = ALA), contact the appropriate District Materials Unit who released the eCAMMS ALA Testing Report.

REPLACES B.9.1	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 9	PAGE 1-1
DATED 04/01/2020	PROJECT OFFICE MANUAL	DATE April 1, 2021		
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 in POM Section B.9.2, 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.

It is critical to document the disposition for all material deviations. The documentation guidelines are listed in the table below.

For all material failures, the District should submit the appropriate failure response as to the disposition of the material through eCAMMS. Disposition of failed materials for District samples (sample class AS, DQ, FV, IV) must be provided in eCAMMS within 60 days of the sample release date. For defective lots of asphalt or concrete material (“Remove and Replace” test results), the District may submit the appropriate failure response in eCAMMS up until the time Form [TR-4238A](#), District's Letter of Project Materials Certification, is submitted. Written responses for a failed QA/IA sample or TR-200 Report (QA project or source review) must be provided in eCAMMS within 30 days from the date the sample was released or from the date the TR-200 Report was approved. This information will be included in the project material documentation file.

The eCAMMS response for a material failure should include any supporting documentation. It is not necessary to attach the eCAMMS Client Report because there is a link to it on the Sample Deviation Maintenance page in eCAMMS. Supporting documentation for materials accepted at reduced payment should include penalty calculations and reference the electronic work order adjustment in ECMS for payment. Supporting documentation for materials accepted without payment must show Office of Chief Counsel involvement, required as part of a negotiated settlement with the Contractor. Documentation requirements for defective asphalt lots accepted at 50% payment or 70% payment for PWL are explained in POM Section B.9.9 and include the District’s determination letter to the Contractor, Form CS-7, and the contractor’s request to leave the material in place at 50% (70% for PWL) payment. Documentation requirements for deficient concrete lots accepted at 50% payment are explained in POM Section C.1.13 and include the District’s determination letter to the Contractor, the contractor’s detailed structural analysis, PE certification, and the contractor’s request to leave the material in place at 50% payment.

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Sample Class	Failures Requiring Response	Response Format
QA-IA (Quality Assurance-Independent Assurance)	QA-IA Major Sample Failures	Written Response (Letter) with supporting documentation submitted in eCAMMS. Exception: Bulletin 15 material failures and concrete hardened air content failures can be addressed with the Disposition of failed material entered in eCAMMS and submitted by the DMM/DME.
DQ (District Quality Assurance)	All	Disposition of failed material entered in eCAMMS and submitted by the DMM/DME.
FV (Field Verification)	All	Disposition of failed material entered in eCAMMS and submitted by the DMM/DME.
IV (Investigation)	Only if the cross referenced original failure is of a class that requires a response	Same response format as that required for the sample class of the original failure.
AS (Acceptance)	All	For outliers, see POM Section C.4.5 For defective asphalt lots accepted at 50% (70% for PWL) payment, see POM Section B.9.9. For deficient concrete lots accepted at 50% payment, see POM Section C.1.13. All other failures can be addressed with the Disposition of failed material entered in eCAMMS and submitted by the DMM/DME.
CA (Concrete Acceptance)	All	For deficient concrete lots accepted at 50% payment, see POM Section C.1.13. All other failures can be addressed with the Disposition of failed material entered in eCAMMS and submitted by the DMM/DME. See Publication 408, Section 110.10, for evaluation, disposition, and payment of low strength cement concrete.
QR* (Quality Review)	All	Disposition of failed material entered in eCAMMS and submitted by the Chief Structural Materials Engineer.

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

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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 asphalt lots being accepted at 50% (70% for PWL) 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 50% 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 (DMM/DME) and the appropriate Assistant Construction Engineer/Manager (ACE/ACM) 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 as specified in Publication 408, Section 110, to pay the price adjustment.

REPLACES B.9.2	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 9	PAGE 2-1
DATED 03/01/2011	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT COORDINATION WITH FHWA PRIOR TO ACCEPTANCE OF NON-SPECIFICATION MATERIAL ON FEDERAL OVERSIGHT PROJECTS				

The rejection of material that does not meet the specification requirements is the responsibility of Department personnel when testing confirms the material is not in compliance. However, declaring the material deficient after it has been placed is much more difficult and likely to be challenged. It is extremely important that FHWA be advised so they can become involved in the decision-making process on Federal Oversight Projects.

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.

REPLACES B.9.3	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 9	PAGE 3-1
DATED 04/01/2017	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT INVESTIGATIONAL SAMPLES				

Whenever materials, tested by the Laboratory Testing Section (LTS), are found to be outside specifications, an investigation is required. If the investigation determines an additional sample is required, submit a sample with at least three to five sample increments to the LTS. Submitting a sample with a single sample increment (only one increment) is statistically invalid, and unacceptable.

Select sample locations according to PTM No. 1 as approved by the District Materials Engineer/Manager.

Form [TR-455](#), Disposition of Failed Materials, should be filled out in eCAMMS, including a report of the investigation, test results and appropriate remarks on the "Material Deviation and Disposition Form", to complete the records.

REPLACES B.9.4	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 9	PAGE 4-1
DATED 04/01/2017	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT ASPHALT LOT ACCEPTANCE				

Acceptance and price adjustment of paving completed under Publication 408, Section 413, is governed by Sections 413.2(i), 413.3(h)2, 413.3(j), 413.4(a)3, and 413.4(a)4. The District Executive may direct in writing to leave a deficient lot in place and pay 70% of the contract unit price when only one parameter in the lot has a PWL less than 50 for either density, asphalt content, or percent passing the 75 µm (No. 200) sieve when the average percent passing the 75 µm (No. 200) sieve is greater than ± 2.0% from the JMF target value. When the PWL for two or more parameters are less than 50 for density, asphalt content, or percent passing the 75 µm (No. 200) sieve and the average percent passing the 75 µm (No. 200) sieve is greater than ± 2.0% from the JMF target value, the material must be removed and replaced. The acceptance and price adjustment of paving completed under the Standard Special Provision for PWL Hands On Local Acceptance (PWL-HOLA) will be the same as those completed under Section 413. Refer to POM Section B.9.9 for step-by-step guidelines for handling defective asphalt lots.

The Department's policy for asphalt 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 a plus or minus sign along with the wording on the report "Multiple Sieve Deviations for Sample - Cause for Review by District Materials Engineer/Manager" 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 "Multiple Sieve Deviations for Sample - Cause for Review by District Materials Engineer/Manager". The written documentation must be submitted to the Chief of the BOPD, Construction and Materials Division, Attention: Construction Quality Assurance 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 according to PTM No. 5.

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Failure to comply with this policy will result in all follow-up reviews requiring written response to the Chief, BOPD, Construction and Materials Division. In order to prevent unnecessary "Cause for Reviews", it is imperative that the 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 asphalt mixture box samples).

1. Pavement Types – 4.75 mm, 6.3 mm, 9.5 mm, 12.5 mm, 19 mm, 25 mm, 37.5 mm, SMA 95, SMA 125

“+” / “-” Multiple Sieve Deviations for Sample - Cause for Review by District Materials Engineer/Manager

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

1. Pavement Types – 4.75 mm, 6.3 mm, 9.5 mm, 12.5 mm, 19 mm, 25 mm, 37.5 mm, SMA 9.5 mm, SMA 12.5 mm

“+” / “-” Multiple Sieve Deviations for Sample - Cause for Review by District Materials Engineer/Manager

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.

REPLACES B.9.5	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART B	SECTION 9	PAGE 5-1
DATED 04/01/2017		DATE April 1, 2020		
SUBJECT ASPHALT MIXTURE PLANT CERTIFICATION – MAINTAINING APPROVAL AND SUSPENSION				

The Department will accept asphalt mixture pavement courses by asphalt mixture producer certification as specified in Publication 408, Sections 360.2(e)4, 412.2(i), 413.2(i), 419.2(f)2, 420.2(h)4, and 489.2(e) and as specified in contract Standard Special Provisions or Project Special Provisions. Additionally, asphalt mixture may be accepted by asphalt mixture producer certification for other pavement courses, course replacements, or patching applications through a reference to Publication 408, Section 413.2(i). Publication 408 Sections that reference Section 413.2(i) for asphalt mixture acceptance by certification include Publication 408, Sections 313, 316, 320, 410, and 450. For asphalt mixtures accepted by certification, the asphalt mixture producer will daily certify that the mixture has been tested and conforms to the certification requirements as specified in the appropriate Publication 408 Section or contract Special Provision.

To daily certify asphalt mixtures, the QC test results must indicate that each specified certification acceptance parameter meets the specified single sample (n=1) and, as applicable, multiple sample (n ≥ 3) tolerances as specified in the applicable Publication 408, Section. Table 1 shows the certification acceptance parameters for each Publication 408 Section. If the Asphalt Mixture producer's QC plan indicates that they are determining asphalt content by plant printed tickets for QC, 90% of the plant's daily printed ticket asphalt content results must be within ± 0.2% of the JMF to certify the asphalt mixture according to Publication 408, Section 413.2(i)2.b.

**Table 1
Certification Acceptance Parameters by Publication 408 Section**

Certification Acceptance Parameter	Publication 408 Section										
	313	316	320	360	410	412	413	419	420	450	489
Asphalt Content	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Percent Passing the 37.5 mm (1 1/2 in.) Sieve				☐							
Percent Passing the 25.0 mm (1 in.) Sieve				☐					☐ ^b		
Percent Passing the 19.0 mm (3/4 in.) Sieve									☐		
Percent Passing the 12.5 mm (1/2 in.) Sieve				☐					☐		
Percent Passing the 9.5 mm (3/8 in.) Sieve									☐ ^c		
Percent Passing the 6.3 mm (1/4 in.) Sieve											☐
Percent Passing the 4.75 mm (No. 4) Sieve				☐					☐		
Percent Passing the 2.36 mm (No. 8) Sieve	☐	☐	☐		☐		☐ ^a	☐	☐	☐ ^a	☐

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Percent Passing the 1.18 mm (No. 16) Sieve				☐							
Percent Passing the 75 μm (No. 200) Sieve	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
% Air Voids at Ndesign									☐		

- ^a Not applicable for Superpave Asphalt Mixture Design 4.75 mm NMAS asphalt mixtures.
- ^b Not applicable for Pervious 9.5 mm Wearing Courses.
- ^c Not applicable for Pervious 19.0 mm Binder Courses.

If the QC test results indicate failure to meet the requirements as specified in the applicable Publication 408 Section for each applicable certification acceptance parameter, the asphalt mixture producer cannot certify the mixture. For asphalt mixtures specified under Publication 408 Sections 313, 316, 410, 412, 413, 419, and 489 and where the QC test results do not allow the asphalt mixture supplier to certify the asphalt mixture, the asphalt mixture producer must provide the QC test results to the Inspector-in-Charge (IIC). The IIC will adjust the contract unit price based on the QC test results and Publication 408, Section 413, Table H. For asphalt mixtures specified under Publication 408 Sections 360 and 420 and where the QC test results do not allow the asphalt mixture producer to certify the asphalt mixture, the asphalt mixture pavement material will be considered defective (remove and replace) if the asphalt mixture is defective for asphalt content (Section 360), deficient for asphalt content (Section 420), excessive in percent passing the 75 μm (No. 200) sieve (Sections 360 and 420), or percent of coated particles is less than 95% (Sections 360 and 420). Where permitted by the Publication 408 Section or contract Special Provisions and if the asphalt mixture producer’s QC plan indicates that they are determining asphalt content by plant printed tickets for QC and less than 90% of the plant’s daily printed ticket asphalt content results are within ± 0.2% of the JMF, the asphalt mixture producer cannot certify the mixture and must provide the percentage of the plant’s daily printed ticket asphalt content results that were within ± 0.2% of the JMF to the IIC.

The asphalt mixture producer must maintain approval to certify mixtures as specified in Publication 408, Section 413.2(i)2.c. If the asphalt mixture producer fails to meet the requirements as specified in Section 413.2(i)2.c, the Department may immediately suspend the asphalt mixture producer from supplying and shipping mixtures accepted by certification to the project. The District notification to the asphalt mixture producer that they are suspended from supplying or shipping mixtures by certification to the project can be by any method deemed appropriate by the District, but must include or be followed by some form of written notification of the suspension either by letter, e-mail, or the District Materials Unit staff writing the suspension in the remarks of the asphalt mixture producer’s plant book. Any asphalt mixture plant suspension must be in concurrence with the District Materials Engineer/Manager (DME/DMM). The DME/DMM should also ensure the asphalt mixture producer takes immediate corrective action to correct the issue that resulted in the suspension.

The resumption of supplying or shipping asphalt mixtures by certification to the project by the asphalt mixture producer will be as specified in Publication 408, Section 413.2(i)2.c. Section 413.2(i)2.c requires that the asphalt mixture producer take corrective actions and then perform QC

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testing to verify that the mixture conforms to the tolerances as specified in Publication 408, Section 413, Tables A and B. If the QC testing verifies conformance of the mixture as specified in Section 413, Tables A and B, the or asphalt mixture producer is then to perform JMF verification according to the QC plan in the presence of a PennDOT Representative, on a date(s) coordinated with the PennDOT representative. After successful completion of JMF verification, the District will allow the asphalt mixture producer to resume supplying and shipping asphalt mixtures accepted by certification. The District notification to the asphalt mixture producer that they can resume supplying and shipping mixtures by certification to the project can be by any method deemed appropriate by the District, but it must include or be followed by some form of written notification to remove the suspension either by letter, e-mail, or the District Materials Unit staff writing the suspension removal in the remarks of the asphalt mixture producer's plant book.

Mixture verification and JMF verification can be on the asphalt mixture produced for commercial projects or produced for Department projects where the asphalt mixture is being produced by lot acceptance. If project delivery schedules dictate that the asphalt mixture producer must continue to ship materials to the project to maintain the project schedule, asphalt mixtures that normally would be accepted by certification may be accepted by lot acceptance as specified in the applicable Publication 408 Section.

REPLACES B.9.6	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 9	PAGE 6-1
DATED 04/01/2017	PROJECT OFFICE MANUAL	DATE April 1, 2020		
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 QA material samples for the following conditions:

A. Plant-mixed Asphalt Mixture

An individual test result or the sample average (\bar{x}) exceeds the tolerances of Publication 408, Section 413.2(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 μ m (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 μ m (No. 200) sieve for the coarse aggregate used in Asphalt Surface Treatment/Seal Coats exceeds 1.0%
- c. The sample average (\bar{x}) of aggregate passing the 75 μ m (No. 200) sieve for the fine aggregate used in Portland Cement Concrete exceeds 3%.

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- 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 as specified in Publication 408, 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.
 - j. The average quality test result (not gradation or wash test) that is outside or does not meet the specified quality parameter requirements (e.g., Minimum, Maximum, and/or range).
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 as specified in Publication 408, Section 704, Table A.
 2. An individual test result exceeds the tolerances as specified in Publication 408, Section 704.1(c)3, for entrained air content in the hardened concrete.
- D. Bulletin 15 Material
- Test results exceeding the tolerances of the applicable specification.

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II. Minor Deviations for Material Samples

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

A. Plant-mixed Asphalt Mixture

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 (JMF) 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 JMF 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 JMF and no individual test results deviate more than ± 3.0 percentage points from the JMF.

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 (QA) Reports with Written Response Required

Findings in QA 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.

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- 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 (QA) Reports Not Requiring a Written Response

Findings in QA 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.

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Responses

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

Written responses are required for Major Deviations on Material Sample Reports and for QA 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 the Disposition of Failed Materials in eCAMMS, 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 QA 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 in eCAMMS to the Chief, Construction and Materials Division. The District Office is to submit written response documentation in eCAMMS within 30 days as to the disposition of the material. This information will be included in the project material documentation file.

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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, Construction and Materials 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.

REPLACES B.9.7	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 9	PAGE 7-1
DATED 04/01/2017	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT BULLETIN 15 MATERIAL DEVIATIONS				

Manufacturers will be notified by the Bureau of Project Delivery (BOPD), Construction and Materials Division, of each Bulletin 15 material sample which fails to meet the certification or specification requirements. This notification will include a copy of the lab results identifying the failing parameter.

The District Office will be notified of the failure of a certified material by the BOPD. The District Office is required to submit an appropriate failure response through eCAMMS, within 60 days of the sample release date, as to the disposition of the material in accordance with procedures outlined in POM Section B.9.1. This information will be included in the project material documentation file.

The BOPD'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 Construction Quality Assurance Section (CQAS) representatives. If additional failures occur, appropriate action will be pursued according to applicable procedures and as specified in Publication 408, Section 106.03(b)3.

Rock salt samples, material code and class 429 RSALT, which fail to meet specifications, will be reviewed and acted upon by the Bureau of Maintenance and Operations in cooperation with the Districts.

REPLACES B.9.8	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART B	SECTION 9	PAGE 8-1
DATED 04/01/2017		DATE April 1, 2020		
SUBJECT STRUCTURAL MATERIALS—PRODUCT NON- CONFORMANCES/FEEDBACK				

Fabricated Structural Materials are inspected by a consultant inspection agency contracted to perform this service on the Department’s behalf. Most precast concrete, prestressed concrete, and structural steel products are subject to an in-plant Quality Assurance inspection which is managed and overseen by the Bureau of Project Delivery (BOPD) , Bridge Design and Technology Division, Structural Materials Section (SMS).

Occasionally, these products are delivered to the project and found to contain specification deviations or non-conformances despite being reviewed by the plant’s quality control and our quality assurance inspection personnel.

For these situations, Form [TR-800](#), “Structural Materials Quality Comment Sheet”, should be completed by the District Project Engineer and forwarded to the Bureau of Project Delivery, Chief Structural Materials Engineer, by mail or email (ra-pdstructmatls@pa.gov).

The final disposition of the material should be resolved (i.e. whether to reject, repair, or use as-is) collectively between the District and the SMS.

REPLACES B.9.9	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 9	PAGE 9-1
DATED 04/01/2020	PROJECT OFFICE MANUAL	DATE April 1, 2021		
SUBJECT HANDLING DEFECTIVE ASPHALT LOTS				

This procedure establishes a consistent Department policy for Districts to follow-up after receiving initial failing test results indicating a defective lot on asphalt 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 Publication 408, Section 413.3(j)4
 - b) mixture samples, see Publication 408, Sections 413.2(i) and 413.3(h)2
- 3) Form 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 according to PTM No. 4 and Project Office Manual, Section C.4.5.

If an error is identified, submit a request to the Bureau of Project Delivery (BOPD), Construction and Materials Division (CMD), Laboratory Testing Section (LTS) to issue a corrected copy of the eCAMMS report. Supply sufficient supporting details to justify the request. The 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 70% payment (50% for non-PWL) 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 70% payment (50% for non-PWL) request with justification, send the contractor a letter warning default as specified in Publication 408, Section 108.08 for failure to respond.

If the contractor makes a request for 70% payment (50% for non-PWL) of the lot, proceed to Step 2.

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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 70% pay (50% for non-PWL). 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 70% pay (50% for non-PWL). 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 Average Daily Traffic (ADT) – For low volume routes, 70% payment (50% for non-PWL) 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.)

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Step 4: Department Responsibilities

Districts will weigh all the above considerations before making a determination whether to recommend the pavement remain in place at 70% payment (50% for non-PWL).

If the District Executive (DE) determines that the lot must be removed and replaced, provide a letter to the contractor denying their request for 70% payment (50% for non-PWL) 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, CMD, within 10 days to document the DE's determination of remove and replace.

If the District's determination is that the pavement should remain in place at 70% payment (50% for non-PWL), supply a letter to the contractor outlining the final determination of the lot. Return 70% (50% for non-PWL) 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, CMD, Construction Quality Assurance Section Chief, in eCAMMS, within 10 days as justification of the DE's determination. Minimum supporting documentation must include Form CS-7, test results, and contractor's request to leave the material in place at 70% payment (50% for non-PWL).

Approval authority for granting 70% payment (50% for non-PWL) rests solely with the DE 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. [Form CS-4307G](#) shall be used as a guideline for Contractor's Past Performance Evaluations.

REPLACES B.9.10	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 9	PAGE 10-1
DATED 04/01/2020	PROJECT OFFICE MANUAL	DATE April 1, 2021		
SUBJECT ASPHALT MIXTURE ACCEPTANCE SAMPLE REQUESTS FOR RETESTS				

Department criteria, responsibilities and required actions when a Prime Contractor requests a retest of a failed asphalt mixture acceptance sample or requests a retest of a failed 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 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 Laboratory Testing Section (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 asphalt mixture producer's quality control sieve test results are not beyond their action limits.

If after reviewing the Contractor's justifying information and 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 Asphalt 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. 408/2020, Change No. 2) or governing Standard Special Provision (e.g., S-b04003 Superpave Asphalt Mixture Design, Standard and RPS Construction of Plant-Mixed Asphalt) 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.

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5. District Materials Engineer/Manager (DME/DMM) written approval for a change in test method if the Contractor's retest request letter for an asphalt mixture acceptance sample included a request for a preferred test method (i.e., PTM No. 757 or PTM No. 702, Modified Method D) that is different than the test method used for the original asphalt mixture acceptance sample.
6. 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 Asphalt 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.

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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 lift/layer of each pavement core to be tested and the lift(s)/layer(s) of the pavement core to be discarded. Pavement cores not clearly showing the lift/layer to test will be considered Non-Conforming samples and will not be tested by LTS until the lift/layer to test is identified by the District. As necessary, the LTS will saw cut pavement cores to obtain the specific lift/layer to be retested. Saw cuts will be at the lift/layer lines as determined by LTS. The LTS will saw cut to obtain as much of the full lift/layer as possible.

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. The LTS will notify the District of non-conforming samples.

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 Form TR-447 Remarks section includes comments that two cores were collected for specific sample increments. Do not use and submit two Form TR-447s for retest samples requiring two pavement cores per increment. Only submit one Form TR-447 for retest samples requiring two pavement cores per increment and just identify one of the increment cores with the appropriate Form 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.

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

1. The Form TR-447 reference number of the original sample failure must be entered in the Related Sample field on the Form TR-447 and entered during eCAMMS Sample Setup as a Related Sample with the Related Sample Type selected as 'Retested',
2. The Form 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 Form 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 Form TR-447 and the eCAMMS TR-447 Sample Setup page.
4. The Form TR-447 and eCAMMS Sample Class must be "AS".
5. Add "R" following the lot number on the Form TR-447 and the eCAMMS TR-447 Sample Setup page. Example: Original Sample Lot Number = 01, Retest Sample Lot Number = 01R.

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ATTACHMENT 1

EXAMPLE REQUEST FOR RETEST MEMORANDUM FROM DISTRICT TO LTS

Month DD, YYYY

Request for Asphalt 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 an asphalt retest request from Prime Contractor, Inc. for the subject project and sample reference number. This project's governing specifications are Pub. 408/2020, Change 2.

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: Cenk (Jay) Sengoz, Asphalt Unit Manager
Guido Burns, Asphalt Testing Lab Manager

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ATTACHMENT 2
EXAMPLE RETEST DENIAL LETTER FROM DISTRICT TO CONTRACTOR

Month DD, YYYY

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
Timothy L. Ramirez, P.E., BOPD/LTS
Cenk (Jay) Sengoz, BOPD/LTS

REPLACES B.10.1	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 10	PAGE 1-1
DATED 04/01/2014	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT CONTRACT LABOR COMPLIANCE GUIDELINES AND RESPONSIBILITIES				

The District Labor and Contract Compliance Agent (DLCCA) is responsible for implementing and monitoring the District Labor Compliance program for all district construction contracts. The DLCCA should be familiar with all provisions, regulations and requirements in the Pennsylvania Prevailing Wage Act 442 and the US Department of Labor (USDOL) Field Operation Handbook, Chapter 15.

The DLCCA is to assist the Inspector-in-Charge (IIC) in ensuring compliance on all district construction contracts and inform the Assistant District Executive – Construction (ADE-C) of a contractor's failure to comply with contract. The Bureau of Project Delivery (BOPD) should be informed when the contractor repeatedly fails to comply with the contract.

1. Review of Contract Proposal.

Predetermined minimum wage rates for specific work classifications are included in most contracts. The U.S. Department of Labor establishes the rates for Federal projects and the PA Department of Labor and Industry establishes the rates for State funded projects. Appropriate required contract and special provisions are included in each Federal-aid contract for guidance in administering these wage rates.

For Federally funded projects bid after May 1, 2007, any and all work performed on bridges spanning a watercourse (wet or dry) is determined bridge construction, and heavy construction rates applies to that work. This only includes the actual bridge items (S or T families of prequalification codes including abutments, wing walls, and causeways). All other normal highway work on such projects, including bridge approaches, retaining walls, noise walls, and culverts, will have highway construction wage rates apply. Also, for bridges that do not span a watercourse, highway construction wage rates apply. Districts 2 (Juniata County), 3, 4, 5, and 8 (except Franklin County) are to include special provision “N-a10550-A” in the bid packages for Federally funded projects identifying the specific bridge structures (by structure number) that heavy construction rates apply (bridges spanning a watercourse, wet or dry).

The BOPD, Contract Management Section, is to assure that all work classifications, used on all State or Federal projects, are noted or requested in the bid proposal.

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2. Preconstruction Conference.

POM Section A.3.1 outlines the labor compliance items which were to be discussed at the preconstruction conference.

In projects where Appalachian Funds apply, Standard Special Provision a01701 Employment Preference for Appalachian Contracts is to be included. This is in reference to Designated Special Provision 8 (DSP8) in Appendix C of Publication 408 entitled F.A.R. REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS which is physically attached to the contract. The Assistant Construction Engineer/Manager and/or DLCCA should make it known at the preconstruction meeting that the project is Appalachian Funded and that the provision will be implemented and enforced. In addition, the IIC and project personnel are to be made aware of these requirements prior to the start of the project.

3. Project Review

The DLCCA is to review projects as needed to assure labor requirements are fulfilled, including wage rate spot-checks, follow-up on wage complaints, and payroll and certification procedures. It is recommended that the DLCCA develop a project review schedule for each construction season and perform a labor review on each project at least once a year. Random reviews should be conducted dependent on the length of the project (e.g., multi-year projects).

Each field review shall be documented with information regarding the review and retained in the Labor Compliance file and project records.

4. Wage Rate Spot-Check Procedure

The IIC is responsible for weekly wage rate spot-checks of approximately ten percent of the total work force (prime and subcontractors). The intent of these checks is to possibly review every employee who participates on the project. Wage rate spot-checks are to include the subcontractor's employees as they are engaged. Different work classifications are to be spot-checked. If the total work force (prime and subcontractor) or any project is ten or less, and the employees remain constant, then spot-checks are required every three weeks and not every week.

Each wage rate spot-check is to be recorded in a bound book, or a section of a bound book, that contains a record of all the checks and corrective actions. The entries are to include the signature of the inspector who performed the check.

Mark the book so that it can be identified in the documentation trail for the project. It shall also be available for routine inspections by the DLCCA, Central Office Labor and Contract Compliance Coordinator, Quality Assurance Teams and FHWA representatives.

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All wage rate spot-checks are to be conducted privately, and are to include the following information:

- Employee Name and Individual Identifying Number (e.g., Last 4 Digits of Social Security Number)
- Detailed description of the work activity/craft being performed by the employee.
- Interviewee's Wage Rate, Predetermined Wage Rate and Certified Payroll Rate
- Name of Employer
- Wage or Hour Complaint - (yes or no) Record in detail and refer to DLCCA immediately for an investigation.
- Date of Wage Check - (Inspector's Name)
- Signature of Employee Checked
- Initials of Inspector Checking

If a classification is not listed in the contract, the DLCCA needs to initiate a [Department of Labor Standard Form 1444](#) - Request for Authorization of Additional Classifications and Rates- and establish a rate for this classification. The form is to be forwarded to the Prequalification Officer in the BOPD for coordination with the Department of Labor.

5. Payrolls and Certifications Methodology

Payrolls and certifications should be submitted using the PennDOT Project Collaboration Center (PPCC). [Reference Publication 408, Sections 105.01(a) and 108.03(c)] This includes certified payrolls for demonstrating compliance with the Pennsylvania Prevailing Wage Act and the federal Davis-Bacon Prevailing Wage Act. The acceptance of electronic records has been vetted through the PennDOT Office of Chief Counsel as well as the Pennsylvania Department of Labor and Industry, Bureau of Labor Law Compliance. For state prevailing wage projects in which the first and last payrolls require notarization, on-line electronic notaries are acceptable in Pennsylvania per the Electronic Transactions Act (Act 69 of 1999).

a. The correct certified payroll form submittal is selected by the project's prevailing rates not by the type of project (federal or 100% state).

- For projects with a federal prevailing rate, use optional Form WH-347 available from the USDOL, Wage and Hour Division at <https://www.dol.gov/whd/forms/wh347instr.htm>. A contractor may also provide their own payroll version, as long as all information contained within the USDOL's form is included.

Each payroll submission is to be accompanied by a signed "Statement of Compliance" indicating that the payrolls are correct and complete, and that each laborer or mechanic has been paid not less than the proper David-Bacon prevailing wage rate for the work performed.

- The IIC must receive the Contractor's and all Subcontractor's payrolls and certifications by the seventh day after each payday. This is not to be construed

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as seven days from the end of the pay period. The certified payroll must identify each employee's pay date. The IIC must randomly review each payroll and certification for classification and wage rate errors.

- When there is a complaint, the IIC is to deliver all payrolls and certifications within five working days to the DLCCA.
 - In accordance with federal regulation 29 CFR 5.5(3)(ii)(A), the Department will not accept certified payrolls that contain the employee's full social security number and full home address. Certified payroll records submitted to the Department shall only include an individual identifying number (e.g., the last four digits of the employee's social security number).
- For projects with PA Department of Labor and Industry prevailing rates or no prevailing rates, use Form LLC-25.
 - The IIC is to receive the Contractor's and all the Subcontractor's Form [LLC-25](#) Payroll Certification for Public Works Projects by the tenth day after each pay date. Computerized payroll submissions may supplement Form LLC-25 as long as all information contained on the form is included. Information not on the computerized payroll must be in the proper block on the form. The IIC is to review and promptly notify the DLCCA of any problems and for guidance on having the contractor resubmit. The first and last payrolls must be notarized.
 - On contracts which do not contain the prevailing wage attachment, the Department will request payroll records at the discretion of the IIC at least three times throughout the duration of the project.
- b. Submittal Types in PPCC for payrolls: Prime Contractor Payroll (LAB COMP_PM PAYROLL), Subcontractor Payroll (LAB COMP_SUB PAYROLL) and when applicable. The Fringe Benefit Letter (LAB COMP_FINGE BENE LTR).
 - c. The title for the Prime Contractor payrolls should consist of the Prime Contractor's name and the payroll week ending date (MMDDYYYY). The title for Sub-Contractor payrolls should consist of the Sub-Contractor's name and the payroll week ending date (MMDDYYYY). For example, the title for Prime Contractor ABC for payroll week ending January 30, 2016 is "ABC01302016". The title for Subcontractor XYZ for the same week is "XYZ01302016".
 - d. To review the payroll, the IIC opens the document in the submittal. The IIC should document the names of the employees included in the 10% wage check in the Approval Notes prior to accepting the submittal. If the IIC determines there are deficiencies with the payroll, they should note the deficiencies in the "Approval Notes" field and select "Revise and Resubmit" from the Action dropdown window. It is not necessary to resave payrolls in the Project Files. All submittals are retained in the permanent electronic records in the submittal location.

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- e. The IIC must complete Form CS-2121, Record of Contractor's Payroll Submissions which should be stored in the Project Files.

6. Payroll Reviews.

The following information is to be checked on payroll reviews.

- a. Employee's Full Name.
- b. Individual Identifying number (e.g., Last 4 Digits of Employee's Social Security Number).
- c. Employee's Contract - Classification and Predetermined Rate - Work activity should be described adequately to determine proper classification.
- d. Employee's Daily Hours Worked at Straight Time.
- e. Employee's Hours Worked at overtime (one and one-half times the basic contract rate).
- f. A copy of the Contractor's and all Subcontractors' fringe benefit programs is required (how much per hour is deducted, for what purpose, and where the money is deposited). Copies of the Prime Contractor's and all Subcontractors' fringe benefit letters, addressing all applicable work classifications, are to be received and on file. An employee is to be compensated for both the hourly base and the hourly fringe benefit rate as defined by the prevailing wage rates of the contract. The fringe benefits can be paid all in cash, a combination of cash plus partial fringe benefits paid to an approved plan, or all the fringe benefits paid to an approved plan(s). Plans and payments should be verified. Payments to employees for board, lodge and travel do not constitute an authorized payroll deduction.
- g. Standard (taxes, social security) and additional (work clothes, loan payments) deductions require authorization by the employee. Deductions should not be noted as "other" or "miscellaneous" or combined into one dollar figure on the weekly payroll. The Contractor may correct errors like these by attaching a letter to each payroll explaining these deductions. Payrolls are not to be returned to the Contractor for any reason. In PPCC, "Revise and Resubmit" should be utilized because the original payroll will remain.

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7. Contractor Employee Complaints.

Advise the DLCCA immediately of a complaint regarding labor compliance by an employee of the Contractor or Subcontractor.

An employee with a minor complaint - one attributed to typographical or arithmetical errors - is to be adjusted by the next pay period with supplemental certifications and payrolls

An employee with a major complaint - flagrant violations of the Davis-Bacon or Copeland Anti-Kickback Acts, the Contract Work Hours Safety Standard Act or the Pennsylvania Prevailing Wage Act - shall be immediately referred to the DLCCA. The DLCCA is to investigate and submit a written report with recommendations to the –ADE-C. The District is to forward the report with its recommendations to the Bureau for review and approval.

8. Guidelines for Labor Compliance Problems.

All labor compliance issues are the responsibility of the Contractor. Coordination to resolve any problems is to be done with the Contractor.

- a. Major Violations - payrolls not submitted, payroll certifications not submitted, fringe benefit information missing on payrolls, fringe benefits or wages not being paid, failure to correct minor problems, etc.
 - i. Upon identifying the problem, notify the Contractor in writing to correct the situation in two weeks.
 - ii. If the problem is not rectified in two weeks, hold payment of the cost of the item of work performed by the laborers in question, from the next estimate to the Contractor. Use the contract component item schedule on large lump sum items; i.e. lump sum structure.
 - iii. If the problem is not resolved in five weeks from notifying the Contractor (step i above), stop all estimate payments until the problem is satisfactorily addressed. Also, notify the Chief of the Construction Quality Assurance Section at (717) 787-5610 that all payments are being withheld.
- b. Minor Violations - Random occurrences of: employee classified incorrectly, hours worked incorrect, employee missing on payroll, etc.
 - i. Notify the Contractor of deviations and identify that correction is necessary within two weeks.
 - ii. If corrections are not made in two weeks from notification, the minor violation is to be considered a major violation and proceed as directed in Item 8.a above.

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- c. Significance of violation unclear or interpretation needed – Notify the DLCCA who is then to contact the Chief of the Construction Quality Assurance Section at (717) 787-5610 for clarification or direction.

9. Conditions of Overtime.

Regardless of any contractual agreements between the Contractor, subcontractors and their employees, at minimum, time and one-half will be based on hours worked over forty in a week. This applies to Federal and 100% State-Funded projects.

10. Semi-annual Labor Compliance.

The DLCCA is to prepare and submit a semi-annual Labor Compliance Enforcement Report (Form [FHWA-1494](#)) to the BOPD by October 5 and April 5 of each year.

The report is to include all enforcement proceedings for the period covered. In the remarks section, the DLCCA is to report the total of wage spot-checks by project personnel and a separate total of wage spot-checks by the DLCCA.

The report is to list any investigations of Federal violations not concluded at the time of submissions.

The DLCCA and –ADE-C or the District Executive should sign the reports.

The reports will be subject to verification by the BOPD and/or the FHWA.

11. Retention of Records.

Contractor:

The Contractor and all Subcontractors are to keep payroll records for three years after the work is completed. The FHWA, the Secretary of Labor or the Pennsylvania Department of Transportation may request to see these records at any time during this period.

Contracting Agency:

The contracting agency is to keep payroll records for Federal-aid projects for three years from the final FHWA Voucher.

District Labor and Contract Compliance Agent:

Project files are to be stored in PPCC.

REPLACES B.10.2	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 10	PAGE 2-1
DATED 04/01/2017	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT MAINTENANCE AND PROTECTION OF TRAFFIC LABOR RATES				

Any service or work associated with Maintenance and Protection of Traffic (MPT), not performed by the Prime Contractor, must be performed either by an approved rental service/supplier or by a prequalified Subcontractor. For non-ECMS projects, Form [CS-4339R](#) must be completed and approved for a Disadvantaged Business Enterprise/Small Business Enterprise /Diverse Business (DBE/SBE/DB) rental service/supplier, as well as for any prequalified Subcontractors. For ECMS projects, an electronic subcontractor request must be submitted and approved for the same as previously listed.

A firm that rents Traffic Control devices to the Contractor or Subcontractor sometimes functions primarily as a supplier. However, under certain circumstances, the federal Davis-Bacon requirements apply to such a firm’s workers employed on the jobsite (“site of the work”), and the Davis-Bacon labor standards may apply to workers on an individual basis. As discussed below, it is important to consider (a) whether duties being performed by laborers and mechanics are only duties that are functionally incidental to the supply and delivery of traffic control devices (either owned or rented by the supplier), and (b) whether particular workers spend a substantial amount of time (more than 20 percent of a workweek) on the Davis-Bacon covered job site(s).

Federal-aid (Davis-Bacon) Projects:

As stated in the U.S. Department of Labor, Wage and Hour Division Field Operations Handbook (FOH, Chapter 15, Section 15e10(b)):

Employees of traffic service companies which operate as subcontractors on Davis-Bacon and related Acts (DBRA) projects to set up and service traffic control devices (e.g., barricades, directional signs, lights, arrow boards, etc.) are generally covered by DBRA. However, traffic service companies which rent equipment to the prime contractor and perform only incidental functions at the site in connection with delivery of the equipment are regarded as material suppliers whose employees would not be subject to DBRA unless particular employees spend a substantial amount of time (20% or more) in the workweek on the covered site or sites. [Emphasis added.]

Appendix C provides more detailed guidance from the U.S. Department of Labor (USDOL) regarding application of the federal Davis-Bacon labor standards on Federal-aid (Davis-Bacon) projects to employees who work for traffic control companies. Included is information regarding relevant “Coverage Principles,” a focus on Davis-Bacon applicability to workers on the “site of the work” and the USDOL policy regarding “material delivery truck drivers.”

The following listings of “Duties Often Performed As Incidental To Material Supply/Equipment Delivery” and “Covered Contractor Or Sub Contractor Duties” distinguish between duties often carried out by a material supplier as functionally incidental to the

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supply/delivery of traffic control devices to a job site, and activities that generally indicate that a company is performing part of the construction contract rather than being simply a material supplier.

Duties Often Performed as Incidental to Material Supply/Equipment Delivery:

The Davis-Bacon labor standards generally would not apply to employees of bona fide “Material Suppliers” whose duties are limited to supply, delivery to the job site and routine maintenance (once a week) of barricades, cones, flashers, arrow boards, temporary traffic signals, etc. on the job site, so long as such workers do not spend more than 20% of any given workweek performing these duties on covered job sites. If an employee spends more than 20% of a workweek performing the above duties on a Davis-Bacon (Federal-Aid) project (or combined with other Davis-Bacon (Federal-Aid) projects), the Davis-Bacon prevailing wage rates would apply for the time such workers spent on the project site(s).

The following functions generally would not come under the federal prevailing wage requirements of the contracts, except as noted above:

1. Initial supply/delivery of traffic control devices such as barricades, cones, barrels, flashers, signs, arrow boards, etc. to the project site (“site of the work”).
2. Routine and periodic maintenance service (usually once a week).
3. Removal of equipment from job site.
4. When performed in conjunction with initial delivery of traffic control devices such as those noted in Item 1, above to the site of the work, the material supplier’s personnel may drop the equipment at a central stockpile or various stockpile locations along the project. Employees of the company may perform initial set-up of equipment by dropping barrels and cones from the back of a moving truck. The same would apply for removal.
5. Routine and periodic maintenance may consist of inspecting, cleaning, and fueling the equipment, replacing broken or lost equipment, replacing barricades knocked down or out of line, and changing light bulbs and batteries.

Covered Contractor or Subcontractor Duties:

If a traffic control company performs duties other than those described in the preceding discussion as **Duties Often Performed as Incidental to Material Supply/Equipment Delivery**, then it is likely that the company is performing part of the construction contract and the Davis-Bacon requirements would apply to all of the hours worked on the site by the company’s employees. Thus, the following continuing traffic control services and safety provision activities are examples of activities normally covered under the Davis-Bacon contract labor provisions as

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they are not functionally incidental to the delivery of the traffic control devices, but rather comprise construction work the company performs in the role of a subcontractor. Any contractor performing these duties will need to be listed on a Subcontractor Request and their employees performing the duties will need to be listed on a Certified Payroll form and submitted following the appropriate procedures.

1. Setting up barricades, cones, barrels, flashers, signs, arrow boards, etc. after initial delivery.
2. Erecting temporary advance warning signs, portable traffic signals, speed display signs, message boards, arrow panels, temporary asphalt rumble strips, etc.
3. Placing temporary sign boards.
4. Moving barricades, cones, barrels, flashers, signs, arrow boards, etc. as construction work progresses or for lane closures and changes.
5. Marking out locations for placement of MPT Equipment.
6. Any other work performed on MPT is considered to be subcontract work, therefore Davis-Bacon wages apply.

Driving time to and from the project:

- Travel time to and from a project “site of the work” is not covered by Davis-Bacon.
- Appendix C contains guidance from the USDOL and provides further information and references regarding the “Applicability of Davis-Bacon to workers on the “site of the work” and USDOL policy regarding material delivery truck drivers”

Projects Governed by the Pennsylvania Prevailing Wage Act:

The Pennsylvania Department of Labor and Industry requires the payment of prevailing minimum wage rates on all public works projects covered under the Pennsylvania Prevailing Wage Act. 43 P.S. §§ 165-2(5), 165-5. Material suppliers and their employees that deliver products to a project, but do not engage in on-site services beyond the unloading of their vehicles to a stock pile are not classified as workmen requiring prevailing wages. Delivery or unloading for locations other than the general drop area or stockpile and any other services performed on the project requires Pennsylvania prevailing wages 43 P.S. § 165-2(7).

If there are questions regarding these items, contact the District Labor and Contract Compliance Agent (DLCCA) for assistance.

REPLACES B.10.3	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 10	PAGE 3-1
DATED 03/01/2011	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT TRUCK DRIVERS (OWNER-OPERATORS) LABOR RATES				

Federal-Aid Projects governed by the Davis-Bacon Act:

This is to provide criteria for evaluating the classification of a truck driver as an owner-operator when the truck is not registered in the name of the operator, but is being leased to the operator.

In accordance with regulations, Section 15E 16 of the U.S. Department of Labor's Field Operations Handbook, owner-operators are not subject to the wage rates prescribed by the U.S. Department of Labor (USDOL). Such owner-operators are to be listed on payrolls with the notation "owner-operator" after each name. Neither hours worked nor wages paid need be shown.

FHWA provided an interpretation of the regulations with respect to truck drivers who lease or rent the truck they drive, rather than owning the vehicle. Their interpretation is to serve as the basis for considering eligibility for owner-operator status as follows:

- I. The owner-operator status may apply to those owner-operators who have a bona fide lease or rental agreement.
- II. The determination of a bona fide lease or rental agreement is to consider the following as a minimum:
 - A. A bona fide lease should contain the following conditions as a minimum:
 1. Names and addresses of the lessor and lessee.
 2. Specific information regarding the truck leased.
 - a. Make of vehicle
 - b. Model of vehicle
 - c. Year
 - d. VIN number
 - e. Capacity
 - f. Other identifying information
 3. Period of lease.
 4. Cost to lease plus any additional charges beyond lessee's expected usage.
 5. Option to purchase at end of lease period with cost established or to be established.

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6. Maintenance and repair provisions.
 7. Insurance requirements.
 8. Registration of the vehicle could be either joint (lessor and lessee) or singular (lessor) according to the type of lease.
 9. Conditions relating to cancellation or non-payment.
- B. A bona fide company would be considered one that operates a business of this nature on a daily basis with no subsidiary relationship with the Contractor or Subcontractor. The second criteria would be registration of business with the Secretary of the Commonwealth. Further, such a business would offer its service or product to anyone with the same conditions.
- C. Overall, the basic intent of the USDOL regulation must not be overlooked, i.e., truck owner-operators are not subject to the prevailing wage rates. This provision is directed to true owners or those seeking to own. A bona fide lease as described above as well as the intent of the contractual parties are the primary considerations. Simply stated, a determination must be made that the lease legitimately satisfies the intent of USDOL regulations as opposed to merely being a "front" to avoid the prevailing wage rate.

Since each situation is different, subjective judgment must be applied when determining if the owner-operator requirements have been met.

- D. A certification should be executed by each driver who cannot show ownership by registration asserting their status as an owner-operator as well as having no business interest in the Contractor's or Subcontractor's operations. The lessor should also provide a similar certification. Each certification should acknowledge the penalties for intentional violation. The Contract Work Hours and Safety Standards Act states that an intentional violation constitutes a Federal misdemeanor (\$1,000 fine and/or 10 years in prison).

It is also important to note that even if it is determined that owner-operator status is warranted, this status applies only to the determined owner – not to whomever physically operates the vehicle.

- E. Since the Contractor is responsible for violations of labor provisions by the Subcontractors, the Contractor is responsible for assuring that all lower tier parties are complying with the Federal requirements, and subject to the same penalties.

Please assure that these criteria are applied in the evaluation of truck drivers who are renting or leasing their trucks and are claiming owner-operator status for work at the project site or off-

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site locations in proximity to the actual construction site, which are dedicated exclusively to the performance of work for the project.

100% State Funded Projects or Projects Governed by the Pennsylvania Prevailing Wage Act (PWA):

Under the PWA, workers entitled to Pennsylvania prevailing wages are those workers who perform work directly upon the public works project. Owner-Operators acting as material suppliers that deliver products to the project in on-site services and do not work beyond unloading of their vehicles are not classified as workmen entitled to the Pennsylvania prevailing wages.

However, these employees are *workmen* and must be paid the Pennsylvania prevailing wage if they engage in any of the following activities on the public works project: 1) transport of materials on the public works project (i.e. the transport of material from one location on the project to a different location); 2) transport of materials from a batch plant to the project (the batch plant does not have to be on the job site, but must be dedicated solely to the public works project at issue), or 3) after delivery of materials, the driver performs the on-site transportation and distribution of the materials to specific locations identified to the material supplier by the contractor/subcontractor. Certified payrolls are also required.

Since the Contractor is responsible for violations of labor provisions by the Subcontractors, the Contractor is responsible for assuring that all lower tier parties are complying with the requirements.

REPLACES B.10.4	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 10	PAGE 4-1
DATED 04/25/2013	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT ASSESSMENT OF LIQUIDATED DAMAGES FOR LABOR COMPLIANCE VIOLATIONS				

The following sample letter is to be used by the District to notify a Contractor when it has been determined that the Contractor has failed to pay proper overtime rates. A copy of the letter is to be sent to the Bureau of Project Delivery, Contract Management Section (CMS), who will coordinate the matter with the Federal Highway Administration. Upon receipt of the Contractor's written reply, the District is to send a copy thereof to the CMS together with completed Form [DOT F4220.6](#), Summary of Labor Standards Investigation Report. If nonassessment of liquidated damages is recommended by the District, it must be fully justified in the report.

LETTER

Pennsylvania Federal-aid Project No.

PDQ Construction Corporation
110 Union Avenue
Kosekburg, Pennsylvania 88888

Gentlemen:

Use for contractor violation

An examination of your certified payrolls and payroll-related records for the weekly payroll periods ending January 6, 1995, and January 13, 1995, has revealed the failure to pay proper (straight time and overtime) wage rates to (number of) laborers and mechanics engaged in performance of contract work on the project cited above. A list is attached of the names of the workers whose wages were affected, together with the amounts due each.

Use for subcontractor violation

An examination of the certified payrolls and payroll-related records of your subcontractor, Hare and Tortoise Electric Company, for the weekly payroll periods ending January 6, 1995, and January 13, 1995, has revealed the subcontractor's failure to pay proper (straight time and overtime) wage rates to (number of) its laborers and mechanics engaged in performance of contract work on the project cited above. A list is attached of the names of the workers whose wages were affected, together with the amounts due each. This list is furnished to you because, as the contractor, you have the primary responsibility to this Department for proper wage payment in accordance with the terms of the contract. However, a complete copy of this letter is also being directed to Hare and Tortoise Electric Company.

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Use for either Contractor or Subcontractor violation

You are requested to take prompt action to the end that each of the employees listed in the attachment will receive the full amount due. As proof of payment, please submit an amended certified payroll for each weekly period involved. (If the Commonwealth so desires, it may also ask for a machine copy of both sides of any check issued in payment, or a machine copy of any cash receipt voucher signed by an employee).

The attachment also shows a schedule of liquidated damages computed at \$10 for each calendar day for which an employee did not for any reason receive proper overtime pay in accordance with the requirements on the construction contract, the Work Hours and Safety Act of 1962, as amended, and regulations and instructions issued by the U.S. Secretary of Labor pursuant to the Act.

This letter of notice is being sent by certified (or registered) mail, return receipt requested. The assessment of liquidated damages in the amount computed will be considered final, subject to the concurrence of the Federal Highway Administrator, unless a written appeal, addressed to the Federal Highway Administrator, but directed to the FHWA Administrator through this Department, is received within 60 calendar days of the date whereon you received this letter of notice. The written appeal should show all reasons why it is believed that the sums computed should not be assessed.

If no appeal is filed within the time period set forth above, the sums computed as liquidated damages will become finally assessed and will be withheld, for the use and benefit of the United States, from the sums otherwise due you under the construction contract.

In the event an appeal is filed within the time period set forth above, you will be advised by this office of the decision of the Federal Highway Administrator. If such a decision is adverse to your interests, it will settle the matter insofar as the contract is concerned. The liquidated damages will become finally assessed and will be withheld, for the use and benefit of the United States, from the sums otherwise due you under the construction contract. You will, in such event, receive the notice by certified (or registered) mail, return receipt requested. However, in accordance with the provisions of the Act, you will then be provided a period of 60 calendar days within which to file a claim for the sums assessed in the U.S. Court of Claims.

If an appeal is filed within the time period set forth above and the Federal Highway Administration agrees, with the concurrence of the U.S. Secretary of Labor in appropriate instances, that the sums computed as liquidated damages should not be assessed, you will be advised by ordinary mail that no further liability exists for the assessment of liquidated damages in connection with the violations noted.

REPLACES B.10.5	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART B	SECTION 10	PAGE 5-1
DATED 03/01/2011		DATE April 1, 2021		
SUBJECT REQUESTS FOR CONTRACTOR PAYROLL INFORMATION				

Normally, the Department does not release Contractor Payroll information to others except for Federal and State agencies. However, pursuant to 65 P.S. §§ 66.1 et seq. (as amended) and Commonwealth of Pennsylvania Management Directive 205.36, the Department of Transportation (DOT) shall process all Right to Know Law (RTKL) requests according to the following policy.

All RTKL requests must be submitted in writing to DOT's RTKL Office and must be addressed to the RTKL Official as follows:

PennDOT Open Records Officer
Bureau of Office Services
Pennsylvania Department of Transportation
400 North Street
PO Box 3451
Harrisburg, PA 17105-3451
FAX: 717-787-8779
E-MAIL: PENNDOT-RightToKnow@pa.gov

All RTKL requests must be submitted in writing and must:

- Identify a name and address to which the agency should address its response;
- State that the request is being made pursuant to the RTKL;
- Be submitted in person, by e-mail or by facsimile;
- Be sufficiently specific to enable the Agency to ascertain which records are being requested;
- Be from a person that is a legal resident of the United States.

RTKL requests may be made using [PennDOT Form OS-100](#) or the form available at the website of the Office of Open Records openrecords.pa.gov.

The following fees shall be applicable to all RTKL requests:

- Photocopies – a photocopy is a single-sided copy or one side of a double-sided copy 8.5" x 11" page - \$0.25
- Refer to <http://www.dot.state.pa.us/public/bureaus/BOS/PennDOTRTKLAgencyPolicy.pdf> for comprehensive Fee schedule.
- Charges for other services and materials will be determined on a case-by-case basis based upon the applicable cost to the Department, including PC diskettes copies,

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microfilm/microfiche copies, postage, redaction, user fees for use of Department computers for access to public records, and certification.

The RTKL Official may require a requester to prepay seventy-five percent (75%) of the total fees if the fees required to fulfill the request are expected to exceed one hundred (\$100) dollars.

Do not make any information available to any non-government party without approval from the Department's RTKL Official.

REPLACES B.10.6	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART B	SECTION 10	PAGE 6-1
DATED 08/08/1996		DATE April 1, 2020		
SUBJECT SURVEY CREW CLASSIFICATIONS - 100% STATE PROJECTS				

The Department of Labor and Industry has determined that survey crews are covered by the Prevailing Wage Act (Act) whenever these individuals are employees of a construction company, a general contractor or sub-contractor, and perform "new construction layout". This would include all new layout work, stake out for a bridge footer, or a small bridge replacement project on existing alignment. Please note that "new construction layout" does not include preconstruction design layout work before a project is in construction status.

The applicable Prevailing Rate can be found under the Carpenters' Classification where "Instrument Men" is indicated. If this classification is not found in the "Heavy/Highway" wages, it will be located in the "Building" wages.

An employee of the crew who performs work, such as clearing brush or similar work, would be classified as a laborer and the applicable prevailing rate would apply.

REPLACES B.11.1	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 11	PAGE 1-1
DATED 04/01/2020	PROJECT OFFICE MANUAL	DATE April 1, 2021		
SUBJECT RESPONSIBILITY FOR EEO CONTRACT COMPLIANCE ACTIVITIES - GUIDELINES FOR THE INSPECTOR-IN-CHARGE				

The District's responsibility for construction related Equal Employment Opportunity (EEO) matters rests with the Assistant District Executive- Construction (ADE-C) and their staff.

1. The Bureau of Equal Opportunity (BEO), Contract Compliance Section and the ADE-C are jointly responsible for the enforcement of all contract provisions pertaining to EEO.
2. The BEO Contract Compliance Section has the prime responsibility for monitoring and conducting EEO compliance reviews. (Desk Audits, Field Audits, and On-Site)
3. The BEO Field Agent shall provide training and monitor the Inspectors-in-Charge (IICs) in EEO matters, discuss EEO provisions at required preconstruction conferences, coordinate the submission of EEO reports, facilitate training programs for the District, and act as liaison with the Central Office Contract Compliance Section.
4. The BEO Field Agent shall assist the project IIC in monitoring and reporting External Discrimination Complaints. When the Department is made aware of complaints filed by employees of contractors or subcontractors, not PennDOT employees, the affected contractor, not the BEO, should be prompted by the District Project Manager to launch an investigation and keep the District Labor Contract Compliance Agents (DLCCAs) and BEO informed. The affected contractor is generally the prime contractor. When two or more prime contractors are involved in the complaint, BEO will escalate through channels to the Office of Chief Counsel (OCC) for guidance.
5. The project IIC's responsibilities include, but are not limited to:
 - a. Ensuring that EEO special provisions are inserted in all subcontracts.
 - b. Enforcing the contract EEO special provisions and monitoring the compliance status of the Contractor on a day-to-day basis.
 - c. Informing the DLCCA or ADE-C of any discrepancies or problems that require resolution at a higher level.
 - d. Attending all meetings and reviews pertaining to their projects when possible.
 - e. Collecting and reviewing all applicable EEO reports for accuracy/completeness; denoting approval by signature, retaining one copy for their files, and submitting the original and one copy to the District Construction Unit by the prescribed due date(s).

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- f. Maintaining control records for the receipt of applicable EEO Forms, i.e., The [EO-363](#), [EO-364](#), and [EO-365](#) (Training Program, Enrollment and Monthly Training Report). Please submit all OJT Trainee information and supporting documents through ECMS.
- g. Reviewing Contractor's bulletin board frequently for content and appearance. Notices and posters setting forth the Contractor's EEO policy should be placed on a bulletin board in an area readily accessible to employees and applicants for employment. A review checklist is included in POM Section B.11.5.
- h. Maintaining records and documentation of all EEO matters pertaining to the project as a permanent part of the project records (i.e., EEO reports, discussions, sub-contract approvals, alleged discrimination complaints, etc.). Please submit all EO CUF forms and supporting documents through PPCC.

A review checklist is included in POM Section B.11.5.

- 6. The submission of EEO report forms shall be in accordance with the required due dates.

Contractors are to be advised that failure to submit the reports as required may result in an unsatisfactory EEO performance evaluation and/or the withholding of current estimates until the requirements are met. The prequalification of habitual offenders could be adversely affected.
- 7. The District EEO compliance activities will be reviewed from time to time by the Bureau of Project Delivery as part of the Quality Assurance Program.
- 8. When experiencing problems, contact the DLCCAs, BEO Field Agents, and/or the BEO, Contract Compliance Section Chief, at (717) 787-5891.

REPLACES B.11.2	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 11	PAGE 2-1
DATED 04/01/2020	PROJECT OFFICE MANUAL	DATE April 1, 2021		
SUBJECT EEO FORM REQUIREMENTS				

Form FHWA-1391 (Federal-aid Highway Construction Contractors Annual EEO Report)

On Federal/Federal-aid Projects, all Prime Contractors and Subcontractors with contracts of \$10,000 or more are required to annually submit their project(s) work force worked the last active payroll period preceding July 31 of the current year. The [FHWA-1391](#), Federal-aid Highway Construction Contractors Annual EEO Report, is submitted electronically. Log in using your ECMS username and password. Complete and submit the FHWA-1391 electronically at <https://www.dot18.pa.gov/fhwa1391> by August 15 of each year.

Form EO-354 (DBE Commercially Useful Function (CUF) Report)

For all Disadvantaged Business Enterprises (DBEs), the IIC or their designee is to complete Form [EO-354](#), Commercially Useful Function (CUF) Report, within five (5) business days from the date the DBE begins work or five (5) business days from the date material that is to be used for DBE credit is received on the project. A new CUF Report must be completed once in a construction season; and anytime a DBE performs a new or different scope of work. You may maintain completed CUF reports in the project files when they *cannot* be work-flowed through the Pennsylvania Project Collaboration Center (PPCC) system. Please continue to monitor the DBE firm throughout the life of the project to ensure that CUF requirements are being met. If DBE credit is being claimed for any material costs included in a DBE subcontract or agreement, ensure that purchase orders for the materials are being submitted monthly. Compliance with CUF requirements must be monitored throughout the life of the project.

Form EO-354 is work-flowed through the Pennsylvania Project Collaboration Center (PPCC) for processing. Every CUF Report is reviewed when received. If, at any time, you should have questions regarding the process, procedures or review results, please contact the Bureau of Equal Opportunity (BEO). BEO will determine if corrective action is warranted and advise the District accordingly. The Inspector-in-Charge (IIC) may be contacted for the request of information and/or supporting documentation.

Form EO-363 (Contractor's On-The-Job Training Program Classifications For PennDOT Approval)

If the Federal/Federal-aid/State project includes trainees, the Contractor must submit the original [EO-363](#), Contractor's On-The-Job Training Program Classifications For PennDOT Approval, to the PennDOT Project IIC, no later than 10 days after the Notice to Proceed date. The IIC will workflow the submission through ECMS. The submission will then be workflowed to both the District Labor Contract Compliance Agent (DLCCA) and to the BEO for approval by the On-The-Job Training (OJT) Program Administrator.

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Form EO-364 (PennDOT OJT Program Enrollment Form)

If the Federal/Federal-aid/State project includes trainees, the Contractor must submit the original [EO-364](#), PennDOT OJT Program Enrollment , to the PennDOT Project IIC, PRIOR to each training candidate starting work on the project. The IIC will review the form for correctness and completeness, sign and forward the form to the DLCCA, with signatures from the Contractor’s Training Candidate and the Contractor’s Project Manager, no later than one day after receipt of the forms. The DLCCA will submit the form to the BEO for approval by the OJT Program Administrator.

Form EO-365 (Highway Contractor’s Monthly Training Report)

If the Federal/Federal-aid/State project includes trainees, the Contractor must submit the original [EO-365](#), Highway Contractor’s Monthly Training Report. The Contractor is to submit the original EO-365 to the Project Office for review, with signatures from the Contractor’s Representative and Training Candidate, no later than the 5th day following the end of the pay period prior to the 30th of the month. A signed copy will be sent to the DLCCA no later than the 5th of the following month and to the BEO for verification by the OJT Program Administrator, no later than the 10th of the following month.

The EO-363, EO-364, and EO-365 Training Program Data is now work-flowed through ECMS for processing, reviewing and approval from district and BEO personnel. The EO-363 data must still be submitted, to the Department 10 days after the “Notice-To- Proceed” has been issued. If the EO-363 submission has not been received, comments and/or documentation must accompany the submission addressing why the submission is late and what progressive steps the contractor will take to ensure timely submissions in the future. That documentation must be posted at the same time the EO-363 is being submitted to avoid any delay in approving the training program. Any documentation that needs to be submitted with the EO-364 i.e., good faith efforts, apprentice indentured/RAPID papers, etc. needs to be posted and submitted at the time the EO-364 is submitted to avoid a delay in approving. If, at any time, you should have questions regarding the process, procedures or review results, please contact the OJT Program Administrator. The IIC is responsible to ensure that the request of information and/or supporting documentation is attached in the ECMS system by the contractor prior to **accepting** and **forwarding** the report to Central Office for approval.

Form EO-400 (Highway Construction Contractors Monthly EEO Report)

Each Contractor and Subcontractor with a contract in excess of \$10,000 for any Federal/Federal-aid, 100% State or Municipal project must complete Form [EO-400](#), or the Highway Construction Contractors Monthly EEO Report. This report must be kept on file by the contractor and presented to the Department, BEO or FHWA upon request.

REPLACES B.11.3	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 11	PAGE 3-1
DATED 04/01/2020	PROJECT OFFICE MANUAL	DATE April 1, 2021		
SUBJECT REVIEW AND APPROVAL OF TRAINING PROGRAMS FOR TRAINEES ON FEDERAL-AID AND 100% STATE CONSTRUCTION PROJECTS				

When construction contracts include a training item and the corresponding special provision, the following procedure is to be followed in the processing and review of the training program submitted by the Contractor to the District for approval:

1. Within ten (10) days following the Notice to Proceed, the Contractor is to submit through the Engineering Construction Maintenance System (ECMS), to the Assistant Construction Engineer/Assistant Construction Manager (ACE/ACM) or Inspector-in-Charge (IIC), their [EO-363](#) data that identifies the number of trainees to be trained in each selected classification and the corresponding training programs (if applicable) to be used. The distinction between Apprentices and On-The-Job Trainees (OJT) must be understood.
2. The Contractor's EO-363 submission will first be reviewed by the IIC, then workflowed to the District Labor Contract Compliance Agent (DLCCA) or the Assistant District Executive-Construction (ADE-C) designee for the following:
 - a. The Contractor's training program (EO-363) must contain original signature and the date it was completed. The contractor will print the submitted data, have the trainee sign it, and then upload it as an attachment in ECMS.
 - b. The number of trainees submitted must comply with the number designated in the contract. (1000 HOURS = 1 TRAINEE)
 - c. Approximate start date for each trainee (at minimum Month & Year)
 - d. A Professional Completion or Participation Certificate will be available for use and ready for the contractor's logo at the end of the training.
 - e. Apprentices are permitted when they are individually registered under a bona fide apprenticeship program registered with a state apprenticeship agency, which is the PENNSYLVANIA APPRENTICESHIP AND TRAINING COUNCIL. The Contractor is to attach a copy of the apprenticeship agreement from the Registered Apprenticeship Information System (RAPIDS) and/or a cover letter from the apprenticeship agency outlining the apprentice's present status toward completion of their apprenticeship program and their skill level % wage rate. This should be done in ECMS when submitting the EO-364 data and as needed.

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- (1) Trainees coming into the program from approved Apprenticeship programs should be called Apprentices not On-The-Job Training (OJT) Trainees. Both Apprentices and OJT Trainees are to be persons of the targeted group (i.e., minority, women or economically disadvantaged person).
- (2) If the Contractor's training program is to be a PennDOT Approved On-the-Job training program, the program number can be selected from a drop down menu when the EO-363 is submitted.
3. If the Contractor's EO-363 is submitted and is not acceptable, or if in the opinion of the ADE-C designee, IIC and/or DLCCA, the character, duration or nature of the project operations cannot support the proposed training classification, the training program will not be conditionally approved. The Contractor's submission will be returned for correction and resubmission.
4. If the Contractor's submission is satisfactory, the ADE-C or their designee will forward through ECMS. the submission to the OJT Program Administrator (Bureau of Equal Opportunity (BEO)) along with a cover letter and any attachments addressing that the contractor has been given conditional approval to proceed. The Contractor will proceed to move forward with their good faith efforts to locate, recruit, and hire a program eligible candidate for enrollment to complete the training program. Every effort shall be made to provide this conditional approval or the return of an unsatisfactory program within ten (10) days of the receipt of the program in the District Office.
5. The BEO will review and approve or disapprove the submission, consulting with the Bureau of Project Delivery (BOPD), when necessary, to evaluate unusual or questionable situations.
6. The OJT Program Administrator will notify the ADE-C or their designee of approval or disapproval.
 - a. Disapproval will be denoted by the training program workflow on the EO-363 with an explanation in the comments box. The District will return the training program to the Contractor for correction. Upon receipt the corrected program from the Contractor, the District will follow the same procedures outlined in paragraph 4.
 - b. Approval will be denoted by putting in a comment under the training program EO-363 submission by the OJT Program Administrator.
7. Changes in classification will be considered during construction provided sufficient time remains to complete the proposed classification. The previously approved EO-363 data should be amended, and workflowed to the ADE-C (or their Designee) for review in

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accordance with paragraph 4. If the reviewer concurs with the revision made, the revised data will be workflowed to the OJT Program Administrator requesting concurrence in the approval of the revised EO-363 data.

Trainees proposed as a result of revised programs must not start work prior to the conditional approval of their enrollment [EO-364](#) granted by the IIC.

8. Should a trainee be unable to return to a project to complete a training program following a layoff or for other reasons, **every Good Faith Effort** (documented) (see **POM Section B.11.4**) is to be made by the Contractor to replace that trainee with another target group candidate. This situation may cause a revision in the original program as the new trainee would begin a new program or the existing program with zero hours completed. The IIC should always be consulted when changes to an approved program are contemplated.
9. Proposed training programs considered to meet the standards established a-c below will be approved only after receiving FHWA concurrence.
 - a. The primary objective of the on-the-job training program is the upgrading of minority group workers, women, and economically disadvantaged persons.
 - b. Their development toward journeyman status or upward mobility in skill development.
 - c. The minimum length and type of effective and meaningful training is clearly identified.
 - d. The proposed training program outline must be submitted to the OJT Program Administrator via email for review and approval prior to it being approved to satisfy a training obligation.
 - e. When the OJT Program Administrator's review of the proposed training program outline results in concurrence, and meets the standards set forth in the Trainee-Special Provision, comments will be entered and workflowed to PennDOT's BOPD requesting a District Project Engineer's concurrence in the determination. Upon receipt of their concurrence, the proposed training program outline will be submitted to FHWA requesting certification and approval.
 - f. The classification(s) proposed must be appropriate for the specific project, (i.e., the character, duration and nature of the project operations must readily support the proposed training program).
 - g. The training program must be completed within the time required to perform the contract items of work involved. Form D-476, Distribution of Contract Time, and related information should be used for this analysis.

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- h. The proposed hourly wage rate to be paid to the OJT Trainee (Non-Union) must also be identified.
- (1) No Less Than the Common Labor Rate for the project is to be paid throughout the “Core” training. Upon completion of the Core training the successful trainee should receive the “project’s prevailing wage rate for the duties being performed.”
 - (2) For apprentices, their percentage rate is dictated by the year they are enrolled in their program. For example, 1st year apprentices usually get paid 60% of the journeyman rate.

REPLACES B.11.4	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 11	PAGE 4-1
DATED 04/01/2020	PROJECT OFFICE MANUAL	DATE April 1, 2021		
SUBJECT GUIDELINES FOR IMPLEMENTATION OF TRAINING PROGRAMS/REPORTS				

The following guidelines are to be used for monitoring Training Programs on Federal-aid Projects which include trainees. The administration of this training program is not intended and shall not be used to discriminate against any applicant for training, whether a member of a targeted group or not.

1. Payments for hours worked in a training position will not be paid until the District has received concurrence with the Inspector-in-Charge's (IIC's) conditional approval of the proposed enrollment for training from the On-The-Job Training (OJT) Program Administrator. Final approval is demonstrated by a stamp dated Bureau of Equal Opportunity (BEO) approved Form EO-364, acknowledging the approved start date.
2. The [EO-364](#), Trainee Enrollment information, must be completed by the Contractor prior to filling any training position. This report is to ensure the Contractor has made a Good Faith Effort (GFE) to recruit minority, women, or economically disadvantaged individuals, and the selected trainee has not previously completed training or been successfully employed in the same classification. Proposed enrollment will be approved only if they meet the standards set forth with regard to:
 - a. The primary objectives of training and upgrading minority group workers, women and economically disadvantaged persons.
 - b. The development toward journeyman status or upward mobility in skill development.
3. The Contractor must workflow the EO-364 to the project IIC prior to the employee starting training in any classification. The project IIC or their designee will review the data to ensure that it has been completed accurately, and the required supporting documentation, as identified in the instructions, has been included with the submission, and that the proposed enrollment appears to meet the intent of the Trainee Special Provision. The Inspector-in-Charge (IIC) electronically acknowledges that they have conditionally approved the proposed enrollment. The EO-364 should be workflowed through ECMS to the District Labor Contract Compliance Agent (DLCCA). After the DLCCA has reviewed the EO-364 for completeness and ensured that the required supporting documentation has been included, when appropriate, it is workflowed to the OJT Program Administrator within five (5) days of the IIC's conditional approval date, requesting concurrence and the conditional approval granted.

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- a. The supporting documentation required (but not limited to) for the enrollment of an apprentice:
 - i. A copy of the Union’s referral documentation such as a copy of the apprentice’s indenture (or registration) papers, or a copy of a print out from the Registered Apprenticeship Information Program System (RAPIDS). Documentation that identifies (but is not limited to) the apprentice’s current skill level, the wage rate for their skill level and benefits package; the journeyman rate for their apprentice classification; the total hours of their apprenticeship’s on-the-job training hours completed to date; and the date the apprentice is scheduled to achieve journeyman status. A copy of the training outline listing the training the apprentice will receive on the project based on their level or year of their apprenticeship program. This information is to be provided by the training provider and submitted in ECMS with their submission of a the EO-364 data to the IIC prior to beginning any training.

- b. The supporting documentation required (but not limited to) for the enrollment of a Nonunion Trainee:
 - i. If the candidate has been successfully employed in the highway construction industry, their work history and the earnings level they achieved to date should be acknowledged especially if they have been previously employed in the proposed training classification, in an effort to help to demonstrate how their successful completion of the proposed training would provide an effective and meaningful training and be in compliance with the Training Special Provisions. If the Prime is proposing to progressively train their candidate in a laborer classification, they should be identifying that in an effort to ensure they have selected the appropriate training program outline. (The skill level for the duties to be trained to perform as identified in the project’s prevailing wage rate listing should be referenced to help determine the accurate entry level laborer training to be provided). A completed copy of the training program outline must be submitted with the EO-364 submission.

- c. The supporting documentation required (but not limited to) for the enrollment of a current employee:
 - i. When the Prime is not hiring new employees to work on their project that has been assigned Training Special Provisions, they may propose to enroll a current employee to upgrade their skill level and earning’s potential. When this is proposed, the current employee’s work history and current earnings level achieved working in the industry must be acknowledged, in an effort to demonstrate how the proposed enrollment would provide an effective and meaningful training and be in compliance with the Training

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Special Provisions. The Prime should also acknowledge whether or not the proposed training will lead to a career opportunity and/or an upgraded position with their company. Again, a completed copy of the selected training program outline must be submitted with the EO-364 submission.

4. Written documentation of "Good Faith Efforts" to recruit a minority or women must accompany any initial report reflecting the hiring of an economically disadvantaged white male to fill a training slot. Documentation supporting the white male's economically disadvantaged status must be provided; if the white male in question is an apprentice, documentation must be provided by their union. It is expected that sources other than unions be contacted that are likely to yield individuals of the targeted groups.
5. Hours completed by a trainee working on-site prior to the IIC granting conditional approval of the proposed enrollment will not be counted toward the training programs hours and will not be eligible for payment under the bid item for training. Appeals will be reviewed by the District's Assistant District Executive-Construction (ADE-C), the DLCCA, and the OJT Program Administrator.
6. Payment for trainees will be made as the hours completed are reported and verified. Payment may be deleted at a later date if it is determined that the individual has previously been trained in the same class, that the work assigned is not within the training program, or the trainee has been terminated without ample opportunity to complete the program. (Contractor's default)
7. A trainee or apprentice will not be started or placed in a classification if ample time is not available for the trainee to complete hours assigned to that classification.
8. Due dates are to be adhered to by the Contractor regarding the following reports. The EO-364 Trainee Enrollment information should be submitted immediately to the project office who in turn should workflow the information to the District Labor Contract Compliance Agent immediately through the ECMS system. If the OJT Program Administrator's review of the EO-364 information finds that supporting documentation is missing and/or there are questions regarding the validity of the proposed enrollment, it will be work-flowed back to the DLCCA or designee next in the work-flow, identifying the deficiencies and the need for them to be addressed, and returned for processing. After the OJT Program Administrator has received the amended EO-364 information, a final review can be completed. If the OJT Program Administrator concurs with the IIC's conditional approval, the EO-364 will be accepted through ECMS with the appropriate comments. The training provider is to obtain an approved copy via the ECMS and provide it to the trainee.

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9. If a trainee is terminated as a result of injury, resignation, firing or accepting employment elsewhere prior to being recalled, a replacement must be obtained as soon as possible. If there are insufficient hours of work remaining for that classification, the Contractor, IIC, and the DLCCA must review the remaining scope of work for the possibility of selecting another training class. Subsequent to this review, if the Contractor and the District Personnel conditionally concur that there are no other possible training classifications (due to no fault of the Contractor), a summary of the determination is to be submitted to the OJT Program Administrator requesting their concurrence in the District's conditional determination. When concurrence is granted, the training classification will be determined to be closed and hours of training completed paid for.
10. Trainees should not receive preferential treatment when administering work rules, but we would expect counseling be given prior to termination. The IIC and the OJT Supportive Services' Field Counselor are to be informed of problems with the trainee's work performance and/or other contributing issues.
11. The IIC must insure all applicable items on the training report (See [EO-365](#)) have been addressed by the Contractor prior to forwarding the original to the DLCCA.

NOTE: The "hours of training" reported during the month will automatically be tracked in the ECMS system.

Signatures must be on the original. If a trainee cannot sign the report due to absence, lay-off, working on another project, etc., it must be noted on the report "Trainee unavailable to sign due to ...". The Company Representative identifying that should at minimum, initial and date their acknowledgement. Signature by the IIC (or their designee) indicates concurrence with the hours worked in the program class and that the EO-365 data is accurate.

12. The EO-365, Monthly Training Report is due to the project IIC by the 30th of the month being reported through the ECMS system. The District Labor Contract Compliance Agent should accept and submit the report through the ECMS system by the 5th of the following month, and it is due to BEO Central Office by the 10th of the following month through the ECMS system.
13. If a Contractor fails to complete the required number of trainees and it is determined by the District and the BEO that the Contractor did not demonstrate a "Good Faith Effort" to comply, a memo regarding the same will be placed in the Contractor's performance file and so noted on the past performance record of the Contractor. The new On-the-Job Training Maintenance System (OMS) system will issue a "show cause email" notice to the Contractor to determine if other contract administrative remedies are warranted. The Bureau of Project Delivery, Contract Management Section, Prequalification Office, is also to be notified of these determinations.

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14. The Department has a contract with the Prime Contractor. It is the responsibility of the Prime Contractor to comply with all provisions. If training is assigned to a Subcontractor, it is still the responsibility of the Prime Contractor to ensure compliance with the provision.

The project IIC should ensure that the Contractor has provided the trainee(s) a copy of their training program outline and all reports, including the EO-364 and EO-365, which can be printed directly from the ECMS system. When applicable, if a trainee successfully completes their training on the project, the project IIC should verify that the trainee(s) was provided a copy of a professional completion certificate showing the type and length of training satisfactorily completed. The District is to notify the Contractor and inform the BEO, who will provide the necessary follow up for this item.

REPLACES B.11.5	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 11	PAGE 5-1
DATED 04/01/2020	PROJECT OFFICE MANUAL	DATE April 1, 2021		
SUBJECT EQUAL EMPLOYMENT OPPORTUNITY (EEO) CHECKLIST FOR PROJECT INSPECTOR-IN-CHARGE				

NAME OF CONTRACTOR: _____

PROJECT ID: (SR, CONTRACT NO./COUNTY) _____

*Denotes posters available in Spanish

1. Are the notices and posters posted on each project bulletin board according to the Project Bulletin Board Checklist in POM Section B.1.21?

_____ YES

_____ NO

2. Are the following EEO clauses physically attached or referenced in all applicable subcontracts?

_____ ITEM 3999-9999 (1999-9999)/ITEM 1999-0000 TRAINING (Federal-aid/100% State)

_____ (DSP12) EXECUTIVE ORDER 11246 AS AMENDED (APPENDIX A & B) (Federal-aid)

_____ (DSP10) COMMONWEALTH **NONDISCRIMINATION CLAUSE** (All Contracts)

_____ (DSP8) REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS (FORM **FHWA-1273**)

_____ (DSP8) ATTACHMENT A - EMPLOYMENT PREFERENCE FOR APPALACHIAN CONTRACTS (FORM **FHWA-1273A**) (Applicable to Appalachian Contracts only)

_____ (DSP3) PROVISIONS CONCERNING THE AMERICANS WITH DISABILITIES ACT (ADA) (MGMT. DIR. 215.12) (All Contracts)

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3. Are you aware of Contractor's minority and female composition of the work force? Please have the contractor document minority and female representation into PPCC, by requiring them to submit at least one (1) EO-400 Report before the onset of the project.

_____ YES (Has the contractor's EO-400 Report been uploaded?) Please discuss the report as an agenda item at the next project progress meeting.

_____ NO (If no, request contractor to provide the number of minorities and females working in each classification. If low or no representation exists, inform Contractor that efforts to recruit for the targeted group individuals must be made and documented when hiring and/or increasing the existing workforce. Again, discuss as an agenda item at project progress meeting. If conditions persist, inform Contractor that you will have to notify the Bureau of Equal Opportunity (BEO).)

4. Are you aware of the U.S. Department of Labor (USDOL)/Office of Federal Contract Compliance Program's (OFCCP's) minority and female work hour goals?

_____ YES (Discuss as an item at preconstruction meetings and project progress meetings. However, PennDOT monitors but does not enforce workhour goals)

_____ NO (Secure information from District Labor Contract Compliance Agent (DLCCA) or see DSP12 - Executive Order 11246, Appendix A and B.)

5. Can you provide information regarding the name, purpose, and location of your monitoring report?

_____ YES

_____ NO (If no, check "The Labor & Contract Compliance Manual for Inspector In-Charge" and/or contact District or Central Office for monitoring form.)

6. Have you received and reviewed applicable EEO reports (such as those required by PennDOT's OJT Program) to ensure completeness; for signature by Contractor and Trainees? Have you signed off, dated reports and forwarded to District office?

_____ YES

_____ NO

(If reports are incomplete, return to Contractor immediately for correction, with a due date of return and notify the DLCCA that the reports have been returned to the Contractor.)

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7. Ensure the following submissions are received by respective due dates. (Check off applicable forms.)

_____ **EO-363 CONTRACTOR'S OJT TRAINING PROGRAM CLASSIFICATIONS FOR PENNDOT APPROVAL**(Required submission to District On-The-Job Training (OJT) Designee within 10 calendar days of project's Notice To Proceed (NTP) date.)

_____ **EO-364 TRAINEE ENROLLMENT** submittal (Required prior to Trainee starting.)

_____ **EO-365 MONTHLY TRAINING REPORT** submittal (By the 5th day following the end of the pay period prior to or by the 30th of the month.)

(If not, inform Contractor that if reports are not submitted by due date, progress payment will be withheld and/or comments made on Contractor's past performance report.)

8. Have you received the workflow of the approved "Contractor's On-The-Job Training Program Classifications for PennDOT Approval" for the EO-363?

_____ YES

_____ NO (If no, contact District OJT Designee)

9. Are you aware if Trainees are being trained according to the approved Training Program?

_____ YES

_____ NO (If no, verify. If Trainee is performing other than approved training task, Trainee must be paid applicable rate, and hours are not to be counted toward training or paid from the training item.)

10. Has a Representative of the OJT Supportive Services Consultant visited your Project and met with the "trainees"? (Applicable with special training provisions)

_____ YES (If yes, indicate who and date(s).)

_____ NO

_____ NOT SURE

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11. Are you monitoring the Disadvantaged Business Enterprise (DBE) firms being utilized on the project to ensure that Commercially Useful Function (CUF) requirements are being met?

- YES
 NO (If NO, begin doing so immediately.)

(To perform a CUF, a DBE firm must be responsible for execution of the work of the contract and carry out its responsibilities by actually performing, managing, and supervising the work involved; or, with respect to materials and supplies used on the contract, be responsible for negotiating price, determining quality and quantity, ordering the material, and installing (where applicable) and paying for the material itself.)

12. Are you receiving copies of material purchase orders on a monthly basis when DBE credit is being claimed for a Regular Dealer or Supplier?

- YES
 NO (If NO, complete Form [EO-354](#) for the applicable DBE firm and notify the Prime Contractor immediately that corrective action is required.

13. Are you verifying whether the DBE, Diverse Business (DB) and/or Small Business Enterprise (SBE) monthly progress payments are being entered into the ECMS system, even if the payment is \$0.00?

- YES
 NO (If NO, begin doing so immediately.)

14. Have you informed the DLCCA and/or BEO, (717) 787-5891, if you are experiencing extreme difficulty with Contractor not complying with EEO/Americans with Disabilities Act (ADA) Contractual obligations (i.e., late or not submitting reports, no efforts to recruit and hire minorities and/or women, discrimination complaints, failure to submit DBE payments or meet DBE goals, etc.)

- YES (If yes, whom did you notify and when?)
 NO (If no, do so immediately.)
 NO PROBLEMS

15. Are you aware of the procedures the Contractor must follow for making any changes involving DBE participation?

- YES
 NO (If NO, see Publication 408, Appendix C, DSP7 and POM Section B.11.6)

REPLACES B.11.6	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 11	PAGE 6-1
DATED 04/01/2017	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT ADMINISTERING DISADVANTAGED BUSINESS ENTERPRISE (DBE) REQUIREMENTS IN FEDERAL-AID CONTRACTS				

The District Labor Complaint Compliance Agent (DLCCA) or their designee must designate a person who will be the primary contact for DBE matters with Central Office. This person is the primary contact regarding DBE matters and serves as a liaison between the Project and Central Office.

The following procedures are for administering the Designated Special Provision (DSP-7) – Disadvantaged Business Enterprise Requirements:

I. Preconstruction Meetings

A. The Minority Participation and Commitment must be thoroughly reviewed to ensure the following:

1. The DBEs listed on the Minority Commitment are being used;
2. The items of work on the Minority Participation and Commitment Detail screen are a reflection of the work to be performed by the DBEs/Diverse Businesses (DBs); and
3. The actual amount awarded to the DBE/DB is greater than or equal to the amount shown on the Minority Participation and Commitment screen in the Engineering and Construction Management System (ECMS).

B. The Minority Participation and Commitment must be reviewed for conditional approvals and the potential impact to meeting the DBE/DB goal.

NOTE: Conditional approvals will alert the Inspector-in-Charge (IIC) to potential Commercially Useful Function (CUF) issues.

C. The Contractor is to be reminded to submit a Subcontractor Request for all DBEs (including Services and Suppliers) listed on the Minority Participation and Commitment screen.

Subcontractor Requests for DBE firms listed on the Minority Participation and Commitment must be accompanied by three pages from the executed agreement:

1. A copy of the executed signature page,
2. A copy of the description of the scope of work, and
3. A copy of the unit prices as they appear in the DBE's/DB's subcontract or agreement.

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Please note: Prior to actual performance the Prime Contractor must provide the IIC a copy of the complete subcontract or agreement for each DBE firm participating on the project. Electronic copies of subcontracts are acceptable provided they incorporate all applicable contract provisions.

- D. The Contractor is to be reminded to prohibit the start of work by a Subcontractor until a Subcontractor Request has been approved and a copy of the executed subcontract is available on the project for the Department's review; and until the Department has reviewed and acknowledged that the subcontract physically incorporates the provisions of the prime contract that contain statements of self-inclusion (including the wage rates). Electronic copies of subcontracts are acceptable provided they incorporate all applicable contract provisions.
- E. The actual or estimated starting dates for all DBEs/Small Business Enterprises (SBEs) must be established.
- F. The type of work to be performed by the DBEs/SBEs must be established (Subcontractor, Regular Dealer, Manufacturer, Service, Broker, Consultant, etc.).
- G. Manufacturers or producers of construction materials must be checked for approval as listed in either Bulletins 14, 15, 41, or 42.
- H. Ensure that the Contractor meets its responsibility for ensuring that all suppliers approved on the Minority Participation and Commitment screen, supply material in accordance with Department specifications.
- I. The Contractor must be advised that failure to meet the DBE goal by the project's completion could result in sanctions including prequalification suspension or debarment for up to three years. The Contractor must be reminded that they have a continual obligation to make a Good Faith Effort (GFE) for the life of the project. (Corrective Action Plan)
- J. The Bureau of Project Delivery (BOPD), Prequalification Office must be contacted immediately if the DBE/SBE/DB work is imminent and a DBE's/SBE's/DB's sufficient prequalification status is not established.
- K. Reporting responsibilities (DBEs/SBEs payments, GFE documentation, etc.) are to be reviewed with the Contractor. The Contractor is to be reminded to promptly enter all payments to DBEs/SBEs/DBs in ECMS.
- L. Mobilization payments to DBEs shall be discussed.

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- M. The Contractor must be advised that failure to meet the DBE goal by the project's completion could result in sanctions including prequalification suspension for up to three (3) years.
- N. The Contractor is to be reminded to adhere to the procedure as specified in Publication 408, Appendix C, DSP4 (100% State-funded) and DSP7 (Federally-funded), for making any changes involving DBE/DB participation. Any such changes are to be coordinated with the District and the BOPD, Contract Awards Unit, as necessary.

II. Reporting Procedures/Reports

- A. The District is responsible for monitoring the Contractor's goal according to the approved Minority Participation and Commitment, including any revisions.

The District is to prepare the District DBE Monthly Monitoring Report and analyze the report for DBE payments and progress made toward attaining the DBE goal. The District is to update the report indicating whether the DBE goal attainment is on-track. The District should also identify potential CUF or other DBE issues being experienced. The District is to submit the report to BEO, updated with "On Track" or "Off Track" designations and appropriate comments by the 10th of each month.

By the 15th of each month, BEO will send out a Districtwide DBE Monthly Monitoring Report. The Districts are to reply to the report by addressing the deficiencies where the DBE Goal is "Off-Track" only, if they have **not** sent a justification by the 10th. BEO will then compile each reply, and send out via email, the "End of the Year Report", so each District can see how they did throughout the year.

If the DBE goal attainment is not on-track, the District is to discuss the matter with the appropriate District staff and the Contractor to ascertain whether the Contractor is able to meet the DBE goal.

- B. When the Contractor submits a request for final payment, the DBE goal attainment is reviewed using the Engineering and Construction Management System (ECMS). If a shortfall exists, but the District determines that it was caused through "no fault" of the contractor, the Contractor must still submit a shortfall justification on company letterhead. It should be submitted in ECMS under payment comments. The DLCCA and BEO can determine whether it warrants a review by the Interdisciplinary Review Team (IRT). An example of a "no fault" reason for a shortfall includes, but is not limited to "the District authorized the elimination of work item(s) or quantity reductions." Other "no fault" determinations will be reviewed on a case-by-case basis.

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The shortfall justification must include a summation of the project DBE participation and/or the Contractor’s GFEs. The District should forward the GFE documentation to the DLCCA and BEO to determine if it should be forwarded to the IRT. The District should include with the contractors GFE documentation any information that it has that supports or refutes the contractor’s justification. If the IRT is involved, they will determine whether it is the type of shortfall that needs to be handled through the GFE administrative process or a shortfall that can be handled by simple notation (form letter) to the project.

If the IRT determines that the shortfall can be handled by simple notation, then it will attach the notation in ECMS and notify the District accordingly. If not, the shortfall will proceed through the formal GFE process for further action, including a detailed review and analysis of the DBE “shortfall justification” to determine whether the Contractor’s justification was adequate and properly documented.

If IRT determines that a Contractor documented a GFE, then it will submit that recommendation to the Director of the Bureau of Equal Opportunity for concurrence. If the Director concurs then the approved recommendation will be attached in ECMS by the IRT. The IRT will also notify the impacted District that the GFE has been approved. If the Director disagrees with the IRT’s recommendation, then the matter will be referred to the “Good Faith Efforts” Committee.

If IRT determines that a “shortfall justification” is insufficient, the DBE goal shortfall information will be presented to the Director of the Bureau of Equal Opportunity who in turn will determine whether or not to request a review by the GFE Review Committee. Upon the GFE Review Committee reaching a decision, the final payment request and “shortfall justification” will be approved or disapproved in ECMS and, if disapproved, action shall be taken to address the non-attainment.

III. Field Monitoring by Project Inspector-in-Charge (IIC)

- A. The IIC must ensure that the Contractor does not allow a DBE to start work on the project until the DBE is properly certified and/or prequalified, if required, and until a copy of the executed subcontract and approved Subcontractor Request are available on the project and have been acknowledged by the IIC to contain the provisions required by the prime contract. DBE subcontract agreements are to be reviewed to ensure that they match the DBE commitments on the Minority Participation and Commitment Screen in ECMS. The Subcontractor Request must be equal to or greater than the committed amount. A Subcontractor Request must be entered for all DBEs performing on the project regardless as to whether or not they are listed on the approved DBE Minority Participation and Commitment.

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- B. The IIC must continually monitor conditional approval of DBE subcontractors. Examples of these conditional approvals may include prequalification requirements and distinction between regular dealers and brokers.
- C. If, for any reason during the life of the contract, it is necessary to replace a DBE that fails to perform successfully, or is not properly certified/prequalified, the Contractor must first request written approval from the Department prior to making the change. If the Department concurs with the revision request, the Contractor must make a GFE to re-contract the work with another DBE or subcontract other work items to DBE firms to make up the DBE shortfall.
The Contractor must comply with the following procedures to be in compliance with the above:

Substitution. Obtain written approval before substituting a DBE or making any change to the DBE participation listed on the approved DBE Minority Participation and Commitment or an approved DBE subcontractor. Immediately request substitution authorization from the District in writing who will contact the BOPD, Contract Awards Unit for approval. The request must include documentation supporting the substitution and written agreement from the DBE agreeing to the change. Include proof that a certified letter giving the DBE five (5) days to respond with acceptance or to notify the Department of non-acceptance. Demonstrate that every effort has been made to allow the DBE to perform.

1. If the arrangement to be replaced is agreeable between the Contractor and the DBE, the following procedures are required.

- Make a GFE to subcontract the work with another DBE or subcontract other work items to DBEs to make up the DBE shortfall.
- When the substitution results in meeting the DBE goal, complete a revised DBE Minority Participation and Commitment with DBE acknowledgement and/or a revised subcontractor approval request within seven (7) days of a revision being opened in ECMS. If the DBE performed on the project, the Revised DBE Minority Participation and Commitment and/or subcontractor approval request should include the total amount paid to the DBE before the DBE substitution.
- When the substitution does not result in meeting the DBE goal, complete a revised DBE Minority Participation and Commitment with DBE acknowledgement and/or a revised subcontractor approval request within seven (7) days of a revision being opened in ECMS and provide additional Good Faith Effort documentation. If the DBE performed on the project, the Revised DBE Minority Participation and Commitment and/or

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subcontractor approval request should include the total amount paid to the DBE before the DBE substitution.

Good Faith Effort (GFE) Review. The Department will review the GFE documentation for substitution. If, during the review of the Contractor’s GFE information, the reviewers have questions, the Contractor may be contacted for clarification. The GFE steps are as follows:

- a. Contract Awards reviews and, if acceptable, approves the GFE and DBE revision or recommends that the IRT make the determination.
- b. The IRT either
 - Approves recommendation that the GFE was met and the Minority Participation substitution will be approved, or
 - Disapproves the GFE resulting in a shortfall requiring the contractor to continue GFE.
- c. If forwarded to them, the IRT makes a final determination.

Do not perform any of the DBE work included in the substitution request without prior approval from the Department and an “Approved” Subcontractor Request.

If the projected DBE participation on an approved DBE Minority Participation and Commitment meets or exceeds the DBE goal amount for the contract without replacing the DBE, then no contract shortfall exists. A Revised DBE Minority Participation and Commitment and/or subcontractor approval request must still be submitted to reflect the decreased dollar amount.

2. If the arrangement to be replaced is not agreeable between the Contractor and the DBE, the following procedures are required:
 - Until a determination is made, do not perform the DBE work without prior approval.
 - The BEO will collaborate with the District to determine if the IRT is needed. They will then have the District notify both the Contractor and the DBE.
 - The Contractor or the DBE may request a meeting with the Department by contacting the District Office.

Failure to make GFE as determined by the Committee, or failure to comply with the provision of this section for substitution of a DBE, will constitute a breach of contract and, after notification to the U.S. Department of Transportation (USDOT), may

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result in termination of the contract, being barred from bidding on Department contracts for up to 3 years, withholding progress payments, assessing sanctions, assessing liquidated damages, or any other remedy that the Department deems appropriate.

- D. Work that is contracted to a DBE must not be performed by others. If this occurs, it must be reported to the District DBE Coordinator immediately.
- E. The CUF analysis must be performed during the contract, whether or not a DBE is listed on the approved Minority Participation and Commitment screen.

According to Title 49 Code of Federal Regulations (CFR) Part 26, the Department is to count DBE expenditures toward the DBE goal only if the DBE is performing a “Commercially Useful Function.” As stated in Section 26.55(c) of Part 26, “a Disadvantaged Business Enterprise (DBE) performs a commercially useful function when it is responsible for execution of the work of the contract and is carrying out its responsibilities by performing, managing, and supervising the work involved. To perform a Commercially Useful Function with respect to materials and supplies used on the contract, a DBE must also be responsible for negotiating price, determining quality and quantity, ordering the material, and installing (where applicable) and paying for the material itself.” (Emphasis added)

The following examples illustrate situations where a CUF is **not** being performed, if the Prime Contractor is requesting DBE credit for these specific activities. The examples provided are for illustrative purposes and are not intended to constitute the only situations when a CUF issue may arise. Issues will be evaluated on a case-by-case basis:

- A DBE subcontractor purchases or leases supplies or equipment from the Prime Contractor.
- A DBE subcontractor uses equipment obtained from another subcontractor on the project without a long-term lease agreement.
- A DBE subcontractor’s workforce is made up of individuals employed by the Prime Contractor or another subcontractor. The exceptions are: 1) where collective bargaining agreements are in place to provide (union) workers, or 2) where workers previously employed by the Prime Contractor or another subcontractor change companies to the DBE firm and there is adequate documentation provided by the prime of work force supply and demands of such employees to justify the employee changes. It is the prime’s responsibility to provide the documentation to PennDOT for themselves and any subcontractors working on the project.

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- A DBE subcontractor is using supervisors employed by the Prime Contractor or another subcontractor. The exceptions are: 1) where collective bargaining agreements are in place to provide (union) foremen and workers. However, the DBE firm must manage and supervise the work of the project.; or 2) where workers previously employed by the Prime Contractor or another subcontractor change companies to the DBE firm and there is adequate documentation provided by the prime of work force supply and demands of such employees to justify the employee changes.
- Work being counted toward the DBE goal is **not** performed by the Prime Contractor or a non-DBE subcontractor. However, the prime or sub can perform de minima's activities, as warranted, not to exceed 6 hours or \$500 value, whichever is less, and the cost of that activity cannot be calculated toward meeting the DBE goal.
- In addition, if a DBE fails to perform, or fails to correct substandard performance, the prime must have documentation that the DBE is unwilling or unable to perform the work before alternate solutions can be pursued. Then alternate DBE subcontractors are to be sought and maintain documentation of this effort to rectify the situation prior to the prime or a non-DBE subcontractor completing the work. The documentation of the performance shortcoming and a request to replace the original DBE must be submitted to PennDOT and be approved before a substitution occurs. In addition, liquidated damages caused by the DBE's unacceptable or untimely performance and rework costs are allowed to be back charged by the Prime Contractor, only if such provisions are included in the DBE subcontract agreement.
- When the prime contractor chooses to co-mingle DBE credit and non-credit items in the same subcontract, the prime must identify this at the time of DBE commitment submission and must maintain accurate records of DBE credit and non-DBE credit items as items are performed.

The Department is making a concerted effort to ensure that every DBE performs a CUF. Since the Prime Contractor is ultimately responsible for ensuring that the project's DBE goal is satisfied, it must also ensure that the DBE firms being utilized are performing a CUF.

Work or material supply committed to a DBE must not be performed by another contractor without written pre-authorization from the Department. If written pre-authorization is not obtained, and the work or the supply of materials is performed by any firm other than the committed firm, the contractor shall not be entitled to payment for the work or materials; nor will the work or supply of materials count toward the DBE contract goal.

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Contractors should be aware that engaging in any of the above referenced practices will result in the following action by the Department:

- Scheduling of a meeting at which the Prime Contractor will be called upon to provide documented evidence that its DBE subcontractors are performing a CUF;
- Immediate suspension of the work;
- Loss of DBE project goal credit; and/or
- Investigation by the USDOT, Office of Inspector General, and/or the Pennsylvania Office of Inspector General.

Furthermore, in certain situations, the Department may:

- Revoke DBE Certification; and/or
- Pursue debarment of the DBE firm, the Prime Contractor, and/or any subcontractor(s) involved.

To ensure that the above CUF requirements are being met by all DBEs on Federal-aid projects, Form [EO-354](#), DBE Commercially Useful Function (CUF) Report (copy attached), must be completed by the IIC, within five (5) business days from the date a DBE begins work or five (5) business days from the date material that is to be used for DBE credit is received on the project. A new CUF Report must be completed once in a construction season, or anytime the DBE's scope of work has changed.

You must complete a Form EO-354 for all DBE firms participating on the project, including those not being used to meet a DBE goal. All completed Form EO-354s must be submitted through the Pennsylvania Project Collaboration Center (PPCC). Compliance with CUF requirements should continue to be monitored throughout the life of the project. Additionally, if DBE credit is being claimed for any material costs included in a DBE subcontract or agreement, the IIC is to ensure that purchase orders for the material are being submitted monthly.

If, at any time, any of the questions on Form EO-354 are answered in a manner that suggests potential non-compliance, a copy of the completed form must be submitted to the Assistant Construction Engineer/Assistant Construction Manager (ACE/ACM) or their designee. Once the ACE has reviewed and completed their portion of Form EO-354, it should be submitted to the Bureau of Equal Opportunity (BEO) via the PPCC. The BEO will determine if corrective action is warranted and advise the District accordingly. The IIC and/or ACE/ACM may be contacted for additional information and/or supporting documentation.

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IV. Revisions to Minority Participation and Commitment

- A. Any and all revisions to the approved Minority Participation and Commitment must be processed in accordance with III.C, above.
- B. The IIC must not allow the substitute DBE to perform any work until the Revised Minority Participation and Commitment is approved.
- C. If DBE work is deleted by an approved work order, a replacement is not required. However, the Contractor must make a GFE to utilize DBEs for any additional work that remains on the project where no subcontract agreement exists.

V. Effects of Major Change Orders

When additional or extra work is required for any item of work which is identified on the Minority Participation and Commitment to be performed by the DBE, at least 50% of this additional or extra work will be performed by the same DBE unless the DBE gives in writing, notice that it cannot perform the work due to its own limitations. If the prime performs or has another subcontractor perform the additional work without offering to the DBE, it may be sanctioned as noted in III.D, above. If the DBE cannot perform this additional/extra work, the prime may take necessary measures to complete the work.

VI. Goal Credit for DBE Suppliers and Contractors Employed by Non-DBE Subcontractors

- A. The DBEs must be named on the Minority Participation and Commitment screen.
- B. The named DBEs will be presumed to be engaged directly by the Contractor unless it is specifically noted. See special provision – Use of Second Tier Subcontractors for DBE Credit.
- C. If the proposed subcontract (first tier) does not materialize or it is not approved by the Department, the responsibility for employing the named DBE (second tier) will revert to the Contractor.
- D. The Prime Contractor is responsible for entering all DBE/SBE payments into ECMS.
- E. Revisions to Minority Participation and Commitment are to be in accordance with the terms of the contract documents and should be done in accordance with III.C, above.

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- F. Subcontractors and providers of services are approved using the Subcontractor Approval in accordance with established procedures, i.e.,
- First tier approvals by District.
 - Second tier approvals by District.
 - All provisional approvals by Central Office.
- G. Manufacturers and Producers are approved in accordance with established procedures and the provisions as specified in Publication 408, Section 106.
- H. A subcontractor request must be submitted and approved for all DBE Suppliers for payment tracking and reporting purposes. The District must assure that the Contractor performs its responsibility of ensuring that all Suppliers approved on the Minority Participation and Commitment and/or via an 'Approved' Subcontractor Request, supply material in accordance with Department specifications. Questions as to whether a DBE performs in a regular dealer capacity should be directed to the Bureau of Opportunity or noted on the Form EO-354 completed for the DBE firm.
- I. All DBE arrangements must be evidenced in writing by a Subcontract, Agreement, or Purchase Order, as applicable, and shall be presented for Department review upon request and/or as provided by the contract documents.
- J. The Contractor is not relieved of any of its contractual duties and responsibilities by the Department's approval of first and subsequent-tier DBE's proposed by the Contractor.

REPLACES B.11.7	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART B	SECTION 11	PAGE 7-1
DATED 04/01/2017	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT DIVERSE BUSINESS (DB) CONTRACT PROVISIONS FOR NON-FEDERALLY FUNDED PROJECTS				

Non-Federally funded projects contain Good Faith Effort (GFE) provisions for DB participation.

The following monitoring procedures are applicable:

1. DB Special Provisions are to be discussed at the preconstruction conference. GFEs must be made to ensure that DBs have the opportunity to compete and perform contracts.
2. Approval, Conditional Approval or Rejection of Bid is based on determination on GFEs to engage and use DBs in the proposal for bid.
3. The Inspector-in-Charge (IIC) must assure that the Contractor does not allow the DB to start work on the project until the DB is properly certified and/or prequalified, if required, has an approved subcontractor request, and a copy of the executed subcontract or agreement is received. In lieu of obtaining the entire subcontract or agreement, the IIC must at a minimum receive a copy of the executed signature page, a copy of the description of the scope of work, and a copy of the unit prices as they appear in the subcontract or agreement.
4. If for any reason during the life of the contract, it is necessary to replace a DB that fails to perform successfully, the Contractor is expected to make a GFE to recontract the work to another DB firm.
5. Contractors must submit through ECMS, the GFEs summary of use of DB within 30 days of completion of project.

REPLACES C.1.1	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART C	SECTION 1	PAGE 1-1
DATED 04/01/2020	PROJECT OFFICE MANUAL	DATE April 1, 2021		
SUBJECT PENNSYLVANIA STEEL PRODUCTS PROCUREMENT ACT / FHWA BUY AMERICA REQUIREMENTS				

Publication 408, Section 106, the Pennsylvania Steel Products Procurement Act (Act 3), and FHWA Buy America provide the requirements for the acceptance and certification of steel products on PennDOT construction projects. Contractors and suppliers are required to provide documentation in the form of mill certifications, bills of lading and any other documentation required to demonstrate that any and all steel products supplied to the Department for permanent incorporation into a project were melted and manufactured in the United States. These requirements apply to all steel products, including incidental and miscellaneous steel products. Additionally, these requirements apply to steel products placed/incorporated into a Department project by a utility company or their contractor on every project.

The acceptance of products containing foreign steel is subject to the FHWA Buy America minimal use provision and to the Act 3 exception and is based on the foreign steel cost. The District Project Engineer shall review the Contractor's price submissions for any products which contain foreign steel. The Contractor is responsible for supplying the original invoices to the District Project Engineer and for complying with the Pennsylvania Steel Products Procurement Act (Act 3) and FHWA Buy America requirements as specified in Publication 408, Sections 106.01 and 106.10(a).

On all PennDOT projects, a steel product containing both foreign and United States steel is defined in Section 6, Act 3, as a United States Steel product if at least 75% of the cost of the articles, materials and supplies have been mined, produced or manufactured in the United States. To determine the 75% rule, the cost of the product or materials shall be based upon the price of both the foreign steel and the total price or cost of all the steel in the product as delivered to the project with accompanying invoices. Construction labor cannot be included in the cost; therefore, do not use the contract item cost. When the cost of the foreign steel included in a product exceeds 25% of the total cost of all the steel in the product, a waiver request must be submitted by the Contractor, through the District Executive (DE). Justification by the Contractor must be provided to substantiate that the steel product is not produced in the United States in sufficient quantity to meet the contract requirements. The justification must include, but may not be limited to, the sources of supply which were contacted, including names and contact information for verification by the Department.

If the DE is satisfied that a good faith effort was made after verification of the information provided, the District will forward the information to the Bureau of Project Delivery (BOPD) requesting that the Secretary of Transportation be petitioned for a waiver.

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On Federal-aid projects or any projects that have received Federal-aid funding in any phase (e.g., Right-Of-Way (ROW), Preliminary Engineering (PE), Final Design (FD)), or are cleared under the same NEPA document as any project that receives federal funding, the cumulative cost of the foreign steel or iron products, as delivered to the project must be evaluated. Buy America’s minimal use provision states that the cumulative cost of the foreign steel or iron products cannot exceed 0.1% of the contract amount or \$2,500, whichever is greater. Documentation of the value of foreign steel components in the form of receipts or invoices must be provided. If this limit is exceeded, the Contractor must submit justification for a waiver and supporting information, as described above. The BOPD will determine whether a national waiver is available. If not, FHWA will publish the information on their website for review and response by the producing industry. In addition, the District, based on circumstance and schedule, may petition FHWA to provide a project specific waiver.

Refer to the webpage entitled ‘PENNSYLVANIA STEEL PRODUCTS PROCUREMENT ACT / FHWA BUY AMERICA’ on the PennDOT website for frequently asked questions and answers and for clarification on the acceptance and certification of steel products on PennDOT construction projects. Use the following link to access the webpage:
http://www.penndot.gov/ProjectAndPrograms/Construction/PA_Act3/Pages/default.aspx

REPLACES C.1.2	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART C	SECTION 1	PAGE 2-1
DATED 08/08/1996	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT REGISTRATION AND LICENSING OF OUT-OF-STATE VEHICLES				

Reference is made to Publication 408, Section 107.02(c), as it relates to vehicles bearing out-of-state tags.

The Vehicle Code requires Pennsylvania registration or apportionment of any vehicle regularly operated in carrying on business within the Commonwealth. Although "regularly" is not legally defined, the Department and the State Police have agreed that "regularly operated" will apply when a vehicle is present on one or more active projects for a cumulative time of more than 30 days within a calendar year.

Travel between a Commonwealth project and the out-of-state principal place of business, and travel between projects is excluded from the 30-day period. Time accrued while a vehicle is used off an established highway - for example, a project on new location - is also excluded.

Personal vehicles of non-resident workers duly registered in their state of permanent residence need not obtain Pennsylvania registration, unless they are being rented by the Contractor for work on the project (i.e., Foreman's personal pickup).

Since the contract time of most contracts exceeds 30 days, we anticipate that nearly all vehicles used in performance of the work will be registered and licensed in accordance with the provisions of the Vehicle Code.

Out-of-State Contractors that refuse or purposely delay registration of their vehicles in accordance with the above shall be reported to the State Police and the unauthorized vehicle(s) ordered removed from the project.

In addition, the exact documentation requirements are as follows:

Registration -

Pennsylvania is one of fifty-two jurisdictions in North America who are members of the International Registration Plan (IRP). The IRP Program applies to vehicles that operate through (interstate) or within (intrastate) any of the member jurisdictions and are used for the transportation of persons for hire or are designed, used, or maintained for the transportation of property.

An IRP member vehicle must have a current apportionment on its registration documents or an apportionment plate, or the vehicle must have dual registration, namely in Pennsylvania and at least one other state.

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Tax -

The vehicle must have a current IFTA (Interstate Fuel Tax Agreement) decal or a temporary permit covering the time frame the vehicle will be utilized in Pennsylvania.

It is not the intent of these instructions to require our inspectors to keep detailed time records of vehicles with out-of-state tags but to establish a guideline to clarify our position regarding this issue.

Please advise all out-of-state Contractors working in your District of this guideline. In addition, out-of-state Contractors should have been provided a copy of Publication 194, Trucker's Handbook, at the Preconstruction Conference.

REPLACES C.1.3	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART C	SECTION 1	PAGE 3-1
DATED 04/02/2018		DATE April 1, 2020		
SUBJECT CONTRACTOR'S RESPONSIBILITY FOR COMPLETED WORK				

When addressing issues involving "responsibility for completed work" under actual field conditions, an effort should be made to ensure that all aspects of the situation have been considered before a decision is made.

Publication 408, Section 105.13, is intended to protect the Department against liability for damages caused by the Contractor in the course of construction operations by assigning responsibility for the maintenance of performed work to the Contractor until the date of physical work completion.

Publication 408, Section 105.13 also provides protection to the Contractor when removals, renewals and restorations of any part of the work are required due to unforeseeable causes beyond the control of the Contractor and occur despite satisfactory maintenance precautions taken. In such cases, when the Contractor has exhausted all claims to seek reimbursement from the responsible third parties and their liability insurers, the Department will pay for the unrecovered portion of the costs.

Questions or concerns should be directed to the Bureau of Project Delivery, Contract Management Section Chief, at (717) 787-7894.

REPLACES C.1.4	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART C	SECTION 1	PAGE 4-1
DATED 03/01/1996		DATE April 1, 2020		
SUBJECT OPENING PORTIONS OF A PROJECT TO TRAFFIC				

This directive is issued to provide sample letters to be used for the different cases involved in opening portions of a project to traffic.

Case 1 - Normal Highway Construction Project:

- A. Where all items of work on a portion of the project are completed and that portion is to be opened to traffic, the Contractor will be relieved of further responsibility.
- B. Where the portion of the project is determined to be substantially completed, the Contractor will be directed to open that portion to traffic but will not be relieved of further responsibility until all items of work on that portion are completed.

Case 2 - Highway Construction Project Let with Phase Construction:

- A. Where all items of work on a portion of the project designated as Phase Construction are completed and that portion is to be opened to traffic, the Contractor will be relieved of further responsibility.
- B. Where the portion of the project designated as Phase Construction is determined to be substantially completed, the Contractor will be directed to open that portion to traffic but will not be relieved of further responsibility until all items of work on that portion are completed.

The letter to the Contractor shall contain one of the following applicable statements:

For Case 1-A and Case 2-A:

Dear [Contractor's Name]:

You are hereby directed to open a portion of the highway construction project located as follows:

Station _____ to Station _____.

The portion to be opened has been inspected and, there being no apparent defects, you are relieved of further responsibility for this portion of the project, except for defective materials and/or workmanship which may later be discovered.

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For Case 1-B and Case 2-B:

Dear [Contractor's Name]:

You are hereby directed to open a portion of the highway construction project located as follows:

Station _____ to Station _____.

The portion to be opened has been inspected and found to be substantially completed. Upon satisfactory completion of all items of work in this portion another inspection will be made.

This action is taken as specified in Publication 408, Section 107.15.

REPLACES C.1.5	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART C	SECTION 1	PAGE 5-1
DATED 04/01/2017		DATE April 1, 2020		
SUBJECT SUBCONTRACTING HIGHWAY CONSTRUCTION				

The Department requires that the Contractor perform work amounting to at least 50 percent of the original total contract price.

The total cost of "Specialty Items" performed by subcontract may be deducted from the original total contract price before computing the amount of work permitted to be subcontracted.

Disadvantaged Business Enterprise (DBE) work is identified and approved on the Minority Participation and Commitment Screen in ECMS (Attachment A for non-ECMS projects) for Federal-aid projects and for Diverse Business (DB) work on 100% State projects. The total dollar amount approved on the approved Minority Participation and Commitment Screen in ECMS or Attachment A for non-ECMS projects (subcontracts, services, and DBE/DB suppliers) may be deducted from the original total contract price before computing the amount of work permitted to be subcontracted.

All reassignment of work by the prime contractor (including services) as specified in Publication 408, Sections 108.01(a) and (e), requires approval by the Department. For non-ECMS projects the Contractor must submit a Request For Subcontractor Approval (Form [CS-4339R](#)) to the appropriate District each time a subcontractor, service, or DBE/SBE (Small Business Enterprise)/DB supplier is to be utilized. For ECMS projects the contractor must submit a request in the Subcontractor Requests screen each time a subcontractor, service or DBE/SBE/DB supplier is to be utilized.

The District is responsible for reviewing the following items prior to approving subcontract work with Form CS-4339, Subcontractor Approval:

- Contractor Responsibility Program;
- Public Works Employment Verification Form (Not required for Suppliers);
- Prequalification, when required; and
- DBE/SBE Certification or DB Verification, when required.

For ECMS projects, the District is responsible for reviewing the following items prior to approving subcontract work in the ECMS Subcontractor Request screen:

- Contractor Responsibility Program;
- Public Works Employment Verification Form (Not Required for Suppliers);
- Prequalification, when required; and
- DBE/SBE Certification or DB Verification, when required.

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The Contractor Responsibility Program is considered confidential; therefore, this information is restricted to appropriate District Personnel.

The majority of work items requires prequalification. See POM Section B.3.2 for the listing of required prequalification codes.

The Contractor is to be reminded to submit a Subcontractor Request for all DBE/DB firms (including Services and Suppliers) listed on the Minority Participation and Commitment screen. Subcontractor Requests for DBE/DB firms listed on the Minority Participation and Commitment must be accompanied by three pages from the executed agreement:

1. A copy of the executed signature page,
2. A copy of the description of the scope of work, and
3. A copy of the unit prices as they appear in the DBE's/DB's subcontract or agreement.

Please note: Prior to actual performance the Prime Contractor must provide the Inspector-in-Charge a copy of the complete subcontract or agreement for each DBE/DB firm participating on the project. Electronic copies of subcontracts are acceptable provided they incorporate all applicable contract provisions.

REPLACES C.1.6	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART C	SECTION 1	PAGE 6-1
DATED 03/01/2011	PROJECT OFFICE MANUAL	DATE April 1, 2014		
SUBJECT SUBCONTRACTOR APPROVAL FOR PARTIAL CONTRACT ITEMS				

When a Subcontractor is to perform part of a contract item on a non-ECMS project, the unit price on Form [CS-4339R](#) is to be the Subcontractor's price to the Contractor, as found in the subcontract. The item description must denote the work as partial and give enough detail to indicate the applicable prequalification work classification.

When a Subcontractor is to perform part of a contract item on an ECMS project, the Contractor must designate the item as partial and enter the Subcontractor's unit price into the Subcontractor Request screen. This unit price must reflect cost to the contractor indicated in the subcontract. The item description must denote the work as partial and give enough detail to indicate the applicable prequalification work classification.

When a Subcontractor is to perform an entire contract item on a non-ECMS project, the unit price on Form [CS-4339R](#) is to be the Subcontractor's price to the Contractor, as found in the subcontract.

When a Subcontractor is to perform an entire contract item on an ECMS project, the Contractor must enter the Subcontractor's unit price into the Subcontractor Request screen. This unit price must reflect cost to the Contractor indicated in the subcontract.

This approval procedure applies to all subcontract approvals.

REPLACES C.1.7	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART C	SECTION 1	PAGE 7-1
DATED 04/01/2017	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT REVIEW REQUIREMENTS - SUBCONTRACTS AND OTHER AGREEMENTS				

The following describes actions and procedures to assure that contractors insert into subcontracts and lower tier agreements provisions from the prime contracts that contain statements of self-inclusion:

1. Districts are to review Electronic Subcontractor Requests (ECMS Projects) or Form [CS-4339R](#) (non-ECMS Projects) and issue Subcontractor Approval in accordance with procedures. The contractors are allowed the option of not having to furnish an actual copy of the subcontract as a requisite for receiving approval of the Form. Subcontractor Approvals continue to serve the purpose for establishing prequalification eligibility and to monitor the amount of work performed by the Contractor with its own forces.

The Request for Subcontract Approval shall be used to record the subletting of all firms (Subcontractors, Service firms, Trucking firms, Specialty Equipment firms with operators, and DBE/SBE/DB Suppliers).

As specified in Publication 408, Section 108.01, Subletting or Assignment of Contracts, only the work item amounts assigned to firms classified as prequalified Subcontractors will be counted in determining the allowable fifty percent (50%) portion of a contract to be sublet.

The attached chart on Page C.1.7-5 summarizes requirements for subletting of contracts to Subcontractors, Service firms, Trucking firms, Specialty equipment rental firms (with operators), and Suppliers. The summarized requirements note when prequalification, Subcontractor Approvals, Contractor Responsibility Program, past performance reports, purchase orders/agreements, and prevailing wage rates are to be done.

Generally, if a firm is performing labor intensive type work on a project, the firm should be considered to be a Subcontractor and subject to the requirements listed on the table.

If a firm has been identified to perform non-labor-intensive type work items on a project, the firm should be considered to be a Service firm, and subject to the requirements listed on the table.

Equipment rental with operator (other than trucks) is considered subcontracting with prequalification not required. However, work performed by and/or equipment utilized by employees other than those belonging to the DBE firm cannot be counted towards the project's DBE goal. Such activity may be a violation of Commercially Useful Function

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requirements. In lieu of prequalification, the following guidelines are in effect (see Table on page C.1.7-5).

- a. When manned specialty equipment is required to complete a portion of a work item, and the equipment with operator is leased from a firm whose business is generally derived from rental of equipment, the following is required:
 - 1). A signed Lease Agreement or Purchase Order, with Subcontractor Request.
 - 2). The Lease Agreement or Purchase Order shall include the following:
 - type of equipment rented
 - dollar amount of rental agreement
 - required contract wage provisions
 - 3). Subcontractor Request shall include the following:
 - type of work
 - contract price
 - notation (service)

The above documents (Lease Agreement or Purchase Order and Subcontractor Request) shall be submitted to the Department by the Contractor. If a Subcontractor is the overseer, the information shall be submitted to the Contractor by the Subcontractor who shall submit the same to the Department.
- b. Contractors/Subcontractors who lease the manned specialty equipment to perform on-site work must be prequalified to perform the work for which the equipment is to be utilized. Operations are permitted with the understanding that direct control will be the responsibility of the party leasing the equipment. [Publication 408, Section 105.05-Responsibility of the Contractor].
- c. The equipment rental firm will be required to submit certified payrolls for their employees to the Contractor/Subcontractor leasing their equipment in the same manner that all Contractors/Subcontractors are presently required to submit certified payrolls.
- d. Specialty equipment (with or without operator) is generally required to complete a portion of a contract work item or items. It is equipment that a Contractor normally would not require in routine operations to accommodate and perform prequalification classifications. Backhoes, rollers, pavers, etc., are examples of equipment that should not be considered to be specialty equipment.

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Equipment rental (without operator) and truck rental or leasing (with or without driver) is considered a service and prequalification is not presently required. A DBE firm must utilize a long-term lease agreement in order to supplement its equipment. The DBE firm may not enter into a lease agreement for a specific project.

The Department will not make approval of a Subcontractor Request contingent upon an examination of the subcontract. For non-ECMS Projects and in deference to the statement on Form CS-4339R relating to the inclusion in the subcontract of all of the pertinent provisions of the prime contract, Form CS-4339R can be approved without examining the subcontract.

The Contractor is to be reminded to submit a Subcontractor Request for all DBE's/DB's (including Services and Suppliers) listed on the Minority Participation and Commitment screen. Subcontractor Requests for DBE firms listed on the Minority Participation and Commitment must be accompanied by three pages from the executed agreement:

- A copy of the executed signature page,
- A copy of the description of the scope of work, and
- A copy of the unit prices as they appear in the DBE's/DB's subcontract or agreement.

Please note: Prior to actual performance the Prime Contractor must provide the Inspector-in-Charge a copy of the complete subcontract or agreement for each DBE firm participating on the project. Electronic copies of subcontracts are acceptable provided they incorporate all applicable contract provisions.

2. District project field staff must assure that the subcontracted work does not start until the Subcontractor Request has been approved and until a copy of the executed subcontract or agreement is available on the job and contains the provisions required by the prime contract. (Publication 408, Section 108.01(e))

District project field staff should closely examine Subcontractor Requests for DBE/DB firms listed on the approved Minority Participation and Commitment. The subcontract amount for the DBE/DB firm must be equal to or greater than the amount listed on the Commitment. Additionally, any approval conditions related to the commitment must be satisfied.

Provisions required by the prime contract vary according to the nature of the funding such as, 100% State, Federal-aid or Appalachia. The prime contracts must be examined to determine which provisions are required to be inserted into the subcontracts or lower tier agreements (referencing, alone, is insufficient).

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3. Districts must document the examination of the subcontract or agreement and its adequacy with respect to containing the required provisions prior to the start of the subcontracted work or covered service by providing a signed and dated statement by the examiner.
4. Districts are to review this procedure with the Contractor at the preconstruction conference. The Contractor is to be reminded of its responsibility to assure that:
 - a. adequate lead time is provided to the District for performing the required reviews.
 - b. the District's project field staff is notified of the time and place that subcontractors are scheduled to begin work.
 - c. the subcontract requirements have been satisfied before permitting Subcontractors or Sub-Subcontractors to begin work.

Note that this procedure is not requiring the taking or possession of a copy of the subcontract. The Contractor retains possession on the project so that it is available for Department review and monitoring. However, if a pattern of delays to the performance of contact work develops as a result of insufficient Contractor cooperation with this procedure, then this procedure will have to be reviewed by the Bureau of Project Delivery (BOPD) for appropriate modification. To this end, the Districts are to note inadequate response by Contractors to District warnings in the "Remarks" section of the Past Performance Reports filed for the projects.

5. These procedures also apply to Federal-aid Municipal Projects.
6. The BOPD will monitor compliance through quality assurance reviews.

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REQUIREMENTS/ References	SUBCONTRACTORS		TRUCKING		EQUIPMENT RENTAL FIRMS (WITH OPERATOR)		ALL OTHER SERVICES		SUPPLIERS	
	DBEs/ SBEs/ DBs	NON- DBEs/SBEs/ DBs	DBEs/ SBEs/ DBs	NON- DBEs/SBEs/ DBs	DBEs/ SBEs/ DBs	NON- DBEs/SBEs/ DBs	DBEs/ SBEs/ DBs	NON- DBEs/SBEs/ DBs	DBEs/ SBEs/ DBs	NON- DBEs/SBEs/ DBs
PREQUALIFICATION/ Publication 408, Section 102.01	YES	YES	NO	NO	NO	NO	NO	NO	NO	NO
SUBCONTRACTOR APPROVAL/ Publication 408, Section 108.01	YES	YES	YES	YES (1)	YES	YES	YES	YES	YES	NO
CONTRACTOR RESPONSIBILITY PROGRAM/ ***** Management Directive 215.9	YES	YES	YES	YES (1)	YES	YES	YES	YES	YES	NO
PUBLIC WORKS EMPLOYMENT VERIFICATION FORM/ Commonwealth of PA Act 127 of 2012	YES	YES	YES	YES	YES	YES	YES	YES	NO	NO
PAST PERFORMANCE REPORTS/ Prequalification Regulations, Section 457.10	YES	YES	NO (2)	NO (2)	NO (2)	NO (2)	NO (2)	NO (2)	NO (2)	NO (2)
PURCHASE ORDERS AND AGREEMENTS/ Publication 408, Section 108.01(e)	YES (3)	YES (3)	YES (3)	YES (3)	YES (3)	YES (3)	YES (3)	YES (3)	YES (3)	NO
PREVAILING WAGE RATES/ Publication 408, Section 107.22	YES	YES	YES (4)	YES (4)	YES	YES	YES (5)	YES (5)	NO	NO

- Notes:**
- (1) NOT REQUIRED FOR TRUCKING OWNER OPERATORS EMPLOYED BY A BROKER.
 - (2) TO BE COMPLETED IF WORK PERFORMANCE IS POOR OR UNSATISFACTORY.
 - (3) AGREEMENT AND PURCHASE ORDERS MUST BE ON FILE AT CONTRACTOR'S FIELD OFFICE.
 - (4) REQUIRED UNLESS TRUCKING IS A BONAFIDE OWNER OPERATOR OR MATERIAL SUPPLIER.
 - (5) COMPLY WITH THE PREVAILING WAGE PREDETERMINATION AS SPECIFIED IN THE CONTRACT.
- (Some Exceptions do not require Prevailing Wages)

***** Please note that clearance certificates are needed for Obligations in CRP only. Performance issues and Commonwealth Offset Program (COP) issues should not preclude performing work.

REPLACES C.1.8	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART C	SECTION 1	PAGE 8-1
DATED 04/01/2020	PROJECT OFFICE MANUAL	DATE April 1, 2021		
SUBJECT CONTRACT SCHEDULE AND TIME REVISIONS				

I. Purpose:

The following is a description of the procedures for accepting and monitoring the Contractor's Construction Schedule and for processing an adjustment to contract time so that adequate justification and documentation are provided for executing the contract change consistent with the terms of the contract and current policy.

II. Background:

During the Design Phase, a Pre-Bid Schedule is created in Asta Powerproject to establish the Contract Completion Date and any applicable Milestone Dates for the contract. This schedule is attached to the bid proposal and is for informational purposes only and not for use as an actual or implied Construction Schedule.

The Department requires the Contractor to furnish a Construction Schedule that shows how the work is to be performed within the contract time as specified in Publication 408, Section 108.03(b) and Section 689. The schedule provides the Department a means for monitoring the Contractor's progress on the project, for projecting cash flow and manpower needs, and for evaluating the need for and the extent of contract time adjustments.

Once the Contractor has submitted the Construction Schedule as specified in Publication 408, Section 689, it must be reviewed and accepted by the Department before it can be utilized to monitor the Contractor's progress, to anticipate scheduling issues, and to document the progress and issues related to the use of time for the project.

III. Acceptance of the Contractor's Schedule:

The Department utilizes Critical Path Method Scheduling (CPM) techniques to communicate the schedule. Information on CPM Scheduling techniques and uses can be found in Publication 615, Scheduling Manual for PennDOT schedules.

In order for the schedule submitted by the Contractor to become the project Construction Schedule, it must be reviewed and accepted by the Department. By accepting the schedule, the Department is stating that the submitted schedule meets the requirements of the specifications or special provisions and will be used to monitor the contractor's progress. Review of the schedule should consist of verifying that the requirements for format and deliverable materials based upon Publication 408, Sections 108 and 689 and that all work is shown to be performed within any specified time frames. Checklists for review and

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acceptance for each type of schedule have been provided on page C.1.8-7 through C.1.8-12 to help ensure a thorough review is performed. Once it has been determined that the submitted schedule meets the format requirements of the specifications, all of the required materials have been submitted and that all work is shown being performed in accordance to the specifications, the Contractor is to be notified that the schedule has been accepted through the PennDOT Project Collaboration Center (PPCC). If the format of the submission meets the contract requirements, but there appear to be issues related to production rates, the sequence of activities or other minor schedule related concerns, these are to be noted in the acceptance through PPCC. Examples of schedule submission responses have been provided on pages C.1.8-13.

Make sure that all materials required by the specifications have been submitted before accepting the schedule. This shall include, but is not limited to, an electronic Asta Powerproject (.pp) file including all required activities, columns, and constraints.

It is vital that the submission, review and approval be performed within the times as specified in Publication 408, Sections 108 and 689. The approved Construction Schedule requires continuous monitoring and updating throughout construction.

The contractor is responsible for uploading and submitting the Asta Powerproject (.pp) schedule and .pdf of their baseline schedule and monthly updates into PPCC for tracking and review. The Department will then review the Contractor's submitted schedule and will either accept or reject the schedule. Once the schedule is accepted by the Department, the Asta Powerproject (.pp) file will be the governing schedule on record. After the schedule is accepted, the Department will download the accepted schedule from PPCC and upload to the Asta Web Portal. Any subsequent changes to the baseline schedule through the submission of any updates, revisions or recovery schedules shall also be uploaded to the project within PPCC and the Asta Web Portal in the same way to maintain a record of schedule versions.

NOTE: Contract time charges are to continue until all physical work has been performed. Neither time charges nor extensions of contract time are to be made for periods of time following the completion of the physical work simply to account for time taken by the Contractor to submit required documentation, such as that required for acceptance, payment or other information. If there is a determination subsequent to the completion of all physical work that modification, replacement, Extra or Additional Work must be performed, time charges shall resume from the day that the original physical work had been completed.

IV. Monitoring Contract Schedule:

Once a submitted schedule has been accepted as the project Construction Schedule, it is important that the Contractor's progress be monitored against the accepted schedule. Schedule monitoring should be performed on a daily basis to be the most effective. Schedule

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monitoring provides the following benefits:

- 1) Ensures documentation of the Contractor's actual performance compared to planned performance
- 2) Helps identify possible delays
- 3) Provides time related information for Authorizations for Contract Work and Work Orders
- 4) Helps to plan project staff for upcoming inspection duties
- 5) Creates an "As-built" schedule that can be used to:
 - a) Verify any submitted documentation related to changes in contract time
 - b) Provide information for dispute resolution
 - c) Provide information for use in a Delay Claim if necessary

All projects that require a CPM or CPM with Resource Loaded Schedule must be monitored.

Monitoring of the Contractor's progress involves collecting a limited amount of data for each activity contained in the Contractor's accepted schedule including:

- Activity ID
- Activity description
- Activity duration, in working days
- Early start date
- Early finish date
- Late start date
- Late finish date
- Contract imposed date(s) (if applicable)
- Total float

This data should be kept up to date and lag no more than one week behind the actual progress and maintained throughout the life of the project.

Data must be in a format that can be easily accessed and available for the creation of a graphical representation of the "As Built" project if necessary. Recommended method of monitoring is the usage of the Monitoring Chart View which can be plotted from Asta Powerproject.

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Information regarding monitoring contractor's schedules can be found in Publication 615, Scheduling Manual for PennDOT Schedules. Additional assistance can be found by contacting the Bureau of Project Delivery, Project Specifications, Scheduling and Constructability Section. The Construction Schedule Manager can provide guidance on Asta Powerproject and assist in obtaining a Monitoring Chart.

V. Recovery Schedule:

If, as a result of monitoring the accepted schedule, it is found that the Contractor is substantially behind schedule, or if the Contractor is working activities out of sequence sufficiently to make this determination reasonably difficult, a recovery schedule may be requested as specified in Publication 408, Section 108.03(b)5. The intention of the recovery schedule is to provide documentation as to how the Contractor will complete the project (or meet any specified Milestone(s)). The revision to the schedule must include the Asta Powerproject (.pp) recovery schedule, a narrative recovery plan including what has changed and an explanation as to why it has changed along with a description of how the Contractor intends on performing the work. The narrative recovery plan should include information related to crew sizes, equipment usage, additional material availability, etc.

VI. Justifications for Revisions to the Contract Time:

The Department will consider extensions and reductions of contract time as specified in Publication 408, Section 108.06. The following is a summary of the acceptable events or occurrences that qualify for changes to contract time, provided that the critical path is affected:

1. Actual Notice to Proceed (NTP) is before or after the Anticipated Notice to Proceed
2. Utility delays (as specified in Publication 408, Section 105.06)
3. Work requires Item quantities greater than or less than those indicated in the contract
4. Work is eliminated
5. Additional/Extra Work
6. Strike or Labor dispute
7. Delayed action or failure to act by an agency other than the Department
8. Act or omission by the Department
9. Contractor submits a schedule showing work completed prior to the Contract

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Completion Date and/or specified Milestone Date(s)

In addition, under certain conditions as specified in Publication 408, Section 108.06(a), the Department will consider requests for Time Extensions related to weather.

Only the Department can process a reduction in contact time and only the Contractor can request an extension of contract time.

Justification and documentation that accompanies any request for a change in contact time must include a Supporting Schedule, defined as the accepted schedule in place at the time of the event or occurrence for which the adjustment is being requested showing the impact of the event. An adjustment in Contract Time will not be processed without a combined pdf of the Supporting Schedules included. In addition, the documentation should also include a schedule illustrating the Contractor's schedule status at the time of the event or occurrence. All submitted information should be compared to the updated project monitoring chart to determine the applicability of the request and the accuracy of the submitted information.

Requests for extensions in contract time must be submitted for each event or occurrence separately and not combined. Also, each request must be submitted and approved within the time frames as specified in Publication 408, Section 108.06. Timely submission and approval of requests for changes in contract time allows both the Contractor and the Department to make any necessary changes to their resources in order to meet the new schedule requirements. Any attempt to delay the processing of changes in contract time will leave both parties unsure of the final schedule requirements and could cause undo acceleration on the part of the Contractor. Such acceleration could result in contract disputes that may potentially result in a Claim situation.

It should be noted that Time Extensions should not be approved for reasons other than those listed in Publication 408, Section 108.06. For instance:

Plantings and Seeding. The Contractor's failure to allow an adequate period of time in the Construction Schedule for the establishment of plantings and seeded areas should not be viewed as a reason to grant a Time Extension. It is a requirement of the contract that all work be performed in the specified time frames.

Final Inspections. The Contractor's failure to complete work identified during the Final Inspection (i.e. Punch List items) by the Contract Completion Date does not qualify for a Time Extension. Consideration should be given to holding the Final Inspection at a point when 90% of the contact work has been completed as required by the Specifications in order to provide the Contractor sufficient time to complete the Punch List.

Preconstruction Conference. If work cannot begin until the preconstruction conference has been held, these meetings should be held prior to the NTP.

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VII. Time Extensions requests related to Disputes/Claims

Taking action on a time extension that also involves a dispute/claim issue, before the dispute/claim issue is resolved, may not be appropriate in all cases and should be done only after consultation with the Office of Chief Counsel and, if the project is Federally funded, with the Federal Highway Administration. Ensure that the new completion date does not exceed the Federal Authorization 4232 Project Agreement End Date. Extension of the completion date past the 4232 end date will require a prior extension of the 4232 date. Contact your Planning and Programming representatives should this situation occur.



NARRATIVE BASELINE SCHEDULE REVIEW CHECKLIST

Project Information	Schedule Information
ECMS #: <input style="width: 90%;" type="text"/>	Date Submitted: <input style="width: 90%;" type="text"/>
Prime Contractor: <input style="width: 90%;" type="text"/>	Review Date: <input style="width: 90%;" type="text"/>
Contractor Scheduler: <input style="width: 90%;" type="text"/>	Reviewer: <input style="width: 90%;" type="text"/>
Anticipated Notice to Proceed: <input style="width: 90%;" type="text"/>	Actual Notice to Proceed: <input style="width: 90%;" type="text"/>
Original Contract Completion: <input style="width: 90%;" type="text"/>	

1. Submission Requirements

A. Contractor submitted the Narrative Schedule within 15 days after the actual Notice to Proceed Date Yes No
If no, estimate payment will not be released and the Contractor is required to attend a scheduling workshop.

b. Submitted Schedule is based upon the Notice to Proceed Date as the first day of work Yes No

c. If actual Notice to Proceed was issued after the anticipated Notice to Proceed Date in the proposal:
 Initial Schedule submission is based upon the anticipated Notice to Proceed Date Yes No
 Or
 Schedule submitted is based upon the actual Notice to Proceed Date Yes No
Note: A Schedule submitted based upon the actual Notice to Proceed Date should not be considered without prior or concurrent submission of the Schedule based upon the anticipated Notice to Proceed Date in the Proposal.

2. Format Requirements

a. Schedule includes enough activities to demonstrate the necessary interdependencies Yes No

b. Schedule includes the following information regarding activities:

Activity Description.....	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Activity Duration, in working days.....	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Start and Finish calendar dates of activities.....	Yes <input type="checkbox"/>	No <input type="checkbox"/>

c. Workday Calendar has been submitted showing the following:

Working Days.....	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Non-working Days.....	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Number of shifts per day.....	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Number of hours per shift.....	Yes <input type="checkbox"/>	No <input type="checkbox"/>

3. Content Requirements

a. Activities reflect Specification / Special Provision Requirements Yes No

b. Materials (Check all that apply)

- Bituminous Concrete Base Course..... Yes No
- Bituminous Binder Course..... Yes No
- Bituminous Wearing Course..... Yes No
- Plain Cement curing (can include Non-work days)..... Yes No
- Structural Concrete loading..... Yes No
- Pavement Markings..... Yes No
- Seeding / Plantings..... Yes No
- Bridge Painting..... Yes No
- Testing Period(s)..... Yes No

c. Imposed Restrictions (Check all that apply)

- M & P Restrictions..... Yes No
 - Detours..... Yes No
 - Lane restrictions..... Yes No
 - Bridge restrictions..... Yes No
 - Road closures..... Yes No
- Stream restrictions..... Yes No

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CRITICAL PATH METHOD BASELINE SCHEDULE REVIEW CHECKLIST

Project Information	Schedule Information
ECMS #: <input type="text"/>	Date Submitted: <input type="text"/>
Prime Contractor: <input type="text"/>	Review Date: <input type="text"/>
Contractor Scheduler: <input type="text"/>	Reviewer: <input type="text"/>
Anticipated Notice to Proceed: <input type="text"/>	Resource Loaded CPM?: Yes <input type="checkbox"/> No <input type="checkbox"/>
Original Contract Completion: <input type="text"/>	Actual Notice to Proceed: <input type="text"/>

1. Submission Requirements

a. 60 Calendar Day Work Plan at the Preconstruction Conference Yes No

b. Schedule used to prepare contract bid submitted within 30 calendar days after the actual Notice to Proceed Date Yes No

c. CPM Schedule submitted within 30 calendar days after the actual Notice to Proceed Date Yes No
If no, estimate payment will not be released and the Contractor is required to attend a scheduling workshop.

d. Submitted CPM Schedule is based upon the Notice to Proceed Date as the first day of work Yes No

e. If actual Notice to Proceed was issued after the anticipated Notice to Proceed Date in the proposal:
 Initial Schedule submission is based upon the anticipated Notice to Proceed Date Yes No
 Or
 Schedule submitted is based upon the actual Notice to Proceed Date Yes No
Note: A Schedule submitted based upon the actual Notice to Proceed Date should not be considered without prior or concurrent submission of the Schedule based upon the anticipated Notice to Proceed Date in the Proposal.

f. Schedule shows Original Contract Completion Date being met and properly constrained Yes No
If not, Contractor must revise schedule to show completion of work on the Contract Completion Date, or request a time reduction to change the Contract Completion Date to the date that work is shown to be completed on submitted schedule.

g. Schedule shows all Milestone Dates being met and properly constrained Yes No

h. Schedule shows all Construction restrictions and association RULD restrictions Yes No

i. Electronic project file provided in Asta Powerproject (.pp) format? Yes No

j. PDF file of the Asta Powerproject (.pp) schedule provided? Yes No

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2.Format Requirements

- a. Schedule submitted in Asta Powerproject (.pp) format that shows logical relationships between activities Yes No
- b. Activities have at least one predecessor (except ANTP) Yes No
- c. Activities have at least one successor (except Project Completion) Yes No
- d. Activities utilize only finish-to-start relationships Yes No
- e. Leads and Lags are identified as separate activities Yes No
- f. Schedule is of sufficient detail to communicate the interdependencies Yes No
- g. Activities with durations greater than 15 days kept to a minimum Yes No
- h. The following information shown for each activity in the schedule and on PDF:
- Activity ID..... Yes No
 - Activity Description..... Yes No
 - Activity Duration, in working days..... Yes No
 - Early Start Date..... Yes No
 - Early Finish Date..... Yes No
 - Late Start Date..... Yes No
 - Late Finish Date..... Yes No
 - Constraint Date..... Yes No
 - Constraint Type..... Yes No
 - Total Float..... Yes No
 - Predecessor..... Yes No
 - Successor..... Yes No
 - Calendar..... Yes No
 - Resource Allocation..... N/A Yes No
 - Resource Effort..... N/A Yes No
- i. Required Activity Descriptions:
- Notice to Proceed..... N/A Yes No
 - Physical Work Start..... N/A Yes No
 - Remove Detour..... N/A Yes No
 - Open to Traffic..... N/A Yes No
 - Physical Work Complete..... N/A Yes No
 - Project Completion..... N/A Yes No
- j. Calendars defined (days worked, shifts per day, hours per shift) Yes No
- k. Holidays shown in Calendars (except for 7 day Calendars) Yes No
- l. Schedule does not include negative float Yes No
- m. Spreadsheet submitted or Allocation Groups within Asta identifying Business Partner ID(s), Labor Crews, and Proposed Equipment Name and Number? N/A Yes No

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3. Content Requirements

a. Activities reflect Specification / Special Provision Requirements	Yes <input type="checkbox"/>	No <input type="checkbox"/>
b. Materials (Check all that apply)		
Bituminous Concrete Base Course.....	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Bituminous Binder Course.....	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Bituminous Wearing Course.....	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Plain Cement curing (can include Non-work days).....	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Structural Concrete loading.....	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Pavement Markings.....	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Seeding / Plantings.....	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Bridge Painting.....	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Testing Period(s).....	Yes <input type="checkbox"/>	No <input type="checkbox"/>
c. Imposed Restrictions (Check all that apply)		
M & P Restrictions.....	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Detours.....	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Lane restrictions.....	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Bridge restrictions.....	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Road closures.....	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Stream restrictions.....	Yes <input type="checkbox"/>	No <input type="checkbox"/>

4. Comment Section

The following information will be used to comment on submitted schedules, but CANNOT be a basis for rejection.

a. Separate activities for develop / submit and review / approve steps for each submittal	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
b. Adequate time provided for Department review of submittals	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
c. Below is a list of items that could be within the contract documents, if within the contract are they accounted for in the schedule			
ADA Curb Ramp Designs.....	N/A <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Design Build Submittals.....	N/A <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Shop Drawings (including time for fabrication and delivery).....	N/A <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
ITS and Electrical Testing.....	N/A <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Temporary Shoring / Jacking Plan / Temporary Support System.....	N/A <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Permit Applications (NPDES).....	N/A <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Railroad Insurance.....	N/A <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Railroad Temporary Right of Entry Permit.....	N/A <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Utility Relocations and coordination (per D-419).....	N/A <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>

4. Comment Section Continued

d. Activities provided for the following Calendar Day Lag Times with associated interrelationships

- Concrete Pavement Curing..... N/A Yes No
- Concrete Structure / Bridge Deck Curing..... N/A Yes No
- Sealer (Penetrating, Epoxy Resin) Lag Time prior to application..... N/A Yes No
- Dead Load Lag Time prior to backfilling, placing beams, etc..... N/A Yes No
- Removal of E&S Controls (70% growth achieved - 6 weeks after seeding)..... N/A Yes No
- 30 Day Traffic Signal Test Period..... N/A Yes No
- Other not mentioned..... N/A Yes No

e. Date & Weather / Temperature Restrictions and Deadlines taken into account for the following activities

- Asphalt paving (based on PG oil used).....N/A Yes No
- Structural Steel Painting.....N/A Yes No
- Permanent Pavement Marking application.....N/A Yes No
- Seeding (formula dependent)..... N/A Yes No
- Environmental SP (trout stream, endangered species)..... N/A Yes No
- Cool or Cold Weather Concrete Placements..... N/A Yes No
- Tree Trimming and Cutting..... N/A Yes No
- Tree and Plant Species Planting and Transplanting..... N/A Yes No
- Other not mentioned..... N/A Yes No

f. Activities provided for the following miscellaneous items

- Mobilization and Demobilization..... N/A Yes No
- Installation of E&S Controls..... N/A Yes No
- Final Inspection..... N/A Yes No
- Time to Address Punch list Items..... N/A Yes No

5. Additional Comments

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Schedule Review Response Examples

Ex. #1: Schedule as submitted does not meet the format requirements of the Contract:

Your Schedule submitted for the above project does not meet the format requirements of the contract. Please make the necessary changes according to Publication 408 Sec 689 and resubmit.

Ex. #2: Schedule as submitted meets the format requirements, but contains some minor issues:

Your Schedule submitted for the above project appears to meet the format requirement of the contract and is therefore accepted. There are, however, several issues that need to be addressed:

- Your schedule shows concrete curing for only 3 days prior to loading. Be advised that 7 day strengths will be required on all concrete prior to loading.
- Your schedule shows asphalt materials being placed in November. Be advised that all material specified dates will be observed. Asphalt wearing on this project must be placed on or before October 15th.
- Your schedule does not appear to include adequate time to achieve germination of the seeding mixture prior to the contract completion date. Be advised that proper germination is necessary to remove the temporary E&S measures which are included in the contract work. Removal of these measures after the completion date may result in the collection of Liquidated Damages as specified in Publication 408, Section 108.07.
- Your schedule indicates work being performed on Main Street between June 15th and June 23rd. The contract requires that this area be open to unrestricted traffic during that period to accommodate the local Fire Co. Fair traffic. Please adjust your plans as necessary to ensure this requirement.

Ex. #3: Schedule as submitted meets the format requirements, but shows an early completion:

Your Schedule as submitted appears to meet the format required by the contract; however, you indicate completion 90 days prior to the completion date listed in the contract. Please revise your schedule to show completion on the date indicated in the contract or request, or, if your intention is to complete early, the Department will process a Time Reduction as specified in Publication 408, Section 108.06(b).

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TIME EXTENSION REQUEST PROCEDURE		
SPECIFIED EVENT OR OCCURRENCE	“TERMINATION OF EVENT” MILESTONE	REQUESTED SUPPORTING DOCUMENTATION
The Notice to Proceed (NTP) indicates that the actual NTP Date will be after the anticipated NTP Date in the proposal.	Within 30 calendar days after the date of Department acceptance of the initial Construction Schedule.	<ul style="list-style-type: none"> • Anticipated NTP Date • Actual NTP Date • Explain how late NTP Date impacted Completion Date and/or specified Milestone Date(s)
Utility Infrastructure and Utility Adjustment delay.	Within 30 calendar days after the date all utility infrastructure and utility adjustments impacting the Contractor’s operations are completed.	<ul style="list-style-type: none"> • Describe the circumstances of the delay. • Provide the date that all infrastructure and adjustments impacting contract operations were completed. • Explain how controlling operations were adversely affected.
Project completion requires work in greater quantities than indicated in the contract (i.e. plan quantity overruns).	Within 30 calendar days after the date the overrun quantity of work under the applicable contract item(s) is completed.	<ul style="list-style-type: none"> • Identify the specific contract item(s) • Provide the date that the overrun quantity of work under each applicable contract item was completed. • Reference applicable Work Order(s), if available (by No.). • Explain how controlling operations were adversely affected.
District Executive authorizes elimination of item(s) or reduction in quantity for item(s).	Within 30 calendar days after date of receipt of initial itemized written Authorization for the item quantity elimination(s) / reduction(s).	<ul style="list-style-type: none"> • Reference initial, itemized Authorization(s) for Contract Work (by No. and Receipt Date). • Reference associated Work Order(s), if available (by No.). • Address any difference between the number of days requested and estimate of impact on contract time in referenced Authorization(s) and Work Order(s). • Explain how controlling operations were adversely affected.

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District Executive authorizes Additional and/or Extra Work.	<p>Within 30 calendar days after:</p> <ul style="list-style-type: none"> the date prices to be paid for authorized Additional Work and/or Extra Work at a Negotiated Price are agreed upon and, when applicable, accepted by the Department; or the date authorized Extra Work on a Force Account Basis is completed. 	<ul style="list-style-type: none"> Reference Authorization(s) for Contract Work (by No.). Reference associated Work Order(s), if available (by No.). Provide the date that prices to be paid for authorized AW/EW at a Negotiated Price were agreed upon and, when applicable, accepted by the Department; or the date authorized EW on a Force Account Basis was completed. Address any difference between the number of days requested and estimate of impact on contract time in referenced Authorization(s) and Work Order(s). Explain how controlling operations were adversely affected.
Strike or labor dispute causes shutdown.	<p>Within 30 calendar days after the date the strike or labor dispute ends.</p>	<ul style="list-style-type: none"> Provide Start Date and End Date of strike or labor dispute. Describe the circumstances of the strike or labor dispute. Identify controlling operations shutdown as a result of the strike or labor dispute (if not entire project).
Delayed action or failure to act of an agency other than the Department.	<p>Within 30 calendar days after the date all issues involving the agency's delayed action or failure to act were resolved.</p>	<ul style="list-style-type: none"> Provide the name of the agency and describe the specific delayed action or failure to act. Provide the date that all delay issues were resolved. Explain how controlling operations were adversely affected.
Act or omission of the Department.	<p>Within 30 calendar days after the date all issues involving the Department's act or omission are resolved.</p>	<ul style="list-style-type: none"> Describe the specific act or omission of the Department. Provide the date that all delay issues were resolved. Explain how controlling operations were adversely affected.
Weather-related event warranting emergency declaration and having a direct, adverse impact on active construction project(s).		<ul style="list-style-type: none"> Describe the specific weather-related event. Explain how controlling operations scheduled to occur during the time of the event were adversely affected.

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TIME REDUCTION REQUEST PROCEDURE		
SPECIFIED EVENT OR OCCURRENCE	“TERMINATION OF EVENT” MILESTONE	REQUESTED SUPPORTING DOCUMENTATION
The Notice to Proceed (NTP) indicates that the actual NTP Date will be before the anticipated NTP Date in the proposal.	Within 30 calendar days after the date of Department acceptance of the initial Construction Schedule.	<ul style="list-style-type: none"> • Anticipated NTP Date • Actual NTP Date • Explain how early NTP Date impacted Completion Date and/or specified Milestone Date(s).
Project completion requires work in lesser quantities than indicated in the contract (i.e. plan quantity underruns).	Within 30 calendar days after the date the underrun quantity of work under the applicable contract item(s) is completed.	<ul style="list-style-type: none"> • Identify the specific contract item(s) • Provide the date that the underrun quantity of work under the applicable contract item(s) was completed. • Reference applicable Work Order(s), if available (by No.). • Explain how controlling operations were favorably affected.
District Executive authorizes elimination of item(s) or reduction in quantity for item(s).	Within 30 calendar days after date of submission of initial itemized written Authorization for the item quantity elimination(s) / reduction(s).	<ul style="list-style-type: none"> • Reference initial, itemized Authorization(s) for Contract Work (by No. and Submission Date). • Reference associated Work Order(s), if available (by No.). • Address any difference between the number of days requested and estimate of impact on contract time in referenced Authorization(s) and Work Order(s). • Explain how controlling operations were favorably affected.
Contractor submits an initial Schedule that shows Completion Date and/or specified Milestone Date(s) will be earlier than the date(s) indicated in the contract.	Within 30 calendar days after the date of Department acceptance of the initial Construction Schedule.	<ul style="list-style-type: none"> • Provide the date the Department accepted the initial Construction Schedule.
Act of the Department.	Within 30 calendar days after the date notification of the act is submitted to the Contractor.	<ul style="list-style-type: none"> • Describe the specific act of the Department. • Provide the date that notification of the act was submitted to Contractor. • Explain how controlling operations were favorably affected.

REPLACES C.1.9	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART C	SECTION 1	PAGE 9-1
DATED 04/01/2014	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT INDUSTRY-WIDE LABOR STRIKES AFFECTING CONTRACT TIME				

Extension of contract time as specified in Publication 408, Section 108.06, will be granted on calendar day or calendar date completion contracts which are adversely affected by industry-wide labor strikes.

The following procedure is to be used when resolving the subject problem:

1. The Notice to Proceed was given as specified in Publication 408, Section 108.02.
2. The work is temporarily suspended as specified in Publication 408, Section 107.16(c).
3. Within 30 days of the resolution of the strike, the Contractor is to submit a request for additional contract time as specified in Publication 408, Section 108.06.

REPLACES C.1.10	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART C	SECTION 1	PAGE 10-1
DATED 04/01/2017	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT CONSTRUCTION CONTRACT DEFAULT PROCEDURES				

The following will govern the actions to be taken in the event it becomes necessary to declare a Contractor in default as specified in Publication 408, Section 108.08(a).

1. The District notifies the Office of Chief Counsel (OCC) prior to taking any action.
2. The District Executive is to notify the Contractor of the intent to recommend to the Secretary that the Contractor be declared in default. The notification will make specific reference to the applicable reason(s) as specified in Publication 408, Section 108.08(a), together with supporting justification as documented by project records. The Contractor will be directed to provide a response within 5 working days showing cause to why the proposed default action should not be taken. The notification will be sent by certified mail and email. Copies of the notification will be sent to the contractor's surety and to the Chief, Construction and Materials Division (CMD).
3. Upon expiration of the 5-day response time, the District Executive (DE) will re-evaluate the proposed default recommendation and if default is still deemed appropriate, the DE is to notify the Deputy Secretary for Highway Administration in writing of the recommendation to hold the Contractor in default. A copy of the DE's notification to the Contractor and the Contractor's response, if any, will be attached to the DE's notification to the Deputy Secretary. Copies of the DE's recommendation will be sent to the Director of the Bureau of Project Delivery (BOPD), the Chief of the CMD, and the OCC.
4. The Director of the BOPD will direct the Chief of the CMD to coordinate the action and prepare the necessary correspondence for the Deputy Secretary's signature.
5. The Chief, CMD, through the Contract Management Section Chief will: (1) coordinate the action with the District, the OCC and the Federal Highway Administration (FHWA), if applicable; (2) prepare the Deputy Secretary's letter to both the Contractor and the surety declaring the Contractor in default and notifying the surety to complete the contract according to its terms; and (3) take action to suspend the Contractor or impose other sanctions as appropriate under the Specifications and/or Prequalification Regulations.

Under no circumstances can the District unilaterally declare a Contractor in default.

REPLACES C.1.11	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART C	SECTION 1	PAGE 11-1
DATED 08/08/1996		DATE April 1, 2017		
SUBJECT RETENTION TIME FOR STORAGE OF TEST BORING SAMPLES				

Test boring samples from the Soils Investigation may be discarded after six (6) months have elapsed following the acceptance of the "Notification of Final Quantities and Contract Settlement Amount" by the Contractor, provided the Contractor has not notified the Department of any rejection, exception, or intention to file a claim relating to any matter.

In the event of a claim, intent to file a claim, rejection, or exception either by the Contractor or the Department, the samples must be kept until authorization is received from the Office of Chief Counsel to discard.

REPLACES C.1.13	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART C	SECTION 1	PAGE 13-1
DATED 04/01/2020	PROJECT OFFICE MANUAL	DATE April 1, 2021		
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 Publication 408, 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 or from 56-Day compressive strength tests for bridge deck lots.

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 (DE). 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 DE, deficient concrete meeting the remove and replace criteria will be permitted to remain in place. Approval of the DE may not be delegated to a lower level.

Provide a copy of the District's determination letter and all supporting documentation to the Bureau of Project Delivery, Construction and Materials Division, Construction Quality Assurance Section Chief, within 10 days as justification of the DE 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 50% payment.

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In every case, the payment is to be 50% x CUP x lot [as specified in Publication 408, 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. [Form CS-4307G](#) shall be used as a guideline for Contractor's Past Performance Evaluations.

REPLACES C.1.14	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART C	SECTION 1	PAGE 14-1
DATED 03/01/2011		DATE April 1, 2020		
SUBJECT CERTIFIED TECHNICIANS - DEPARTMENT PERSONNEL				

Districts shall staff asphalt paving projects with at least one person who is a certified asphalt field technician. District personnel who inspect aggregate sources shall be certified aggregate technicians. District personnel who inspect concrete plants and who perform or witness concrete testing shall be certified concrete technicians.

If a District is unable to provide certified technicians in accordance with these guidelines, the District must notify the asphalt paving contractor at the beginning of the project, that a certified technician is not available. The District must also identify the certified technician to contact in the event of issues that may arise on the job. In addition to the above, the District must identify to aggregate and concrete producers the certified technician to handle issues that arise during plant inspections.

REPLACES C.1.16	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART C	SECTION 1	PAGE 16-1
DATED 04/01/2014		DATE April 1, 2020		
SUBJECT RESPONSIBLE CHARGE OF ALL FEDERAL AID PROJECTS				

Purpose

To establish Department policy for ensuring compliance with Federal requirements related to project supervision, as set forth in Parts a & b of 23 CFR 635.105.

Background

Reference 23 CFR 635.105, Supervising Agency

The State Transportation Department (STD) has responsibility for the construction of all Federal-aid projects, and is not relieved of such responsibility by authorizing performance of the work by a local public agency or other Federal agency. The STD shall be responsible for insuring that such projects receive adequate supervision and inspection to ensure that projects are completed in conformance with approved plans and specifications.

Although the STD may employ a consultant to provide construction engineering services, such as inspection or survey work on a project, the STD shall provide a full-time employed State engineer to be in responsible charge of the project.

Procedures

The Districts rely heavily on consultant personnel to supplement their inspection work force. This reliance on consultant personnel includes inspectors, as well as supervisors and managers. Each District should investigate upcoming projects to determine its staffing needs and assess whether consultant staffing will be necessary. The Districts should use Department Job Descriptions as a guide to determine the classification(s) of consultant personnel to be assigned to a given project. Consultant personnel are considered an extension of the Department. Consultant supervisors and managers will generally perform the same functions as a Department Inspector-in-Charge (IIC) or a Department Assistant Construction Engineer / Manager (ACE / ACM); however, certain duties and functions must be performed by an engineer employed by the Department.

Department Responsibilities

The Assistant District Executive for Construction (ADE-C) must assign a full-time PennDOT employed engineer to be in responsible charge of the District's Federal-aid projects at all times. The Person In Responsible Charge (PRC) is normally the PennDOT ACE or ACM.

The person in "responsible charge" is expected to perform the following duties and functions:

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- Administer all inherently governmental project activities, including those dealing with cost, time, adherence to contract requirements, construction quality, and scope;
- Maintain familiarity with the day-to-day operations on the project, including project safety issues;
- Make or participate in decisions about changed conditions or scope changes that require change orders or supplemental agreements;
- Be aware of the qualifications, assignments, and on-the-job performance of the PennDOT and consultant staff at all stages of the project;
- Review financial processes, transactions, and documentation to ensure that safeguards are in place to minimize fraud, waste, and abuse;
- Direct project staff, PennDOT or consultant, to carry out project administration and contract oversight, including proper documentation; and
- Visit and review each project on a frequency that is commensurate with its magnitude and complexity.

Assignment of Responsibilities to Consultants

In general, a full time PennDOT employed engineer must be assigned to federally funded projects to serve as the person in responsible charge.

As appropriate, in consideration of District workload and the size and complexity of a given project, the District may assign a consultant to be the IIC with day-to-day responsibility for project supervision. However, even when a Consultant IIC is responsible for day to day project supervision, the District is not relieved of its “responsible charge” obligations, as defined herein.

The following conditions/process applies:

- Consultant IIC’s may perform project supervision duties, including the assignment of duties to subordinate inspectors and other Department-selected consultants.
- Consultant IIC’s may authorize Additional / Extra work on a construction contract valued at up to \$30,000 per occurrence. The responsible ACE / ACM must review all authorizations for Additional / Extra work in excess of \$30,000 per occurrence before they are submitted to the Contractor. **NOTE:** ECMS workflow does not support the transmission of an Authorization for Contract Work to the responsible ACE / ACM before it is submitted to the Contractor. As a result, the Consultant IIC must notify the responsible ACE / ACM outside of ECMS whenever an authorization requiring review has been created and saved, but not yet submitted
- The Consultant IIC may not approve work orders or time extension requests in ECMS.
- The District must approve estimate payments.

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Before assigning a Consultant IIC, the District must demonstrate a need by showing that its project workload has significantly increased and that the increase has critically limited its ability to provide an IIC for every project. The District’s supporting information should cite the current project workload vs. previous years, the number of IICs required vs. the number of available PennDOT IICs, the estimated cost savings from reduced overtime vs. the estimated cost increase associated with assigning consultant IICs, as well as any additional relevant supporting data.

The District must evaluate the qualifications of the consultant personnel and the firm’s past performance to determine any limitations on the size, scope, and/or complexity of projects that consultant IICs may be assigned to manage.

Submittal of Consultant IIC for Approval

The District Executive (DE) will approve, in writing, all requests by the ADE-C to utilize a Consultant IIC on a Federal aid project. The DE’s written approval is to be included in the project files. Federal Highway Administration (FHWA) approval is not required.

Submittal of Consultant ACE for Approval

In accordance with 23 CFR 172.9(d), Consultant Services in Management Roles, Federal Highway Administration approval is required when a Consultant is to assume the project supervisory / management responsibilities of a PennDOT ACE or ACM. The FHWA will review such requests on a well justified, case-by-case basis only. The State employed PRC must be named in the request and must perform the duties and functions of that role, as outlined above.

The District must submit approval requests, in writing, to the Bureau of Project Delivery (BOPD).

The BOPD, Contract Management Section (CMS), will coordinate the appropriate reviews and provide comments or recommend concurrence / rejection within five (5) days of receipt of the District’s request.

The BOPD will request approval, in writing, from the Pennsylvania Division Administrator, Federal Highway Administration (FHWA), and notify the District regarding FHWA’s approval / disapproval of its request to assign the selected candidate as the Consultant ACE for the applicable project.

REPLACES C.1.17	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART C	SECTION 1	PAGE 17-1
DATED 01/01/2009	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT RISK-BASED CONSTRUCTION INSPECTION GUIDELINES				

This policy is intended to provide a decision-making process with guidelines for the management of construction inspection forces based on factors of risk and cost to the Department as well as the potential impact to the success of the project. Some of the basic issues to be considered include safety, environmental impact, quality of construction to ensure durability and performance, and the cost of reworking an item or failure of the item in the future.

It is important to have everyone involved in managing projects/resources thinking in terms of these factors when assigning Department and/or consultant inspection staff to projects and/or specific operations. This approach is intended to maximize resources while allowing each District the flexibility to address all factors that have an impact on inspection management.

The Department is charged with the responsibility of overseeing construction projects using Federal funds. This includes local projects that are constructed using Federal funds. This responsibility is defined by regulation in 23 CFR 635 quoted below:

“Sec. 635.105 Supervising agency.

a) The STD has responsibility for the construction of all Federal-aid projects, and is not relieved of such responsibility by authorizing performance of the work by a local public agency or other Federal agency. The STD shall be responsible for insuring that such projects receive adequate supervision and inspection to ensure that projects are completed in conformance with approved plans and specifications.

(b) Although the STD may employ a consultant to provide construction engineering services, such as inspection or survey work on a project, the STD shall provide a full-time employed State engineer to be in responsible charge of the project.”

It is not the intent of this policy to eliminate inspection on a project but to provide a tool for evaluating specific project factors to best use inspection resources. In addition, this policy is not all inclusive in terms of factors to be considered but should be used as a baseline to begin the process.

Process for Project/Operation Evaluation

The diagram below illustrates how operations should be considered when assigning inspection staff to operations. Consideration for cost and risk are addressed from Low Cost - Low Risk through High Cost - High Risk. Low Cost – Low Risk operations are potential candidates for reduced or spot-inspection, while High Cost – High Risk operations require full-time inspection.

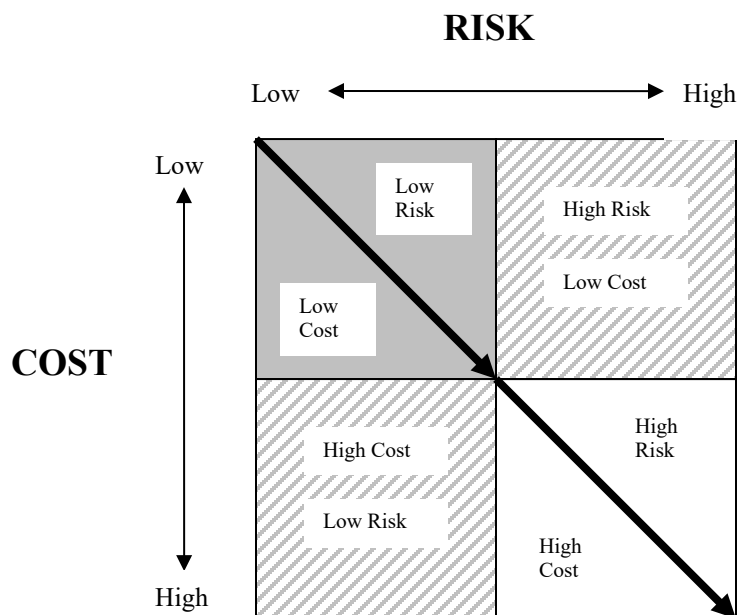


Fig. 1 – Risk Assessment Categories

- Operations that fall in the shaded quadrant of Low Cost, Low Risk are potential opportunities to reduce or eliminate the need for full-time inspection.
- Operations that fall in the two “hatched” quadrants of High Cost – Low Risk and High Risk – Low Cost are possible candidates as well, however care and discretion should be used as they both may adversely impact the project.
- Operations that fall in “white” quadrant are not recommended for consideration as they are High Risk – High Cost and would have the most potential to impact the project.

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Guidelines for Considering Factors Other than Cost or Risk

Since each District and every project is influenced by specific, unique factors, consideration must be given for elements that may potentially impact delivery of the project. After considering these factors, an operation may move from one category to another after the initial evaluation. While it is not practical to address all situations, below is a list of items that should be considered as a baseline for this part of the analysis:

Possible Factors for re-categorization of low risk items to high risk items:

- Items that can not be effectively inspected in-place following construction
- Experimental Features
- Environmental Commitments
- Items covered by new or revised specifications
- Items that require project sampling or materials testing for acceptance
- Projects or operations being constructed at night
- Traffic Control/Traffic Management Plan requirements
- Possible regulatory issues such as National Pollutant Discharge Elimination System (NPDES) permit compliance
- Specialty Items
- Any item which requires temporary traffic patterns for installation
- Operations with safety issues such as deep excavations
- Controlling Operations on the Critical Path of the project schedule
- Past experience with a particular contractor or sub-contractor
- Cost/Impact of Rework or Failure
- Type of highway/project for example: Local, Urban, Rural, Interstate
- Average Daily Traffic (ADT) and % Trucks
- Safety of Workers

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Typical Operation Cost/Risk Categorization

Below is a table of operations and the typical category in which they would be placed. This table is intended to be a guide only and is not all-inclusive

Table 1 – Items with Typical Cost/Risk Categorization

LOW RISK - LOW COST	HIGH RISK - LOW COST
<ul style="list-style-type: none"> • Clearing & Grubbing • Bulk Excavation • Gabions • Misc. E & S Items not associated with NPDES • Misc. Seeding, Mulching, Planting • Office Trailer & Equipment Package • Waterproofing • Down-spouting 	<ul style="list-style-type: none"> • Embankment • Sub grade • Slab Stabilization • Flowable Fill • Geo-textiles • Drainage • Individual E & S Items which are part of the NPDES • Sidewalks • Survey • Delineation Devices • Pavement Markings • Basic MPT and associated devices • Guide Rail • Scarification of Existing Bridge Decks • Rebar

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Table 1 – Items with Typical Cost/Risk Categorization - Continued

HIGH COST - LOW RISK	HIGH RISK - HIGH COST
<ul style="list-style-type: none"> • Rebuilt Misc. Structures • Random Stone slope walls • Temporary Concrete Barrier 	<ul style="list-style-type: none"> • Drainage Items Under Roadway • Base Courses • Flexible Pavement • Rigid Pavement • Curb Ramps/ADA associated items • Impact Attenuating Devices • Concrete Median Barrier • Blasting • Lead Paint Removal • Bridge Demo • Beam Erection • Structural Concrete • Piling • Retaining Walls • Sound Walls • Box Culverts • Bridge Painting • Spot Zone Maintenance Painting of Existing Structural Steel • Complicated MPT and associated devices • Highway Signing and Lighting • Permanent Traffic Control Items • Overhead Sign Structures • Environmental Commitments

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Additional Guidelines

Guidelines for Project Staffing

- Staffing for each project should be developed by Inspector-in-Charge (IIC), Managers, and Assistant Construction Engineer/Assistant Construction Manager (ACE/ACM).
- Consider travel time and avoid unnecessary travel where possible.
- Consider number of operations that can be covered by one inspector.
- Initial staffing should be based on long term needs and supplemented for short term requirements such as paving.

Guidelines for Consultant Inspection Agreements

- Develop consultant agreements to maximize efficient use of consultant inspectors between projects
 - Project-specific agreement with multiple construction projects per agreement.
 - Concentrate open end agreements to benefit each Assistant's area.
- Project staffing projections should be based on long term needs and be supplemented from other areas to satisfy short term needs such as paving operations. This will eliminate over encumbering agreements for project staffing.
- IIC must be aware of funding available for inspection. If additional funding is required for inspection, IIC must provide justification.

REPLACES C.1.18	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART C	SECTION 1	PAGE 18-1
DATED 04/01/2017	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT FORM CS-118, CHECKLIST FOR THE ADMINISTRATION OF LOCALLY SPONSORED FEDERAL AID PROJECTS				

Publication 740, Local Project Delivery Manual, Chapter 7, states "the Assistant Construction Engineer (ACE) or a designee is to visit the project as frequently as needed to maintain an intimate knowledge of current activities and ensure that the work is being inspected and the contract administered in accordance with the terms of the agreement, the requirements of FHWA, and the procedures outlined herein. During each visit to the project or at least quarterly when the project control meetings are being attended on a regular basis, the ACE or designee is to document, in writing, the project status and any outstanding issues."

To assist the Districts with oversight responsibility, [Form CS-118](#), Checklist for the Administration of Locally Sponsored Federal Aid Projects, has been developed. This checklist **must** be utilized when visiting Locally Sponsored Federal Aid Projects to provide uniformity in reviews as well as documentation that oversight is being performed.

REPLACES SOL 481-20-02	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART C	SECTION 1	PAGE 19-1
DATED 06/09/2020	PROJECT OFFICE MANUAL	DATE April 1, 2021		
SUBJECT PRE-MEETING REQUIREMENTS PRIOR TO CRANE OPERATION				

Prior to on-site crane operation, a Pre-Crane Operation Meeting is required as specified in Publication 408, Section 108.05(c)6.

The participants should include, at a minimum:

- Department and Consultant Project Inspection Staff
- District Structure Control Engineer
- Contractor's Superintendent and Foreman
- Crane Operator(s) and/or Crane Company Representative

A chain of command should be established at this meeting for both the Department and the Contractor so that if unanticipated problems arise during the crane operation, decisions can be made in a timely manner.

The agenda of the Pre-Crane Operation Meeting shall include, at a minimum, the following:

- Definition of Crane Operation: Crane Operation is to be for the operation of any size or type of crane by a licensed crane operator performing crane work on the project construction site.
- Crane Operator Licensure: Prior to the start of work, a valid Commonwealth crane operator's license from the State Board of Crane Operators is required from the contractor for any operator(s) that will be performing crane work on the project construction site.
- Crane Operation Pre-Meeting: Conduct one on-site meeting (as necessary) with each crane operator(s) and /or designated crane company representative on the project site prior to any crane operation on the day of the lift, as specified in Publication 408, Section 108.05(c)6. This meeting can also take place during the project on-site Pre-Erection/Pre-Demolition Meeting (when applicable). The purpose of this meeting is to reinforce that all parties involved are aware of the requirements for the day's crane operation activities, including, but not limited to, a review of the approved erection/demolition plans, safety, pick locations, crane type, size, locations and leveling, swing radius, reach limitations, travel directions with load, communication methods, tag lines, boom angles, rigging, and overhead utilities.
- Crane Operation: Adhere to the crane operation activities, as discussed at the Crane Operation Pre-Meeting. Remediate possible mat shifts and correct possible conflicts observed with the crane operation. The Department does not approve of the disengagement of the crane manufacturers' recommended safety features, as specified in Publication 408, Section 107.08. Lifting loads over live traffic is prohibited.

REPLACES	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART	SECTION	PAGE
DATED		C	1	20-1
SUBJECT		DATE		
		April 1, 2021		
PROJECT OFFICE MANUAL				
PROCEDURES FOR HANDLING EQUAL EMPLOYMENT OPPORTUNITY (EEO) COMPLAINTS BY CONTRACTOR EMPLOYEES				

EEO Complaints by Contractor Employees against Contractors

(Note: For the purposes of this section, consultants that work on behalf of PennDOT are considered as contractors.)

When PennDOT is made aware of a discrimination complaint filed by an employee of a contractor or subcontractor, PennDOT field staff are to immediately direct the employee who filed the complaint to the employee's EEO or Human Resource Office, then relay all corresponding information to the Assistant Construction Engineer (ACE), Inspector-in-Charge (IIC), and to their District Bureau of Equal Opportunity (BEO) Contract Compliance Specialist as soon as possible. PennDOT's ACE or IIC must notify the contractor or subcontractor associated with the project in question of the complaint and advise them to promptly launch an investigation. The contractor or subcontractor must take appropriate corrective action in a timely manner. Upon completion of the investigation, the contractor or subcontractor will notify BEO of the outcome of the investigation by sending a copy of the completed investigation to BEO.

If any information is received by the BEO Contract Compliance Specialist that demonstrates a contractor or subcontractor's unwillingness to conduct an investigation, the BEO Contract Compliance Specialist will report the matter to the BEO Contract Compliance Supervisor or Director. The BEO Contract Compliance Supervisor or Director should immediately contact the Office of Chief Counsel (OCC) to determine the next steps. If a contractor or subcontractor fails to meet their contractual obligation to follow nondiscrimination policies, mandated under State and Federal laws and referenced in Publication 408, Sections 107.25 and 107.30, and Designated Special Provision 10 (DSP10), or fails to fulfill their responsibility to conduct an investigation of a complaint, they may be sanctioned under the terms of their contract with PennDOT and under State and Federal law.

EEO Complaints by Contractor Employees against PennDOT

PennDOT field staff are to immediately direct all complaints made by a contractor or subcontractor against a PennDOT employee to their District BEO Contract Compliance Specialist or the District Human Resources Officer (HRO), as well as to the OCC. It is the responsibility of all PennDOT field staff to immediately relay this information. If the discrimination complaint from a contractor or subcontractor concerns a PennDOT employee, OCC will provide guidance to BEO or the HRO regarding the proper handling and investigation of the complaint. This includes situations where two (2) or more contractors or subcontractors are involved in a complaint against PennDOT.

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Contractor or subcontractor employees with questions about how to file a discrimination complaint should refer to the Project Bulletin Board. Should you have questions regarding this policy, or desire additional information, please contact the Bureau of Equal Opportunity at (717)787-5891 or toll free at 1(800)468-4201.

REPLACES C.2.1	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART C	SECTION 2	PAGE 1-1
DATED 03/01/2011		DATE April 1, 2020		
SUBJECT INTERPRETATION OF RC-11M, CLASS 1 AND CLASS 3 EXCAVATION				

This section is to clarify the pay limits for Class 1 and Class 3 Excavation as shown on Publication 72M, RC-11M. The question is whether Class 1 Excavation is paid completely through the structure as shown in the cut section detail for "Typical Structure Section" or only up to the face of the wing wall as shown on the detail for "Wing Walls and Retaining Walls".

The interpretation of the standard is as follows:

The payment of Class 1 Excavation is limited to the front face of the wing wall and abutment wall as shown in the "Wing Walls and Retaining Walls" detail. The excavation behind the wing wall and abutment wall below the existing ground line, within the limits is Class 3 Excavation. The cut section of "Typical Structure Section" and "Wing Wall and Retaining Walls" details in RC-11M should be worked together.

NOTE: If the roadway excavation is completed prior to the excavation for abutments, wings, or piers similar to stage construction, the finished ground line of the completed roadway earthwork becomes existing ground line for the structural excavation. In such cases, Class 3 excavation should be measured down from the new existing ground line and not from the previous existing ground line.

REPLACES C.4.1	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART C	SECTION 4	PAGE 1-1
DATED 04/01/2015		DATE April 1, 2020		
SUBJECT PAVING ASPHALT USING MULTIPLE PAVERS				

As specified in Publication 408, Section 413.3(k), all longitudinal and transverse joints are to be painted with a uniform coating of asphalt material, the PG-binder used in the pavement course or PG 64S-22, before placing plant-mixed asphalt against them. If the joint becomes distorted, it should be sawed to line, as required, before painting.

When tandem pavers are used, the trailing paver must be operated so that the material from the lead paver does not fall below 175 °F. If the material falls below 175 °F, the joint must be painted or, if distorted, sawed and painted.

Some projects include a longitudinal joint density incentive/disincentive as specified in Publication 408, Section 405. Joints constructed with multiple pavers are to be included in the joint lots unless otherwise indicated.

REPLACES C.4.2	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART C	SECTION 4	PAGE 2-1
DATED 04/01/2017		DATE April 1, 2020		
SUBJECT ASPHALT PAVEMENT WEATHER LIMITATIONS				

Publication 408, Section 413.3(b) specifies starting dates and ending dates and acceptable air and surface conditions for the placing and paving of specific asphalt mixtures. The starting dates and ending dates must be adhered to regardless of air and surface conditions unless an extension of the paving season, as specified in Publication 408, Section 413.3(b)1, is granted by the District Executive. If an extension in the paving season is granted, the starting and ending dates change to allow placing and paving of specific asphalt mixtures either later in the season or both earlier and later in the season. It is the District's responsibility to inform all concerned of this requirement and make arrangements to complete or discontinue the work by the appropriate ending dates.

If extension of the paving season is granted in writing by the District Executive, additional requirements are specified in Publication 408, Section 413.3(b)1, for placement and paving occurring during the extended paving season. One of the additional requirements for placement and paving during the fall portion of the extended paving season is that the paving is subject to a spring evaluation and manual survey to be conducted by the Department by May 1 of the following year. It is the District's responsibility to field view and manually survey the pavement and determine its acceptability or if remedial action is required as specified in Publication 408, Section 413, and the Table for Extended Season Paving Performance Requirements and Remedial Actions. Items to be reviewed during the field view and manual survey include fatigue cracking, transverse and miscellaneous cracking, raveling/weathering, rutting, flushing, potholing, joint and edge deterioration, and loss of bond/delamination. Determinations of acceptability and required remedial action will be made on a case-by-case basis.

Reference is also made to Publication 408, Section 413.3(d), concerning truck covers and insulation. From October 1 to April 30 when air temperatures fall below 50°F, special attention must be given to maintaining proper temperature control of the material during delivery and placement.

From October 1 to April 30 when air temperatures fall below 50°F, trucks hauling hot asphalt mixture must be insulated on all surfaces. The insulation may be on the inside, outside, or a combination of both. Approved double walled or heated truck bodies may be used without insulation.

Truck covers must be of adequate size and quality to protect the entire load under all conditions. Mesh or screen tarps should not be used, as they would not protect the entire load under all conditions.

If the truck cannot be insulated for any reason, the paving operation should be restricted to temperatures of 50°F or higher.

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There are additional weather and calendar restrictions for many specific asphalt mixtures beyond the ones mentioned above (e.g., PG 64E-22, >10 million ESALs wearing courses, 4.75 mm NMAAS, Stone Matrix Asphalt, etc.) The inspector should be familiar with the specification for each item to ensure compliance.

REPLACES C.4.3	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART C	SECTION 4	PAGE 3-1
DATED 04/01/2017		DATE April 1, 2020		
SUBJECT ASPHALT COMPACTION DURING COOL WEATHER PAVING AND DURING GRANTED PAVING SEASON EXTENSIONS				

During cool weather paving (paving within the weather limitations but when air or surface temperatures are below 50F) or during paving season extensions granted in writing by the District Executive to go beyond the weather and seasonal limitation calendar dates, extra precautions should be taken in drying the aggregate, controlling the material's temperature, and compacting the mixture.

Weather and calendar date restrictions are as specified in Publication 408, Sections 313.3(b), 413.3(b), and 419.3(b). Truck insulation requirements are as specified in Publication 408, Section 413.3(d).

Asphalt mixture does not compact well when the mixture is below 175F. Therefore, the time to spread and compact the asphalt mixture decreases as the surface temperature drops below 50F. Since a thinner course cools faster than a thicker one, the asphalt mixture should be placed at least 1½ inches thick when the surface temperature is below 50F. Otherwise, there is not enough time to obtain compaction, and the probability of failure is greater. Field conferences should be held so that everyone concerned knows the importance of achieving compaction quickly.

Records are to be kept of asphalt mixture and ambient air and pavement surface temperatures.

The temperature of the asphalt mixture must be within the range as specified in Publication 408, Sections 413.2(e) Table A and 419.2(e) Table D, and as further restricted by the Producer QC Plan, Paving Operation QC Plan, or as otherwise specified.

The following table, developed by the Quality Improvement Committee of the National Asphalt Paving Association, shows asphalt mixture temperatures versus surface temperatures for various thicknesses of asphalt pavement courses. The last figure in each column is the time in minutes between asphalt mixture placement and the point where the mat cannot be compacted. When these recommended parameters are exceeded, the Contractor should be informed that the Contractor is responsible for the quality of performed work until the work is accepted and, if applicable, for latent defects.

Asphalt mixtures that include Warm Mix Asphalt (WMA) Technology additives or processes can be placed and compacted at lower asphalt mixture temperatures than asphalt mixtures that do not include WMA Technology additives or processes. Minimum asphalt mixture placement temperatures versus surface temperatures for various asphalt pavement course thicknesses should be established for each project in the Paving Operation QC Plan and at the Preconstruction or pre-paving meeting in coordination with Department, Contractor, Producer, and WMA technology manufacturer technical representatives, if required.

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Note: There is a concern with waterborne pavement marking materials (traffic line striping) at 40F to 50F surface temperatures, since typical waterborne pavement marking material (traffic line paint) has a temperature restriction of 50F minimum ambient air and surface application temperature. It is recommended that sections of roadway striped with waterborne pavement marking materials at these temperatures be placed on the Maintenance pavement marking striping list for the following year.

When applying tack coat at 40F to 50F surface temperatures, extra curing time may be needed before paving can begin so that the tack has cured to the point that tracking is minimized. Trackless tack coat materials (Material Classes: NNT/CNNT) may also be specified/used to potentially reduce the extra time before paving can begin to minimize the tracking of tack coat.

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**RECOMMENDED MINIMUM ASPHALT MIXTURE PLACEMENT TEMPERATURE
BY COMPACTED THICKNESS FOR ASPHALT PAVEMENTS* CONTAINING
PG 64S-22**

Surface Temperature	3/4"	1"	1½"	2"	3" and greater
40 to 50F	-	310F	300F	285F	275F
50 to 60F	310F	300F	295F	280F	270F
60 to 70F	300F	290F	285F	275F	
70 to 80F	290F	285F	280F	270F	
80 to 90F	280F	275F	270F		
90F	275F	270F			
Rolling Time (min.)	6	8	12	15	15

CAUTION: The asphalt mixture temperature should never be outside the mixing temperature range shown on the asphalt acceptance card or affidavit.

* This table does not include the effects of warm mix asphalt technologies in the mixture. It is anticipated that the use of warm mix at similar surface and asphalt mixture temperatures will extend the rolling time, but to an unknown extent. The information contained in this table for WMA are conservative values.

REPLACES C.4.4	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART C	SECTION 4	PAGE 4-1
DATED 04/01/2015	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT USE OF PAVERS FOR ASPHALT SHOULDERS				

Motorized pavers should be used to place asphalt mixture surface material or wearing courses on all shoulders over 4 feet wide, unless field conditions or traffic control plans make it impossible. Shoulders may be paved in conjunction with the mainline pavement with appropriate paver and screed breaks and extensions.

REPLACES C.4.5	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART C	SECTION 4	PAGE 5-1
DATED 04/01/2017	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT ASPHALT OUTLIER REQUIREMENTS				

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 from 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 based 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 in eCAMMS. 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
- When applicable, documentation/calculations to reanalyze the lot with the remaining results and include the new Lot Payment

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

When the documentation applies to a Federal Oversight Project, the CQAS will forward the submitted documentation to the Federal Highway Administration for concurrence, according to POM Section B.9.2.

After review of the documentation, the CQAS will approve or reject the outlier response or may request additional information.

The District should reference the approval from the CQAS in the electronic work order adjustment for payment in ECMS.

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OS-600 (4-20)



MEMO

DATE: Insert Date

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

TO: Name, Section Chief
Construction Quality Assurance Section
Bureau of Project Delivery

FROM: Name
Assistant District Executive for Construction
Engineering District XX-0

INSERT DETAILS OF OUTLIER REQUEST, INCLUDING:

- Reference 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 reanalyze the lot with the remaining results including the new Lot Payment
- Reference to and attach any documents that support the District's recommendation

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

REPLACES C.4.6	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART C	SECTION 4	PAGE 6-1
DATED 04/01/2017		DATE April 1, 2020		
SUBJECT CONVERSION FACTORS AND EXAMPLES FOR COMPUTING THEORETICAL LENGTH OF ASPHALT SUBLOTS				

Method of computing theoretical length of Asphalt Sublots
For conversion of Ton to Square Yards

Square Yard (yd ²)	×	Course Depth (in)	×	Conversion Factor (0.75 ft ³ /yd ² ·in)	=	Cubic Feet (ft ³)
1		½		0.75		0.3750
1		¾		0.75		0.5625
1		1		0.75		0.7500
1		1¼		0.75		0.9375
1		1½		0.75		1.1250
1		1¾		0.75		1.3125
1		2		0.75		1.5000
1		2¼		0.75		1.6875
1		2½		0.75		1.8750
1		2¾		0.75		2.0625
1		3		0.75		2.2500

$(ft^3) \times (62.245 \text{ lb}/ft^3) \times (\text{Theoretical Maximum Specific Gravity (Gmm)}) = \text{Weight}/yd^2$
of voidless mixture
 $(ft^3) \times (62.245 \text{ lb}/ft^3) \times (\text{Ndes Bulk Specific Gravity (Gmb)}) = \text{Theoretical Weight}/yd^2$
as laid

Example

Placing 9.5mm Wearing, 1½" depth, paving 12 ft. in width
 Mix Design Theoretical Maximum Specific Gravity (Gmm) = 2.450
 Mix Design Ndes Bulk Specific Gravity (Gmb) = 2.352 @ 4.0% voids or 96%
 compaction
 Lot size = 2,500 tons

$(1.1250 \text{ ft}^3) \times (62.245 \text{ lb}/ft^3) \times (2.450) = 172 \text{ lbs}/yd^2$ of voidless mixture
 $(1.1250 \text{ ft}^3) \times (62.245 \text{ lb}/ft^3) \times (2.352) = 165 \text{ lbs}/yd^2$ @ 96% compaction

$(2,500 \text{ ton}) \times (2,000 \text{ lbs}/\text{ton}) \div (165 \text{ lbs}/yd^2) = 30,303 \text{ yd}^2$ Lot size
 $(30,303 \text{ yd}^2) \div (5 \text{ Sublots}) = 6,061 \text{ yd}^2$ Sublot size
 $(6,061 \text{ yd}^2) \times (9 \text{ ft}^2/\text{yd}^2) \div (12 \text{ ft width}) = 4,545 \text{ linear ft}/\text{Sublot}$

REPLACES C.4.7	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART C	SECTION 4	PAGE 7-1
DATED 04/01/2014	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT ASPHALT PAVING INSPECTION CHECKLIST				

The following checklist should be utilized in the inspection of asphalt paving.

Asphalt Paving Inspection Checklist

1. Check the traffic control set up against the traffic control plan or applicable PATA figure.
2. Calculate the material testing locations for cores and loose boxes according to PTM No. 1 (Utilize the proper sampling process from the contract / specifications).
3. Check the existing pavement surface for cross slope, patches, wheel ruts, & soft spots. Discuss any questionable areas or areas of concern with the contractor prior to paving.
4. Ensure the pavement surface is clean, has a proper tack coat (according to Publication 8, Section 400.3, and as specified in Publication 408, Section 460) and the paving joints are painted with the appropriate material.
5. Assure that fuel oil or other solvents that may damage the paving material are not carried on the paving equipment or used near the paving operation.
6. Verify the Mix Design and temperature of the material in the truck at the beginning of the paving operation.
7. Check the cross slope at the beginning of paving to ensure it conforms to the typical section.
8. Identify the density core sampling locations to the contractor from the previous day's placement and witness the density cores being extracted from the identified locations. Take possession of the cores.
9. Measure the paving course thickness from the density cores.
10. Collect loose box samples from locations calculated utilizing PTM No. 1. Take possession of the loose box samples.
11. Regularly monitor yield on tonnage projects but only randomly monitor yield on square yard projects.
12. Randomly check for segregation, dust balls, mat cracking & uncoated aggregate.

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13. Randomly monitor the rolling pattern for both breakdown and intermediate rolling and ensure aggregate is not being crushed.
14. Randomly monitor the finish roller to ensure all roller marks are eliminated and the completed mat has no other deficiencies.
15. Randomly monitor the mat density determined by the contractor QC technician.
- 16. Randomly monitor asphalt material temperatures before and after the paver.**
- 17. Randomly monitor the cross slope** especially when it changes **and loose depth checks performed by the contractor.** Make corrections on the plan drawings, if the “as-built” cross slope changes.
18. Randomly observe equipment for proper operation such as: leaks, auger extensions, truck tarps, etc.
- 19. Document the above activities, when performed, and enter the information in the PSA with the other required data, daily.**
- 20. Complete Form TR-447 for each material sample, assure that samples are properly packaged and protected, labeled, and delivered to the pick-up location within 3 days.**

All items must be completed for proper inspection. Items in **BOLD** are mandatory.

REPLACES SOL 481-20-03	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART C	SECTION 4	PAGE 8-1
DATED 08/12/2020		DATE April 1, 2021		
SUBJECT ASPHALT TEMPERATURE CHECKS TAKEN FROM HAULING EQUIPMENT AT THE PROJECT SITE				

When asphalt mixture temperature checks for material delivered to the project are taken, the checks must be taken from one of the 3/8" diameter holes drilled into each side of the truck bed before the material is unloaded. Select the safest side of the truck to obtain the temperature check taking into consideration traffic and surrounding topography. The asphalt mixture temperature checks will be taken randomly throughout the day's placement using only a probe thermometer.

A calibrated dial thermometer or a calibrated digital thermometer will be used to perform all asphalt mixture temperature checks. Thermometers can be calibrated in boiling water at 212 F degrees. Calibrate thermometers at least annually or whenever there is a question of accuracy. The dial thermometer will have a dial between 1¼" to 2" in diameter, a minimum probe length of 8", and be capable of reading from 50 F to 500 F in five-degree increments. Digital thermometers will have a minimum 1½" diameter or equivalent LCD Display, a minimum probe length of 8", and be capable of reading from -4 F to 392 F in one-degree increments.

At the project's pre-pave meeting, inform the contractor / asphalt supplier that all asphalt delivery trucks equipped with plugs, caps, handles, etc. covering the temperature probe holes will need to be removed prior to arrival on the project. Once the asphalt delivery truck arrives on site, notify the truck driver that a temperature check will be performed. After verifying with the driver that the truck is in the park position and the emergency brake has been applied, inform the driver not to raise the truck bed until the temperature is obtained. Care must be taken when inserting the thermometer into the truck bed as the surface of the truck bed may be hot. Completely insert the thermometer probe into the truck bed hole using care as to not twist, pull or use excessive force to insert the thermometer probe into the truck bed. Fully insert the probe of the thermometer into the truck bed where it is to remain in place until the temperature stabilizes at its maximum level. If using a dial thermometer, tap the gauge lightly to confirm the temperature reading has stabilized and then read and record the temperature. Once the temperature stabilizes, care must be taken when removing the thermometer from the truck bed. Inform the truck driver that the temperature check has been completed.

If the thermometer probe cannot be fully inserted into the truck bed during a temperature check due to the hole being blocked by the truck bed liner, truck bed insulating material or any other debris, immediately attempt a temperature check on the opposite side of the truck when conditions allow. If the thermometer probe still cannot be properly inserted into the truck bed, inform the truck driver of the issue and direct them to resolve the issue before returning to the project. Do not unload this truck until the temperature is checked on the next truck. If the temperature of the next truck meets the specification requirements, the truck with the blocked truck bed holes can be unloaded. Contact the asphalt supplier's plant technician immediately and notify them of the issue with the truck bed hole(s) by providing a description of the hauling unit or hauling unit number.

REPLACES C.5.4	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART C	SECTION 5	PAGE 4-1
DATED 04/01/2014	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT TIE-BARS IN LONGITUDINAL SHOULDER JOINTS				

The Department's policy is as follows:

- The use of expansion anchor type systems will not be allowed.
- Tie-bars must be epoxy coated, #5 bars, and 30 inches long.
- Tie-bars are to be spaced 30 inches from each transverse joint and a maximum of 30 inches on center.

Any visually loose bars must be rejected and replaced. If an epoxy system is used to reinstall the bar, follow the epoxy manufacturer's recommendations for installation, of sufficient embedment to withstand a pullout resistance of 12,000 lb. If there are multiple loose bars, the Representative may elect to test tie-bars as specified in Publication 408, Section 501.3(j).

- Bars must be inserted perpendicular to the centerline of the roadway. If bent tie-bars are used, the projecting leg must be bent to a perpendicular position prior to placing the adjacent lane of concrete pavement.

REPLACES C.5.7	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART C	SECTION 5	PAGE 7-1
DATED 04/01/2015		DATE April 1, 2020		
SUBJECT CEMENT CONCRETE PAVEMENT CONTRACTION JOINTS				

Special attention is needed to assure that Publication 408, Section 501.3(i)2, and Publication 72M, Standard Drawing RC-20M, are strictly adhered to during the construction of pavement joints.

In order to assure that the Department obtains the required quality and performance of neoprene compression seals in concrete pavement joints, the following areas need to be closely monitored:

- The installation Contractor and the Inspector must carefully monitor and document the amount of stretch or elongation of the installed seal. See Publication 408, Section 501.3(n)2, for current specification limits for elongation.
- Documentation must show the locations of all material in a particular lot. If it is determined that a deficient lot of material must be removed and replaced, it is imperative that the documentation shows the locations where the lot was installed.
- Cleaning of the joint prior to seal installation includes thoroughly cleaning the initial saw cut and shrinkage crack. The easiest method of keeping this joint clean and free of sand and cement slurry is to prohibit the intrusion of material from subsequent sawing and cleaning operations. This may be accomplished by placing backer rod material at the bottom of the initial saw cut until all final sawing and cleaning is performed. Remove backer rod material prior to installing seal. Another method would be blasting the entire joint with high-pressure water. However, the joint must be allowed to dry before installing the seal.
- The equipment which is being used must meet the requirements as specified in Publication 408, Section 501.3(i)2 and installation equipment must be capable of installing the seal as specified in Publication 408, Section 501.3(n), and as shown on Publication 72M, RC-20M. It is recommended that the installation Contractor demonstrate that the equipment and procedure which is to be used can in fact place seals within the specification limit prior to beginning production work. If this cannot be demonstrated satisfactorily, the operation should be stopped immediately.

Inspectors must provide the following documentation in their PSA reports:

- Initial saw cut depth.
- Temperature of pavement surface at the time of sawing.
- Depth of reservoir saw cut.
- Width of reservoir saw cut.

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- Seal installation depth; not to be less than 1/4-inch nor more than 3/8-inch below the pavement surface.
- Actual pavement width measured along the saw cut and seal length; elongation or stretch is not to exceed 2%.

When corrective action is deemed appropriate, one of the following procedures is appropriate:

1. Remove failed neoprene seals and replace with new neoprene seals. Consideration should be given to installing a closed-cell foam or appropriate backer rod material to install the neoprene seal at the appropriate depth to reduce chances of reoccurrence of the seals being pushed to the bottom of the joint reservoir.
2. Remove existing neoprene seals and replace with hot-pour rubberized joint material (ASTM D3405). This will require selection of appropriate diameter backer rod material, sandblasting or water blasting of the joint faces and installation of the hot-pour material. Placement of the backer rod material to a correct elevation to provide approximately 1:1 width to depth ratio is necessary because joint material shape factor is important to performance. If this occurs, the Contractor must provide a rebate to the Department.

REPLACES C.5.8	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART C	SECTION 5	PAGE 8-1
DATED 04/01/2017	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT EPOXY ANCHORS				

Some contractors have installed load transfer dowels with Bulletin 15 approved epoxy anchor materials in a manner inconsistent with the method under which they were evaluated by the Laboratory Testing Section (LTS) and approved, as recommended and submitted by the manufacturer.

Some contractors are applying the epoxy directly to the load transfer dowel before it is inserted in the predrilled hole. This method does not assure complete evacuation of air voids in the area between the dowel and the dowel hole. This can lead to future performance problems.

As specified in Publication 408, Section 516.3(e)2, inject all the mixed anchoring material into the rear of the hole before inserting the dowel bar. Rotate the dowel three to five complete rotations while inserting the dowel to purge air voids as completely as possible. Immediately trowel all excess anchoring material flush with the vertical face of the patch until the anchoring material reaches its initial set. Do not leave voids in the anchoring material.

The contractor is responsible for assuring that the manufacturer's method is determined, documented, and employed by its crews. If the Construction Inspection force is not certain about what the manufacturer's approved method may be, the contractor should be required to produce a copy of the installation procedures from the respective anchor material supplier. The District Materials Engineer/Manager may also contact the Physical Testing Unit of LTS at (717) 787-4036 to obtain copies of the manufacturer's recommended procedure.

REPLACES C.5.9	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART C	SECTION 5	PAGE 9-1
DATED 03/01/1996		DATE March 1, 2011		
SUBJECT CONCRETE PAVING PROJECTS, SAND BOND BREAKER				

All projects are to follow the plans and specifications. DO NOT USE SAND OR OTHER MATERIAL ON PERMEABLE BASES AS A BOND BREAKER.

REPLACES C.6.1	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART C	SECTION 6	PAGE 1-1
DATED 03/01/2011		DATE April 1, 2020		
SUBJECT DISADVANTAGED BUSINESS ENTERPRISE (DBE) MOBILIZATION				

DBE mobilization can only be paid when it is specifically identified for Subcontractors on the Contractor's Minority Participation and Commitment on Federal-aid contracts.

The intent is to assist individual DBE's project mobilization to provide timely work. Therefore, when requested, it can be paid one month prior to the scheduled start for each affected DBE.

REPLACES C.6.2	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART C	SECTION 6	PAGE 2-1
DATED 04/25/2013		DATE April 1, 2020		
SUBJECT PROJECT FIELD OFFICE SIGN				

The Project Field Office Sign, C3-1, is to be used to identify the Department's Project Field Office on construction projects. A copy of the C3-1 sign standard may be obtained from the Bureau of Maintenance and Operations (BOMO), Highway Safety and Traffic Operations Division, upon request.

Signs may be requisitioned from the Sign Shop as required. Signs which remain in good condition after completion of one project may be transferred and reused on another.

REPLACES C.6.4	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART C	SECTION 6	PAGE 4-1
DATED 08/08/1996		DATE April 1, 2020		
SUBJECT COATINGS FOR CONCRETE ITEMS				

Coatings applied to concrete items can either be for aesthetic or protective purposes. Apply aesthetic coatings as specified in Publication 408, Section 1044. For concrete items requiring protective coatings, apply material as specified in Publication 408, Section 1045.

REPLACES C.6.5	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART C	SECTION 6	PAGE 5-1
DATED 04/02/2018		DATE April 1, 2020		
SUBJECT FINAL INSPECTION OF PIPE CULVERTS				

FINAL INSPECTION OF ALL PIPES EXCEPT 100 YEAR DESIGN LIFE PIPES:

After installation and preliminary inspection, verify the Contractor's final inspection by performing a Department inspection. Perform the Department inspection at a frequency of 10% of the number of pipe runs, but no less than 1, and not less than 10% of the total length of installed pipe on the project, as specified in Publication 408, Section 601.3(n). If problems are identified, inspect all pipe runs. Form [CS-601](#) is the pipe inspection form to be used on all projects. A copy of Form CS-601 is shown on Page C.6.5-2.

FINAL INSPECTION OF 100 YEAR DESIGN LIFE PIPES:

After installation and preliminary inspection, witness the Contractor perform their final inspection of these pipes as specified in Publication 408, Section 601.3(o). Form CS-601 is the pipe inspection form to be used for documenting this type of inspection. The electronic .pdf version of Form [CS-601](#) is form fillable and automatically calculates the allowable joint tolerance and the allowable deflection/manufacturing tolerance using information entered by the user. A copy of Form CS-601 is shown on Page C.6.5-2. Determine when defects or irregularities are observed during the crawler-mounted camera closed circuit television inspection that cannot be measured within acceptable tolerances. Accompany the Contractor during final inspection to verify measurements during the individual entry part of remote and manual inspections for pipes with diameters greater than 30 inches. Obtain the appropriate inspection reports and documentation from the Contractor according to PTM No. 450, review the information provided to determine specification compliance and complete those portions of Form CS-601 that were not able to be completed at the time of the inspection.

Retain all completed inspection forms (Form CS-601) along with documentation and inspection materials generated by the contractor/third party inspection provider in the project records.

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CS-601 (4-17)



POST INSTALLATION PIPE INSPECTION REPORT

PIPE TYPE: CONCRETE METAL THERMOPLASTIC 50 YEAR 100 YEAR

ECMS #:	S.R.:	SECTION:	DATE:	TIME:
CONTRACTOR PERFORMING INSPECTION:				
EQUIPMENT TYPE:				
ANALYSIS SOFTWARE & VERSION (100 YEAR ONLY):				
ITEM #:	DESCRIPTION:			
LOCATION: BEGINNING/ENDING/STATION:		DATE PLACED:	PIPE LENGTH (FEET):	
WEATHER CONDITIONS AT TIME OF INSPECTION:				
PIPE CONDITIONS (i.e. STANDING WATER, DEBRIS, ETC.):				
INTERNAL DIAMETER (INCHES):		ALLOWABLE INSTALLATION JOINT TOLERANCE (INCH):		
ALLOWABLE DEFLECTION / MANUFACTURING TOLERANCE (INCHES):				



Joints Exceed Installation Tolerance (Identify # of joints, dimensions and locations): YES NO

Remarks: _____

Cracks, Gouges or Holes (Lengths, widths, diameters and locations): YES NO

Remarks: _____

Spalls, Dents, Buckling or Seam Separation: YES NO

Remarks: _____

Evidence of Leakage or Soil Intrusion: YES NO

Remarks: _____

Loss of Coating/Oxidation: YES NO

Remarks: _____

Deflection and Ovality/Dimensional Tolerance: YES NO

Remarks: _____

Vertical Alignment (i.e. Poned Water): YES NO

Remarks: _____

PTM No. 450 Inspection Report Provided to Department Representative (100 Year Pipe Only): YES NO

Inspection Revealed Deficiencies Exceeding Specification Limits: YES NO

Prime Contractor Notified a Pipe Remediation Plan is Required: YES N/A

Contractor Representative: _____ Signature: _____

Department Representative: _____ Signature: _____

SAVE AS

CLEAR FORM

PRINT

REPLACES C.6.6	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART C	SECTION 6	PAGE 6-1
DATED 04/01/2017		DATE April 1, 2020		
SUBJECT MARKINGS FOR REINFORCED CONCRETE PIPE				

Publication 280, the manufacturing specification for Pennsylvania Installation Direct Design (PAIDD) pipe, describes the markings which are required for reinforced concrete pipe.

Most concrete pipe manufacturers produce pipe which satisfy a broad range of installation conditions based on available increments of reinforcement steel areas rather than producing pipe for every installation type and range of fill heights.

Pipes which exceed the contract requirements, therefore, may be substituted in accordance with the provisions given below:

- Type A (heavy duty) pipe may be substituted for Type B (standard duty) pipe provided the contract fill height requirements are met by the Type A pipe.
 - Example: PA 18 A/S 15-1.5 pipe may be substituted in lieu of PA 18 B/S 15-1.5 pipe.
- Type B pipe may not be substituted when Type A pipe are required. Even if the Type B pipe design criteria exceeds the contract requirements, it is not the responsibility of the project personnel to verify this information. The pipe may, however, be dual stenciled with the corresponding Type A installation and allowable fill height criteria which apply. For example, if PA 18 A/S 15-1.5 pipe are required, PA B/S 20-1.5 pipe may not be substituted even though the Type B product exceeds the contract requirements. The pipe should be re-stenciled prior to being shipped to the project.
- Pipes which exceed the fill height range(s) for the same installation type may be substituted for lesser fill height pipes.
 - Example: PA 18 A/S 20-1.5 may be substituted for PA 18 A/S 7-3
- Pipes must be marked with the fill heights indicated for the actual installation type to be used. Shoring pipe (SH) cannot be substituted for embankment (S) installation types and vice versa. The pipe may, however, contain dual markings for the range of fill heights approved for each installation type. Manufacturers must verify the installation type to be used by their contractor.
- The Form [CS-4171](#) shipping certification form must be marked to indicate that a pipe substitution is being made. Refer to the example on the following page.

The above criteria must be applied without exception. Pipes which are not properly substituted as outlined above must not be accepted at the project.

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CS-4171 (3-19)



CERTIFICATE OF COMPLIANCE

- ◆ **COUNTY:** Berks ◆ **LR/SR:** 00078 ◆ **SEC/SEG:** 001 ◆ **ECMS#:** E022222
 (◆ - To be completed by the party that will ship the material to the project, otherwise leave blank.)
- I / WE hereby certify that the material listed on line 5 was:
 If a single company performs more than one operation (e.g., a company manufactures and coats guiderail), more than one box may be checked.
 Manufactured Fabricated Coated Precasted Produced

By A-1 Concrete Pipe Co. ACOPC 15
 (Name of Manufacturer, Fabricator, Coater, Precaster or Producer) (Supplier Code)
- and the party listed above certifies that the material(s) on line 5 meets the requirements of
Publication 408, Section(s) 601.2a(3)a
AASHTO, ASTM, Federal or other designation _____
- The material listed below is being shipped to: _____
 (Company Name)
- | LOT NO. | QUANTITY | APPROVED MATERIAL AS LISTED IN PennDOT BULLETIN |
|---------------|-----------------------------|---|
| <u>4-2-19</u> | <u>50 Sections (400 LF)</u> | <u>PA 18 A/S 20-1.5 in lieu of PA 18 A/S 10-7 and PA 18 A/S 7-3</u> |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
- CHECK HERE IF YOUR PRODUCT CONTAINS IRON OR STEEL.** I certify the material identified above conforms to Sections 106.01 and 106.10(a) of Publication 408.

CHECK ONE OF THE TWO BOXES:
 Product is 100% US steel. Product contains minimal foreign steel in accordance with Act 3 and Buy America.
 Attach Form CS-4171S with receipts or invoices.

CHECK THE BOX THAT APPLIES TO YOUR PRODUCT:
 'Identifiable Steel' - Steel products that contain permanent markings that identify that the material was melted and manufactured in the United States. **Only Form CS-4171 is required.**
 Steel Products and Products Containing Steel with In-Plant Inspection by the Department or a Department Representative - For 100% US steel products where In-plant Inspection has verified that the steel was melted and manufactured in the United States, only Form CS-4171 is required. For products where in-plant inspection has verified minimal foreign steel in accordance with Act 3 and Buy America, attach bills of lading or shipping documents for foreign steel, and attach Form CS-4171S with supporting documentation.
 'Unidentified Steel' - Steel products that do not meet the definition of "Identifiable Steel" and do not receive in-plant inspection as defined above. For 100% US steel products, attach supporting documentation including invoices, bills of lading and mill test reports that positively identify that the steel was melted and manufactured in the United States. For products containing minimal foreign steel in accordance with Act 3 and Buy America, attach bills of lading or shipping documents for foreign steel, and attach Form CS-4171S with supporting documentation.
- VENDOR CLASSIFICATION (CHECK ONE BLOCK ONLY) -**
 #1 **Manufacturer, Fabricator, Coater, Precaster Listed in Bulletin # 15, or Producer Listed in Bulletin # 14, 41 or 42** #2 **Distributor, Supplier or *Private Label Company Not Listed in Bulletin # 15. Also, complete line 9**

I certify that the above statements are true and to the best of my knowledge, fairly and accurately describe the product(s) listed. *I certify that the material being supplied is one and the same as provided to us by the manufacturer listed on this document and quantities listed above are accurate.*
- NAME (print):** John Doe **TITLE:** Quality Control Manager
COMPANY NAME: A-1 Concrete Pipe Co.
SIGNATURE: _____ **DATE:** 07/01/2019
By Responsible Company Official
- List company that sold you the material(s) documented above: _____
 (Complete if you checked Block # 2 on line # 7, otherwise leave blank.) (Company Name)

REPLACES C.6.7	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART C	SECTION 6	PAGE 7-1
DATED 04/01/2017	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT FIELD ACCEPTANCE CRITERIA FOR REINFORCED CONCRETE PIPE				

Standard design pipe produced by manufacturers who maintain either the American Concrete Pipe Association (ACPA) 'Q-cast' plant certification or the National Precast Concrete Association (NPCA) concrete pipe plant certification will not receive in-plant inspection during manufacturing and will not receive a Department inspection stamp. Pipe produced under these plant certifications which are delivered to Department projects will contain an identifying stamp or stencil to facilitate identification in the field.

All special design pipe will continue to receive in-plant inspection and an inspection stamp, irrespective of a manufacturer's plant certification status. Special design pipe is defined as those pipe for which the Department has not provided a standard design as shown on Publication 218M, BD-636. Special design pipe is generally installed in 'deep fill' situations and is identified as shown on Publication 218M, BD-636 by a double asterisk '**'. Inspection of special design pipe must be facilitated through the use of Form CS-430, Notification of Inspection, or entered through the Source of Supply Screen in ECMS.

All pipe must meet the minimum quality standards established in Publication 280 "*Manufacturing Specification* (for concrete pipe)" and Publication 145 "*Inspection of Prestressed/Precast Concrete and Concrete Pipe*". A summary of the criteria found in these publications which can be verified by field personnel are listed below for your information. Inspection personnel should verify that the conditions listed under the "GENERAL" heading have been met at a minimum. For more specific information, refer to the Detailed Acceptance/Rejection Criteria or the publications directly.

I. General

- Pipe should be free from handling damage, usually evident at the pipe ends. Repairs made by the manufacturer must be sound and properly finished.
- Cement slurry is acceptable within the joint areas. Pipe barrels may not be covered with cement slurry beyond the limits of the joints.
- Reinforcement may not be exposed, except the tips of the longitudinal wires which may be visible at the bell end of the pipe, or spacer tips which may be visible on the outer barrel.
- Reinforcement must have ½ inch minimum cover as measured to the inner or outer barrel.
- Lift holes produced using a 'punch through method' may not be used on Department projects. Lift holes, when present, must be formed or cored. Do not use chains or other methods of lifting the pipe which may cause damage to the pipe.
 - i. Pipe diameters 36 inches or less (round or elliptical equivalent) cannot contain through wall lift holes on projects let after April 5th, 2019.

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- Each pipe section must contain the required markings described in Section II.C, Markings, below. Pipe designed to carry an equivalent or higher embankment fill height may be substituted in accordance with POM Section C.6.6.
- Stress cracks may not be repaired for acceptance of any section of pipe. Plastic 'tear' cracks formed during manufacturing prior to curing may be repaired by the manufacturer after v-grooving along the length of the crack. Repaired plastic tear cracks may not exceed 12 inches in length.

Acceptance of pipe with cracks shall be in accordance with the criteria listed in Section II.B., below.

II. Detailed Acceptance/Rejection Criteria

A. Dimensional Tolerances (Publication 280, Section 12)

Internal Diameter	Tolerance
Round: 12 inches to 24 inches	± 1.5%
27 inches and larger	± 1.0% or 3/8 inch, whichever is greater
Elliptical: All Sizes	± 2.0%
Wall Thickness:	± 5.0% or 3/16 inch whichever is greater. Note: Localized variations are acceptable, provided minimum cover is provided.
Length (Under-run):	1/8 in./ft. with a maximum of 1/2 inch in any length of pipe.
Length of Two Opposite Sides (Skew):	
24 inches and less	$\Delta L = 1/4$ inch
27 inches to 84 inches	$\Delta L = 1/8$ in./ft. not to exceed 5/8 inch
90 inches and larger	$\Delta L = 3/4$ inch, maximum

Position of Reinforcement

- Spacer tips may be visible on the outer barrel of the pipe.
- Longitudinal tips may be visible on the mating surface, bell end.

B. Appearance

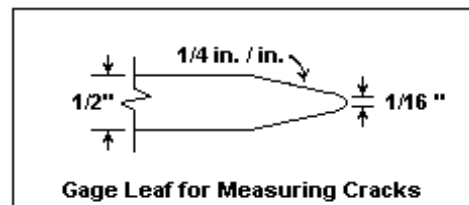
Most manufacturers produce pipe using one of several available 'dry cast' processes. These processes utilize zero slump concrete allowing immediate reuse of the forming equipment. Some surface roughness and voids are expected with these processes.

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Rejection Criteria (Publication 280, Section 16)

- Reject pipe containing any 'through wall' crack, except for pipe having a single end crack that does not exceed the depth of the joint.
- Honeycombing or open texture which would adversely affect the function of the pipe.
- Damaged or cracked ends where such damage would prevent making a satisfactory joint.
- Any continuous non-through wall crack having an unloaded surface width of 0.003 inch or more and extending for a length of 12 inches or more, regardless of the position in the wall of the pipe.
- Any non-through wall continuous crack having an unloaded surface width of 0.002 inch or less will be accepted, regardless of length.
- Inspect pipes after the full embankment fill is placed. Installed pipes having a crack width greater than 0.007 inch require remediation.

Field verification of pipe having stress cracks shall be performed by measuring the width of the crack by means of a gage made from a leaf having the required thickness [0.003 inch for unloaded, uninstalled pipe; 0.007 inch for installed pipe] as in a set of standard machinist gages, ground to a point of 1/16 inch in width with corners rounded and with a taper of 1/4 in./in. as shown below. Measure the crack width relative to the gage width when the point of the measuring gage will, without forcing, penetrate 1/16 inch at close intervals along the length of the crack. Refer to AASHTO T 280 for more detailed procedures of measuring the cracks.



C. Required Markings (Publication 280, Section 17)

Each section must be clearly labeled according to the following criteria:

PA "d" "t" / S or SH Max-Min

Where d = pipe diameter, inches
t = installation type (A=heavy duty, B=standard duty)
S = standard installation
SH = shoring or trench box installation
Max = maximum allowable fill height, feet
Min = minimum allowable fill height, feet

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In addition, the following markings are also required:

- Date of manufacture.
- Identification of plant.
- For special design pipe with stirrup reinforcement, the word "TOP" must be stenciled on both the inner and outer barrels to assure correct placement during installation.

Note: Pipe may contain more than one marking designation. For instance, pipe may be marked according to the criteria it meets for both the standard installation "S" and the shoring installation "SH". Pipe may also contain other markings used in specifications required by other approving agencies such as the AASHTO M 170 criteria.

D. Repairs (Publication 280, Appendices)

Allowable repairs are found in the above referenced publication; however, its size prohibits a complete listing in this summary. Additional repair procedures can be found in POM Section C.6.11. The following is an abbreviated description:

- Pipe joints may be "slurried" to close off the voids formed during most manufacturing processes. The inner and outer barrels may not be "slurried".
- Reinforcement must be removed from the lift holes.
- End spalls may not exceed 50% of the depth of the joint. The total circumferential length of all spalls on a single joint may not exceed 10% of the total pipe circumference.
- Spalling to the inner barrel may be repaired provided the spall did not reveal reinforcement and the repair area does not extend beyond 150% of the joint depth.
- Plastic "tear" cracks located on the outer barrel, less than 12 inches in length and not exceeding the depth of the reinforcement, may be repaired by the manufacturer prior to shipping.
- Maximum surface area of individual repair areas is 120 in² and may not extend more than 12 inches in any direction.
- Maximum total surface area repaired per pipe section not to exceed 200 in².

REPLACES C.6.8	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART C	SECTION 6	PAGE 8-1
DATED 01/01/2007		DATE April 1, 2020		
SUBJECT ROADSIDE SAFETY HARDWARE CONSIDERATIONS				

GUIDE RAIL AND END TREATMENT INSTALLATION AND INSPECTION

I. Guide Rail

Guide rail is used to redirect or slow cars traveling off the road, ultimately aiming to reduce the severity of run-off-the-road accidents. Publication 72M, RC-50M through RC-54M contain guidance and details on standard installation of guide rail.

GUIDE RAIL SHOULD ONLY BE USED WHERE THE RESULT OF STRIKING THE OBJECT OR LEAVING THE ROADWAY WOULD BE MORE SEVERE THAN THE CONSEQUENCE OF STRIKING THE GUIDE RAIL.

II. End Treatments

End treatments are protective systems that prevent errant vehicles from impacting the end of a roadside barrier by safely decelerating the vehicle to a stop or by safely redirecting it around the object of concern. MASH 2016 compliant devices can be found on Bulletin 15.

Regarding terminals, all of the proprietary W-beam guide rail terminals in Bulletin 15 are gating terminals. That means simply that all of them, when struck at or near the nose at an angle of 15° or greater, will yield readily, allowing a vehicle to continue into the area immediately behind and beyond the terminal.

Site Grading Requirements. Grading in the area of the terminal is an important consideration regardless of the specific terminal type used. While it is desirable to have a long recovery area available immediately behind the barrier, practical considerations will often dictate a much smaller area. The minimum recovery area behind and beyond for all W-beam terminals is recommended to be an area approximately 75 ft long and 20 ft wide.

Grading should conform to the contours shown in the contract plans. Also refer to RC-54M for grading details at end treatments. In many cases, it may be very hard to practically provide even a minimum runout area due to physical constraints such as restricted rights-of-way or environmental concerns.

Also refer to RC-54M for backslope requirements for Buried-in-Backslope terminals.

Grading requirements in front of roadside barrier are crucial to acceptable performance of the system. Regardless of the type of roadside barrier being used or the size and type of vehicle that strikes it, the best results will usually occur if, at the moment of impact, all of the vehicle's wheels are on the ground and its suspension system is neither compressed nor extended. Thus, terrain conditions between the traveled way and the barrier can have significant effects on the barrier's impact performance.

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EMBANKMENT CONSIDERATIONS

The table shown on the following page is provided for project inspectors as a guide to help determine if guide rail may be warranted in embankment areas.

If the embankment height exceeds the maximum allowable unprotected height shown in the table (considering ADT and slope) and no guide rail is specified to be placed then the Inspector-in-Charge should notify the Assistant Construction Engineer/Assistant Construction Manager (ACE/ACM) to contact the District Guide Rail Mentor to determine if guide rail should be installed. Likewise if guide rail is specified to be placed but the embankment height does not exceed the maximum allowable unprotected height (considering ADT and slope) the Inspector-in-Charge should notify the ACE/ACM to contact the District Guide Rail Mentor to determine if the specified guide rail is indeed needed or if it should be modified or eliminated.

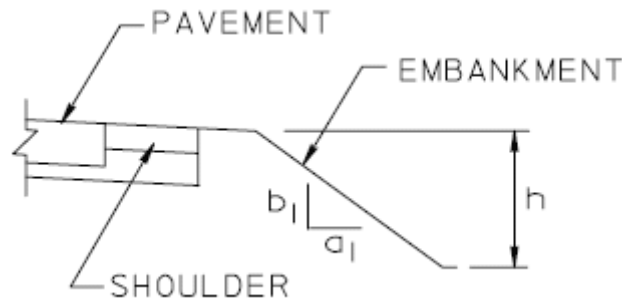
The length of need, roadside hazards, clear zones, type of end section to be used, as well as guide rail type required, should all be considered and addressed prior to making any changes.

Additional embankment material for impact attenuators may be needed to provide for proper grading in advance of the terminal, adjacent to the terminal, and immediately downstream and behind the terminal. Publication 13M, Design Manual Part 2, Chapter 12 discusses site grading requirements. Grading requirements shall be as shown on Publication 72M, RC-54M and as indicated. Refer to POM Section C.9.7 for additional information regarding impact attenuators.

The inspector should discuss with the ACE/ACM and consider using any extra excavated material, if available, to flatten out the slopes (planned or existing) whenever possible, to eliminate an entire guide rail run and/or reduce the length of the required guide rail. The one-time cost to flatten embankment slopes and eliminate guide rail may be cost effective when compared against the life-cycle cost of installation and maintenance of guide rail.

The existing drainage system should be taken into consideration when flattening out slopes. When flattening existing slopes, maintain existing swale inverts below the original sub grade or install additional subsurface drainage collection systems. All material must be kept within the Department's legal right-of-way.

Do not modify any guide rail unless written approval is obtained from the ACE/ACM, through the District Guide Rail Mentor.



Maximum Allowable Unprotected Embankment Height

EMBANKMENT SLOPE (S = b ₁ : a ₁)	EMBANKMENT HEIGHT (h)			
	AVERAGE DAILY TRAFFIC (ADT)			
	> 5000	751 - 5000	401 - 750	≤ 400
1V:1.5H OR STEEPER	4.0 ft	6.0 ft	9.0 ft	17.0 ft
1V:2H	8.0 ft	10.0 ft	16.0 ft	31.0 ft
1V:2.5H	12.0 ft	16.0 ft	25.0 ft	49.0 ft
1V:3H OR FLATTER	GUIDE RAIL NOT REQUIRED			

S = Slope

V = Vertical Distance

h = Embankment Height

H = Horizontal Distance

Table is from Publication 13M, Design Manual Part 2, Chapter 12

CONSTRUCTION PROJECT TRAFFIC BARRIER PRE-INSTALLATION REVIEWS

The purpose of a pre-installation review of traffic barriers is to ensure that proposed traffic barriers meet the needs of the roadside environment. Appropriate modifications can be identified that may be necessary before the traffic barrier is installed. A Standard Special Provision (Special Provision a13101 CONSTRUCTION PROJECT TRAFFIC BARRIER PRE-INSTALLATION REVIEW) in the construction contract is the trigger for a pre-installation review.

Reviews will look at the following items:

- Barrier Length of Need
- End Terminal/Crash Cushion Selection
- Slopes & Grading
- Existing barrier that is not warranted
- Locations that were missed by the scope-of-work
- Barrier that can be reduced or eliminated by slope flattening from waste excavation

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Review participants should include (as a minimum)

- Construction Project Inspector-in-Charge or qualified Representative.
- District Guide Rail Mentor, or qualified Representative.
- FHWA Transportation Engineer (on Federal Oversight projects).
- Contractor's Representative.
- District Construction Unit representative (encouraged).
- District Design Unit representative (encouraged).

More guidance can be found in Publication 10C, Chapter 5, Section 5.9.

REPLACES C.6.9	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART C	SECTION 6	PAGE 9-1
DATED 04/01/2020	PROJECT OFFICE MANUAL	DATE April 1, 2021		
SUBJECT SURVEYING METHOD VERIFICATION RESPONSIBILITY FOR FEDERALLY FUNDED PROJECTS				

1. Purpose:

To establish the Department policy to ensure that requirements as specified in Publication 408, Section 686.3, Construction Surveying are met. The Department’s representative will verify that the contractor’s Surveying Method will ensure that the project is constructed in accordance with the grade and alignment as required by the contract documents.

2. Background:

The Department has oversight responsibility to verify accurate construction of all Federal-aid projects.

Publication 408, Section 686.3, provides that the Contractor is responsible for the construction stakeout of the project, using the horizontal and vertical control established by the Department. The Contractor is also responsible for relocation and/or preservation of all horizontal references of major control points and vertical benchmarks established by the Department.

Publication 408, Section 686.3, accommodates the use of electronic survey equipment and automated grade controls by reducing the requirements of construction staking. The Department representative must ensure that sufficient independent verification is performed.

3. Procedures:

The representative is responsible for assuring that the contractor’s project surveying responsibilities receive adequate verification that projects are completed in conformance with approved plans and specifications.

The representative will review the contractor’s stakeout schedule developed for the project. Verify that all major control points will be referenced and vertical benchmarks will be established at appropriate locations.

4. Defined Responsibilities:

The Assistant District Executive-Construction (ADE-C) for Construction shall coordinate with the Assistant District Executive-Design (ADE-D), the District Chief of Surveys or their designees to ensure that qualified personnel and equipment are committed to perform verification of construction staking and finished grades. Verification may be performed

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by qualified Department personnel assigned to the project, consultants or the District survey crews.

REPLACES C.6.10	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART C	SECTION 6	PAGE 10-1
DATED 04/02/2018		DATE April 1, 2020		
SUBJECT CURB RAMP INSPECTION FORM (FORM CS-4401)				

The Curb Ramp Inspection Form (Form CS-4401) will be used for the inspection of all altered curb ramps within the project limits to ensure compliance to PennDOT standards or the contract documents. This includes newly constructed curb ramps and existing curb ramps not reconstructed. Refer to Publication 13M, Design Manual Part 2, Chapter 6 for additional information on “alterations.”

A thorough and rigorous inspection to ensure an Americans with Disabilities Act (ADA) compliant curb ramp must be completed. All newly constructed curb ramps or curb ramps located within the project limits must be inspected/measured in the field for compliance to Publication 72M, RC-67M. The slopes shown in RC-67M are absolute maximum slopes. Only slopes that are equal to or less than the indicated slopes are acceptable.

Where fully meeting the RC-67M standards is “Technically Infeasible”, access must be provided to the maximum extent possible. When this occurs, curb ramps or other pedestrian facilities must be constructed in accordance with the contract documents. See Publication 13M, Design Manual Part 2, Chapter 6 for additional information on Technically Infeasible.

The Curb Ramp Inspection Form (Form CS-4401) will record all measurements and serve as a record that PennDOT has constructed the curb ramps to current standards or provided access to the maximum extent feasible. The form will contain the field measurements, pictures of the constructed curb ramps, and images of the Technically Infeasible Form (if applicable).

The completed form must be submitted electronically, in EXCEL, to the ADA Coordinator upon completion and acceptance of the curb ramp construction. The data from the form will be extracted into a database for record keeping purposes.

INSTRUCTIONS

Before you Begin:

- When saving the file, use Excel Macro-Enabled Workbook format with a *.xlsm extension. Do not use a different file format.
- The following tabs are included in the form:
 - Tab 1. Inspection Form
 - Tab 2. Inspection Form Continued
 - Tab 3. Pictures
 - Tab 4. Tech. Infeasible Form
 - Tab 5. Scanned Forms
 - Tab 6. Instructions

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TAB 1 - INSPECTION FORM

All “blue filled” cells require information to be entered. Many cells have a drop down selection with a header. The header is used for filling out a printed version. The header must be changed to the appropriate selection.

For example: “ No Yes” would be the header. Either “No” or “Yes” must be selected.

Date of Investigation

Enter the year, month, and day of the investigation (format yyyy mm dd).

Field Investigators

Insert the name(s) of the investigator(s).

Engineering District Code

Insert the engineering district code.

County Name

Insert the appropriate county. (The county code will automatically fill in once the appropriate county is selected.)

Municipality Name

Insert the appropriate municipality name. (The municipality code will automatically fill in once the appropriate municipality name is entered.)

Construction Phase

Select the appropriate status of the curb ramp being investigated.

- Constructed. Select this phase for newly constructed curb ramps for inspection purposes.
- Existing-Survey. Select this phase for documenting existing curb ramps.
- Missing. Select this phase for documenting missing curb ramps.

Ramp Crosses

Select what type of roadway the ramp crosses or services.

Ramp Surface

Select ramp surface type (Brick, Concrete or Other). If “Other”, enter the surface type in the cell immediately to the right.

Surface Stable, Firm, and Slip Resistant

Indicate if the curb ramp surface is stable, firm, and slip resistant.

PART C	SECTION 6	PAGE 10-3	DATE April 1, 2020
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Elevation Differences > ¼”

Indicate if any vertical elevation differences between sections of sidewalk found anywhere on the curb ramp that are greater than ¼” exist. If vertical elevation differences exist, measure to the nearest 1/16 of an inch. For example, if measured 1/2” enter “8” (8/16) on the form, or if measured 2” enter 32 (32/16) in the form.

Grate Openings or Gaps > ½”

Indicate if any grate openings or gaps greater than 1/2” are located within the immediate pedestrian path. If horizontal gaps exist, measure to the nearest 1/16 of an inch. For example, if measured 1/2” enter “8” (8/16) on the form, or if measured 2” enter 32 (32/16) on the form.

Utilities in Path of Travel

Indicate if there are any utilities that obstruct the path of travel.

Water Ponding in Path of Travel

Indicate if any water ponding exists within the travel path of the curb ramp.

Detectable Warning Surface (DWS)

Indicate if a detectable warning surface is present.

DWS Type

If “Yes” is answered in previous question, indicate what type of DWS is present. If “Other”, fill in cell to the right to indicate what type of DWS is being used.

Pedestrian Crossings

Indicate if a pedestrian crossing exists. If a pedestrian crossing does not exist, a curb ramp is not needed. The crossing may be marked or unmarked. If “Yes”, the cell to the right will become highlighted with blue fill, requiring it to be completed. Select “Single Ramp with Single Cross Walk” or “Single Ramp with Double Cross Walk”.

Ramp at Stop or Yield Controlled Crosswalk

Indicate if the ramp serves a Stop or Yield Controlled crosswalk.

Ramp Leads to Accessible Path

Indicate if the ramp leads to an accessible path, such as a sidewalk or to a pedestrian pushbutton.

Longitudinal/Cross Slope in Front of Ramp

Enter the longitudinal and cross slope values (as a percentage) in the appropriate cells. The longitudinal slope is equal to the slope parallel to the direction of the ramp (in the street); the cross slope is equal to the slope perpendicular to the direction of the ramp (in the street).

Turning Maneuver in Street

Indicate if pedestrians must perform turning maneuvers in the street. If “Yes”, a landing is required in the street.

PART C	SECTION 6	PAGE 10-4	DATE April 1, 2020
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Turning Maneuver at Top of Ramp (Smax)

Indicate if pedestrians must perform turning maneuvers at the top of the ramp. If “Yes”, Smax is required.

ECMS #

Enter the ECMS # for the project that altered the curb ramp.

Algebraic Δ Grade (Algebraic Change in Grade)

Enter the maximum algebraic change between the ramp slope and roadway slope (as a percentage).

Intersection Ramp # of #

Enter the number for the ramp being investigated followed by the total number of ramps being investigated at the intersection. For example, if the ramp at the intersection of Ramp “X” of “Y” is being investigated, “Y” is the total number of the ramps at the intersection and “X” is the number assigned to the specific ramp being investigated.

Ramp Location

Using the intersection figure shown, select the appropriate button for which the investigated curb ramp is located.

North Leg/North Leg Description

Include the name of the roadway (if applicable) for the northbound roadway. Then directly below that cell, indicate the type of roadway (state route, boulevard, road, street, etc.). If the roadway is a state route number (format: 0000), also include the Segment # (format: 0000) and Offset # (format: 0000) of the intersection. If the roadway is a local road, include the name of the local road and description. Complete this for all legs of the intersection.

	North Leg	Description	Segment	Offset
Example 1:	00016	SR	0010	0020
Example 2:	Oak	ST	n/a	n/a

Curb Ramp Type

Indicate the type of ramp being investigated. Depending on curb ramp type, complete all of the required dimensions on Tab 2 – Inspection Form Continued. Each cell is color-coded to indicate whether the information entered meets RC-67M. If data is entered and the cell becomes highlighted with green fill, the data meets RC-67M. If the cell becomes highlighted with red fill, the data does not meet RC-67M. If the cell becomes highlighted with yellow fill, the data does not match RC-67M but this may be due to tie-ins with the existing site. The chart located to the right of the data entry form indicates the minimum measurement requirements (compliance check).

Accessible Pedestrian Push Buttons

Indicate if pedestrian push buttons are accessible.

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Asset #

The Asset number will be automatically completed as information is entered into the data entry form.

Status

Select the status of the curb ramp.

- Current. The curb ramp is an active curb ramp.
- Archive. The curb ramp has been removed/replaced and is no longer in use.

Level of Service

Once the curb ramp is inspected and reviewed, indicate the level of service:

- Meets RC-67M (compliant)
- Constructed per contract documents (compliant)
- Ex - Provides Maximum Access (compliant)
- Non-Compliant

TAB 2 - INSPECTION FORM CONTINUED

Indicate the type of ramp being investigated using the curb ramp diagrams. Depending on curb ramp type, complete all of the required dimensions “A” through “CC”. Each cell is color-coded to indicate whether the information entered meets RC-67M. Use “999” or “-999” for measurements that are not applicable.

TAB 3 - PICTURES TAB

Click on the “Insert Picture #” button to insert the appropriate picture.

TAB 4 - TECH. INFEASIBLE FORM TAB (IF APPLICABLE)

If used, click on “Insert Tech Infeasible Form Sheet 1” button to insert the Technically Infeasible Form image. Repeat this process for the second image of the Technically Infeasible Form. Contact the PennDOT project manager to obtain image files of the Technically Infeasible Form.

TAB 5 – SCANNED FORMS TAB (IF APPLICABLE)

If the Inspection Form is printed and used to collect measurements, the form must be scanned as an image and inserted into the appropriate location. Click on the “Insert Scanned Inspection Form” button to insert the first page. Repeat this process for the second page. Scanning: It has been determined that a TIFF file format at 200 DPI produces a clear image at a reasonable file size.

TAB 6 - INSTRUCTIONS

Use this tab as a quick reference to the instructions.

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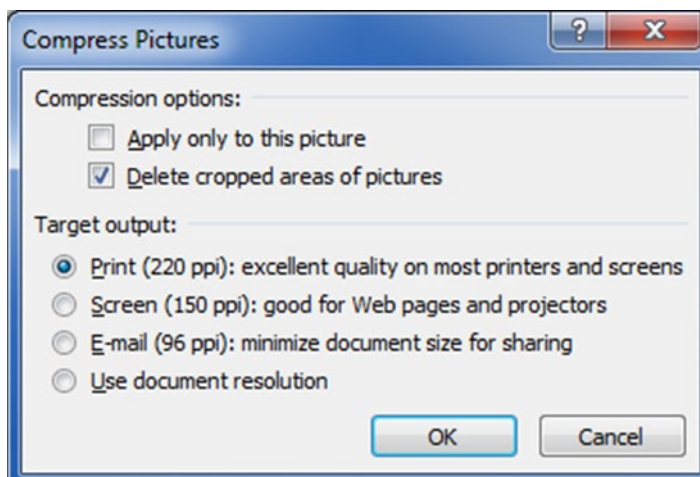
SUBMISSION

Perform the following for submission.

Reduce Image Size

To keep file size to a minimum, select a picture:

1. Go to the Format tab
2. Select Compress Pictures
3. Uncheck “Apply only to this picture”
4. Select Print (200 ppi)
5. Click OK.



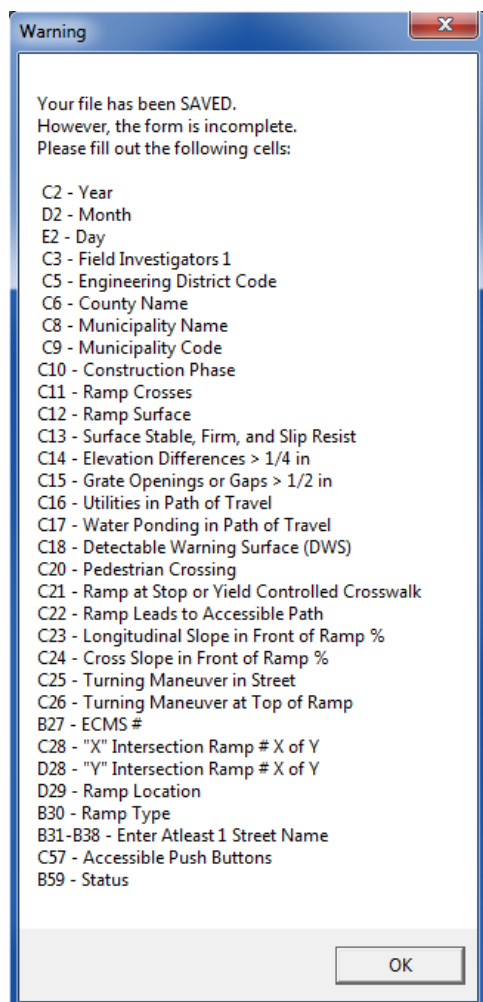
Save File

When saving, use Excel

Macro-Enabled Workbook format with a *.xlsm extension. Do not use a different file format.

If all the cells are not completed, a warning message will appear. The work has been saved, but the file is not complete. Fill in remaining cells and resave.

PART C	SECTION 6	PAGE 10-7	DATE April 1, 2020
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Send file to ADA Coordinator

Upon completion of the form, submit files in Excel Macro-Enabled Workbook format to the ADA Coordinator. Incomplete forms will be returned.

PART C	SECTION 6	PAGE 10-8	DATE April 1, 2020
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Tab 1 - Inspection Form

CB-4401 (6-17)



See the last tab of this workbook for instructions

*Date of Investigation (yyyy mm dd)			
Field Investigators 1			
Field Investigators 2			
*Engineering District Code			
*County Name			
*County Code (auto)	(Automatically Filled In)		
*Municipality Name			
*Municipality Code (auto)	(Automatically Filled In)		
Construction Phase	<input type="checkbox"/> Constructed <input type="checkbox"/> Ex-Surveyed <input type="checkbox"/> Paving		
Ramp Crosses	<input type="checkbox"/> State Rte <input type="checkbox"/> Local Rd <input type="checkbox"/> Both		
Ramp Surface	<input type="checkbox"/> Brick <input type="checkbox"/> Concrete <input type="checkbox"/> Other		
Surface Stable, Firm, and Slip Resistant	<input type="checkbox"/> No <input type="checkbox"/> Yes		
Elevation Differences > 1/4"	<input type="checkbox"/> No <input type="checkbox"/> Yes		(1/16")
Grate Openings or Gaps > 1/2"	<input type="checkbox"/> No <input type="checkbox"/> Yes		(1/16")
Utilities in Path of Travel	<input type="checkbox"/> No <input type="checkbox"/> Yes		
Water Ponding in Path of Travel	<input type="checkbox"/> No <input type="checkbox"/> Yes		
Detectable Warning Surface (DWS)	<input type="checkbox"/> No <input type="checkbox"/> Yes		
DWS type (if applicable)	<input type="checkbox"/> Asp <input type="checkbox"/> Pol/Conc <input type="checkbox"/> Asp/Com <input type="checkbox"/> Iron <input type="checkbox"/> Steel <input type="checkbox"/> Brick <input type="checkbox"/> Other		
Pedestrian Crossing and Type	<input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> N/A <input type="checkbox"/> 1Ramp 1Crossing <input type="checkbox"/> 1Ramp 2Crossing		
Ramp at Stop or Yield Controlled Crosswalk	<input type="checkbox"/> No <input type="checkbox"/> Yes		
Ramp Leads to Accessible Path	<input type="checkbox"/> No <input type="checkbox"/> Yes		
Longitudinal Slope in Front of Ramp			%
Cross Slope in Front of Ramp (Road Profile)			%
Turning Maneuver in Street	<input type="checkbox"/> No <input type="checkbox"/> Yes		
Turning Maneuver at Top of Ramp (3max)	<input type="checkbox"/> No <input type="checkbox"/> Yes		
ECMS #	Alg & Grade		%
Intersection Ramp # of #			
*Ramp Location (Use Figure Below)			
*Curb Ramp Type			
*North Leg	(segment)	(offset)	
*North Leg Desc.	<input type="checkbox"/> SR <input type="checkbox"/> St <input type="checkbox"/> Other		
*East Leg	(segment)	(offset)	
*East Leg Desc.	<input type="checkbox"/> SR <input type="checkbox"/> St <input type="checkbox"/> Other		
*South Leg	(segment)	(offset)	
*South Leg Desc.	<input type="checkbox"/> SR <input type="checkbox"/> St <input type="checkbox"/> Other		
*West Leg	(segment)	(offset)	
*West Leg Desc.	<input type="checkbox"/> SR <input type="checkbox"/> St <input type="checkbox"/> Other		
Accessible Push Buttons	<input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> N/A		
Asset # (auto)	<input type="checkbox"/> —(Automatically Filled In)—(Automatically Filled In)—		
* Status	<input type="checkbox"/> Current <input type="checkbox"/> Archive		
Level of Service	<input type="checkbox"/> Meets RC-57M <input type="checkbox"/> As Per Contract Documents <input type="checkbox"/> Ex - Provides Max Access <input type="checkbox"/> Non-Compliant		

Tab 2 – Inspection Form Continued

CS-4401 (6-17)



See the last tab of this workbook for instructions

SAMPLE

<p>TYPE 1</p> <p>MAX ALG. CHANGE IN GRADE _____ % TOP TURNING AREA <input type="checkbox"/> IF YES, MAX SLOPE "S" _____ %</p>	<p><input type="checkbox"/> TYPE 1A</p> <p>MAX ALG. CHANGE IN GRADE _____ %</p>	<p><input type="checkbox"/> TYPE 2</p> <p>MAX ALG. CHANGE IN GRADE _____ %</p>																																																																																															
<p>TYPE 4</p> <p>MAX ALG. CHANGE IN GRADE _____ % TOP TURNING AREA <input type="checkbox"/> IF YES, MAX SLOPE "S" _____ %</p>	<p>TYPE 4A</p> <p>MAX ALG. CHANGE IN GRADE _____ % TOP TURNING AREA <input type="checkbox"/> IF YES, MAX SLOPE "S" _____ %</p>	<p><input type="checkbox"/> TYPE 5</p> <p>MAX ALG. CHANGE IN GRADE _____ % RAILING <input type="checkbox"/> NO <input type="checkbox"/> YES "CC" RAIL HEIGHT _____ INCHES</p>																																																																																															
<p>TYPE 6</p> <p>MAX ALG. CHANGE IN GRADE _____ %</p>	<p>BLENDED TRANSITION</p> <p>MAX ALG. CHANGE IN GRADE _____ %</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: center;">"0.00" inches or %</th> </tr> </thead> <tbody> <tr><td style="text-align: center;">*</td><td style="text-align: center;">A</td><td style="text-align: center;">(IN)</td></tr> <tr><td style="text-align: center;">*</td><td style="text-align: center;">B</td><td style="text-align: center;">(IN)</td></tr> <tr><td style="text-align: center;">*</td><td style="text-align: center;">C</td><td style="text-align: center;">(%)</td></tr> <tr><td style="text-align: center;">*</td><td style="text-align: center;">D</td><td style="text-align: center;">(%)</td></tr> <tr><td style="text-align: center;">*</td><td style="text-align: center;">E</td><td style="text-align: center;">(%)</td></tr> <tr><td style="text-align: center;">*</td><td style="text-align: center;">F</td><td style="text-align: center;">(%)</td></tr> <tr><td style="text-align: center;">*</td><td style="text-align: center;">G</td><td style="text-align: center;">(%)</td></tr> <tr><td style="text-align: center;">*</td><td style="text-align: center;">H</td><td style="text-align: center;">(%)</td></tr> <tr><td style="text-align: center;">*</td><td style="text-align: center;">I</td><td style="text-align: center;">(%)</td></tr> <tr><td style="text-align: center;">*</td><td style="text-align: center;">J</td><td style="text-align: center;">(IN)</td></tr> <tr><td style="text-align: center;">*</td><td style="text-align: center;">K</td><td style="text-align: center;">(IN)</td></tr> <tr><td style="text-align: center;">*</td><td style="text-align: center;">L</td><td style="text-align: center;">(IN)</td></tr> <tr><td style="text-align: center;">*</td><td style="text-align: center;">M</td><td style="text-align: center;">(IN)</td></tr> <tr><td style="text-align: center;">*</td><td style="text-align: center;">N</td><td style="text-align: center;">(IN)</td></tr> <tr><td style="text-align: center;">*</td><td style="text-align: center;">O</td><td style="text-align: center;">(IN)</td></tr> <tr><td style="text-align: center;">*</td><td style="text-align: center;">P</td><td style="text-align: center;">(IN)</td></tr> <tr><td style="text-align: center;">*</td><td style="text-align: center;">Q</td><td style="text-align: center;">(%)</td></tr> <tr><td style="text-align: center;">*</td><td style="text-align: center;">R</td><td style="text-align: center;">(%)</td></tr> <tr><td style="text-align: center;">*</td><td style="text-align: center;">S</td><td style="text-align: center;">(%)</td></tr> <tr><td style="text-align: center;">*</td><td style="text-align: center;">T</td><td style="text-align: center;">(IN)</td></tr> <tr><td style="text-align: center;">*</td><td style="text-align: center;">U</td><td style="text-align: center;">(IN)</td></tr> <tr><td style="text-align: center;">*</td><td style="text-align: center;">V</td><td style="text-align: center;">(%)</td></tr> <tr><td style="text-align: center;">*</td><td style="text-align: center;">W</td><td style="text-align: center;">(%)</td></tr> <tr><td style="text-align: center;">*</td><td style="text-align: center;">X</td><td style="text-align: center;">(IN)</td></tr> <tr><td style="text-align: center;">*</td><td style="text-align: center;">Y</td><td style="text-align: center;">(IN)</td></tr> <tr><td style="text-align: center;">*</td><td style="text-align: center;">YY</td><td style="text-align: center;">(IN)</td></tr> <tr><td style="text-align: center;">*</td><td style="text-align: center;">Z</td><td style="text-align: center;">(IN)</td></tr> <tr><td style="text-align: center;">*</td><td style="text-align: center;">ZZ</td><td style="text-align: center;">(IN)</td></tr> <tr><td style="text-align: center;">*</td><td style="text-align: center;">AA</td><td style="text-align: center;">(IN)</td></tr> <tr><td style="text-align: center;">*</td><td style="text-align: center;">BB</td><td style="text-align: center;">(IN)</td></tr> <tr><td style="text-align: center;">*</td><td style="text-align: center;">CC</td><td style="text-align: center;">(IN)</td></tr> </tbody> </table>	"0.00" inches or %		*	A	(IN)	*	B	(IN)	*	C	(%)	*	D	(%)	*	E	(%)	*	F	(%)	*	G	(%)	*	H	(%)	*	I	(%)	*	J	(IN)	*	K	(IN)	*	L	(IN)	*	M	(IN)	*	N	(IN)	*	O	(IN)	*	P	(IN)	*	Q	(%)	*	R	(%)	*	S	(%)	*	T	(IN)	*	U	(IN)	*	V	(%)	*	W	(%)	*	X	(IN)	*	Y	(IN)	*	YY	(IN)	*	Z	(IN)	*	ZZ	(IN)	*	AA	(IN)	*	BB	(IN)	*	CC	(IN)
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*	CC	(IN)																																																																																															
<p>TYPE A MEDIAN</p> <p><input type="checkbox"/> TYPE B MEDIAN</p>	<p>NON-TYPICAL</p> <p>"A" RAMP WIDTH "B" RAMP LENGTH "C" RAMP SLOPE "D" LT FLARE SLOPE "J" RT FLARE SLOPE "J" LT SIDEWALK WIDTH "M" RT SIDEWALK WIDTH "P" SIDEWALK LANDING DEPTH "Q" LT SIDEWALK CROSS SLOPE "R" RT SIDEWALK CROSS SLOPE "S" SIDEWALK LANDING MAX SLOPE "W" RAMP MAX CROSS SLOPE</p> <p>MAX ALG. CHANGE IN GRADE _____ % SIDEWALK TURNING AREA <input type="checkbox"/> IF YES, DESIGNATE MAX SLOPE "S"</p>																																																																																																
<p>1 RAMP, 2 CROSSINGS</p> <p>NOTE: CROSSING MAY BE MARKED OR UNMARKED</p>																																																																																																	
<p>(insert comments below)</p>																																																																																																	

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Tab 3 – Pictures

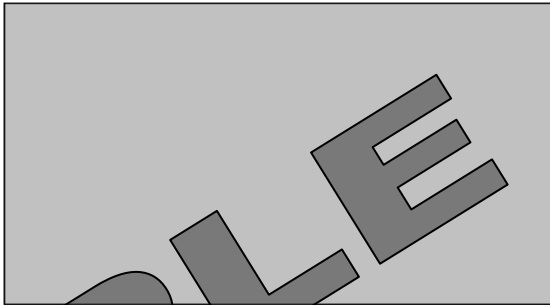
CS-4401 (6-17)



See the last tab of this workbook for instructions



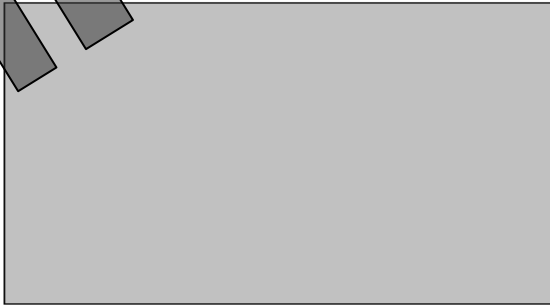
Insert Picture 1



Insert Picture 4



Insert Picture 2



Insert Picture 5



Insert Picture 3



Insert Picture 6

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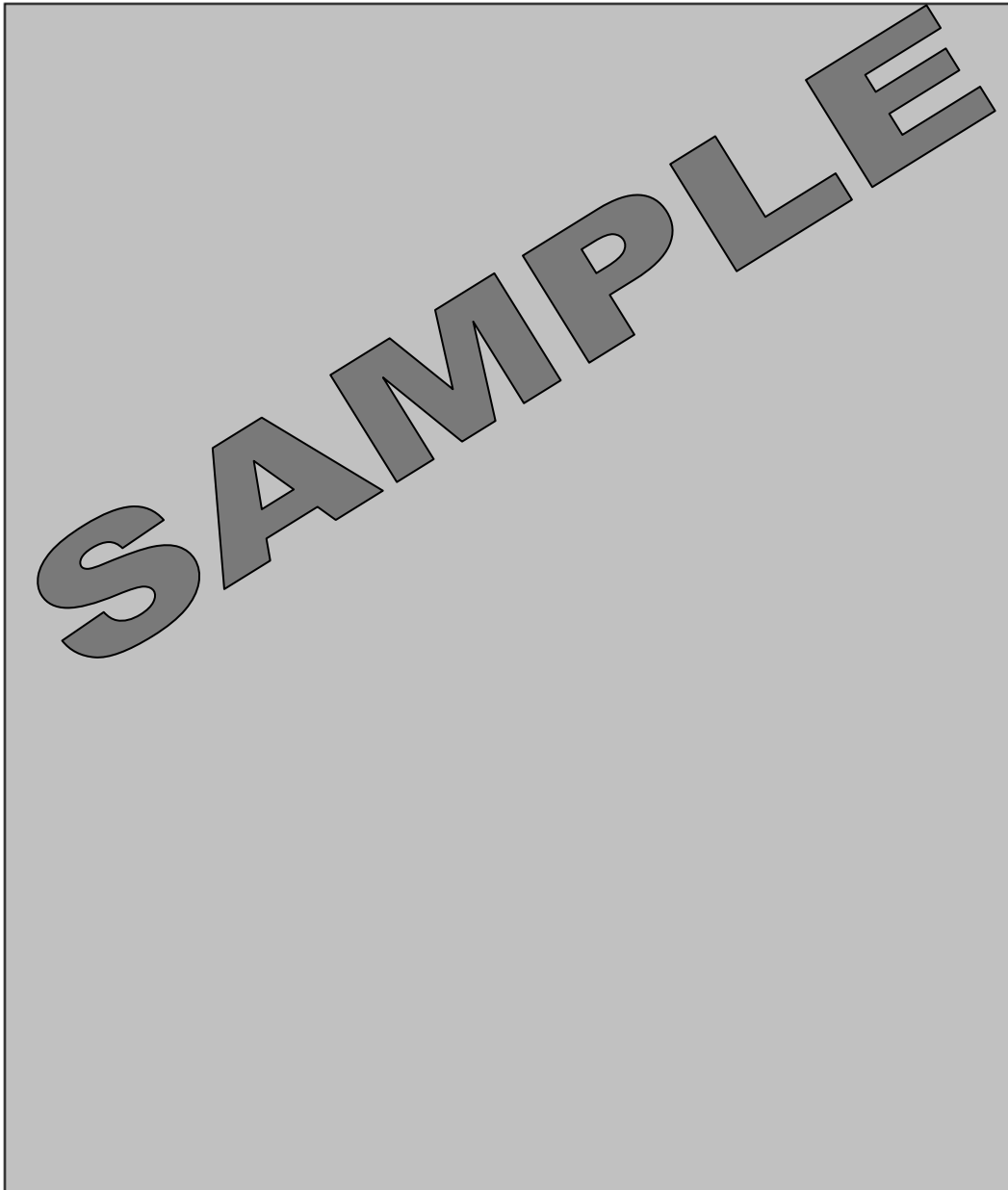
Tab 4 – Technically Infeasible Form

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See the last tab of this workbook for instructions

Scanned Technically Infeasible Form Sheet 1 (TIFF set resolution to 200 DPI)



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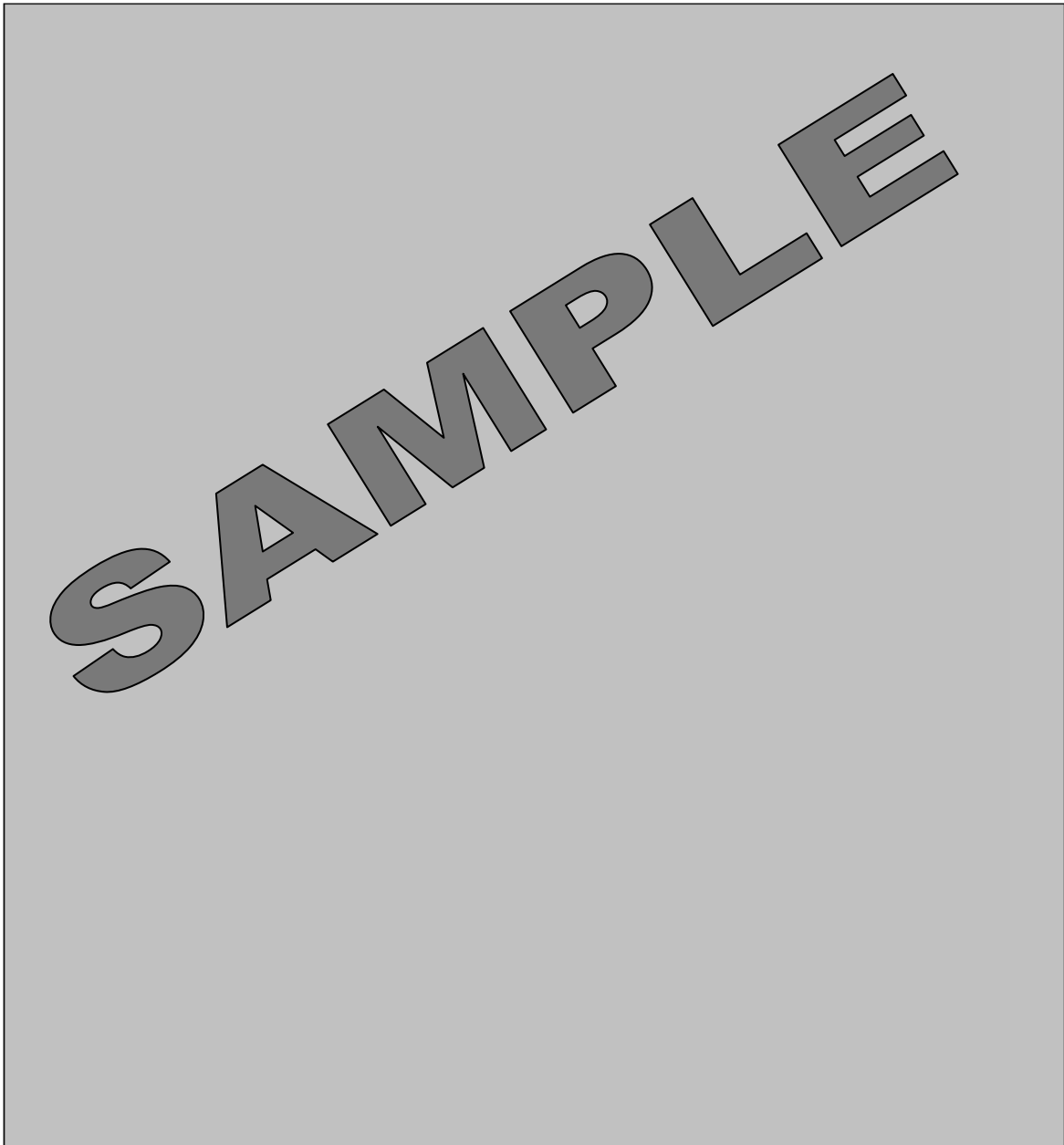
Tab 5 – Scanned Form

CS-4401 (6-17)



See the last tab of this workbook for instructions

Scanned Inspection Form (TIFF set resolution to 200 DPI)



REPLACES C.6.11	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART C	SECTION 6	PAGE 11-1
DATED 04/02/2018	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT REMEDICATION FOR DEFECTS IN NEWLY INSTALLED PIPE				

General

The remediation strategies shown were developed to provide general guidance for the repair of both 50 and 100 year service life pipes. Each project and pipe condition should be analyzed independently to determine whether the method is applicable or not. In some cases, the pipe size and condition may be a limiting factor in determining whether the repair methods shown can be accomplished or not, based on human entry, safety or other factors. The manufacturer of the pipe should be consulted for recommendations.

Rehabilitation Strategies for All Pipe

Where the pipe condition and defects warrant analysis, and when the analysis indicates that the pipe is structurally unsound, only two options should be considered – either removal and replacement or a relining of the pipe with another pipe to restore the structural capacity to the pipe. In the second case, a hydraulic analysis, which considers both inlet and outlet control conditions, must also be performed and submitted.

In addition, the contractor is responsible for developing and submitting a construction and installation procedure for review and approval by the Engineering District. The procedure must reference the materials and test methods to be used. Materials that are not Bulletin 15 approved must be submitted for evaluation as specified in Publication 408, Section 106.02(a)2, along with any applicable component or finished product testing requirements for verification by the Department.

Design Requirements and Assumptions for Rehabilitation of All Pipe Deemed Not Structurally Adequate

- The existing pipe provides no strength and does not reduce loads to a new lining or pipe insert
- Design the new lining or pipe insert for full dead load, live load, and external water pressure
- Any reduction of the inside diameter of the existing pipe must be hydraulically acceptable
- Design is to be in accordance with Design Manual 4
- Pipe Analysis and rehabilitation strategy is to be submitted to the Department for approval

Cost Adjustments

The District should reference Table B to determine cost adjustment when repairs or remediation methods are unlikely to restore the full design service life of the pipe and/or result in future anticipated maintenance. Remediation procedures shall consider diameter/span and cover depth in determining repair methods.

Table B identifies remediation thresholds to consider for the appropriate rebate to the Department. The contractor must submit a remediation plan for approval when any pipe deficiency exceeds remediation allowance. Upon approval of the remediation plan, the contractor repairs the

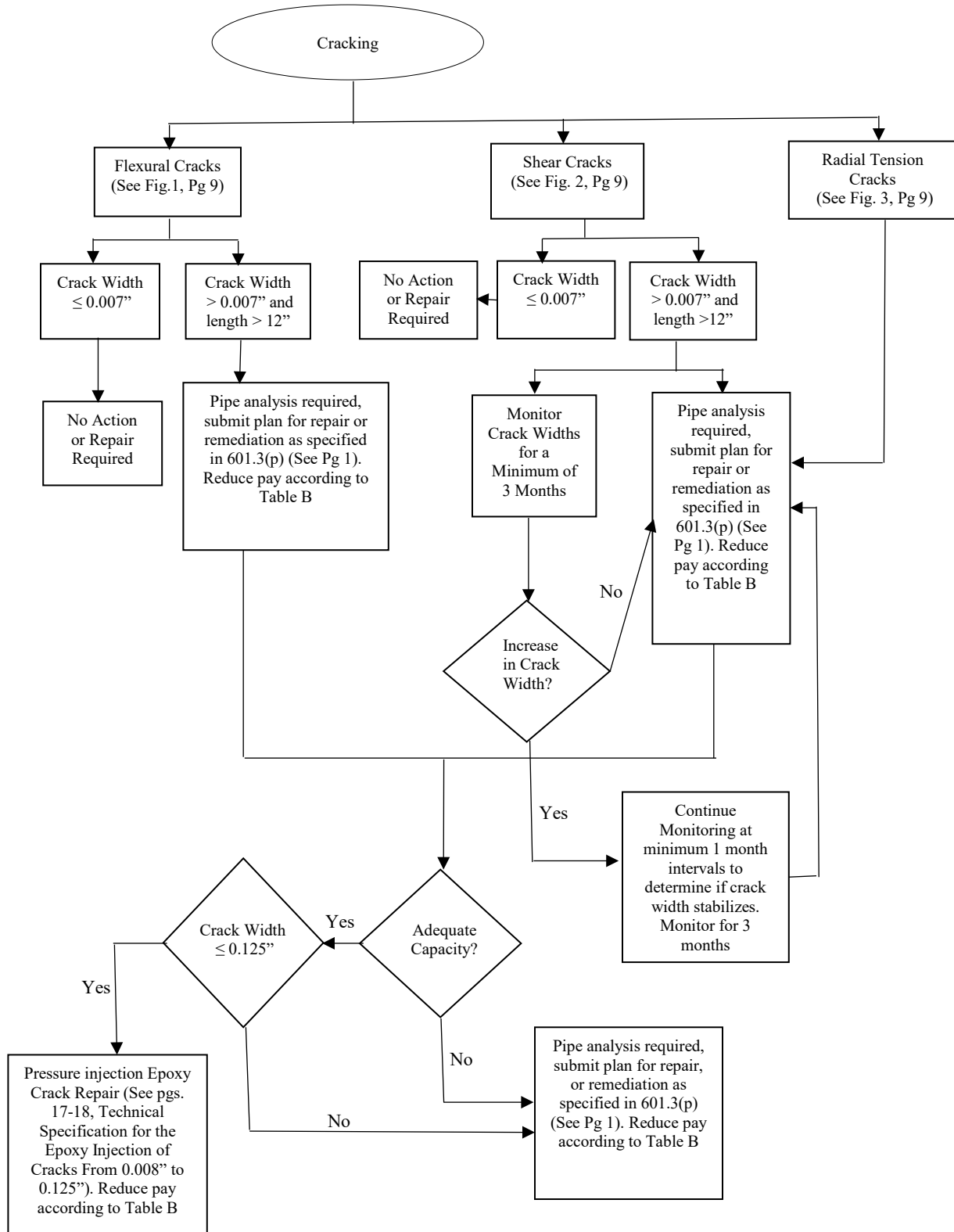
PART C	SECTION 6	PAGE 11-2	DATE April 1, 2020
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deficiencies AND provides the Department the specified rebate. If the contractor elects to replace the pipe, no rebate is necessary.

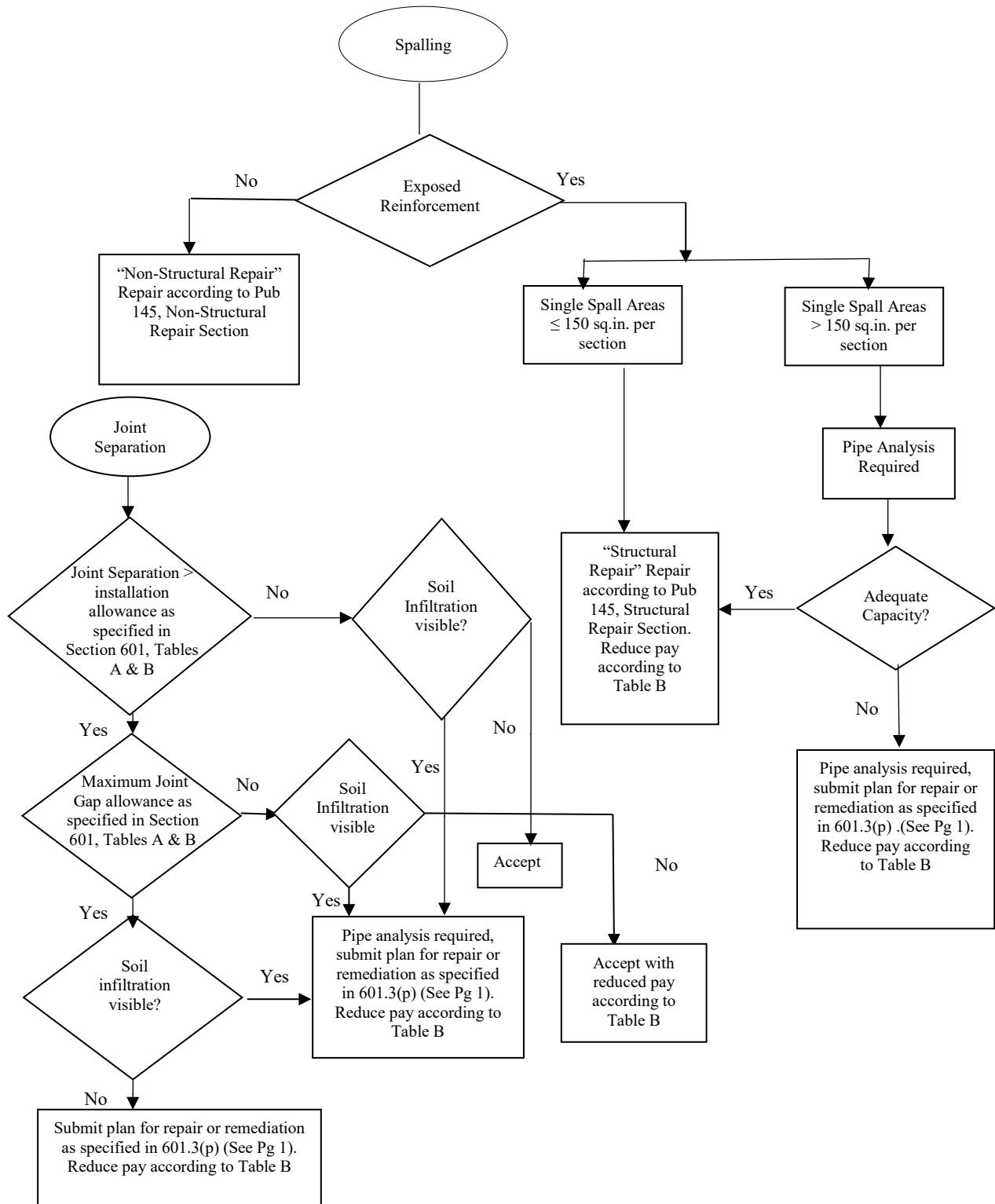
If the pipe deficiency exceeds remediation tolerances and there is soil infiltration, the contractor must submit a pipe analysis that shows structural adequacy of the in place pipe. If the analysis is not approved by the Department, the pipe must be replaced or relined in accordance with “Rehabilitation Strategies for all Pipe” indicated above. If the pipe analysis is approved, the contractor must submit a remediation plan for approval. Upon approval of the remediation plan, the contractor repairs the deficiencies AND provides the Department the specified rebate. If the contractor elects to replace the pipe, no rebate is necessary.

Note: In the below flowcharts, all publication section references are to Publication 408, Section 601, unless otherwise specified.

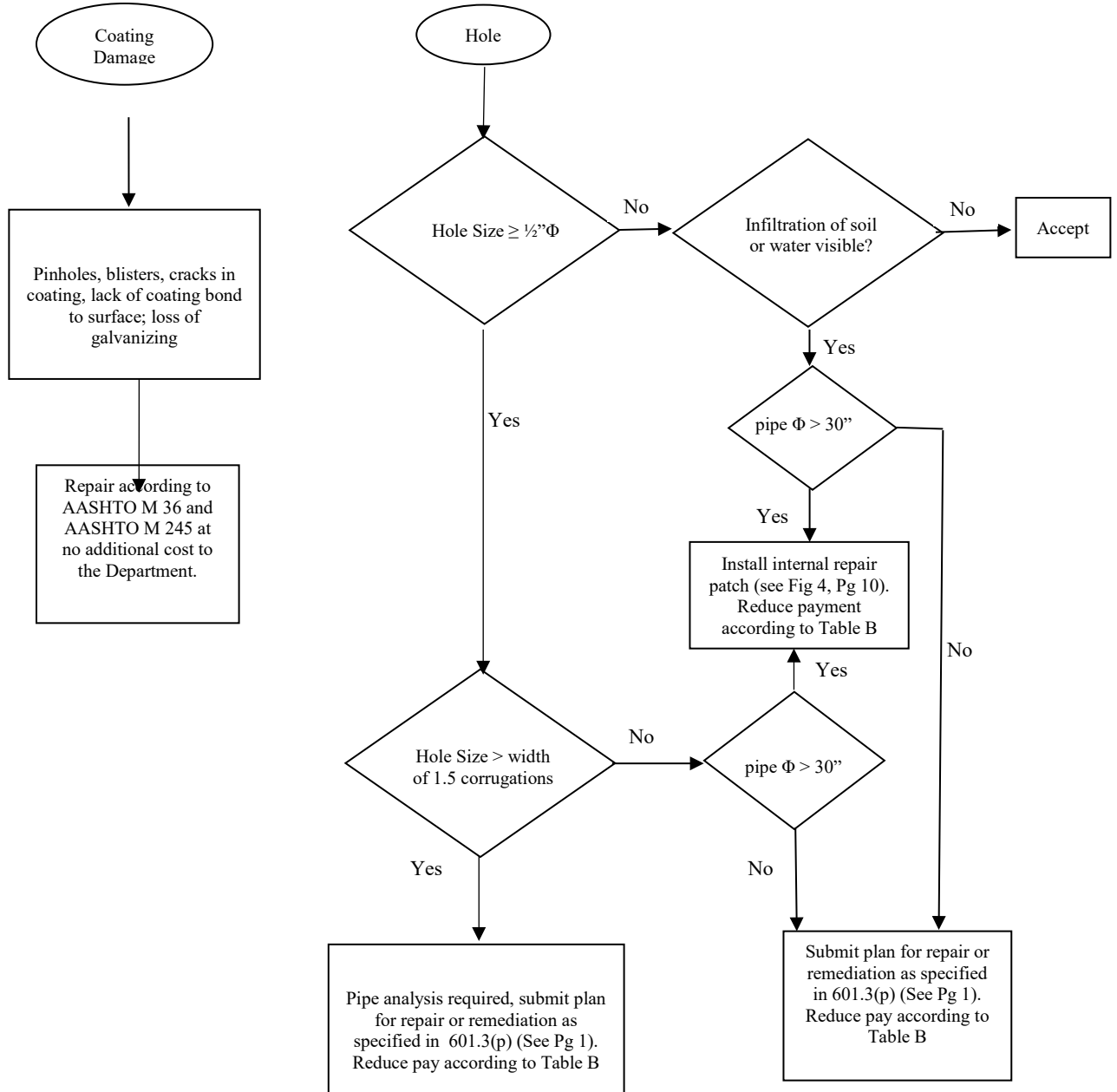
SUGGESTED REMEDIATION FOR PIPE DEFECTS IN INSTALLED CONCRETE PIPE



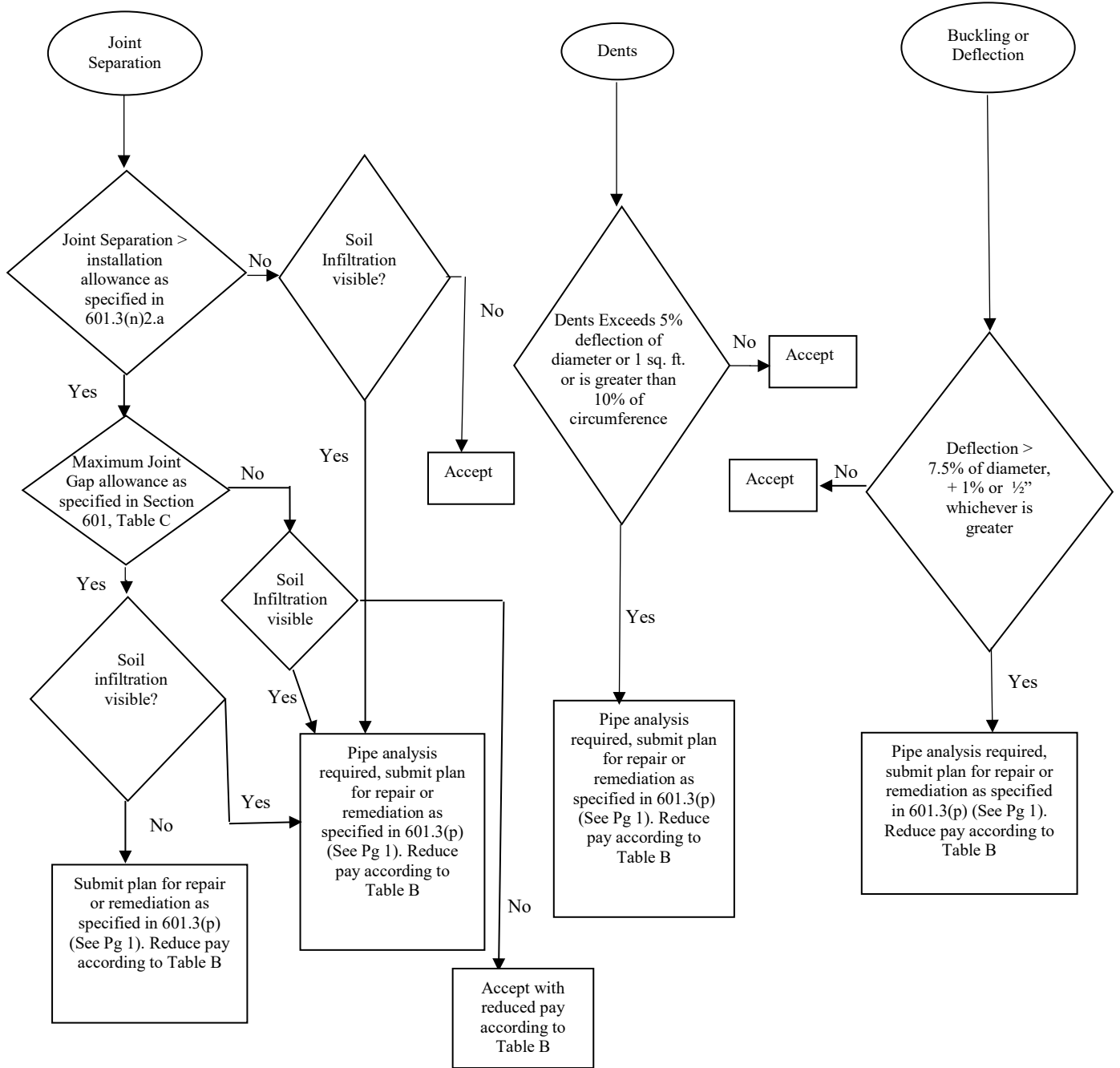
SUGGESTED REMEDIATION FOR PIPE DEFECTS IN INSTALLED CONCRETE PIPE



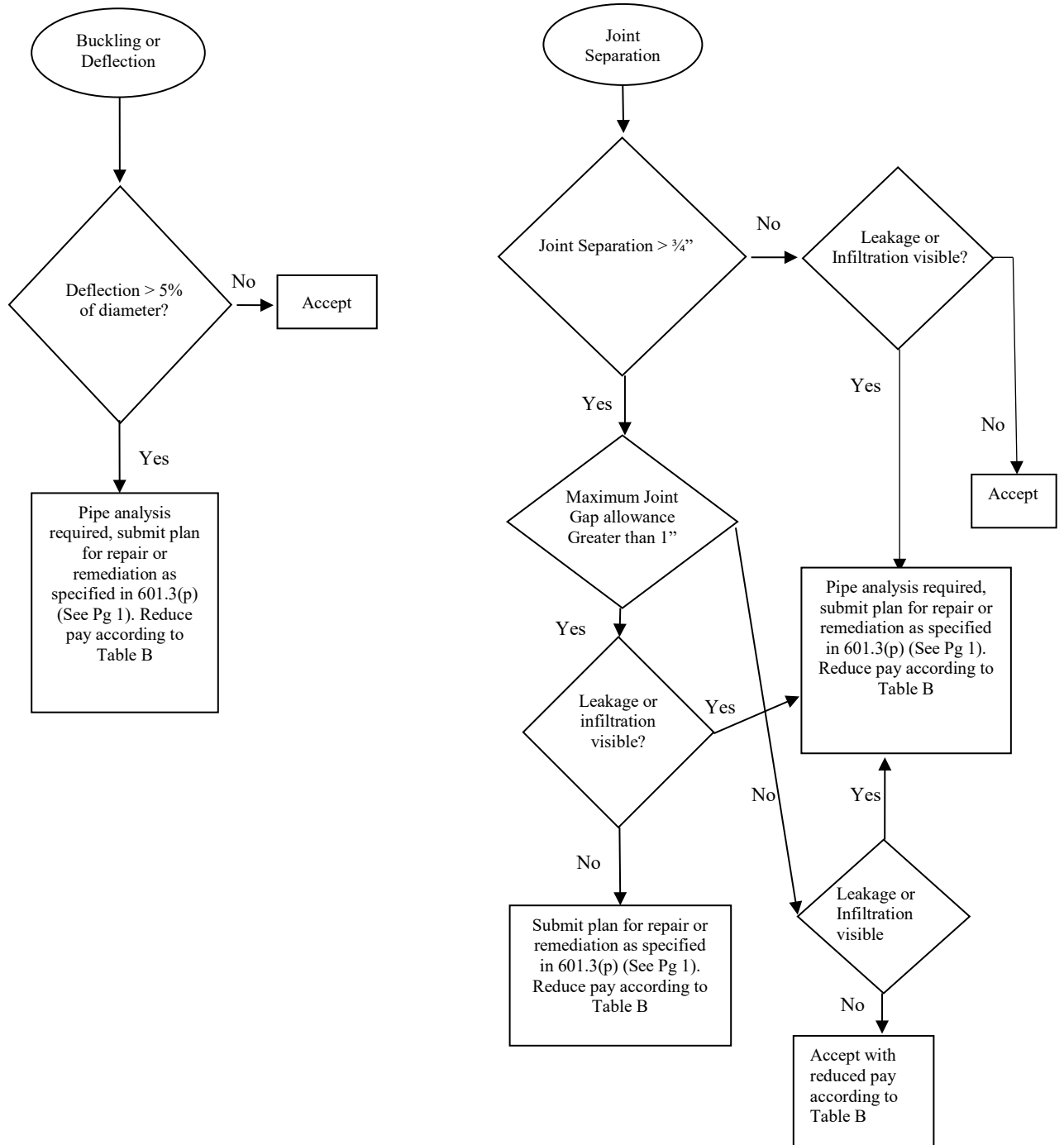
SUGGESTED REMEDIATION FOR PIPE DEFECTS IN INSTALLED METAL PIPE



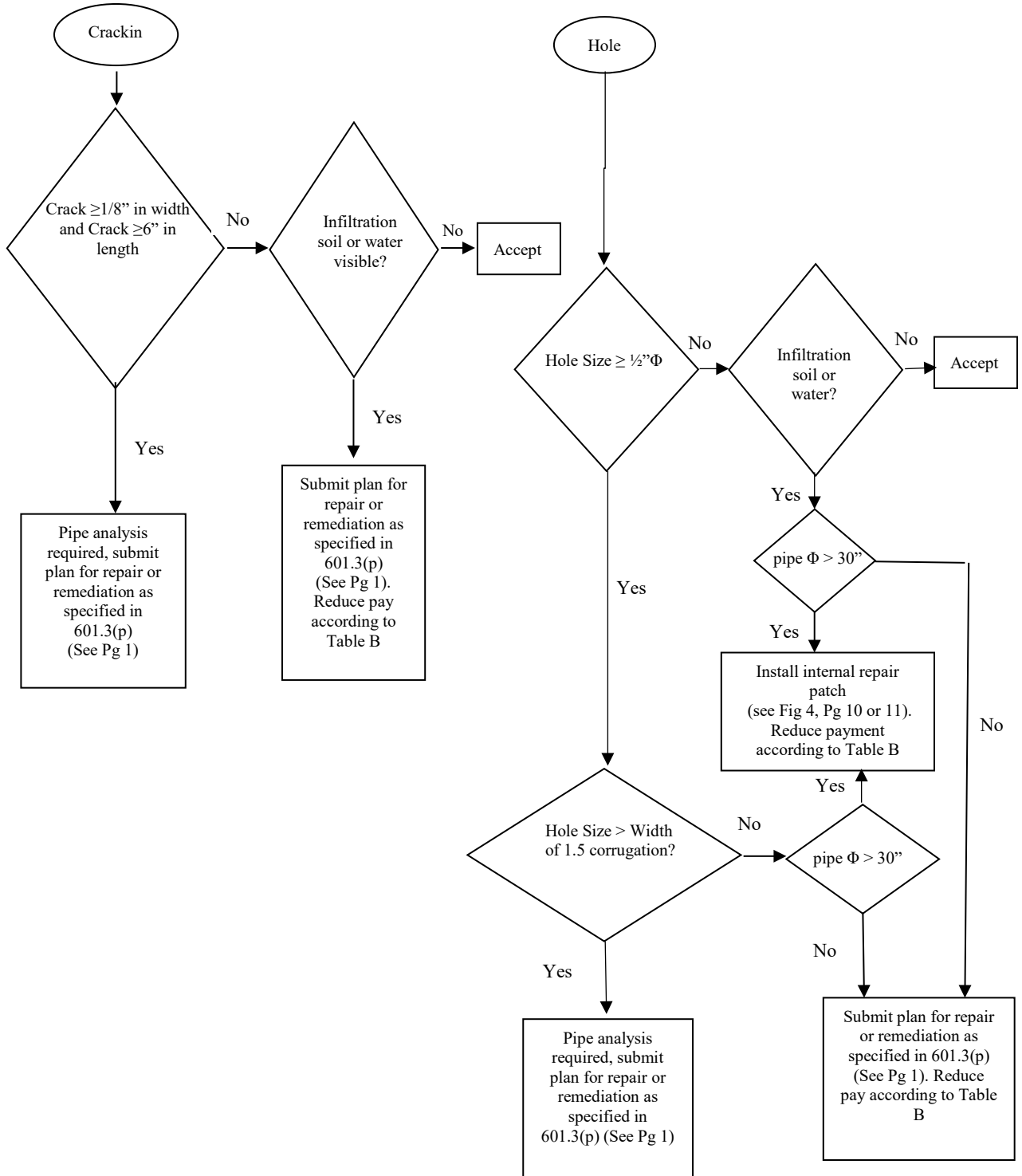
SUGGESTED REMEDIATION FOR PIPE DEFECTS IN INSTALLED METAL PIPE



SUGGESTED REMEDIATION FOR DEFECTS IN INSTALLED THERMOPLASTIC PIPE



SUGGESTED REMEDIATION FOR PIPE DEFECTS IN INSTALLED THERMOPLASTIC PIPE



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CONCRETE PIPE

FIGURE NO.1 – FLEXURAL CRACKS

FIGURE NO.2 – SHEAR CRACKS

FIGURE NO.3 – RADIAL TENSION CRACKS (SLABBING)

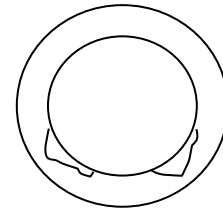
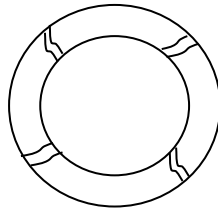
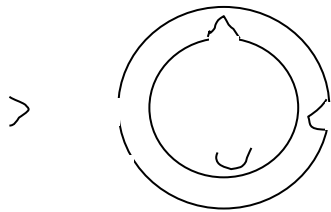


PHOTO NO. 1, Example of Flexural Crack



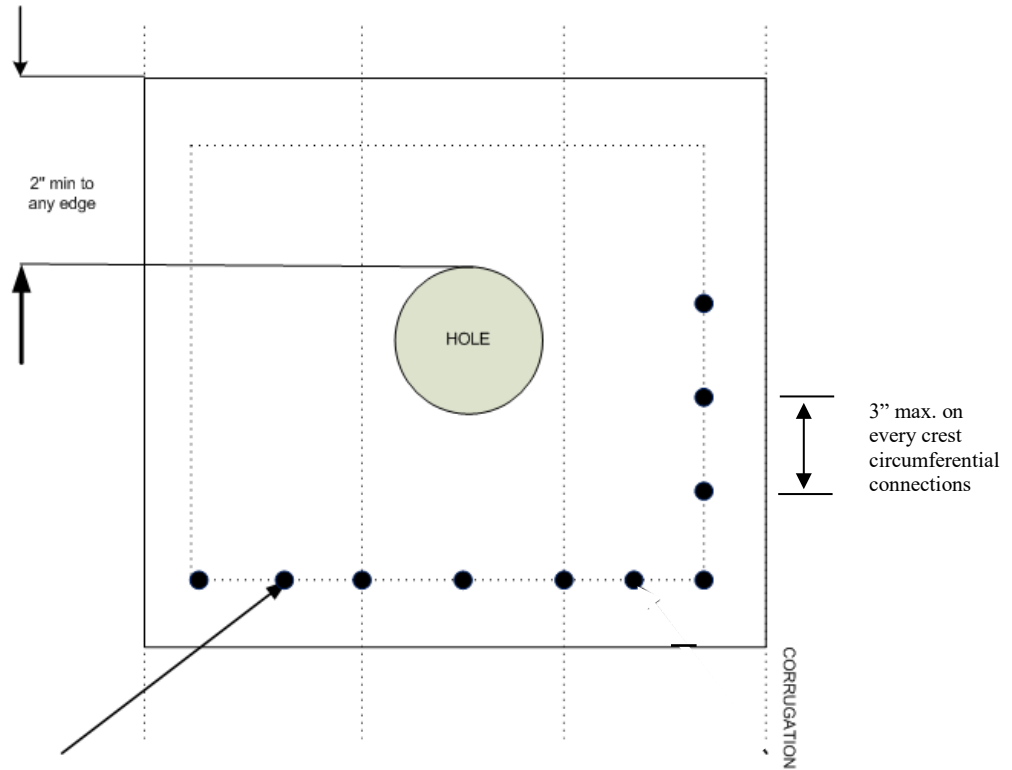
PHOTO NO. 2, Example of Shear Crack



PHOTO NO. 3, Example of Radial Tension Cracks

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FIGURE NO.4 – INTERNAL REPAIR PATCH

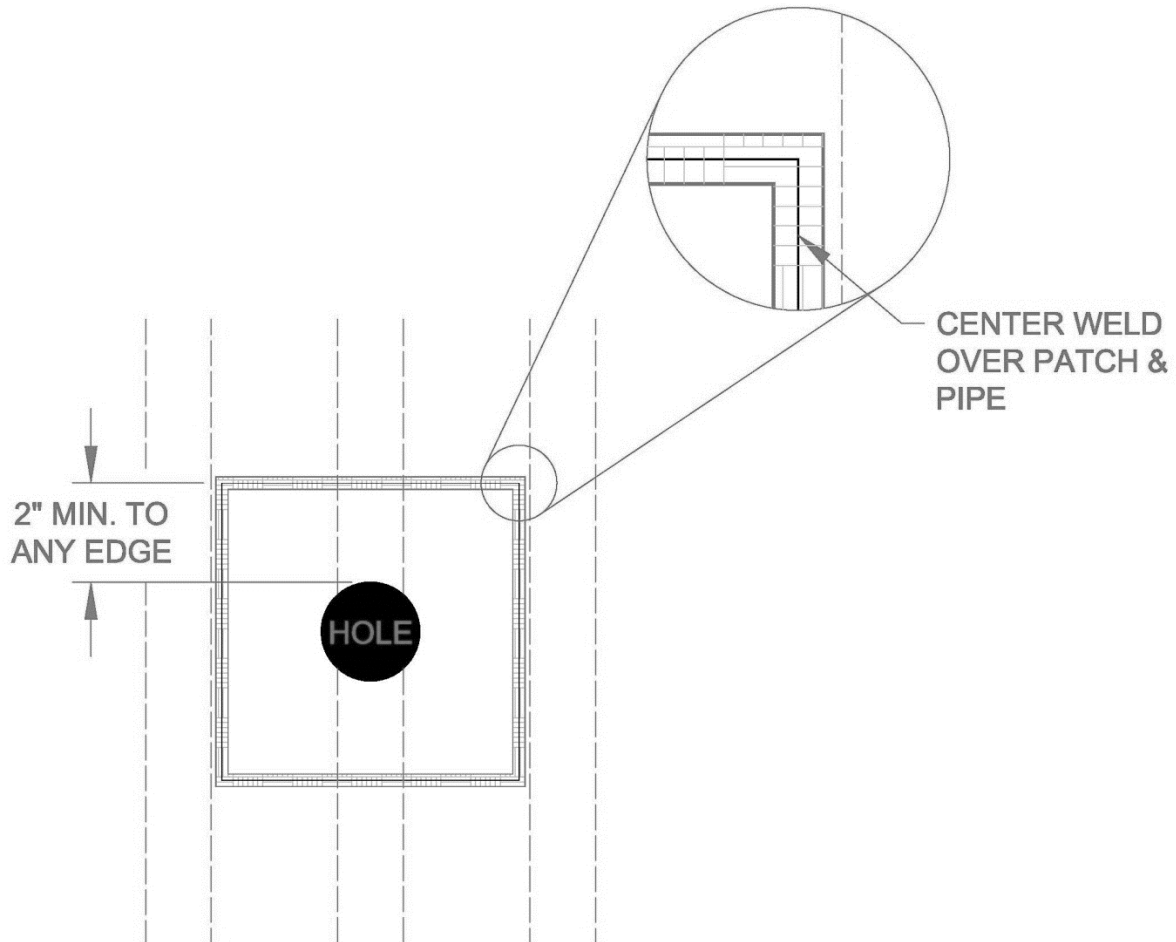


Stain Steel Screws @ 1 inch cc with caulking (see Pub 408 Section 705.8(b) ASTM C 920) all around under screw line.

For thermoplastic and CMP, 3/8" stainless steel or hot-dipped galvanized screws to be placed at each crest. Use repair plate that matches the existing material.

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FIGURE NO. 4 INTERNAL REPAIR PATCH



For High Density Polyethylene (HDPE), sheet reinforcement with a thickness at least the same as the pipe wall shall be welded in place. Before extrusion welding the sheet reinforcement to the pipe, the surface should be clean, dry, and free of debris. If necessary, sanding and/or grinding of the surface may be required to remove any oxidation or surface defects. Care should be taken to not structurally damage the pipe during preparation. Once centered, the spline or weld bead is centered over the edge of patch and pipe (Figure No. 4). Once the weld is complete, the weld should be air cooled.

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Table A provides a sample of pipe repair methods. Contractors may provide other repair methods not included in the Table A as their remediation plan. Pipe repair methods will continue to be evaluated and added to Bulletin 15 if performance is acceptable.

Table A - Pipe Repair Methods

Method	Whole or spot repair	Diameter*	Structural or non-structural	Estimated Service Life*	Pipe material can repair
Spray-on Concrete	Whole	30" to 144"	Structural	50-75 years	All
Spray On Polyurethane-Rigid Hybrid	Whole	42" or greater	Structural or Non-Structural	At least 50 years	All
Spray On Polyurethane-Elastomeric	Whole	42" or greater	Non-Structural	At least 50 years	All
Cured in Place Pipe – Steam	Whole	4" to 108"	Structural	50-75 years	All
Cured in Place Pipe – UV	Whole	6" to 50"	Structural	50-75 years	All
Cured in Place Pipe – Spot Repair	Spot	3" to 48"	Structural	50-75 years	All
Slip liner – PVC, HDPE	Whole	4" to 158"	Structural	At least 50 years	All
Internal Joint Seal	Spot	18" to 122"	Non-Structural	50 years	All
Welding	Spot	36" or greater	Non-Structural	50 years	Metal, Thermoplastic
Mechanical Repair Sleeve	Spot	6" to 72"	Structural	50 years	All
Epoxy Injection	Spot	36" or greater	Non-Structural	50 years	Concrete

*This information may vary depending on manufacturer.

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Note: In Table B, all publication section references are to Publication 408, Section 601, unless otherwise specified.

Table B - Rebates

Concrete Pipe		
Criteria	Correction Plan	Rebate
JOINTS		
Greater than Section 601.3(n)1.a specification required joint gap installation allowance but less than the Maximum Joint Gap allowance and soil tight	No action	Reduce payment by one foot on each side of the joint (including excavation, pipe and backfill)
Greater than the Maximum Joint Gap allowance without soil infiltration.	Submit a plan for repair or replacement as specified in Section 601.3(p).	Reduce payment by two foot on each side of the joint (including excavation, pipe and backfill)
Any soil infiltration	Submit a pipe analysis with the plan for repair or replacement as specified in Section 601.3(p).	Reduce payment by 50% of the total cost for the length of each pipe section on both sides of the joint (including excavation, pipe and backfill).
CRACKS		
Cracks with a width less than or equal to 0.007 inches	Note in inspection report, No remedial action	No Rebate required
Cracks with a width greater than 0.007 inches and length greater than 12 inches	Submit a pipe analysis with the plan for repair or replacement as specified in Section 601.3(p).	District shall negotiate a cost adjustment
SPALLS/CHIPS		
Spalled area has no exposed reinforcement.	Repair according to Pub 145, Non-Structural Repair Section	No Rebate required
Spalled area has exposed reinforcement with single spall area less than or equal to 150 sq. in.	Repair according to Pub 145, Structural Repair Section	District shall negotiate a cost adjustment
Spalled area has exposed reinforcement with single spall area greater than 150 sq. in.	Submit a pipe analysis with the plan for repair or replacement as specified in Section 601.3(p).	District shall negotiate a cost adjustment

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Metal Pipe		
Criteria	Correction Plan	Rebate
JOINTS		
Greater than Section 601.3(n)2.a specification required joint gap installation allowance but less than the Maximum Joint Gap allowance without soil infiltration.	No action	Reduce payment by 2.5 foot on each side of the joint (including excavation, pipe and backfill)
Greater than the Maximum Joint Gap allowance without soil infiltration.	Submit a plan for repair or replacement as specified in Section 601.3(p).	Reduce payment by five foot on each side of the joint (including excavation, pipe and backfill)
Any soil infiltration	Submit a pipe analysis with the plan for repair or replacement as specified in Section 601.3(p).	Reduce payment by 50% of the total cost for the length of each pipe section on both sides of the joint (including excavation, pipe and backfill).
COATING		
Original coating has pinholes, blisters, cracks in coating, lack of coating bond to surface or loss of galvanizing	Coating damage noted in inspection report. Repairs shall be performed at no cost to the Department as specified in Section 601.3(n)2.b.	No rebate required
DEFLECTION/BUCKLING		
Any deflection less than 7.5% of round pipe	Note in inspection report, No remedial action	No Rebate required
ROUND PIPE -Any deflection greater than 7.5% of diameter plus manufacturer tolerance of 1% or ½ inch undersize, whichever is greater.	Submit a pipe analysis with the plan for repair or replacement as specified in Section 601.3(p).	District shall negotiate a cost adjustment
ARCH PIPE- Any deflection 7.5% decrease in rise and 7.5% increase in span from nominal dimension	Submit a pipe analysis with the plan for repair or replacement as specified in Section 601.3(p).	District shall negotiate a cost adjustment

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HOLES		
Holes with a diameter less than ½ inch without leakage or soil infiltration	Note in inspection report, No remedial action	No Rebate required
Holes with a diameter less than ½ inch with leakage or soil infiltration	Install internal repair patch for pipes with diameter larger than 30 inches	District shall negotiate a cost adjustment
Holes with a diameter less than ½ inch with leakage or soil infiltration	Pipes 30 inches and less in diameter submit a plan for repair or replacement as specified in Section 601.3(p)	District shall negotiate a cost adjustment
Holes with a diameter greater than or equal to ½ inch but less than the width of 1.5 of corrugation	Pipes 30 inches and less in diameter submit a plan for repair or replacement as specified in Section 601.3(p)	District shall negotiate a cost adjustment
Holes with a diameter greater than or equal to ½ inch but less than the width of 1.5 of corrugation	Install internal repair patch for pipes with diameter larger than 30 inches	District shall negotiate a cost adjustment
Holes with a diameter greater than or equal to the width of 1.5 of corrugation	Submit a pipe analysis with the plan for repair or replacement as specified in Section 601.3(p).	District shall negotiate a cost adjustment
DENTS		
Dents less than 5% deflection of diameter or 1 sq.ft. or less than 10% of circumference	Note in inspection report, No remedial action	No Rebate required
Dents greater than 5% deflection of diameter or 1 sq.ft. or greater than 10% of circumference	Submit a pipe analysis with the plan for repair or replacement as specified in Section 601.3(p).	District shall negotiate a cost adjustment

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Thermoplastic Pipe		
Criteria	Correction Plan	Rebate
JOINTS		
Greater than Section 601.3(n)3.a specification required joint gap installation allowance but less than the Maximum Joint Gap allowance without leakage or soil infiltration	No action	Reduce payment by 2.5 foot on each side of the joint (including excavation, pipe and backfill)
Greater than the Maximum Joint Gap allowance without leakage or soil infiltration	Submit a plan for repair or replacement as specified in Section 601.3(p).	Reduce payment by five foot on each side of the joint (including excavation, pipe and backfill)
Any leakage or soil infiltration	Submit a pipe analysis with the plan for repair or replacement as specified in Section 601.3(p).	Reduce payment by 50% of the total cost for the length of each pipe section on both sides of the joint (including excavation, pipe and backfill).
CRACKS/RIPS/TEARS		
Cracks in the interior wall of pipe less than 1/8 inch in width and less than 6 inches in length without leakage or soil infiltration	Note in inspection report, No remedial action	No Rebate required
Cracks in the interior wall of pipe less than 1/8 inch in width and less than 6 inches in length with leakage or soil infiltration	Submit a pipe analysis with the plan for repair or replacement as specified in Section 601.3(p).	District shall negotiate a cost adjustment
Cracks in the interior wall of pipe greater than and equal to 1/8 inch in width or greater than or equal to 6 inches in length	Submit a pipe analysis with the plan for repair or replacement as specified in Section 601.3(p).	District shall negotiate a cost adjustment
HOLES		
Holes with a diameter less than ½ inch without leakage or soil infiltration	Note in inspection report, No remedial action	No Rebate required
Holes with a diameter less than ½ inch with leakage or soil infiltration	Install internal repair patch for pipes with diameter larger than 30 inches	District shall negotiate a cost adjustment

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Holes with a diameter less than ½ inch with leakage or soil infiltration	Pipes 30 inches and less in diameter submit a plan for repair or replacement as specified in Section 601.3(p)	District shall negotiate a cost adjustment
Holes with a diameter greater than or equal to ½ inch but less than the width of 1.5 of corrugation	Pipes 30 inches and less in diameter submit a plan for repair or replacement as specified in Section 601.3(p)	District shall negotiate a cost adjustment
Holes with a diameter greater than or equal to ½ inch but less than the width of 1.5 of corrugation	Install internal repair patch for pipes with diameter larger than 30 inches	District shall negotiate a cost adjustment
Holes with a diameter greater than or equal to the width of 1.5 of corrugation	Submit a pipe analysis with the plan for repair or replacement as specified in Section 601.3(p).	District shall negotiate a cost adjustment
DEFLECTION/BUCKLING		
Any deflection less than 5% of original pipe diameter	Note in inspection report, No remedial action	No Rebate required
Any deflection greater than 5% of original pipe diameter	Submit a pipe analysis with the plan for repair or replacement as specified in Section 601.3(p).	District shall negotiate a cost adjustment

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Technical Specification
for the Epoxy Injection of Cracks from 0.008” to 0.125” in Concrete Pipe
Not in Shear or Radial Tension

General Description

This is a guide specification for the injection of epoxy resin into cracks of 0.008” to 0.125” in surface width in reinforced concrete pipe to prevent water intrusion into the crack and prevent corrosion of the reinforcement for pipe sizes that allow for individual entry. This guide specification is not considered a structural repair and therefore is intended only for those applications where through evaluation and analysis the pipe is considered to retain its original structural capacity. Modification of this guide specification may be required based on the individual condition of the pipe and should be evaluated on a case by case basis.

Materials

- 1) Epoxy Injection Resin
ASTM – C881, Type 1, Grade 3 – from a manufacturer listed in Bulletin 15. (Publication 408, Section 706.1)
- 2) Epoxy Injection Gel
ASTM – C881, Type 1, Grade 3 – from a manufacturer listed in Bulletin 15. (Publication 408, Section 706.1)
- 3) Surface Sealer and Port Adhesive
As recommended by the manufacturer, and of adequate strength to hold injection fittings firmly in place and to resist injection pressures to prevent leakage during injection.
- 4) Injection Fittings. As recommended by the manufacturer.
- 5) Certification. Publication 408, Section 106.03(b)3.

Construction

- 1) General. Perform injection using trained personnel supervised by an experienced person skilled in the use of epoxy injection equipment and injection resins.
- 2) Equipment. Use a portable epoxy injection unit equipped with positive displacement type pumps which provide positive ration control of epoxy injection resin compounds. Pumps are to be air or electric powered providing in line mixing and metering for two component epoxies. Conform to the manufacturer recommended tolerances for mixing volume and discharge pressures.
- 3) Application Limitations. Do not apply or inject materials if ambient or concrete temperature is below 40°F.
- 4) Water Control. Perform work when invert water level prior to damming is 6 inches or less to eliminate the possibility of hydrostatic pressure. Construct a sandbag dam above the work area which prevents water flow through the pipe. Divert water below work area with a sump pump and hose. Remove sandbag dam each night.

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- 5) Preliminary Work. Cracks and limits of repair to be sealed will be marked by the Engineer.
- 6) Preparation for Sealing. Prior to setting the ports, air blast the crack to remove excess water. Thoroughly clean the surfaces of rust, scale, grease, loose and disintegrated articles of material. Place ports in the bottom and top inside cracks as required by crack width and manufacturer's recommendations. Bottom ports are to be set the day of resin injection. Place ports at a 6 inch maximum spacing for radial cracks and pipe section ends. Place ports at a 6 inch maximum spacing for the end 12 inches of longitudinal cracks. Seal the surface and areas surrounding the entry ports with the surface seal. Apply the seal in such a manner that the epoxy injection resin is sealed until initially cured.
- 7) Mixing. Mix injection resin or injection gel in a clean container in accordance with manufacturer recommendations with a minimum 3 minute mixing time.
- 8) Injection of Epoxy Gel. Do not inject crack until after the surface sealer has hardened. Inject the epoxy gel with a one piston pump, either hand or motor driven which is capable of developing the pressure required to obtain gel penetration. Inject radial cracks at ends of the pipe sections and at the end 6 inches of longitudinal cracks with injection gel to create a dam for the injection resin. Use injection gel within the stated pot life or dispose of the gel. Complete injection of pipe sections the same day that work is begun. Do not expose epoxy gel to moisture until the epoxy gel has cured for the time specified by the manufacturer of the epoxy gel.
- 9) Injection of Epoxy Resin. Do not inject until after the surface sealer has hardened. Working from the low end of the pipe, inject bottom cracks first. Attach injection gun to the first port and inject epoxy resin until it overflows the second port. Insert a plug into the first port which is capable of resisting pressures without popping. Move the gun to the second port and repeat the process. Continue in this manner until all ports have been injected with epoxy resin. Additional epoxy resin may be injected with ports capped to ensure further penetration of epoxy into the crack. Inject top cracks in a similar manner. Select pressures for resin injection which provide a uniform flow of material and maintain uniform material flow rates. Recommended starting pressure is 40 to 50 psi. Do not exceed 150 psi of pressure. Complete injection of pipe sections the same day that work is begun. Do not expose the epoxy resin to moisture until the epoxy resin has cured for the time specified by the manufacturer of the epoxy resin.
- 10) Grinding. After the epoxy has cured, cut off ports and grind flush. Retain surface seal.

Measurement and Payment

No payment will be made for this work.

REPLACES	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART	SECTION	PAGE
DATED		C	6	12-1
SUBJECT	PROJECT OFFICE MANUAL	DATE April 1, 2020		
INSTALLATION HEIGHT OF TYPE 31 STRONG POST GUIDE RAIL				

When new Type 31-S guide rail is installed, the final height must be as shown on Publication 72M, RC-51M, i.e., minimum 31 inches high with +1 inch installation tolerance. However, Type 31-S guide rail may be up to 34 inches high in the interim stages during construction. For example, if a project has new guide rail installed just prior to the winter season and the final pavement overlay cannot be placed until after the winter season, then the guide rail may be up to 34 inches high in the interim. Note that this 34-inch interim height is applicable between construction stages of one project, not between two separate projects.

REPLACES SOL 481-20-01	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART C	SECTION 6	PAGE 14-1
DATED 05/27/2020	PROJECT OFFICE MANUAL	DATE April 1, 2021		
SUBJECT PA GUIDE RAIL MOBILE APP				

The PA Guide Rail Mobile App shall be used for documenting the permanent guide rail, end treatment, cable barrier and concrete barrier inventory following any replacement, installation, and removal/elimination activities. The mobile app will improve asset management by maintaining a complete and accurate inventory of generic and proprietary safety hardware such as guide rail, cable barrier, end treatment, and concrete barrier in the Roadway Management System (RMS).

The use of this mobile app is mandatory and is available for download in the PennDOT App Catalog for Department employees or the Apple App Store for Consultant Inspectors Open the PennDOT App Catalog (Commonwealth employees) or Apple App Store (Consultants). Search for “AppStudio Player for ArcGIS” and install the app. Please note: The PA Guide Rail App requires an Esri ArcGIS Online User License to utilize the app. Submit licensing requests and App-related questions to the PA Guide Rail App Resource Account CollectorApp@pa.gov.

A quick setup guide [PA Guiderail Mobile App Setup Procedures](#) and user manual [PA Guiderail Mobile App Reference Manual](#) are maintained on the PennDOT Project Collaboration Center (PPCC) in the Central Office file under the References tab.

REPLACES	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART	SECTION	PAGE
DATED		C	6	15-1
PROJECT OFFICE MANUAL		DATE		
		April 22, 2021		
SUBJECT				
ROADSIDE SAFETY HARDWARE TRAINING REQUIREMENTS FOR GENERIC AND PROPRIETARY SYSTEMS				

TRAFFIC BARRIER AND END TREATMENT INSTALLATION AND INSPECTION

Projects which include permanent guide rail, end treatment, cable barrier and concrete barrier must be staffed with at least one inspector who has satisfactorily completed the Department’s generic and proprietary safety hardware systems training courses for the safety hardware as noted below. As of April 1, 2022, training requirements for generic and proprietary systems are effective. In the rare occasion that a District is unable to staff the project with an inspector with a valid training certificate, the District must have an inspector with a valid training certificate available that can be contacted in the event a question or an issue arises on the project.

1. Generic Traffic Barrier Systems (constructed as shown on the Standard Drawings)

The Department shall staff generic traffic barrier system projects with at least one Inspector who has attended the Pennsylvania Department of Transportation’s Guide Rail Installation, Replacement, and Maintenance Course and has received a training certificate with an unexpired, current expiration date by passing the final examination.

Generic Traffic Barrier Systems include the following Standard Drawings in Publication 72M:

- RC-50M (Guide Rail to Bridge Barrier Transitions)
- RC-51M (Type 31 Strong Post Guide Rail)
- RC-53M (Type 2 Weak Post Guide Rail)
- RC-54M (Barrier Placement at Obstructions)
- RC-57M (Concrete Median Barrier)
- RC-58M (Single Face Concrete Barrier)
- RC-59M (Concrete Glare Screen)

Generic Traffic Barrier Systems include items from the following Sections in Publication 408:

- Section 620 (Guide Rail)
- Section 622 (Concrete Glare Screen)
- Section 623 (Concrete Median Barrier)

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2. Proprietary Traffic Barrier Systems (from a manufacturer listed in Bulletin 15, and constructed according to the contract documents along with the manufacturer's specifications and installation instructions)

The Department shall staff proprietary traffic barrier system projects with at least one Inspector who has attended the Pennsylvania Department of Transportation's Proprietary Traffic Barrier & End Treatment Course or other PennDOT approved course for products new to Bulletin 15 and has received a training certificate with an unexpired, current expiration date by passing the final examination.

Proprietary Traffic Barrier Systems include items from Publication 408, Sections Section 619 (Permanent Impact Attenuating Devices) and High-Tension Cable Barriers listed in Bulletin 15.

A list of PennDOT employees and a list of Business Partners who completed the generic and proprietary system training courses is available in the File Cabinet under the References tab on the ECMS home page. The PennDOT list is titled "Guide Rail & Proprietary Barriers/End Treatments – PennDOT Training List" and the Business Partner list is titled "Guide Rail & Proprietary Barriers/End Treatments – Business Partner Training List".

REPLACES C.7.1	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART C	SECTION 7	PAGE 1-1
DATED 03/01/1996	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT COLD WEATHER CONCRETE CURING AND PROTECTION				

The following procedures are recommended to be followed during Cool and Cold weather:

1. When mat or foam insulation is used for concrete curing and protection in cold weather, keep the forms in place for the period specified for the concrete type.
2. To ensure favorable curing conditions, make sure the concrete is properly insulated and covered to retain heat and moisture. Check atmospheric and curing temperatures constantly during this time. Heat from hydration may cause the concrete's temperature to rise as high as 140 °F to 160 °F; the temperature will peak and gradually decrease. The temperature rise may be influenced by the concrete volume and atmospheric temperature. As long as moisture is retained, the concrete curing is acceptable.

When heating is required and after the concrete has been cured for the required time, gradually lower the concrete temperature to the outside temperature over a three-day period. This would require ten (10) days protection for other classes of concrete and, if approval is granted for use of High Early Strength (HES) Concrete, a minimum of six (6) days protection to meet specifications.

REPLACES	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART	SECTION	PAGE
DATED		C	7	2-1
PROJECT OFFICE MANUAL		DATE March 1, 1996		
SUBJECT INSPECTION PROCEDURE FOR JOINT SEALING - RUBBERIZED JOINT SEALERS				

Joint inspection is essential to assure proper control and satisfactory performance of the joint material.

The following is a guide for more effective control:

1. Before sealing make sure the joint is cleaned and prepared as specified.
2. Check heating equipment to ensure that the material is heated properly.
 - a. Use indirect heating constructed as a double boiler with the space between the inner and outer shells filled with oil, asphalt or other material for heat transfer.
 - b. Positive temperature control and mechanical agitation are required.
 - c. The Inspector should calibrate the heat gauge or thermometers with an accurate thermometer for heat control. Document the calibration method and results in the project records.
3. Obtain the "Safe-Heating Temperature" and the "Pour Temperature" from the manufacturer's instructions on the shipping container.

Never heat the material above the "Safe-Heating Temperature"; this will cause serious damage to the material.

Take periodic readings of material temperature and document in daily report; include time, station, location, etc.

Avoid prolonged heating (four-hour maximum) of the same material at the "Pour Temperature" to prevent material damage.

If pouring is delayed, reduce the kettle temperature to between 275 to 325 °F until shortly before pouring begins. Discard any material left in the kettle at the end of the day.

4. The manufacturer's certification must accompany all material shipments. Take field samples whenever material quality is doubtful.

REPLACES C.7.3	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART C	SECTION 7	PAGE 3-1
DATED 04/01/2016		DATE April 1, 2020		
SUBJECT HANDLING, REPAIR, AND STORAGE OF PLAIN, EPOXY-COATED, AND GALVANIZED REINFORCEMENT				

This section addresses the repair of reinforcement bar (rebar) including deformed and plain carbon steel (basic “black” rebar) as well as epoxy-coated and galvanized rebar for concrete reinforcement. In addition, the repairs described apply to Welded Wire Reinforcement (WWR) for concrete which has historically been described by various terms: Welded Wire Fabric (WWF), fabric, and mesh.

Plain Rebar and Welded Wire Reinforcement (WWR):

As specified in Publication 408, Sections 501.3(h) and 1002.3(a), reinforcement should be free from frost, rust, dirt, oil, grease, paint, mortar, loose rust, mill scale and other foreign substances which impair the concrete-steel bond. Reinforcement should not be rejected for bonded rust, surface seams, surface irregularities, or mill scale provided the minimum dimensions, cross-sectional area, and tensile properties of a hand wire brushed specimen meet the physical requirements for the size and grade of steel indicated.

When present, loose, scaly or thick rust must be removed by rubbing, brushing, blasting or other suitable method. A light, powdery rust coating, which may form during storage on a project, does not require cleaning.

If loss of cross-sectional area because of rust is a concern, samples of the reinforcement bar (Material Class 231), plain welded wire reinforcement (Material Code 230), or deformed welded wire reinforcement (Material Class 235) should be submitted to the Laboratory Testing Section (LTS) for evaluation. Reference is made to POM Section B.8.7 regarding the submission of rebar samples either as part of the original field verification (Sample Classification “FV”) or an investigation (Sample Classification “IV”). If the reinforcement meets the specifications, it will not be rejected due to loss of cross-sectional area; however, the contractor remains responsible for the removal of the loose, scaly or thick rust and other materials which could impair the concrete steel bond.

Reinforcement steel should be stored in an orderly manner which allows air circulation under the reinforcing pile. One week's supply may be stored on the project site as long as it is stored on boards or on a dry firm surface that will keep it clean and distortion free.

Epoxy Coated Rebar and Welded Wire Reinforcement (WWR):

Care should be exercised when handling epoxy-coated reinforcement to avoid damaging the coating. Epoxy-coated reinforcement should be off-loaded near the point of placement to minimize handling.

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If epoxy coated reinforcement is delivered to a project site or a precast facility and the epoxy patching material is uncured, wet, or tacky to the touch, all the affected bars are to be rejected and returned to the supplier. This reinforcement cannot be repaired in the field. The Construction Quality Assurance Section must be notified of any such occurrence. Details must be incorporated into the inspector's Project Site Activity (PSA) report.

Care should be exercised when handling epoxy-coated reinforcement to avoid damaging the coating. Do not allow epoxy coated reinforcement to be dropped or dragged. Bars must be hand carried and placed. When moving bundles of epoxy coated rebar, the bundles must be lifted with a strong back, spreader bar, multiple supports, or a platform bridge to prevent sags in the bundles. Sagging of the bundles causes abrasion and the epoxy coating may be damaged. Similarly, when handling coated welded wire reinforcement, wire-to-wire abrasion should be avoided.

As discussed in POM Section B.8.7, epoxy coated reinforcement may be rejected for signs of rust appearing under the epoxy coating, damage that might have occurred during fabrication or through mishandling, visible cracks, uncoated or partially coated areas or ends, and excessive epoxy patching end repair material that bonds the bars together.

Coated steel reinforcement should be inspected before placement and, when required, all damage discernable to a person with normal or corrected vision should be repaired. The coated reinforcement should also be inspected for required repair after placement and prior to placing concrete.

Required repairs to epoxy coatings in the field may be performed by the contractor or the fabricator at their discretion. The patching or repair material must be approved and compatible for repair of the original epoxy coating as listed in Table A (Approved Epoxy Powder Coating and Compatible Patching/Repair Materials) in Section 709.1(c)1 of Bulletin 15. The repairs should be performed according to the written recommendations of the patching material manufacturer including the limitations as to substrate temperature. At a minimum:

- Remove any loose chips of epoxy coating
- Prepare the repair area by wire brushing, sanding, or grinding any existing rust from the bar
- Remove any oils, grease, moisture or other contaminants that would impair bond of the epoxy patching material
- Repair areas with a minimum coating thickness of 7 mils
- Allow sufficient time for the patching material to dry according to the instructions from the manufacturer of the epoxy patching material or patch kit before handling, installation, and embedment in concrete

Whenever there are a considerable number of repairs to be made to the epoxy coated reinforcement, all repairs must be made prior to incorporating or placing the bars in the concrete forms as it is very difficult to make the repairs or inspect any repairs after it is tied into place.

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Any reinforcing steel (rebar or WWR) with damaged surface area prior to repair that exceeds 2% according to ASTM D3963 (for rebar) or ASTM A884 (for WWR) in any given 1-foot length should be rejected and not be repaired.

For reinforcing bars, the total surface area coated by patching material shall not exceed 5% in any 1-foot length.

Minor repairs from handling and placement is all that should be permitted after the reinforcement is placed.

Repairs to epoxy coated reinforcement steel may be sampled and submitted to LTS for evaluation. Reference is made to POM Section B.8.7 regarding the submission of rebar samples either as part of the original field verification or an investigation.

Coated steel reinforcing bars, whether individual bars or bundles of bars, or both, shall be stored off the ground on protective support. Protective storage measures shall be followed to ensure the epoxy-coated rebar is not harmed by sunlight, salt spray, or weather exposure. As necessary, rebar should be covered with adequately secured opaque polyethylene sheeting or other suitable opaque protective material that allow for air circulation around the bars to minimize condensation under the covering.

Galvanized Rebar and Welded Wire Reinforcement (WWR):

Care should be exercised when handling zinc-coated (galvanized) reinforcement to avoid damaging the coating. Galvanized reinforcement should be off-loaded near the point of placement to minimize handling.

As specified in Publication 408, Section 709.1(e), galvanized reinforcement is damaged if the zinc coating exhibits cracking, flaking, tears, or spikes. The zinc coating at bend areas is especially susceptible to cracking. As discussed in POM Section B.8.7, galvanized reinforcement may be rejected for incomplete galvanization, signs of rust appearing under the galvanizing, damage that occurred during fabrication or through mishandling, or galvanized reinforcement that is “frozen” together.

Galvanized reinforcement should be inspected before placement and coating damage incurred during shipment, storage, handling, and placing of galvanized reinforcement should be repaired with a zinc-rich formulation according to ASTM A780. In addition, all coated bar ends that were sheared, saw-cut or cut by other means during the fabrication process ends and/or damaged ends as defined in ASTM A767 are to be repaired according to ASTM A780. The galvanized reinforcement should also be inspected for required repair after placement and prior to placing concrete.

Required repairs to galvanized reinforcement may be performed by the contractor or the fabricator at their discretion. Damage to the galvanized coating of reinforcement requires repairs

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to be made. Any repairs to galvanized rebar in the field should adhere to the following requirements as well as conform to ASTM A780.

- Remove any loose chips of galvanized coating
- Clean the repair area, to bare metal, by wire brushing, sanding or grinding any excess rust from the bar according to SSPC SP-11 and feather at least 1 inch of the surrounding undamaged galvanized coating
- Bars with excessive corrosion should be rejected
- Use only repair materials containing at least 92% zinc dust in the dry film
- Remove any oils, grease, moisture or other contaminants that would impair the bond of the zinc paint
- Apply multiple coats, if necessary to ensure a minimum final coating thickness of 3 mils (cured) is attained.
- Allow sufficient time for the repair to dry before handling, installation or embedment in concrete.

Repairs to galvanized reinforcement may be sampled and submitted to LTS for evaluation. Reference is made to POM Section B.8.7 regarding the submission of rebar samples either as part of the original field verification or an investigation.

Galvanized reinforcing bars should be stored off the ground on protective support, and blocks should be placed between bundles when stacking of the bundles is necessary. Space the blocks sufficiently close to prevent sags in the bundles. Galvanized reinforcing bars and uncoated steel reinforcing bars should be stored separately.

REPLACES C.7.6	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART C	SECTION 7	PAGE 6-1
DATED 04/01/2016		DATE April 1, 2020		
SUBJECT PROJECT ACCEPTANCE OF MECHANICAL REINFORCING SPLICE SYSTEMS				

Publication 408, Section 1002.2(c), requires verification testing be performed by the Laboratory Testing Section (LTS) of each splice system used at a job site, even if the manufacturer is listed in Bulletin 15. Verification samples including three assembled mechanical rebar splices (Material Code 555) for each size and type of splice must be constructed (assembled by the contractor) using randomly selected components. As the assemblies are tested as delivered to LTS, the results reflect the properties of the components and the assembly procedure used by the contractor. The verification sample assembly procedure must be witnessed by the Representative, who also ensures that the procedure used to construct the verification samples continues to be used to assemble the splice systems required for the project. After witnessing their assembly, the Representative submits the verification samples of the assembled splices as well as one set of unassembled components to LTS for testing.

When a project requires mechanical splicing of reinforcement steel, every attempt should be made to utilize approved products for mechanical splices listed in Bulletin 15. Project-specific requests to accept a Non-Bulletin 15 mechanical splice system may be submitted for approval by LTS as specified in Publication 408, Section 106.02(a)2.b, which specifies the approval request submittal requirements including required lead time. Such submittals should be coordinated through the District Materials Unit. The independent laboratory test data required as part of the submission must encompass all mechanical splice system requirements as specified in Publication 408, Section 1002. No waiver of the physical requirements set forth in Publication 408 including, but not limited to, fatigue resistance and allowable slip determined according to [California Test No. 670](#) is permitted. These requirements apply to all mechanical splice systems, regardless of whether approval is sought for listing in Bulletin 15 or for a specific project. Unapproved materials are not to be delivered to the project.

For approved materials received at the project, the verification samples should be identified as Sample Classification “FV – Field Verification” in the Form TR-447 sample record. Samples are comprised of four increments (n=4) for each size and type of mechanical splice submitted for testing by LTS. Three of the increments are the contractor assembled splices and one increment is a set of unassembled components of mechanical splice for, among other things, testing of coating thickness on epoxy-coated or galvanized mechanical splice couplers. The samples should be clean and visible damage to any coating should be repaired consistent with practice at the job-site. Repairs should be made in a manner consistent with those described in POM Section C.7.3 for plain, epoxy-coated, and galvanized reinforcement. All increments (specimens) shall have a minimum of thirty (30) inches of reinforcement bar extending from each end of the body of the coupler. A copy of the manufacturer’s assembly recommendations must be included in the sample ID envelope or, preferably, uploaded as an attachment to the eCAMMS Form TR-447 sample record.

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If any of the three assembled mechanical splice increments fails to meet the required physical properties, LTS will test both reinforcement bars from the unassembled increment to determine if the rebar meets applicable specifications. A passing test result for all three increments is required for the sample to pass which is required prior to incorporation into the work and is the inspector's authorization to include payment for these items in an estimate.

REPLACES C.8.1	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART C	SECTION 8	PAGE 1-1
DATED 03/01/1996	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT SEDIMENT CONTROL DEVICES FOR INLETS				

To reduce the amount of silt and debris that may enter the inlets, contractors can use, at their discretion, supplemental sediment control devices approved by the PA Department of Environmental Protection (DEP) or County Conservation District.

These supplemental devices cannot be used as a substitute for the Department's existing erosion and sediment pollution control guidelines as shown on Publication 72M, RC-72M; therefore, they should not be included as a part of the Erosion and Sediment Pollution Control Plan and are not to be included as a pay item in any contract.

REPLACES C.8.2	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART C	SECTION 8	PAGE 2-1
DATED 04/01/2014	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT PLANT SUBSTITUTION				

Publication 408, Section 808.2(a)11, requires that no plant substitutions be permitted without authorization and approval of the Bureau of Maintenance and Operations, Roadside Manager.

If a Contractor requests any plant substitutions, Form [CS-616](#) must be submitted to the District for action by the District Roadside Specialist. Questions on this are to be directed to the District Roadside Specialist.

REPLACES C.9.1	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART C	SECTION 9	PAGE 1-1
DATED 03/01/2011	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT TEMPORARY TRAFFIC CONTROL (TTC) ZONE SAFETY AND MOBILITY				

The Department is responsible for designing and maintaining TTC zones that limit the impact to road users, while maintaining safety for highway workers and the traveling public. The intent of the Department’s TTC Zone Safety and Mobility Policy (Publication 46 Traffic Engineering Manual Chapter 6.3) is to provide safe TTC zones that minimize delay for the traveling public and reduce community impacts while maintaining fiscal responsibility. This policy complies with the Federal Highway Administration (FHWA) Work Zone Safety and Mobility Final Rule (23 CFR 630 Subpart J).

During the project development process, a determination is made, according to Publication 46 (Traffic Engineering Manual) and Publication 10C (Design Manual Part 1C, Transportation Engineering Procedures), if a project is considered a “Significant Project”. A “Significant Project” requires the preparation of a Transportation Management Plan (TMP) in addition to a Traffic Control Plan (TCP). If a TMP is prepared, a Transportation Operation Plan (TOP), possibly including an Incident Management Plan, and a Public Information Plan (PIP), is typically prepared for the project. Project designers use these plans to prepare the contract drawings, special provisions, and pay items for the bid package.

Construction managers and inspectors are required to enforce these contract drawings and special provisions to ensure the Department’s policy regarding TTC Zone Safety and Mobility are met. Some of these provisions may include but are not limited to the following:

- Allowable working hours
- Maintenance and Protection of Traffic
- Transportation Operations Requirements
- Public Information Requirements
- TTC Plan Requirements
- Performance data collection requirements
- Designation of a contractor representative (TTC Zone Traffic Control Supervisor or similar designation) who has primary responsibility for implementing the contract requirements

Part C of the Project Office Manual will contain guidance on other specific requirements that construction managers/inspectors will need to know to ensure compliance with the Department’s TTC Zone Safety and Mobility policy.

REPLACES C.9.2	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART C	SECTION 9	PAGE 2-1
DATED 04/01/2017		DATE April 1, 2020		
SUBJECT MAINTENANCE AND PROTECTION OF TRAFFIC AT CONSTRUCTION SITES				

1. **Temporary Traffic Control Plan (TTC Plan)** - The Department representative is required to:
 - a. Provide maintenance and protection of traffic so the traveling public can proceed through the temporary traffic control zone (TTC Zone) without incident.
 - b. Review and become knowledgeable of the approved TTC Plan for the project.
 - c. Ensure that normal traffic patterns are not affected or altered by work performed within the project limits until TTC is provided according to the Manual on Uniform Traffic Control Devices (MUTCD), Publication 46, Title 67-Chapter 212, Publication 213, Publication 408, and the approved TTC Plan. In the case of a discrepancy among the publications listed above and the TTC Plan, the following order of precedence will apply:
 1. Approved TTC Plan
 2. Title 67, Chapter 212
 3. Publication 213
 4. MUTCD
 5. Publication 408
 6. Publication 46
 - d. Monitor the performance of TTC devices to ensure conformance to MUTCD, Publication 46, Title 67-Chapter 212, Publication 213, Publication 408, and the approved TTC Plan or a revised TTC Plan approved by the District Traffic Engineer. [Publication 408, Section 901.3(a)].
 - e. Maintain the TTC devices and observe the flow of traffic as it is affected by the TTC.
 - f. Provide two-week 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 TTC and each change from the initial setup must be inspected in detail by the Department representative. If the work involves daily setups of short-term TTC, the setup must be inspected each day to ensure that:
 - a. The TTC has been installed in accordance with the Manual on Uniform Traffic Control Devices (MUTCD), Publication 46, Title 67-Chapter 212, Publication 213, Publication 408, and the approved TTC Plan.

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- b. All TTC devices utilized for the TTC are Publication 35 (Bulletin 15) approved and in conformance with contract requirements. Temporary traffic control 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 TTC devices are functioning properly and are correctly positioned, clean, legible, operative, and in a good state of repair. TTC devices must meet the acceptable or marginal criteria described in the Pennsylvania Quality Guidelines for Temporary Traffic Control Devices. These quality guidelines are also located in Publication 213 – Appendix C.
- d. All non-applicable TTC devices are removed, and in the case of signs, covered, removed [Publication 408, Section 901.3(a)], folded, or turned away from traffic so that they are not readable by drivers.
- e. Potential hazards (e.g., blunt ends, overhead wires, etc.) are identified and monitored throughout the TTC zone. Proper TTC and safety devices shall be implemented when necessary to protect workers and road users.

3. **Required TTC Compliance Inspections** - Inspections of the TTC shall be made to ensure that all TTC devices required by the Manual on Uniform Traffic Control Devices (MUTCD), Publication 46, Title 67-Chapter 212, Publication 213, Publication 408, and the approved TTC Plan are functioning properly, correctly positioned, clean, legible, operative, in a good state of repair, and effectively warning approaching road users of the construction project and any required action. Particular attention should be given to the deployment of:

- Trailer mounted equipment
- Shadow vehicles
- Sequential/Warning lights

Required inspections are as follows:

- a. Long-Term TTC Compliance Inspections:
 - Where traffic is maintained through the construction zone, all TTC devices shall be inspected at least twice a day - at the beginning and end of each workday.
- b. Road Closed and Detour TTC Compliance Inspections:
 - Where the road is closed and traffic is detoured, all TTC devices, excluding the detour signs, shall be inspected at least once per workday to ensure that the road closing devices are in place and functioning properly. The remainder of the TTC, namely the detour signing, is to be inspected at least twice per week.

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c. Night Time TTC Compliance Inspections:

- If the TTC 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 TTC Compliance Inspections:

- After any construction phase/stage change, a TTC compliance inspection shall be performed.

e. Short-Term TTC Compliance Inspections:

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

4. **Documentation of TTC Compliance Inspections** – Form **CS-901** shall be used for documenting TTC 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 Form CS-901s to be stored electronically in the project field office. A Project Site Activity (PSA) entry shall be made noting that the TTC devices were checked, and the PSA is to refer to the Form CS-901 file for specifics on the inspections, unless otherwise noted below. The time (am or pm) that the TTC compliance inspection was performed must be noted on the Form CS-901 and/or through a PSA entry. All findings of TTC compliance must be adequately documented as follows:

a. Long-Term TTC Compliance Inspections:

- The Department representative shall use the Department's TTC Compliance Checklist and Notification Form CS-901 to document **all** long-term TTC compliance inspections.

b. Road Closed and Detour TTC Compliance Inspections:

- The Department representative shall use the Department's TTC Compliance Checklist and Notification Form CS-901 to document long-term road closed TTC inspections. Detour devices shall be noted in the Department's PSA as having been inspected and any deficiencies noted.

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c. Night Time TTC Compliance Inspections:

- The Department representative shall use the Department's TTC Compliance Checklist and Notification Form CS-901 to document **all** long-term TTC compliance inspections.

d. Phase/Stage Change TTC Compliance Inspections:

The Department representative shall use the Department's TTC Compliance Checklist and Notification Form CS-901 to document **all** phase/stage change traffic control compliance inspections.

e. Short-Term TTC Compliance Inspections:

- The Department representative is required to use the Department's TTC Compliance Checklist and Notification Form CS-901 to document short-term TTC 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 TTC measures are in compliance with the Manual on Uniform Traffic Control Devices (MUTCD) Publication 46, Title 67-Chapter 212, Publication 213, Publication 408, and the approved TTC Plan, 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 TTC devices were set up in accordance with contract requirements.

5. **Contractor Notification of Liquidated Damages** - Following TTC compliance inspections, notify the contractor (the sub-contractor may be copied), in writing, of all deficiencies related to TTC compliance. A properly completed [Form CS-901](#) will serve as written notification. Conduct follow-up inspections to determine when corrective action has been taken. As specified in 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 (These are included on instructions to complete [Form CS-901](#) and see POM Section C.9.4 for examples of assessing damages). Notify the Assistant District Executive-Construction (ADE-C) prior to liquidated damages being assessed. If the contractor remains in violation of these requirements, the District Executive has the authority to suspend work as specified in Publication 408, Section 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 as specified in Publication 408, Section 901.3(t).

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6. **Removal or Covering of Signs** - Review the project TTC Plan to determine when signs should be covered or removed. Signs are to be covered entirely [Publication 408, Section 901.3(a)] or removed when they do not apply to existing conditions.

When the public continually encounters warning signs, only to determine that no work is being performed, the integrity of the Department's construction and TTC operations are questioned. Drivers may then tend to ignore TTC 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 TTC:**

- a. Sufficient number, proper positioning, and maintenance of TTC signs, channelizing devices, and sequential/warning lights.
- b. Properly striped or reflectorized TTC channelizing devices.
- c. Flaggers and workers wearing proper work attire conforming to Publication 213.
- d. Flagger trained, using proper flagging methods, maintaining control of traffic, and properly positioned conforming to Publication 213.
- e. Signs are from an approved sign manufacturer.
- f. Portable Changeable Message Signs (PCMS) are displaying proper messages with no more than two phases and arrow boards are being used in the proper mode.
- g. Conflicting messages from signs and pavement markings.
- h. The proper 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 Publication 35 (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 to come in contact with the power source.

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- j. Arrow board lights dim at night.
- k. Contractor's equipment and material is properly stored to prevent conflicts with traffic through TTC zone conforming to Publication 213.
- l. Shadow vehicles, when required, are properly positioned and equipped with a flashing, oscillating, or revolving yellow light which is visible from any direction. Shadow vehicles shall be equipped with a Truck Mounted Attenuator (TMA) on Expressways and Freeways.
- m. Temporary concrete barrier is properly installed.
- n. Damaged/missing impact attenuator.
- o. Proper pedestrian protection.

8. TTC Compliance Inspection Frequency Table

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

¹ All TTC 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 TTC.

REPLACES C.9.4	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART C	SECTION 9	PAGE 4-1
DATED 03/01/2011	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT NON-COMPLIANCE OF MPT LIQUIDATED DAMAGES ASSESSMENT				

Publication 408, Section 901.3(t)
Non-Compliance of Maintenance and Protection of Traffic (MPT)
Examples

Example: Long-term Operation - see Box A, except for the following conditions that fall under Urgent, Box B

- Inspector performs MPT review and finds deficiencies.
- The Work Zone Traffic Control Compliance Checklist and Notification form ([Form CS-901](#)) is emailed/hand delivered to the contractor at 9:00 am Tuesday which indicates the deficiencies.
- A** • The contractor has **24 hours** to correct the deficiencies.
- At 9:01 am on Wednesday the deficiencies have not been corrected.
- The Department will apply a **\$ 1000.00** base assessment.
- At 9:02 am on Thursday the deficiencies have not been corrected.
- The Department will apply an additional **\$ 2400.00** assessment. (\$100 additional for each hour or portion thereof)
- At 1:00 pm on Friday the contractor notifies the inspector that the deficiencies have been corrected. The inspector verifies that the deficiencies have been corrected.
- The Department will apply an additional **\$ 2800.00** assessment. (\$100 additional for each hour or portion thereof)

A total amount of \$ 1000.00 + \$ 2400.00 + \$ 2800.00 = \$ 6200.00 will be assessed.

Example: Long-term Operation (**Urgent conditions**) – (see Publication 408, Section 901.3(t), second paragraph, second bullet)

2 hours

- Inspector performs MPT review and finds deficiency.
- The Work Zone Traffic Control Compliance Checklist and Notification form ([Form CS-901](#)) is emailed/hand delivered to the contractor at 9:00 am Tuesday which indicates the deficiencies.
- B (1)** • The contractor has **2 hours** to correct the deficiencies.
- At 11:00 am on Tuesday the deficiencies have not been corrected.
- The Department will apply a **\$ 1000.00** base assessment.

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- At 11:30 pm on Tuesday the contractor notifies the inspector that the deficiencies have been corrected. The inspector verifies that the deficiencies have been corrected.
- The Department will apply an additional **\$ 100.00** assessment. (\$100 additional for each hour or portion thereof)

A total amount of \$ 1000.00 + \$ 100.00 = \$ 1100.00 will be assessed.

4 hours (Attenuating devices)

B (2)

- Inspector performs MPT review and finds deficiencies.
- The Work Zone Traffic Control Compliance Checklist and Notification form ([Form CS-901](#)) is emailed/hand delivered to the contractor at 9:00 am Monday which indicates the deficiencies.
- The contractor has **4 hours to respond** and **correct** the deficiency within **24 hours**.
- At 1:00 pm on Monday the deficiency has not been responded to for correction.
- The Department will apply a **\$ 1000.00** base assessment.
- At 4:00 pm on Monday the contractor responds and notifies the inspector that the deficiency has been corrected. The inspector verifies that the deficiency has been corrected.

A total amount of \$ 1000.00 will be assessed.

Note: The total amount of \$1000.00 being assessed is the base assessment because the contractor did not respond within 4 hours. An additional assessment of \$ 100.00 for each additional hour or portion thereof was NOT assessed because the contractor corrected the deficiency within 24 hours.

Example: Short-term Operation

- Inspector performs MPT review and finds deficiencies.
- The Work Zone Traffic Control Compliance Checklist and Notification form ([Form CS-901](#)) is emailed/hand delivered to the contractor at 9:00 am Tuesday which indicates the deficiencies.
- The contractor has **2 hours** to correct the deficiencies.
- At 11:01 am on Tuesday the deficiencies have not been corrected.
- The Department will apply a **\$ 1000.00** base assessment.
- At 1:02 pm on Tuesday the deficiencies have not been corrected.
- The Department will apply an additional **\$ 200.00** assessment. (\$100 additional for each hour or portion thereof)
- At 2:30 pm on Tuesday the contractor notifies the inspector that the deficiencies have been corrected. The inspector verifies that the deficiencies have been corrected.
- The Department will apply an additional **\$ 200.00** assessment. (\$100 additional for each hour or portion thereof)

A total amount of \$ 1000.00 + \$ 200.00 + \$ 200.00 = \$ 1400.00 will be assessed.

REPLACES C.9.5	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART C	SECTION 9	PAGE 5-1
DATED 04/01/2020	PROJECT OFFICE MANUAL	DATE April 1, 2021		
SUBJECT CERTIFICATION REQUIREMENTS FOR TRAFFIC CONTROL DEVICES				

Suppliers of permanent traffic control devices to Department construction projects must submit the necessary Certificate of Compliance, Form CS-4171, if the material or product is incorporated and/or retained as part of the project.

Temporary work area traffic control devices paid under the Lump Sum Item# 0901-0001, and/or paid for under a separate item do not require a Form CS-4171, unless otherwise specified in Publication 408 or the contract requires it for that particular item.

Temporary traffic control devices that will be permanently incorporated and/or retained as part of the project will require a Form CS-4171.

All traffic control devices, permanent and temporary, shall be from a manufacturer listed in Bulletin 15, and listed on an approved Source of Supply submission using the functionality in ECMS as described in POM Section A.3.1.

REPLACES C.9.6	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART C	SECTION 9	PAGE 6-1
DATED 04/01/2014	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT FLAGGERS				

The Department does not require flaggers to be certified. All flaggers at a minimum shall have training as specified in Publication 408, Section 901.3(y).

The Department representative shall document that all flaggers are carrying a valid wallet-sized training card containing the name of the flagger, training source, date of successful completion of training, and signature; or that the contractor provides a roster, to the Inspector-in-Charge, of all trained flaggers, containing the name of the flagger, training source, date of successful completion of training, prior to the start of any flagging operations.

A red flag shall be used at intersections where a single flagger is used within the intersection. Additional flaggers shall be used to control the traffic movements through each intersection in a work zone. At signalized intersections, signals should be placed in flash mode.

All flagger stations shall be illuminated at night according to Publication 213 – General Notes.

REPLACES C.9.7	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART C	SECTION 9	PAGE 7-1
DATED 03/01/2011	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT IMPACT ATTENUATORS				

Impact attenuating devices approved for use in Pennsylvania are listed in Bulletin 15 and Publication 13M, Design Manual 2, Chapter 12. Crashworthy end treatments/crash cushions acceptable for use are listed by type for a particular application and are shown in Publication 13M, Design Manual 2, Chapter 12.

Publication 408, Section 619, Section 696, and Section 697 relate to impact attenuating devices and should be reviewed, as applicable, by the inspector before installation. Impact attenuators are generally bid by Types and not specific proprietary names. The Types are those shown in Publication 13M, Design Manual 2, Chapter 12. The contractor selects the specific device from those listed in Publication 35, Bulletin 15, under the Type specified in the contract documents.

If a specific proprietary device has been approved and is reflected in the contract documents, a project specific special provision is developed and included in the contract that must also be reviewed by the inspector before installation.

Before installing any impact attenuators, the manufacturer shall be required to submit shop drawings and, if necessary, design calculations for approval for each site on a project-by-project basis.

Impact attenuating devices shall be installed according to the manufacturer's specifications and installation instructions, the contract documents, and Publication 408. Proper grading in advance of the terminal, adjacent to the terminal, and immediately downstream and behind the terminal is an important consideration regardless of the specific type of attenuating device being used. Publication 13M, Design Manual 2, Chapter 12 discusses site grading requirements. Grading requirements shall be as shown on Publication 72M, RC-54M, and as indicated.

Permanent and temporary impact attenuating devices shall be certified as specified in Publication 408, Section 106.03(b)3.

REPLACES C.9.9	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART C	SECTION 9	PAGE 9-1
DATED 04/01/2014		DATE April 1, 2020		
SUBJECT INSPECTOR'S GUIDE FOR HIGHWAY AND SIGN LIGHTING				

The Inspector assigned to the lighting operation may be checking either highway or sign lighting. They should familiarize themselves with the Roadway Standard Drawings, Traffic Standard Drawings, and Publication 408 Specifications. They should review the lighting drawings to determine locations for the various items of this work and all details pertaining to the particular contract.

Procedures for material approvals are contained in POM Section B.6.13.

The Inspector should check for catalog cuts or shop drawings for all items furnished. The primary electrical items, lighting poles, sign structures, luminaires, cable, and enclosures should have been approved as proposed materials prior to shipment. If non-specified or non-approved materials are discovered, the Inspector should notify the Inspector-in-Charge and document the fact in the daily report.

Pole Foundations (Publication 408, Section 910.3(d))

When the actual field locations are staked, the Inspector should check that the bases will not be in a swale line or positioned over a pipe or culvert.

In areas where guide rail is required, be sure to check the location of the foundation and underground conduit/cable to avoid conflict with guide rail posts and required deflection distance. Where conduit/cable crosses guide rail, check for the location of a buried cable and conduit marker.

Be sure to check the foundation material, and if it is unsuitable, report this to the Inspector-in-Charge.

The dimensions of the concrete foundations for poles should be verified by the Inspector. The location and elevation of these foundations is very important since the shaft length of the pole and arm length will be determined in part from this information.

The resistance to ground should be measured at each ground rod prior to the placement of the foundations. In this way, if additional ground rods are needed, they can be driven where it is more likely lower resistance can be acquired.

The ground wire should be completely isolated from all circuit conductors when making the resistance to ground measurement.

Location of Lighting Pole Foundations

The foundation location must be determined from the luminaire station, the required luminaire orientation, and the setback. The stations given on the drawings are the luminaire stations.

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The axis of the light distribution pattern of the luminaire is perpendicular to the luminaire pole arm. It is important to place the luminaire at the location shown with the proper orientation.

In most cases, the pole arm will be oriented at right angles (perpendicular) to the edge of pavement in as specified in Publication 408, Section 910. When the baseline and edge of pavement are coincident or parallel with each other, the orientation is one and the same because the arm is at right angle and also perpendicular to both the edge of pavement and the baseline. The location of the foundation is a simple setback measurement since the luminaire station is also the foundation station.

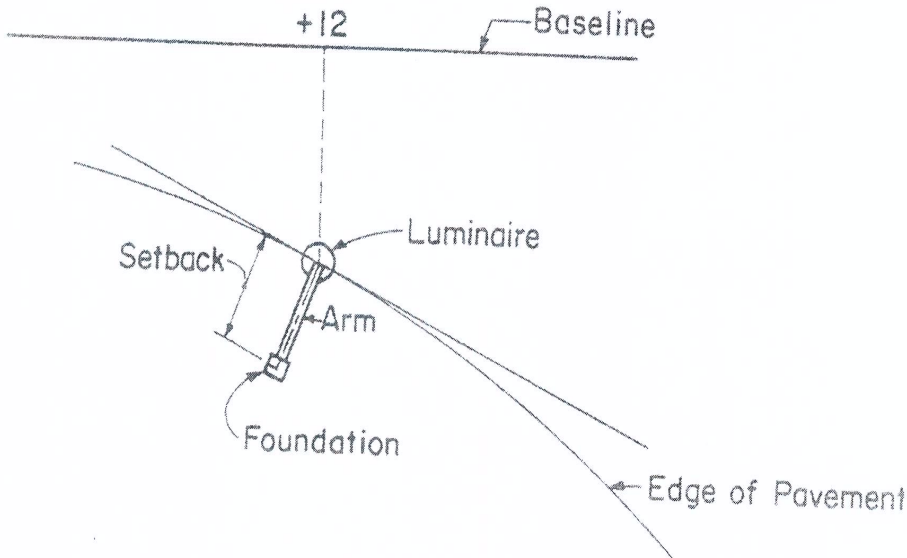
However, sometimes the baseline and edge of pavement line are askew (not coincident or parallel) and the orientation of the pole arm and luminaire is specified to be at right angles to the baseline, rather than to the edge of pavement. When this occurs, the location of the foundation is not straightforward and the result can be a misplaced luminaire.

The information provided on the drawings to locate the pole foundation is the luminaire location and the foundation setback distance. In some instances, a detail or Note may be provided to clarify the foundation location. The foundation setback distance is the distance from the edge of pavement, along the line of the required pole arm orientation. The setback will be at a right angle to the edge of pavement in most cases, except where the pole arm orientation is to be at a right angle to the baseline and the baseline and edge of pavement are not coincident or parallel to each other.

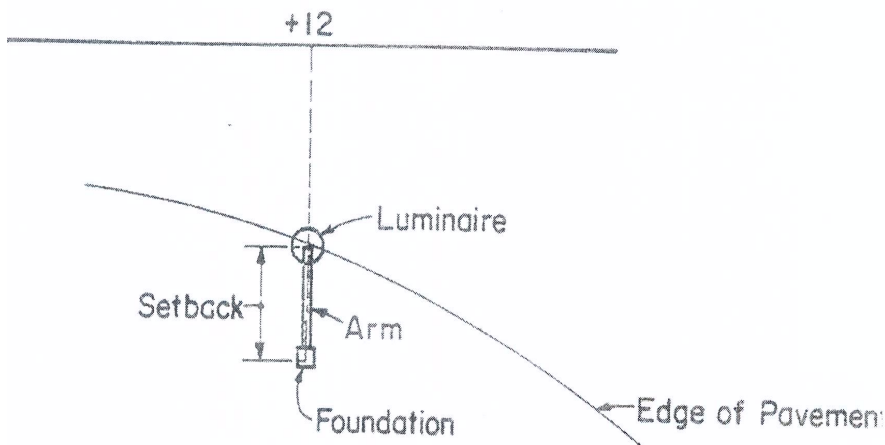
The following example illustrates the conditions discussed:

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Example 1- Luminaire arm is to be placed in standard way, right angle to edge of pavement.



Example 2- Luminaire arm is to be placed at right angle (perpendicular) to the baseline. Such installations are specified on the drawings.



Field staking should always be along the line of the pole arm or the setback line. It is necessary to use the drawings to determine the direction of the setback line – either perpendicular to the edge of pavement or perpendicular to the baseline.

In Example 1, the foundation station is not the same as the luminaire station; but if the baseline had been shown parallel to the edge of pavement and the arm is oriented perpendicular to either,

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then the foundation station would be the same as the luminaire station. In Example 2, the foundation station is the same as the luminaire station.

The suggested survey procedure to determine the pole foundation location or field view staking is as follows:

1. Establish baseline station.
2. Carry the station to the edge of roadway on the appropriate side.
3. From drawings or other information, determine if the orientation of pole arm is to be at right angles to the edge of pavement (Standard Installation) or right angles to the baseline.
4. Establish setback line according to orientation specified and place stake at specified setback distance.

Lighting Poles and Accessories (Publication 408, Section 910.3(e))

The Inspector should check the poles supplied to make sure they are the type specified.

Shims may be used to achieve proper installation of poles.

The mounting height, the distance of the luminaire above the pavement, should be checked at each pole. The measured mounting height should be within plus or minus one foot of the specified mounting height.

The pole tests described in the Specifications should be performed on a sampling of pole and arm combinations. All poles do not require testing, only one or two of each combination.

Conduits (Publication 408, Section 910.3(g))

The Inspector should check the type of conduit being furnished to make sure it is an approved material. Sweep bends are required. All fittings and elbows must be from the same manufacturer as the conduit.

Cable Installation (Publication 408, Section 910.3(h))

The Inspector should verify that the cables are color coded.

Verify that cable used in underground conduit is direct-burial and Rated RHH/RHW/USE.

When line splicing is done, it must be at pole bases or junction boxes. Splices are not permitted in conduits.

The electrical drawings show the guard rail locations, which should be avoided when placing cable to prevent damage to cable from driven guard posts.

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Luminaires (Publication 408, Section 910.3 (j))

High Intensity Discharge (HID) luminaires are normally furnished with internal ballasts. Check that the luminaires furnished have the specified ballasts and correct gaskets.

Excavation (Publication 408, Section 910.3(b))

The inspector should check the location for trenching for underground circuits. In the past, guard posts have been driven through the underground cable by mistake. These problems can be avoided if the contractor uses temporary markers as specified in Pub 408, Section 910.3(h) to indicate cable location.

Service Pole Installation (Publication 408, Section 910.3 (k))

The location shown on the drawings for the service pole typically has been confirmed with the local electric utility company. When the service pole or any circuits are moved appreciably from that shown on the drawings, the new location should be verified by Central Office, Bureau of Maintenance and Operations, Maintenance and Technical Leadership Division, Highway Lighting group for a re-evaluation of the line voltage loss.

The service pole location must be satisfactory to the electric utility company and should be reaffirmed at the time of installation.

Grounding (Publication 408, Sections 910.3(q) and 920.3(k))

The Inspector should check the grounding of all lighting poles, service equipment, conduit, and structures. Ground rod sizes are listed in the Specifications.

Tests (Publication 408, Section 910.3(u))

The inspector should verify that the lights are connected as shown on the schematic diagrams of the drawings by switching “off” each phase individually of each circuit.

The graphic record of the performance test should show not less than 228 line to neutral volts or more than 260 line to neutral volts for a 240/480-volt system and not less than 114 line to neutral volts or more than 130 line to neutral volts for a 120/240-volt system. When the recorded voltages are not within the above ranges, the matter should be discussed with the local electric utility company so they can make the necessary corrections.

REPLACES C.9.10	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART C	SECTION 9	PAGE 10-1
DATED 03/01/2011		DATE April 1, 2020		
SUBJECT COVERING OF CONSTRUCTION SIGNS ON PROJECTS SHUT DOWN FOR THE WINTER				

When traffic is not in its normal travel lanes or if substandard features create a safety concern, ALL signs are to remain in place and be maintained during the winter shut down.

When traffic is returned to normal travel lanes and there is no safety concern, signs may be covered as specified in Publication 408, Section 901.3(a), and must be maintained or removed until work begins after the shut down period.

Signs damaged or knocked over from snow plow operations or winds must be up righted and repaired if repairs are necessary. Signs that become uncovered must be corrected throughout the winter shut down period.

REPLACES C.9.11	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART C	SECTION 9	PAGE 11-1
DATED 03/01/2011	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT CONSTRUCTION AREAS AND OVERWIDTH VEHICLES				

In many construction areas, the passage of overlength and overwidth vehicles is restricted because of narrow roadway widths and lane changes created by concrete barriers which channel traffic through the construction area. The following policies address this problem, but a continual cooperative effort must be exerted to avoid mishaps and the resultant expenditure of funds.

- A. Notification. If oversize vehicles are to be prohibited from a construction area, the Construction Unit will forward a completed copy of Form [M-937R](#), Route/Bridge Restriction, to the District Permit Office at least 10 work days in advance.
- B. Advance Warning Signs. A "VEHICLES OVER (___) WIDE PROHIBITED" sign (R-14-16-1) and appropriate supplemental plaques (such as "Beyond Exit", "Beyond Next Exit," "Beyond Next Intersection") should, wherever possible, be installed in advance of all approaches to a restricted zone. Provisions should be made to allow overwide vehicles the opportunity to exit prior to the restricted area.
- C. Moving Barriers. If an oversize vehicle enters the TTC zone and becomes lodged and it is necessary to remove concrete barriers to enable the vehicle to negotiate the construction area, proceed in accordance with the following:
 1. If the problem is attributed to the driver, the contractor must seek damages from the permittee.
 2. If the problem is attributed to the Department, the Department will pay the contractor, by work order.
 3. If the problem is attributed to the contractor, no compensation will be made by the Department.
- D. Lifting Restrictions. The Construction Unit must also notify the District Permit Office (via Form [M-937RO](#), [Route/Bridge Restriction Opening](#)) 5 work days before a construction project will no longer be restricting permitted vehicles. Otherwise, permitted vehicles will be subject to unnecessary detours.

REPLACES C.9.12	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART C	SECTION 9	PAGE 12-1
DATED 04/25/2013	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT ENFORCEMENT OF HAULING RESTRICTIONS				

Construction inspection forces and maintenance personnel are to report and document violations of weight limits by those making deliveries to Department construction or maintenance sites. The reporting and documentation is to enable the assessment of liquidated damages against the contractor [Publication 408, Section 107.23(b)] and to discourage contractors, vendors and haulers from exceeding weight limits. Refer to Publication 194, **Truckers Handbook**, for legal load limits.

If a weight slip shows that a vehicle is in excess of a registered gross weight limit or a limit posted by the Department, the driver will be advised of the finding, that the finding will be reported for the purpose of assessing liquidated damages against the contractor and that if repeated violations are discovered, a recommendation will be made to remove the approved status of the violator for supplying or for performing Department work. In all overweight situations, the driver, contractor and vendor are to be notified that such activity is not tolerable and must immediately stop.

Reporting:

The contractor is to be promptly notified in writing of the discovery of a violation, of the intention to assess the liquidated damages, and of the risk of adversely affecting prequalification if repeated violations are discovered.

The vendor, if other than the contractor, will be notified of the discovery and the risk of an adverse effect upon the status of approval if repeated violations are discovered.

When there is suspicion of violations of weight limits but an inability to personally confirm, a request for help is to be directed to the District Truck Weight Monitoring Team, if applicable, or to the Pennsylvania State Police.

Documentation:

Documentation is to be provided as part of the project documentation audit trail and is to include the District Weigh Team Report, the weight slip information (Slip number, Weights, Name and Address of the vendor), the date and time of discovery, the truck license number, the date and time of the notifications and the name of the contractor/vendor/driver notified.

As the PA State Police Report is a confidential document, it should be retained by the Department, but it should never be provided to the Contractor, other outside parties, nor uploaded into PPCC under any circumstances due to legal restrictions.

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Liquidated damages are to be assessed as specified in Publication 408, Section 107.23(b), and, in the event of repeated violations, recommendations affecting the prequalification or approved status of the offenders are to be made to the Bureau of Project Delivery (to the attention of the Prequalification Officer). Violations are to be noted, also, under Remarks on the Past Performance Report filed for that project.

REPLACES C.9.13	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART C	SECTION 9	PAGE 13-1
DATED 04/01/2017	PROJECT OFFICE MANUAL	DATE April 1, 2020		
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 (IIC), 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 IIC 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, Highway Safety and Traffic Operations Division.

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.

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Responsibilities of the Inspector-in-Charge (IIC)

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 IIC. 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 to the Department within 15 days of the accident. The procedure to request the crash reports electronically should begin by the IIC contacting the District Risk Management or Tort Coordinator. The District Coordinator shall ensure that the required reasons for furnishing the crash report align with Title 75 PA Consolidated Statutes, §3751(b). Provided that the requirements are met, the Department staff identified as having access to the reports can utilize them for purposes of the Department taking the appropriate corrective action, if necessary, in the work zone.

Note: Police accident reports are considered confidential documents and should never be provided to the Contractor, the Contractor's insurance company, nor uploaded into PPCC under any circumstances due to legal restrictions. (See POM Section C.9.14)

2. Upon being made aware of the occurrence of any construction zone accident, the IIC 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 District Project Engineer can recommend changes or revisions to the Temporary Traffic Control (TTC) Plan as a result of an accident. The District Traffic Unit will review the suggested TTC Plan changes. Minor field adjustments that are made to the TTC Plan are to be noted in the Project Site Activity.
3. For each reportable work zone accident, the Inspector-in-Charge should complete the Construction Zone Vehicular Crash (Accident) 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. At such a time that the safety study is complete, the copy of the crash report that was obtained should be removed

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from this file and properly destroyed (paper shredder or physical deletion of electronic copies).

Responsibilities of the District Traffic Unit

1. Review traffic accident reports submitted by the IIC.
2. Review changes or revisions to the TTC Plan recommended by the District 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 TTC Plan 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 TTC 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 Publication 46, Traffic Engineering Manual, Chapter 11.1, *Release of Studies to the General Public*, for more specific details.
5. At the end of each construction season, meet jointly with the District Construction and Design Units to discuss TTC issues so that lessons learned can be incorporated into upcoming TTC Plan designs. As a basis for discussion at this meeting, compile an accident summary for each project using the copies of individual Construction Zone Vehicular Crash (Accident) Report forms submitted by the IIC throughout the construction season.

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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. Crash (Accident) 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
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Type			
Leveling	BCBC	Wearing	Binder
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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 TTC 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.

REPLACES C.9.14	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART C	SECTION 9	PAGE 14-1
DATED 04/01/2017	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT ACCIDENT NOTIFICATION TO CONTRACTOR'S INSURANCE COMPANY				

The Contractor's insurance company is to be notified of every reportable traffic accident that occurs within the construction zone. A reportable accident, as defined in the Pennsylvania 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. Notification should be made as soon as possible but in no case later than one week after receipt of the police accident report. Refer to page C.9.14-2 for a sample notification letter.

If the contract is covered by more than one insurance policy, each policy number should be identified. The sample notification letter (See Page C.9.14-2) permits the listing of up to six policy numbers.

The notification letter to the insurance company is to be sent by Certified Mail with Return Receipt Requested. A copy to the Contractor is also to be sent by Certified Mail with Return Receipt Requested. Additionally, the Contractor's copy of the notification letter may also be electronically uploaded through PPCC for advance notice to the Contractor until the mailed copy is received.

As stated in the sample notification letter, the insurance company should be instructed to direct any questions pertaining to the accident to the investigating police agency.

Police accident reports are considered confidential documents and should never be provided to the Contractor, the Contractor's insurance company, nor uploaded into PPCC under any circumstances due to legal restrictions. They are obtained by the Department pursuant to our rights under the Vehicle Code (§3751) as an entity involved in the accident and as a Commonwealth agency. If the contractor is experiencing difficulties obtaining the police reports, the crash report police incident number can be provided to the contractor or their insurance company when the following conditions are met:

- The contractor's property (either real or implied through contract language) was damaged by a crash that occurred in a work zone; or
- The contractor is being brought into legal action because the crash occurred in the work zone

The contractor or their insurer should not receive the police incident number solely because the crash occurred in a work zone. When these circumstances arise the Inspector-in-Charge (IIC) should contact the District Risk Management or Tort Coordinator to ensure that the incident number should be released.

Copies of the insurance certificate can be obtained through ECMS or contact the ECMS Help Desk at (717) 783-7711.

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(Return Address)
(Date)

(Name of Insurance Broker/Agent)
(Name of Insurance Company)
(Street Address)
(City, State, Zip)

Re: Contract No.: _____
Policy No(s): _____

Dear [Person's Name]:

On (Date) , at about (Time) , a traffic accident occurred within a construction site controlled by (Name of Contractor) , a firm that is under contract to the Pennsylvania Department of Transportation. The construction site is located in (County) County on State Route (S.R.) . The Commonwealth of Pennsylvania, Department of Transportation, is named as an additional insured on the referenced policy or policies issued by your company.

By provision of this letter, we are placing you and the insurance company that you represent on notice of a potential claim or lawsuit against the Commonwealth of Pennsylvania, Department of Transportation. If a claim or lawsuit is filed, we request that you provide defense and coverage to the Commonwealth in this matter.

Pursuant to Title 75 PA Consolidated Statutes, §3751(b), as the insurer of a person involved in the accident, police departments may furnish you with a copy of the police crash report. The fee structure and documented guidelines for when a crash report may be furnished are outlined in Title 75, §3751(b)(2)-(5). If you have any questions pertaining to the accident report, contact the (Name of Investigating Police Agency) .

Should you have any questions regarding this letter, please contact the undersigned at (Phone No.) .

Sincerely,

(ADE – Construction)

cc: Contractor
Department of General Services, Bureau of Risk and Insurance Management

PPCC project file

REPLACES C.9.15	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART C	SECTION 9	PAGE 15-1
DATED 04/01/2017		DATE April 1, 2020		
SUBJECT DOCUMENTATION OF PENNSYLVANIA STATE POLICE ASSISTANCE				

Under the Pennsylvania State Police (PSP) Assistance Program, PSP troopers are used to alert motorists of traffic queues in Temporary Traffic Control Zones. The PSP Assistance program is explained in detail in Publication 46, Traffic Engineering Manual, Section 6.15.

Department representatives shall schedule and coordinate PSP activities on the project. PSP Assistance requests by the project's contractor will not be authorized under the PSP Assistance program.

Department representatives shall document PSP Assistance on the project. Refer to Publication 46, Section 6.15, for details on PSP Assistance documentation.

REPLACES C.10.1	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART C	SECTION 10	PAGE 1-1
DATED 04/25/2013		DATE April 1, 2020		
SUBJECT USE OF CLASS HIGH EARLY STRENGTH (HES) CONCRETE				

HES Concrete for structures is only to be used with the written consent of the Representative as specified in Publication 408, Section 1001.2(a). It is not intended to relieve the contractor of the normal requirements for cool or cold weather curing protection or for heating.

If strength is a problem, use a higher class of concrete or increase the cement factor for the specified class.

REPLACES C.10.2	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART C	SECTION 10	PAGE 2-1
DATED 04/01/2017		DATE April 1, 2020		
SUBJECT PROTECTIVE COATINGS ON BRIDGE DECK SURFACES				

Every contract for the construction of a bridge superstructure requires protective coating application to certain areas of a deck, depending on the type of forming and the amount of drying time the deck has experienced. Publication 408, Section 1001.3(t) and Section 1019, are to be followed.

Apply boiled linseed oil as specified in Publication 408, Section 1019.3(a), or penetrating sealer as specified in Publication 408, Section 1019.3(c)2, as indicated to bridge deck and barrier. For new approach slabs, apply boiled linseed oil as specified in Publication 408, Section 1019.3(a), or penetrating sealer as specified in Publication 408, Section 1019.3(c)2, as indicated

This coating is needed because concrete requires an initial drying period to develop its full resistance to freeze-thaw action and de-icing chemicals. The drying period depends upon time, temperature, and humidity, and is approximately ninety (90) days in warm weather.

Penetrating sealers for superstructures are composed of a minimum 40% silane or siloxane. These types of sealers are products that are absorbed into the surface of the concrete to form a hydrophobic (or water repelling) surface. No film is formed, therefore, pores in the concrete are not blocked. This prevents the absorption of chloride ions while allowing for internal drying of the concrete.

Protective coating applications are critical and are required following initial cure and drying time of the concrete, for decks placed between September 1 and March 1. Thus, eliminating the potential for the concrete to deteriorate when subjected to freezing and thawing.

ASTM D4263 (modified) may be utilized to determine surface dryness. Tape a segment of plastic sheet, approximately 18 by 18 inches, tightly to the concrete surface making sure that all edges are sealed. Allow the plastic sheet to remain in place a minimum of 2 hours. After the allowed time has elapsed, remove the plastic sheet and visually inspect the underside of the sheet and the concrete surface of the patch for the presence of moisture.

Require in the Concrete Quality Control plan that there are measures to assure the application of the protective coating will not affect the deck's long term pavement markings. Follow the manufacturer's recommendation for application.

REPLACES C.10.3	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART C	SECTION 10	PAGE 3-1
DATED 04/01/2014		DATE April 1, 2020		
SUBJECT BEST PRACTICES - LATEX MODIFIED CONCRETE OVERLAYS ON BRIDGE DECKS				

1. Cracks should be identified before scarification. If cracks extend through the entire depth of the bridge deck, report the findings to the Structure Control Engineer (SCE). Otherwise, the crack may be difficult to find and reappear later as a reflective crack in the overlay.
2. If the SCE deems the full depth cracks need repaired, the cracks may be saw cut 2 to 3 inches on each side and ½ to ¾-inch deep. If a crack over a rebar indicates corrosion, the area may be saw cut and the rebar exposed and blast cleaned. The area around the bar would then be filled with latex concrete during the normal overlay operation or as a part of a Type 2 Deck Repair.
3. Areas of existing decks, which have been contaminated by oil or other substance, must be scarified or chipped out to a minimum depth of ¼-inch. (Even new decks, not opened to traffic, would benefit from scarification to remove laitance and other airborne contaminants.)
4. Make sure that the deck to be overlaid is clean and sound. Remove loose, or partially loose concrete chips, dust, blast medium or weak, fractured concrete. Latex concrete will bond to almost anything, but if the material it bonds to is weak, then a delamination will occur.
5. The prepared deck surface must be clean and free from any dust, dirt, contamination, saw slurry or any other foreign material. The cleaning process, blast cleaning or water blasting and washing within 24 hours of the placement operation, is essential to assure proper bonding of the new overlay to the existing deck surface. Immediately after washing, cover the cleaned deck with white polyethylene sheeting to protect the prepared surface against contamination.
6. The deck surface should be damp for placement – no standing water. Use a fogger/sprayer to mist any dry spots prior to the latex placement. Vacuum any free water from pits and depressions in the prepared surface prior to latex placement. Do not use the water hose from the mobile mixer to dampen any dry spots ahead of the placement. Excessive free water will compromise the bond between the existing bridge deck and the latex overlay.
7. "Brooming in" latex mortar or the paste portion of the concrete mix before placing the concrete is critical to the overlay's performance. The grout should be thoroughly brushed onto both horizontal and vertical surfaces. A stiff bristle push broom may be used to complete the brooming operation on the prepared deck surface and a hand brush should

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be used on all vertical surfaces, such as along barrier and expansion dam block outs. Care must be taken not to over extract the latex grout from the mixture when separating the grout and the aggregate during the brooming operation. Broom only a small area at one time. Do not allow concrete mix to become diluted. Areas that appear lighter in color from the original grout color need to be rebroomed with fresh mortar or concrete. Promptly remove all aggregate separated from the mix. Ensure the contractor has a sufficient number of wheelbarrows to remove the spent aggregate and for use in obtaining sample material for testing purposes. Ideally, the contractor should provide a wheelbarrow on each side of the mobile mixer, where space permits, to remove the spent aggregate.

8. On surfaces prepared using Hydrodemolition, "brooming in" is not required. When the brooming operation is not performed, vibrate the entire deck surface area using pencil vibrators. Due to the limited effective area of a pencil vibrator, the contractor should provide a vibrator for each side of the mobile mixer.
9. Particular attention must be given to vibrating the concrete before finishing. The vibrating pan on the screed should visibly consolidate the concrete. Acceptable vibration can be determined using a pocket tachometer. Vibrations should be between 1500 and 2500 vibrations per minute. If the screed overlaps the side forms, the edges must be vibrated with a pencil vibrator. This is required due to the susceptibility of the concrete to have entrapped air migrate to the interface and weaken the bond.
10. Latex overlays will be fine finished similar to conventional bridge decks and pavements unless provisions are established in the contract for mechanical grooving.
11. The wet burlap cure should be applied as soon as practical. The cure should be placed early, rather than late, since incidental surface marring is far less detrimental than cracking. The burlap should be wet, but not dripping wet, because dry burlap draws ingredients from the overlay and compromises the quality of work. Cover the dampened burlap with white polyethylene sheeting as soon as possible, but no later than one (1) hour, to prevent any burlap moisture loss. Ensure that the watering system that is to be used to keep the burlap curing covers saturated during the curing period is operational prior to the placement operation.
12. Sections of latex concrete over 2 inches thick require a longer cure. If cool or cold weather curing temperatures are forecasted, cure the latex modified concrete using the curing procedures specified in Publication 408, Section 1001.3(p)4 and Section 1001.3(p)5, to maintain proper curing temperatures.
13. Verify that the compatibility of the mix components occurred during the mix design process.

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14. Careful control of the sand and aggregate components is required. Gradation tests are required for the coarse and fine aggregates. Aggregate moisture tests are to be run immediately prior to any placements. Aggregate piles are to be tarped to shield from the sun and rain. Do not allow mobile mixers to be charged with aggregates for longer than the six (6) hour maximum prior to placement unless otherwise approved by the Representative. All loaded mobile mixers are to be shielded from direct sun exposure prior to placement.
15. Mobile mixers that arrive from a project outside the District's limits and contain residual material, cement, latex or aggregates, require written documentation from the Department Representative who witnessed the actual loading of the material. This written documentation is required prior to permitting the use of any residual material contained in the mobile mixers. Purge all residual cement, latex or aggregates from the mobile mixers that cannot be specifically accounted for by certification or history.
16. Perform a yield test during calibration of the mobile mixers. Monitor yield tests to assure the material remains workable for a sufficient time to allow for proper placement and finishing. This is critical for the success of the placement and the quality of the finished surface.
17. The contractor must provide proper product certification for each latex tanker being used on the project prior to the use of the latex. Latex emulsion solids can settle out if allowed to set undisturbed for several days. Emulsion in the tankers must be circulated in accordance with the approved Quality Control (QC) Plan. Do not allow any agents to be added to the latex emulsion in the field under any circumstances.
18. The contractor is required to have the proper equipment to monitor surface evaporation on the project. Mitigation measures to be taken when the evaporation exceeds the allowable rates must be addressed in the approved QC Plan and available for use on the project prior to any placement.
19. Conduct a pre-placement meeting to discuss the approved QC Plan and any operational concerns. Consider latex placement during hours when the deck has lost the heat of the day and before any significant heat from direct sunlight occurs.
20. Do not allow Latex Modified Concrete to be used in Type 3 deck repair areas placed concurrently with the latex overlay. The additional depth of the Type 3 deck repairs causes differential cure rates and can contribute to surface cracking. Type 2 deck repairs can be placed concurrently with the latex overlay if they do not exceed 2 inches in depth. Separately fill and consolidate each Type 2 repair area prior to the advancement of the overlay placement operation.

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21. Assure that the mobile mixer is as close as physically possible to the finishing machine while allowing space for the workers conducting brooming, removal of spent aggregate, and vibration operations. Otherwise, assure that the time is no more than five (5) minutes from the time the latex is deposited on the deck to when the finishing operation begins.

REPLACES C.10.4	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART C	SECTION 10	PAGE 4-1
DATED 04/01/2017	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT USE OF DIRECT TENSION INDICATING WASHERS (DTIs) CONNECTIONS USING HIGH STRENGTH BOLTS				

The following procedures are to be used on all projects submitted to Central Office with Plans, Specifications, and Estimates (PS&E) submittals after May 20, 2010 where Direct Tension Indicating Washers are being used to indicate tension.

Necessary action prior to use:

1. Each lot of DTIs provided to the steel fabricator, or supplied directly to the project, must be shipped in protective containers clearly marked with the washer type, lot number and quantity being shipped. Each shipment must also be accompanied by a copy of Form CS-4171 indicating that the lot conforms to Publication 408, Section 1105.02(d)6. Additionally, the Form CS-4171 must indicate the 'target' Rockwell hardness (HRC) for each DTI manufacturing lot represented on the form. Each container must identify the lot of washers, the total lot size, and the quantity from the respective lot in that container. If a shipment of DTIs is received without satisfactory certification, the shipment must be rejected and replaced with a new shipment with proper lot identification and the required certification.
2. Each lot of DTIs delivered to a Department project must be sampled and tested prior to use. Select at random in accordance with PTM No. 1 a minimum of sixteen (16) samples from each lot and forward these, along with Form TR-447 to the LTS for testing. If the DTIs have already been installed and failing compression results are obtained by the Laboratory Testing Section (LTS), the Contractor must be directed to replace the DTIs including bolts, nuts and washers at no additional cost to the Department.
3. If the samples submitted to LTS meet the ASTM F 959 results for the bolt tension and DTI compression requirements, but fail (fall outside) the manufacturing tolerance on hardness, the Contractor may be allowed to inspect each connection using the procedures in A.4.b below under the direction of a Department representative, for acceptance of the connections. If this procedure is used, the Department shall receive a rebate for the cost of the failed (hardness only) DTIs and the Contractor will be solely responsible for the cost of the inspection.
4. DTIs must be installed according to the AASHTO Construction Specifications and Publication 408, Specifications. When lot testing at the LTS of DTIs shows that they are in compliance with the specifications, the DTIs are considered acceptable in the work if they meet the pre-installation tension/compression requirements of the AASHTO specifications (procedure below) and are installed on the structure to (0.005 inches) or less.

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Installation of a DTI under the turned element may be permitted if a washer separates the turned element from the DTI.

- a. Pre-installation verification: The purpose of the pre-installation verification testing is to ensure that the fastener will be at or above the desired installation tension shown in Table 1 of the previously referenced AASHTO specifications (herein referred to simply as Table 1) when the requisite number of spaces between the protrusions have a gap of 0.005” or less and that the bolt will not have excessive plastic deformation at the minimum gap allowed.

A representative sample of at least three bolt, nut and washer assemblies for each diameter, length, and grade of fastener to be used in the work shall be assembled in a calibration device (Skidmore-Wilhelm calibrator) capable of indicating bolt tension. The DTI position relative to the turned element (bolt head or nut) shall be the same as that to be used on the structure. The element not turned (bolt or nut) shall be restrained from rotation.

The verification testing shall be accomplished in two stages.

Pre-installation, Stage 1:

The bolt, nut and DTI assembly shall be installed in a manner so that at least three and preferably not more than five threads are located between the bearing face of the nut and the bolt head. The bolt shall be tensioned first to the load equal to that listed in Table 1 for the grade and diameter of bolt. If an impact wrench is used, the tension developed using the impact wrench shall be no more than two-thirds of the required tension. Subsequently, a manual wrench shall be used to attain the required tension. The number of refusals of a 0.005” tapered feeler gauge in the spaces between the protrusions shall be recorded. The number of refusals for uncoated DTIs under the stationary or turned element, or coated DTIs under the stationary element, shall not exceed the number listed under ‘Maximum Verification Refusals in Table 1 below for the grade and diameter of bolt used. The maximum number of verification refusals for galvanized DTIs, when used under the turned element shall be no more than the number of spaces on the DTI less one. The DTI lot is rejected if the number of refusals exceeds the values in the table or, for coated DTIs if the gauge is refused in all spaces.

Pre-installation, Stage 2:

After the number of refusals is recorded at the verification load, the bolt shall be further tensioned until the 0.005” tapered feeler gauge is refused at all the spaces and a visible gap exists in at least one space. The load at this condition shall be

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recorded and the bolt removed from the tension measuring device. The nut shall be able to be rundown by hand for the complete thread length of the bolt excluding thread runout. If the nut cannot be run-down for this thread length, the DTI lot shall be rejected unless the load recorded is less than 95% of the average load measured in the rotational capacity test for the fastener lot.

If the bolt is too short to be tested in the calibration divide, the DTI lot shall be verified on a long bolt in a calibrator to determine the number of refusals at the pre-installation verification tension listed in Table 1. The number of refusals shall not exceed the values listed under ‘Maximum Verification Refusals’ in Table 1. Another DTI from the same lot shall then be verified with the short bolt in a convenient hole in the work/structure. The bolt shall be tensioned until the 0.005” tapered feeler gauge is refused in all spaces and a visible gap exists in at least one space. The bolt shall then be removed from the work/structure and the nut must be able to be run down by hand for the complete thread length of the bolt excluding thread runout. The DTI lot shall be rejected if the nut cannot be rundown for this thread length.

- b. Installation. Installation of fastener assemblies using DTIs shall be performed in two stages. The stationary element shall be held against rotation during each stage of the installation.

Installation, Stage 1:

The connection shall be first snugged with bolts installed in all the holes of the connection and tensioned sufficiently to bring all the plies of the connection into firm contact. The number of spaces in which a 0.005” tapered feeler gauge is refused in the DTI after snugging shall not exceed those listed under ‘Maximum Verification Refusals’ in Table 1. If the number exceeds the values in the table, the fastener assembly shall be removed and another DTI installed and snugged.

Installation, Stage 2:

For uncoated DTIs under the stationary or turned element, or coated DTIs under the stationary element, the bolts shall be further tensioned until the number of refusals of the 0.005” tapered feeler gauge is equal to or greater than the number listed under ‘Minimum Installation Refusals’ in Table 1. If the bolt is tensioned so that no visible gap in any space remains, the bolt and DTI shall be removed and replaced by a new properly tensioned bolt and DTI.

The feeler gauge shall be refused in all spaces when galvanized DTIs are used under the turned element.

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Table 1

Bolt Dia. (in.)	Verification Tension (Kips)		Maximum Verification Refusals		DTI Spaces		Minimum Installation Refusals	
	A325	A490	A325	A490	A325	A490	A325	A490
½	13	16	1	2	4	5	2	3
5/8	20	25	1	2	4	5	2	3
¾	29	37	2	2	5	6	3	3
7/8	41	51	2	2	5	6	3	3
1	54	67	2	3	6	7	3	4
1-1/8	59	84	2	3	6	7	3	4
1-1/4	75	107	3	3	7	8	4	4
1-3/8	89	127	3	3	7	8	4	4
1-1/2	108	155	3	4	8	9	4	5

Note: Maximum Verification Refusals are for uncoated DTIs used under stationary or turned elements and for coated DTIs used under a stationary element. The maximum number of refusals for coated DTIs used under a turned element shall be no more than the number of spaces on the DTI less one. Additionally, Minimum Installation Refusals are for uncoated DTIs used under a stationary or turned element and for coated DTIs used under a stationary element. The gauge shall be refused in all spaces when coated DTIs are used under a turned element.

- Project personnel must document all procedures for testing and inspection used to accept the connections on the project. It is important that these procedures are understood and followed by project personnel if problems with the use of DTIs are to be minimized. If there are any questions, contact the District Bridge Engineer for assistance.

REPLACES C.10.5	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART C	SECTION 10	PAGE 5-1
DATED 03/01/2011		DATE April 1, 2020		
SUBJECT GUIDELINES FOR INSPECTION AND DOCUMENTATION OF PROJECT PAINTING				

The inspection and documentation of field painting projects are defined by sub-areas of operations, each with specific check/hold points. These checkpoints are confirmed by the Department Inspector to PennDOT specific requirements and then recorded for project documentation purposes.

A pre-job conference should be conducted so that the Department, Contractor and Inspector can review the specifications and establish ground rules for performing the work and inspection points. After the pre-job conference, the following areas are the focus of hold-point inspection and documentation. Additionally, ambient environmental conditions such as air/steel temperatures, relative humidity and dew point are determined and recorded for both the surface preparation and application areas.

Note: All references to 1070 and 1071 below are to Publication 408, Section 1070 or Section 1071.

Pre-surface Preparation

- Edge preparation, removal of weld spatter, steel anomalies, etc.
- Grease/oil removal SSPC SP1
- Abrasive quality and cleanliness
- Air pressure and cleanliness

Surface Preparation * Ambient conditions recorded

- Blast surface cleanliness 1070 – SP 10 1071 – SP 6
- Surface profile 1.5 – 3.5 mils
- Type and size of abrasive
- Magnetic base reading

Mixing

- Manufacturer/Product
- Batch Number
- Thinner identity and amount
- Product specifics – pot life, temperatures/times of mixing, induction, etc.

Application * Ambient conditions recorded

- Record applicator, times and conditions for all application related factors

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Inspection

- Visual No runs, sags, skips, thin areas, etc.
- Dry film thickness (DFT) As manufacturer tech sheet or default 1070-1071
- Cure MEK/MIBK solvent rub ASTM D4752
 - Pencil Hardness ASTM D3363
 - Sand paper test Residue in paper - powdery not tacky/uncured

Stenciling

- 2-3" black lettering
- Bridge ID
- Month/year completed
- Surface prep (as per SSPC)
- Paint system (NEPCOAT#)

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DAILY INSPECTION REPORT	CLIENT:
Summary of Work Performed:	JOB NO:

PRE-SURFACE PREPARATION	S	U
Condition of Edges, Weld Spatter, Etc.		
Grease/Oil Removal (Record Solvent)		
Clean Dry Abrasive		
Recycled Abrasive Test		
Nozzle Air Pressure (Record)		
Compressed Air Cleanliness (Record)		

SURFACE PREPARATION	DB:	WB:	RH:	DP:	ST:
Ambient Conditions (Record)					
Degree of Cleanliness (Record)					
Profile (Record)					
Type and Size Abrasive (Record)					
Dust and Abrasive Removal					
Magnetic Base Reading (Record)					

MIXING		
Mfgr/Product Name (Record)		
Batch Numbers (Record)		
Material Temperature/Potlife (Record)		
Correct Thinner/Amount (Record)		
Time of Mix (Record)		
Mix Ratio (Record)		
Induction Period (Record)		

APPLICATION	DB:	WB:	RH:	DP:	ST:
Ambient Conditions (Record)					
Applicator's Name (Record)					
Surface Prep. to Appl. (Record Time)					
Compressed Air Cleanliness					
Time Application Began (Record)					
Surrounding Air Cleanliness					
Recoat Times Observed (Record Actual)					
Intercoat Cleanliness					
Proper Pot Agitation					
Application Equipment (Record)					
Time Application Complete (Record)					

INSPECTION		
Visual Appearance		
Dry Film Thickness (DFT)	See DFT Tables	
Holiday Test (Record Method)		
Cure Test (Record Method)		

REMARKS:

Inspector:	
Date:	/ /99
Report No.	
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REPLACES C.10.6	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART C	SECTION 10	PAGE 6-1
DATED 04/01/2017		DATE April 1, 2020		
SUBJECT USE OF DUST PALLIATIVES ON MSE WALLS				

Department specifications require backfill materials intended for use in Mechanically Stabilized Earth (MSE) walls to have a chloride content of less than one hundred parts per million (<100 ppm). Introduction of high chloride content materials (such as many dust palliatives) would likely increase the chloride content of the wall backfill, resulting in a possible detrimental effect on the wall.

The Bureau of Project Delivery cautions that construction personnel closely monitor the use of dust palliatives on or around MSE wall backfills. Palliatives containing chlorides, or any other materials that could adversely affect wall performance, shall not be used on MSE wall backfills. The dust palliatives listed in Bulletin 15 in Section 901.3(b) are approved for use on unpaved roadways and have not been evaluated for chloride content. If there is question as to whether a palliative contains chlorides, then its use on MSE walls shall be discontinued until such time as the absence of chlorides is assured. Methods of determining whether a particular dust palliative or other material contains chlorides would be: 1) consultation with the supplier or manufacturer or 2) testing by a laboratory equipped to make such a determination. The Penn State Center for Dirt and Gravel Roads maintains records of chloride levels from laboratory testing performed on dust palliatives listed in Publication 447, *Approved Products for Lower Volume Local Roads*. For these dust palliatives, contact the Penn State Center for Dirt and Gravel Roads at (814) 865-5335 or dirtandgravel@psu.edu to verify chloride levels.

Any questions related to the dust palliative containing chlorides or any other material (sulfates, nitrates, and ferrous ions) that could adversely affect wall performance as it relates to corrosion, should be directed to the Bureau of Project Delivery, Laboratory Testing Section, Chemistry Lab at (717) 787-3966. Any questions may result in the Chemistry Lab requesting manufacturer or private laboratory test results showing presence of chlorides, sulfates, nitrates, and ferrous ions in the dust palliative.

REPLACES C.10.7	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART C	SECTION 10	PAGE 7-1
DATED 03/01/2011	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT FINISHING BEARING AREAS				

The Department's policy for the finishing of bearing areas when neoprene bearing pads are utilized is as follows:

PREPARATION OF BEARING AREAS PRIOR TO BEAM PLACEMENT

Publication 408, Section 1001.3(k)9 requires treatment of beam seats, if necessary, by grinding before beam and pad placement. Bearing area tolerances for deviation from specified elevations, flatness, surface irregularities and slope are also outlined in this section.

INSPECTION OF BEARING AREAS AFTER BEAM PLACEMENT

Determine if there is full contact between the bearing pad and bearing surfaces just **after** the beams are set in place. In order to inspect all sides of the bearing area for full contact, the waterproofing and or other material must be temporarily relocated to expose all sides of the pad. This means that each beam must be set a minimum of two times; once without the waterproofing in place and if full bearing is achieved, once with the waterproofing in place.

If a gap between the pad and bearing surfaces is present **after** the beams have been set in place, proceed as specified in Publication 408, Section 1080.3(c)2.

DO NOT PLACE A LEVELING BED OF MORTAR BEFORE THE INITIAL SETTING OF THE BEAMS.

REPLACES C.10.8	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART C	SECTION 10	PAGE 8-1
DATED 04/01/2014		DATE April 1, 2020		
SUBJECT MINIMUM QUALITY CONTROL PLAN FOR PORTLAND CEMENT CONCRETE DECK PLACEMENT				

The contractor must submit Form [CS-704](#), Minimum Quality Control Plan for Field Placement Concrete Operations, for the placement of any Portland cement concrete bridge deck, as directed in the specifications, to the District Executive for review. The contractor is to address the following points with the listed minimums:

DECK PLACEMENT OPERATIONS

1. General Description of Placement Procedure

- Anticipated placement date(s).
- Contractor/subcontractor performing deck placement.
- Method to seal holes in and around deck pans and deck forms.
- Advancement rate and direction, pour sequence and dimensions of anticipated pours.
- Method of concrete placement, i.e., crane and bucket, pump, conveyor, buggy. Note capacity of operation. For cranes and pumps utilizing booms, detail setup locations and reach.

2. Personnel

- Name(s) of supervisor(s) responsible for placement and their experience level.
- Numbers of Contractor's staff including supervisors, laborers, operators, carpenters, finishers/masons, and technicians.

3. Equipment Types and Tools

- Type and model of specific finishing machine that will be used.
- Method that will be used to check the finishing machine grades, depths, and reinforcement clearances in the "dry run" operation, i.e., frequency of checks, tolerances, expansion dam clearances, setup method (perpendicular or degree of skew).
- Type and/or model of equipment that will be used to monitor the evaporation rate of the concrete.
- Type of remediation equipment and/or material that will be used if the concrete evaporation rate is exceeded.
- Number of work bridges and their use.
- List of emergency/spare equipment, motors, and spare parts in the event of breakdowns.

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- List of hand and power tools. Include drywall broadknife for checking re-bar cover depth. A minimum of two vibrators is required

4. Material

- Concrete delivery plan, i.e., number of trucks, spacing, haul time, delivery capacity, etc.
- Intermediate bridge deck curing agent.

5. Reaction Plans

- Bulkhead of appropriate length and height. District should denote locations where no bulkhead will be permitted.
- Method of rain protection and how much area of protection will be provided.
- Plant breakdown.
- Field equipment breakdown.
- Foul water.

6. Texture

- Method to be used to determine when texturing is to be applied, by whom.
- Method (type of equipment) and orientation.
- Denote plastic surface texture or mechanical method.

7. Cure and Protection

- Curing method including water supply source, and cool/cold weather provisions when necessary. Include in detail, whether using blankets, heaters (type, size, number, location), enclosures, etc. If applicable, list the method for heating of the cure water.
- Monomolecular film curing agent manufacturer and method.
- High/low thermometers.
- If the water supply used for curing is from a body of water, the pH must be between 4.5 and 8.5. (Publication 408, Section 720)

TESTING

1. Deck

- Straight edge testing method and frequency. Furnish one straight edge a minimum of ten feet in length with suitable handles for the Department's use. Furnish all finishers with a straight edge when performing hand finishing.
- Frequency of overall concrete depth and reinforcement bar cover depth checks.

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2. Concrete

A. General Description of Testing Operations

- Where testing will take place.
- Personnel
 - Number of technicians and their names.
 - Who authorizes changes to the mix based on field testing.
 - Who has the authority to reject material and/or suspend operations.
- How QC test results will be recorded. Where compression test specimens will be tested (plant or project).

B. Equipment

- Number and type of all concrete testing equipment.
- Communication between field and plant

C. Frequency of Tests and Molding of Cylinders

- How often QC tests will be performed after mandatory first three.
- Number of QC cylinders to be molded.
- 56 day cylinders if required
- Where cylinders will be molded.
- Identification of cylinder molds and cylinders
- Cylinder curing method/procedure.

D. Concrete Acceptability

- Action points and target values (slump, air, temperature).
- Procedure after action points reached.

REPLACES C.10.9	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART C	SECTION 10	PAGE 9-1
DATED 04/01/2017		DATE April 1, 2020		
SUBJECT MEASURING DEPTH OF COVER/TOTAL DEPTH OF PLASTIC CONCRETE ON BRIDGE DECKS				

The following policy is required to standardize the inspection and documentation procedures for measuring the total deck thickness and the concrete cover over the top mat of reinforcing steel when performing the inspection of bridge deck construction. The inspection measurements must be entered directly into an approved source document and included in the permanent project records. It is recommended that the "Wire Mesh Depth Check" section in the iPad App Mobile Construction Concrete Inspectors Diary (MCCID) or a "black field book" be used to record all measurements in a format similar to the accompanying example.

Report all measurements in a table format (refer to attached examples). Identify the contract number, structure number, span, pour sequence, starting, ending and test stations, and the location of all pier and deck joints. For long or wide spans, the table can be continued on as many pages as required. On the left side of the table, indicate the test location stations.

A. "Dry Run" Inspection

The "dry run" inspection of the finishing machine shall be checked at longitudinal intervals not exceeding 10 feet along the length of the bridge deck. Place permanent test station markings on the vertical edge formwork to be used as reference points during the concrete placement operation. The stationing should be easily visible.

During the "dry run" check, measure the distance from the bottom of the finishing machine roller(s) to the top of the deck formwork to obtain the total deck thickness, and measure the distance from the bottom of the roller(s) to the top mat of reinforcing steel to obtain the depth of concrete cover.

As a minimum, perform "dry run" depth checks at each 10 feet test station, at each end of the transverse span between girders, at grade break points, and adjacent to the outside girder and gutter line of the overhang formwork. In addition, measure the total deck width at each test section.

During the "dry run" inspection, run the finishing machine transversely along the entire length of all expansion dams, bulkhead forms, etc., to check the grade and profile.

Record all measurements directly into the corresponding table location in the source document. Compare the "dry run" measurements against the contract drawings and specification tolerances. As specified in Publication 408, Section 1001.3(b)1, "Place reinforcement so the indicated cover clearance does not deviate from position by more than +/- ¼ inch". The contractor must adjust the grade of the screed rail or bar supports (slab bolsters or re-bar chairs) as required to meet specification requirements.

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Recheck the entire area where grade adjustments are performed and enter the new depth check measurements in the table. Continue to perform the "dry run" inspection until no further adjustments are required.

B. Plastic Concrete Depth Checks

During the concrete placement operation, the inspector shall perform plastic concrete depth checks at each 10 feet test station. As a minimum, perform three depth checks at each station across the width of the deck placement. Measure the total deck thickness and reinforcing steel cover at the same location that was checked during the "dry run" inspection. The depth checks shall be performed at the location of the finishing machine. Record the measurements directly into the same table corresponding to the "dry run" inspection measurements.

A 3-inch-wide blade putty knife and a 1/8-inch diameter steel rod shall be used to perform the plastic concrete depth checks. Methods of marking these devices to accurately measure the concrete to +/- 6 mm (1/4 inch) should be exercised.

A 3-inch-wide blade putty knife works well to measure the concrete cover over the top mat of reinforcing steel. The knife blade should be turned perpendicular to the longitudinal direction of the upper reinforcing bar to obtain the concrete cover measurement.

A 1/8-inch diameter steel rod works well to measure the total concrete deck thickness. Carefully position the rod perpendicular to the deck formwork and slowly insert the rod with sufficient force until contacting the deck formwork. Slowly withdraw the steel rod so that no air pocket is left in the concrete deck and record the reading.

The purpose of performing the plastic concrete depth check is to check that the actual dead load camber deflection of all the girders is occurring as anticipated and in proper relationship to each other. The plastic concrete depth checks also assure that the top mat of reinforcing steel remains in proper position during the concrete placement operation.

If significant deficiencies are encountered, the placement operation shall be stopped and the situation must be investigated to determine possible causes. If corrective action cannot be taken, a bulkhead form shall be placed and the operation stopped. Significant deficiency defines as two consecutive sets of depth checks exceeding the +/- 1/4 inch tolerance.

C. Hardened Concrete Testing

After the concrete has hardened and after the completion of the specified curing period, the depth of the top mat of reinforcing steel may be measured by use of a pachometer according to PTM No. 419.

Pachometer testing should be performed at deck locations where concrete cover deficiencies are identified by the plastic concrete depth check measurement, or as directed by the Engineer.

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When required, the total depth of the hardened deck can be determined by obtaining full depth cores in areas suspected of having deficient deck thickness. Record all measurements directly into the corresponding area of the table.

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CONTRACT: 079321
STRUCTURE: S998877

SPAN: 1WB SEQ: 1
INSPECTOR: RLS

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DATE: 9/13/99

12

RT
EDGE
DECK
WIDTH
48'-0"

G6

G5

G4

G3

G2

G1

LEFT
EDGE

8 1/2 8 3/4 8 1/2 8 1/2 8 3/4 8 1/2
2 1/2 2 3/4 2 1/4 2 1/2 2 5/8 2 5/8

8 3/4 8 1/2 8 1/2 8 3/4 8 1/2
2 5/8 2 5/8

8 1/2 8 3/4 8 1/2 8 3/4 8 1/2
2 3/4 2 1/2 2 3/4 2 1/2

9 9 2 1/2 2 3/4 2 1/2 2 3/4

8 5/8
2 5/8

8 3/4
2 3/4

2 1/2

STATION

0 + 00

TD
CD

TP
CP

TH
CH

0 + 10

TD
CD

TP
CP

TH
CH

TD - TOTAL DEPTH - DRY
CD - COVER DEPTH - DRY

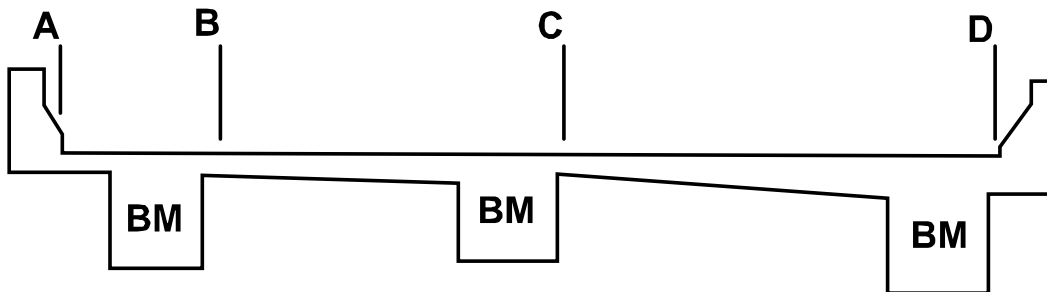
TP - TOTAL DEPTH - PLASTIC
CP - COVER DEPTH - PLASTIC

TH - TOTAL DEPTH - HARDENED - CORE
CH - TOTAL DEPTH - HARDENED - PACHOMETER

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CO. SHEET No OF
 S.R. SUBJECT BY DATE
 SEG. OFFSET CHKD BY DATE



STA		A Gutter Line	B	C	D Gutter Line
444+80	Dry Run	8 ³ / ₄ / 2 ³ / ₄	8 ¹ / ₂ / 2 ¹ / ₂	8 ³ / ₄ / 2 ³ / ₄	8 ¹ / ₂ / 2 ³ / ₄
	Wet Pach	8 ³ / ₄ / 2 ¹ / ₂ 2 ¹ / ₂	8 ¹ / ₂ / 2 ¹ / ₂	8 ¹ / ₄ / 2 ¹ / ₄ 2 ¹ / ₂	8 ¹ / ₄ / 2 ¹ / ₂
444+90	Dry Run	8 ¹ / ₄ / 2 ¹ / ₂	8 ¹ / ₄ / 2 ¹ / ₂	8 ³ / ₄ / 2 ¹ / ₂	8 ¹ / ₂ / 2 ¹ / ₂
	Wet Pach		8 ¹ / ₄ / 2 ¹ / ₄ 2 ¹ / ₄		8 ¹ / ₄ / 2 ¹ / ₄
445+00	Dry Run	8 ¹ / ₂ * / 2 ³ / ₄ **	8 ³ / ₄ / 2 ³ / ₄	8 ¹ / ₂ / 2 ¹ / ₂	8 ¹ / ₂ / 2 ¹ / ₄
	Wet Pach			8 ¹ / ₂ / 2 ¹ / ₂ 2 ³ / ₄	

* Total Plastic Depth to Deck Pan

** Depth of Plastic Concrete over Rebar

REPLACES C.10.10	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART C	SECTION 10	PAGE 10-1
DATED 04/01/2017		DATE April 1, 2020		
SUBJECT PRE-DECK PLACEMENT MEETING & INSPECTOR'S CHECKLIST FOR PORTLAND CEMENT CONCRETE BRIDGE DECK PLACEMENTS				

NOTE: All section references are from Publication 408 unless stated otherwise.

At least two weeks -prior to the actual placement operation, a deck pre-placement meeting is required. (Section 1001.3(k)6) The participants should include:

- Department and Consultant Project Inspection Staff
- District Structure Control Engineer
- Quality Assurance Representative
- Contractor’s Superintendent and Foreman
- Contractor’s Certified Concrete Technician
- Concrete Supplier’s Representative

The agenda of the deck pre-placement meeting shall include the following:

- Review of the Specifications and/or Contract Special Provisions: The applicable Publication 408 edition, Sections 704 and 1001, should be reviewed as well as any special provisions and any notes on the structure plans which relate to the deck placement.
- Manpower: A chain of command should be established for both the Department and the Contractor so that if unanticipated problems arise during the deck placement, quick decisions can be made that will not delay the concrete operations.
- Equipment: The method of concrete placement (pump, crane and bucket, conveyor), finishing machine type, and any proposed remediation equipment or materials, should be reviewed. The method the Contractor is using to determine the evaporation rate of the concrete should also be discussed (e.g., weather station or other acceptable method). Discuss concrete delivery with the Contractor and the Supplier to assure a sufficient number of trucks are scheduled in the queue to meet the advancement requirement of 20 L.F. per hour, and appropriate delay has been set between trucks.
- Sequence of Deck Placement and Deck Placement Procedure: The Contractor’s QC Plan for the deck placement should be reviewed. This QC plan should include the placement sequence and should be submitted by the Contractor and reviewed by the District Structure Control Engineer.

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- Material: A concrete mix design reviewed by the District Materials Engineer/Manager is on file at the project {Section 704.1(c)}. The AAAP or HPC mix design must also meet the requirements as specified in Sections 704.1(c) 2 and 704.1(c) 4. . AAA is not allowed to be used for bridge decks. The type of admixtures shown on the approved design and the minimum dosage rate for each should be discussed. It is recommended that the manufacturer’s data sheets for each admixture are available at the meeting.
- Testing: A QC Plan for concrete testing and acceptance has been submitted by the Contractor, reviewed and signed by the District Construction Office, and is on file at the project. All aspects this QC plan and the testing procedures should be reviewed, including the frequency of QC and AT testing, and whether or not VT is required. The established target points and action points for temperature, slump, and air should also be discussed. It is a good idea to also talk about “material control,” which is defined in Section 704.1(d). Material control is established when the test results for air, slump, and temperature for three consecutive trucks are determined to be within the established action points.

Discuss the locations of the testing, the number of QC, AT, and VT (if required) cylinders to be molded and the method of curing for the first 24 hours and for the remainder of the curing period. Discuss the 56-day cylinder requirements if applicable.

The concrete field technician(s) performing the testing must have a valid PennDOT certification. A copy of the certification(s) should be on file.

Review the requirements of PTM No. 611, Section 12. IDENTIFICATION AND SECURITY OF COMPRESSION TEST SPECIMEN MOLDS AND COMPRESSION TEST SPECIMENS MOLDED ON CONSTRUCTION PROJECTS

- Curing: **Cure bridge decks for a minimum of 14 days.** During day 1 through day 7, do not count as a curing day, a day on which the curing temperature drops below 50°F. During day 8 through day 14, do not count as a curing day, a day on which the curing temperature drops below 40°F.

Additional facets of the curing operation should be discussed including the following:

Monomolecular Curing Agent

Intermediate curing is required when placing concrete in bridge decks. (Section 1001.3(p)3.c) A Bulletin 15-approved monomolecular curing agent should be applied immediately after the final finishing operations. It can be reapplied as necessary. Do not attempt to finish the concrete after the intermediate cure has been applied.

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Burlap

Place the burlap sooner rather than later. Slight marring of the concrete surface is acceptable. The burlap should be saturated prior to use and kept saturated for the entire cure period. The burlap should be placed so that each strip overlaps one-half its width (double burlap), and the burlap must be in direct contact with the concrete at all times.

Water

If the source of the water used for curing the deck is not from public supply, (e.g., from a creek) a sample of the water must be sent to LTS to be tested. (Section 720)

Cool/Cold Weather Curing

If the deck is being placed during cool or cold weather, the method and/or materials being used (covers, blankets, tents, heaters, etc.) to maintain the curing temperature should also be discussed. {(Sections 1001.3(p)4 and 1001.3(p)5)}

It is in everyone's interest to discuss these items and any anticipated problems at the deck pre-placement meeting rather than waiting until a couple hours or minutes before concrete arrives on the project or a problem develops. Specification section references are provided where appropriate.

PRE-RELEASE

Prior to the release of concrete for any bridge deck placement, the inspector should check and review the following items:

- Air meters have been calibrated within the past two weeks. (Sections 704.1(d)3. and 1001.2(a), POM Section B.6.5)
- All holes in the deck pans and forms have been patched properly. Any aluminum flashing used to patch holes has been properly coated to prevent reaction with the plastic concrete. (Sections 1001.3(a)2 and 1001.3(k)1)
- The remediation equipment being used is on site and in workable condition
- Certifications are available for reinforcement bars, expansion dams, S.I.P. forms, etc. (Sections 709.5, 1001.2(h), and 1105.01(e))
- The deck is clean, and beams are free of any contamination. (Section 1001.3(a)1)

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A dry run has been performed by the Contractor and witnessed by inspection staff. The results should be documented and on file.

- The Contractor has all the necessary tools and equipment on the project including but not limited to:
 1. sufficient hoses and water supply. (Section 1001.3(p)3.b)
 2. two functional vibrators of adequate size. (Section 1001.3(k)2)
 3. concrete rakes and shovels (no garden rakes).
 4. ten-foot straight edge and straight edge for each finisher. (Section 1001.3(k)5)
 5. broad knife or other tool to check cover over reinforcement and overall depth. (Section 1001.3(b)1)
 6. finishing tools. (Section 1001.3(k)5)
 7. tine rake. (Section 1001.3(k)5)
 8. cure materials including monomolecular spray cure. (Section 1001.3(p)3.c)
 9. bulkhead. (Section 1001.3(k)5)
 10. masonry tools.
 11. sufficient plastic is available to cover deck in the event of rain during placement.
 12. portable weather station or nomograph
- Burlap is wet but free of excess water. (Section 1001.3(p)3.b)
- All top mat and bridge barrier reinforcement is tied at all intersections. For other intersections, when bar spacing is greater than or equal to 12 inches, tie all intersections. If bar spacing is less than 12 inches, either tie all intersections or tie alternate intersections to provide a staggered tie layout and tie all perimeter intersections.
- The top mat is secured to the lower mat and sufficient chairs used to stabilize mats. Splice lengths are adequate. (Section 1001.3(b)1)
- Epoxy touch-up completed and cured as required. (Section 709.1(d))
- Sufficient re-bar clearances available. (Section 1001.3(b)1)
- Contractor's planned pour sequence meets approved plan. (Section 1001.3(k)5)
- The Contractor has an operational water supply system. (Section 1001.3(p)3.b)
- Certification of falsework adequacy on file prior to placing loads on the falsework (Section 105.03(c))
- The ambient air conditions are conducive for the deck placement operation.

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- Check the evaporation rate of the concrete prior to placement. It is suggested that an average temperature for this first test be discussed at the pre-placement meeting with the supplier. For hourly checks thereafter, use the actual temperature of the concrete.

PRE-PLACEMENT

After releasing the concrete for the deck, the Inspector should check for the following:

- Water system is operational.
- The Contractor has moistened the beams to prevent them from absorbing water. (Section 1001.3(a)1)
- Concrete technician has test equipment ready, and back up equipment is on site. (Section 704.1(d)3)

DURING PLACEMENT

Once the Contractor has begun placing concrete, the Inspector should perform the following duties as a minimum level of inspection.

- If the concrete is being placed with a pump, witness the correlation testing which is to be performed as specified in Section 1001.3(k)4 to determine the sampling locations (i.e., at the back of the truck or at the point of placement).
- Determine the evaporation rate of the concrete each hour during the placement as specified in Section 1001.3(k)6. If the evaporation rate exceeds 0.06, implement the remediation equipment until the evaporation rate is below the maximum. Do not use remediation equipment unless the maximum evaporation rate is exceeded.
- Check that concrete is being consolidated sufficiently to remove entrapped air and footprints in advance of finishing machine. (Section 1001.3(k)5)
- Ensure that finishers are straight edging their work in the gutter line, when coming off of bulkheads, and expansion dams. (Section 1001.3(k)5)
- Ensure that all finishing operations are performed from the work bridges or overhang falsework.

Witness the checks that the Contractor is making with ten-foot straight edge and that the Contractor is meeting the frequency of checks as established in the QC plan. (Section 1001.3(k)5)

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- Check the overall depth of concrete in the deck and the depth of cover over the top mat of reinforcement. The latter test is easily performed using a drywall broad knife to locate the top of the re-bar and then measure the mortar on the blade surface. Test results may be recorded in the iPad App Mobile Construction Concrete Inspectors Diary (MCCID) in the "Wire Mesh Depth Check" section. A check should be made for every 50 S.F. of bridge deck placed. (Section 1001.3(b)1) These checks should be made at the same locations as the dry run.

Witness the required QC and AT tests and perform the Verification tests on concrete if required.

- Contractor is maintaining the beams' surfaces in moist condition. (Section 1001.3(k)5)
- Minimum advancement rate of 20 L.F. per hour is being achieved. If not, Contractor is taking appropriate corrective action or proceeding to bulkhead. (Section 1001.3(k)5)
- After surface is floated and finished, appropriate texture is applied. (Section 1001.3(k)5)
- After texture is applied to surface, the intermediate curing compound is applied and then reapplied as needed due to surface drying. (Section 1001.3(p)3.c)
- Double layer of damp burlap is applied as soon as it can be applied without marring texture (slight marring is acceptable) but prior to surface drying. Soaker hoses are applied to surface without plastic cover unless cool/cold weather curing covers required. (Section 1001.3(p)3.b)

POST-PLACEMENT

After the curing cover is in place, the Inspector needs to assure proper curing conditions are maintained:

- Burlap covers are maintained in a saturated condition. (Section 1001.3(p))
- Suitable cure temperatures are maintained. Cure covers, blankets, tents, heaters, etc. are maintained as required. Assure that cool/cold weather curing system does not exceed maximum allowable temperature. (Section 1001.3(p))
- Record of daily curing temperatures is made. (Section 1001.3(p))

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- Gradually lower temperatures within heated enclosure over three-day period when cure is discontinued. (Section 1001.3(p))
- Unsuitable dead or live loads are not applied to uncured deck. (Section 1001.3(q))
- The District shall complete the Bridge Deck Cracking Input Forms.

REPLACES C.10.11	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART C	SECTION 10	PAGE 11-1
DATED 04/01/2017	PROJECT OFFICE MANUAL	DATE April 1, 2021		
SUBJECT PLACEMENT OF EXTRA CEMENT CONCRETE IN WATER				

Publication 408, Section 1001.3(k)3.a, provides for the use of 25% more cement than the quantity specified for the concrete class being used on an exception basis if approved by the District Materials Manager/District Materials Engineer (DMM/DME). This is specifically for concrete placements made in or under water. The extra cement is added to the mix to stiffen or thicken the paste content to make it more resistant to scour and compensate for paste loss that will occur when placing concrete in water. When water is present, it should be reasonably still to minimize water's negative effect and loss of paste.

Placing concrete in water is not the preferred condition. Prior to the Inspector authorizing a Contractor to place concrete in water, the Contractor must make a valid effort to first dewater the site by use of pumps (in sufficient quantity and capacity), sealing the forms, diversion of the stream, or other legitimate effort. Only after these attempts have failed to adequately stem the flow of water should the Contractor be permitted to place in water. Any pump discharge containing cement paste must be controlled to prevent discharge into any waterway.

Water is added at the plant to compensate for the slump loss that would be anticipated with the addition of the extra cement; however, when placing concrete with extra cement, the maximum slump permitted at the point of placement is 2½ inches. Extra air entraining admixture is also added to the load to compensate for the extra cement. There is no relaxation of plastic air content or slump specifications as many such placements are structural elements that require durable concrete.

Ideally, place extra cement concrete to a level just above the surface of the water (about 2 inches). When making placements in water, first place concrete to seal off the flow of water and then, if possible, purge water by placing concrete on top of previous deposits to attempt to eliminate pockets of mud/water being trapped in the placement. Loads of extra cement concrete and conventional loads may be alternated if approved by the DMM/DME and if the conventional concrete is not being placed in more than 2 inches of water.

For purposes of acceptance testing of the concrete (by compressive strength), do not test any extra cement concrete loads unless at least 50% of the lot is comprised of extra cement concrete. If random selection determines a load of extra cement concrete be tested for acceptance, either select the next conventional load of concrete for testing or select an alternate load according to PTM No. 1. Slump tests should still be performed for quality control purposes. Plastic air content should still be performed for quality control and acceptance purposes.

This procedure will increase the volume of concrete. The increased volume should be considered by the Inspector if computing yield and by the Contractor when calculating and ordering concrete in a placement. A separate mix design is not necessary unless required by the DMM/DME.

REPLACES C.10.12	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART C	SECTION 10	PAGE 12-1
DATED 04/02/2018		DATE April 1, 2020		
SUBJECT MINIMUM QUALITY CONTROL PLAN FOR LATEX MODIFIED MORTAR OR CONCRETE WEARING SURFACE				

The contractor must submit [Form CS-1042](#), Minimum Quality Control Plan for Field Placement Operations, for the placement of any Latex Modified Wearing Surface, as directed in the specifications, to the Assistant Construction Engineer or Structure Control Engineer for review. The contractor is to address the following points with the listed minimums:

I. ORGANIZATIONAL CHART

A. Key Personnel

- Name(s) of supervisor(s), foreman and concrete technician(s) listing their responsibilities and any required certification identification numbers
- Name of latex manufacture representative/company providing support during the mix design process

II. EQUIPMENT SPECIFICATIONS

A. Surface Preparation Equipment

- Type of equipment to be used to clean the deck and/or reinforcement bars, including rated capacity

B. Mixing Equipment

- Type and model of latex mixer trucks
- Calibration

C. Placing and Finishing Equipment

- Type and model of specific finishing machine
- Type and number of work bridges
- Type of vibrators
- List hand tools to be used

D. Lighting Plan (non-daylight placement)

- Sketch of light plant placements
- Light configuration on finishing machine

III. SURFACE PREPARATION

A. Repair and/or Removal operation of existing concrete deck

B. Pre-placement operations and cleaning procedures

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- Procedure for cleaning the existing concrete surface and removal of rust from exposed reinforcement bars
- Steps for preparation of deck prior to latex placement (set finish machine, perform dry run, water blast within 24 hours of placement, vacuum standing water, cover with plastic, etc.)

IV. MATERIAL CONTROL

A. Aggregates

- Gradation tests on coarse and fine aggregates
- Moisture tests run immediately prior to placements
- Aggregate piles and charged mobile mixers protected from sun and rain
- Mobile mixers to be purged of any residual aggregates
- Mobile mixers charged less than six (6) hours prior to scheduled placement unless otherwise approved by the Representative

B. Latex /Cement

- Latex
 - a) Mobile mixers to be purged of any residual cement, latex
 - b) Discard any latex and/or cement which can't be accounted for by certification and history
 - c) Product certification for each latex tanker prior to project use of the latex
 - d) Product samples taken from each latex tanker and submitted for testing. **Prior to sampling from tanker, ensure the latex material has been circulated.**
- Cement
 - a) Supplier/Type
 - b) Product certification for cement
 - c) Mitigation methods to control latex/cement temperatures

C. Completed mix

- Compatibility testing completed during mix design process
 - a) Yield and workability tests performed in conjunction with mixer calibration
 - b) Method to monitor completed mix temperatures

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V. TESTING

- A. Temperature (ASTM C 1064)
 - Ambient and latex mixture temperature specification limits
- B. Slump test (AASHTO T 119)
 - Latex mortar mixture and latex concrete mixture slump specification limits and target values
- C. Air test (AASHTO T 152)
 - Latex mixture air content specification limits
- D. Yield test (AASHTO T 121 or Yield Box)
 - If required – test may be performed following the procedure as specified in Publication, 408, Section 1042.3(a)2.f
- E. Evaporation rate (ACI 305R)
 - Evaporation rate specification limits

VI. CONCRETE CYLINDERS

- A. Size/number of cylinders
 - Cylinders to be molded according to PTM No. 611
- B. Curing cylinders
 - Specimens cured according to PTM No. 611
 - a) Method of curing for first 48 hours
 - b) Method of curing after 48 hours

VII. FIELD PLACEMENT, PERSONNEL, and EQUIPMENT

- A. Personnel, Experience and Equipment
 - Contractor/Subcontractor performing placement
 - Personnel by name, assigned duties and previous work experience
 - All equipment, including backup
- B. Placement limitations
 - Method and equipment to monitor surface evaporation
 - Method and equipment to maintain evaporation rate within allowable limits
- C. Curing and protection
 - Initial curing methods (burlap fully moistened but not dripping wet)
 - Polyethylene placement timing

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- Water source
- Wet cure (method to keep burlap saturated during working and non-working hours)/dry cure durations
- cool/cold weather provisions
- High/Low thermometers

D. Straightedge and Texturing

- Straight edging test method and frequencies
- Texturing method and equipment (plastic or mechanical)

E. Reaction Plan

- Material available to construct bulkhead
- Method of rain protection
- Mobile mixer or equipment breakdown procedures

F. Detailed sketch of equipment supports

REPLACES C.10.13	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART C	SECTION 10	PAGE 13-1
DATED 04/01/2014		DATE April 1, 2020		
SUBJECT CRACK REPAIR OF LATEX MODIFIED CONCRETE WEARING SURFACE OVERLAY				

The District may encounter recently constructed Latex Modified Concrete (LMC) overlays that crack, in some cases mildly or severely. This document is intended to provide information that will assist the District in making an informed decision regarding repair, removal, replacement or acceptance if cracking should occur in the overlay after placement and curing.

Any deck that is proposed to be overlaid should always be investigated, as part of the design process, for both chloride ion content contamination as well as possible ASR (Alkali-Silica Reactive) aggregate degradation. If chloride-ion contaminated concrete is allowed to remain under the overlay, it will always be present to corrode the reinforcement steel whenever any moisture is present. Refer to DM-4, Chapter 5 for acceptable limits. If the overlay is placed over a deck that is cracked as a result of ASR, the cracking will most likely reflect to the overlay surface due to the unstable substrate deck even if the surface is scarified. Any cracks in the existing deck must be addressed in the rehab process with methods such as epoxy crack injection to prevent reflective cracking.

Cracking may originate as the result of one or more contributing factors. LMC overlays have provided more than 30 years of continuous service even where cracking was present in the surface of the overlay. Cracking which is not detrimental to the overlay performance were typically shallow (less than 1/4") and with narrow surface widths (less than 0.007") formed typically as a result of drying shrinkage following placement from delays in the application of curing and/or improperly conditioned (dry) aggregates used in the latex concrete mixture.

If after reviewing the completed LMC placement, the District agrees that crack repair is an acceptable alternative, the contractor must submit a Quality Control (QC) and Action Plan addressing the following minimum set of criteria.

The following content should be included in an acceptable QC and Action Plan submitted by the contractor:

1. Map of deck cracking
 - a. Size and amount of cracks. Indicate if cracks are not working or flexing
 - b. Cores to determine if cracks are full depth or shallow
 - c. Cores submitted to an independent laboratory as well as cores submitted to the Laboratory Testing Section (LTS) for analysis of the cracks.
 - d. Photo summary of the cracks
2. Material that is proposed for sealing (not required to be listed in Bulletin 15)
 - a. Brand name and manufacturer
 - i. High molecular weight methacrylate
 - ii. Low viscosity or ultra-low viscosity epoxy resin

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- iii. Alternative material. Currently, many new materials are being developed, which may not be listed in Bulletin 15 but may be determined to be acceptable.
 - iv. Urethanes are not recommended for new LMC overlays.
 - b. Material data and use sheet
 - c. Crack preparation methods and equipment
 - d. Ambient temperatures for intended application
 - e. Substrate temperatures for intended application
 - f. Material temperatures for intended application
 - g. Moisture conditions of the cracks
 - h. Relative humidity
 - i. Wind speed at time of application if applicable
- 3. Application methods/process description in detail
 - a. Surface/Crack preparation
 - b. Flooding or individual crack
 - c. Daylight or dark hours
 - d. Lighting, if needed
- 4. Safety
- 5. Crew makeup
- 6. Post-sealing testing method to validate penetration and effectiveness of operation.

Due to the wide array of ambient conditions and circumstances such as application temperatures in the field versus the ideal temperature range of the crack sealing material, moisture conditions, etc., any QC and Action Plan must be submitted to the Bureau of Project Delivery, LTS, for review and concurrence. The Plan will be evaluated by the chemists of LTS. LTS will report the suitability of the plan back to the District for their consideration.

Never permit the use of a slurry of liquid latex admixture, water, cement, and sand as a repair method.

REPLACES C.10.14	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART C	SECTION 10	PAGE 14-1
DATED 04/01/2015		DATE April 1, 2020		
SUBJECT DOCUMENTATION FOR PILE DRIVING OPERATIONS (FORM 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

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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 (Form 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 (Form CS-4171) and Mill Test results before any driving operations begin.

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- 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 (Form 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 Publication 408, Section 1005.3(b)5.a. For piles which are to be driven to end of driving criteria, refer to Publication 408, Section 1005.3(b)5.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.

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- 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 (Publication 408, Section 1005.3(d)) - 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, Pre-drilling, 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.

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

CS-1005 (9-14)



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			3			4		
Test (T) / Bearing (B)		T			B			T			B		
Type of Pile		HP 10x57 A709 GR50			HP 10x57 A709 GR50			HP 10x57 A709 GR50			HP 10x57 A709 GR50		
Pile Heat Number		357036			357030			357036			357030		
Type of Pile Tip		HD/Cast 65-35			HD/Cast 65-35			HD/Cast 65-35			HD/Cast 65-35		
Plumb or Battered		Plumb			Battered 3:12			Plumb			Battered 3:12		
Driving Criteria		20 / 1"			20 / 1"			20 / 1"			20 / 1"		
Stroke Range		6.0 FT to 7.5 FT			6.0 FT to 7.5 FT			6.0 FT to 7.5 FT			6.0 FT to 7.5 FT		
Stroke Length		6.5 FT			7.0 FT			6.5 FT			7.0 FT		
Starting Length		60.00 LF			60.00 LF			60.00 LF			60.00 LF		
Rebuilt Length		28.80 LF			30.60 LF			28.80 LF			30.60 LF		
Cutoff Length		7.20 LF			6.90 LF			7.20 LF			6.90 LF		
Net Pay Length		81.60 LF			83.70 LF			81.60 LF			83.70 LF		
Tolerance 1005.3(b)3		Yes			Yes			Yes			Yes		
Pile Tip Elevation		865.90			866.30			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
COMMENTS		60'	170		6"	16		60'	145		6"		42
Driving Method A Saximeter Used Test Pile Ultimate Capacity 540 kips (WEAP)		65'	190		7"	16		65'	183		9"		46
Driving of test pile stopped at 54'-4" for Method 1 Splice		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				3"		78	4"		19
INSPECTOR & DATE		6"		38				6"		76	5"		18
Joe Inspector		9"		40				9"		38	6"		18
09/09/2014		78'		41				78'		36	7"		19
		3"		42				3"		41	8"		20

REPLACES C.10.15	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART C	SECTION 10	PAGE 15-1
DATED 04/01/2017	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT PRE-DEMOLITION MEETING REQUIREMENTS				

PRE-DEMOLITION

Prior to the actual demolition operations of a structure or box culvert, a pre-demolition meeting is required as specified in Publication 408, Section 1018.3(a).

The participants should include:

- Department and Consultant Project Inspection Staff
- District Structure Control Engineer
- Quality Assurance Representative (attendance based on availability)
- Contractor's Superintendent and Foreman
- Person responsible for development of the demolition plan (if requested by a party with involvement in the demolition).
- Railroad Representative (if deemed necessary)

A chain of command should be established at this meeting for both the Department and the Contractor so that if unanticipated problems arise during the demolition operations, decisions can be made in a timely manner.

The agenda of the pre-demolition meeting shall include, at a minimum the following:

- Definition of Demolition: All parties should be aware that the definition of demolition is as follows: Demolition is considered to be the point in time when a portion of the structure is being cut, sawed, drilled, or impacted through excavation or other means that could affect the stability of the structure.
- Review of Specifications: The applicable edition of Publication 408, Sections 105.17 and 1018, should be reviewed as well as any contract special provisions dealing with the demolition operations.
- Demolition Plan: Publication 408, Section 1018.3(a) requires the contractor to submit a plan to the District Executive showing or describing the demolition and removal methods to be used for the removal of an existing bridge or culvert, as indicated. The complexity of the submitted plan is specific to the complexity of demolition of each structure. At a minimum, each plan must include the following:
 - Methods of protection and safety for the general public, inspection personnel, and construction personnel. Examples include, but are not limited to, temporary Maintenance and Protection of Traffic (MPT) Plan required specifically for the demolition operations and a fall protection plan.
 - Location and method of protection of utilities.

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- Phasing and sequence of operations indicating construction equipment to be used, including catalog cut sheets for any and all equipment operating on the structure. If cranes are being utilized include the maximum radius and lifting capabilities.
 - Rigging, if required, must also include catalog cuts.
 - Location and weights of equipment during demolition.
 - Weights of equipment/materials to be staged/stockpiled on the structure.
 - When and how critical sections of the structure are to be removed (i.e. fracture critical components, arches, rigid frames) and provide analysis as required by the Representative to determine the structural stability of partial or complete parts of the structure being demolished.
 - Method of providing temporary support for elements which will become unstable.
 - Due to concerns of a near miss, all non-structural items must be removed prior to demolition and the means and methods of removal must be included in the demolition plan.
- Review of the Accepted Demolition Plan: The contractor should be prepared to review with all parties in attendance, their accepted demolition plan. If any party has a question regarding any part of this plan, now is the time to ask for clarification. Do not wait until the demolition operations are underway.
 - Environmental Issues: If required, discuss any Best Management Practices (BMPs) that are specific to the demolition operation. Ensure the Erosion and Sediment Control (E&S) measures have been implemented prior to beginning demolition. If revisions to the E&S plans are necessary, ensure the revisions have been approved by the appropriate agencies.
 - Demolition Operations Located Over or Under a Railroad: Although a railroad presence is not required at the demolition meeting, if the structure to be removed is over or under a railroad, written acceptance of the demolition plan from the railroad is required. Failure by the contractor to obtain the railroad company's written acceptance will require an alternate plan submittal to the Department and the railroad company for review and acceptance.
 - Temporary Shielding: If temporary shielding is part of the demolition operations, it must be certified as specified in Publication 408, Section 105.03(c), Certification of False Work Adequacy, before placing any loads on the system.

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DURING DEMOLITION

- The inspector(s) assigned to the demolition operations must have a copy of the accepted demolition plan in the field.
- The inspection staff should ensure that the contractor is adhering to this plan at all times. Any variation of the accepted demo plan will require a new submission.
- Verify all rigging/lifting equipment is as per demo plan before the start of work and before any lifts.
- Verify all equipment being used is the same as shown on the accepted demolition plan.
- Maintain the minimum distance from all overhead energized utilities as per OSHA.
- **LIFTING OVER LIVE TRAFFIC IS PROHIBITED**

REPLACES	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART	SECTION	PAGE
DATED		C	10	16-1
SUBJECT	PROJECT OFFICE MANUAL	DATE April 1, 2020		
PILE DRIVING CHECKLIST				

Pile driving systems are unique pieces of construction equipment when used to drive load bearing piles. For the contractor, like other construction equipment, they are production tools. Unlike most other pieces of construction equipment, however, when driving load bearing piles, driving systems perform an additional function. For the foundation design engineer, and thus, the inspector, load bearing pile driving systems are testing and measuring instruments. Since pile permanent set, induced by the hammer blow, is used to determine when sufficient bearing capacity has been achieved, and since set is dependent on driving system performance, a poor system will place the safety of the foundation at risk.

Inspectors assigned to a pile driving operation should be familiar with the main components of the driving system, including the leads, helmet, and the cap block.

LEADS: The function of a set of leads is to maintain alignment of the hammer-pile system such that a truly concentric blow is delivered to the pile for each impact. Leads are used in conjunction with a crane to support the hammer and the pile, helping to keep them in proper location and alignment.

HELMET: The function of the helmet, also referred to as a pile drive head, is to protect the head of the pile being driven. The pile drive head typically consists of a cast or structural steel helmet capable of holding the axis of the pile in line with the axis of the hammer.

CAP BLOCK: The function of the cap block, which is located between the hammer and the helmet is to relieve the shock of metal striking metal. Ineffective hammer cushions can cause damage to hammer striking parts, helmet, or pile. All cushions become hard and ineffective from applied hammer impact and, therefore, need to be periodically replaced.

To assist the Districts Construction Inspection Personnel with preparing for piling operations, the following pre-piling checklist has been developed. This checklist is intended to be used in conjunction with [Form CS-1005](#), PILE DRIVING LOG, to document the pile driving criteria for foundations.

This checklist has been broken down into different sections which pertain to what is required before and during driving piles as well as additional operating information on pile hammers.

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PILE DRIVING CHECKLIST

BEFORE LEAVING THE PROJECT OFFICE, THE INSPECTION STAFF SHOULD:

- Review the pile hammer approval letter
- Review the foundation approval letter (refer to project development checklist in ECMS)
- Review the General Notes and/or Foundation Notes shown on the Structure Drawings
- Review the contract Special Provisions
- Review Publication 408, Section 1005
- Understand pile orientation
 - Integral abutments: pile flanges are parallel with centerline of structure.
 - Conventional pile footings: pile flanges parallel to front face of abutment or pier.
Piles may be vertical or battered
- Weld Specification Procedure (WPS) approved prior to driving piles (required for field welding of pile tips and splicing piles)
- Copy of Certified Welder's card on file
- Printed copies of pile driving record for use during driving (Form CS-1005, PILE DRIVING LOG, Part C Section 10 of the Project Office Manual)
- Number the piles in each substructure foundation on the structure plans. It is recommended that the contractor and/or subcontractor uses the same numbering system for layout. A copy of the foundation plan with the numbered piles should be available in the field for reference during the pile driving operations.

WHEN THE PILES ARRIVE ON SITE, THE INSPECTION STAFF SHOULD:

- Inspect the piles for damage
- Pile lead lengths consistent with length of piles delivered to site
- Check the pile type/size is consistent with certification, approval letter, and plan
- Ensure the Form CS-4171s are filled out properly and the mill certifications accompany each load
- Check the heat and/or lot numbers on the piles against the heat and/or lot numbers shown on the Form CS-4171
- Yield strength of piles consistent with pile hammer approval letter
 - Required yield strength vs. the strength listed on the Form CS-4171

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WHEN THE HAMMER ARRIVES ON THE PROJECT, THE INSPECTION STAFF SHOULD:

- Ensure that the hammer is the same make and model which has been submitted and approved on the pile hammer approval letter
- Ensure the cap block material matches the pile hammer approval letter
- Ensure the fit of the helmet is per the manufacturer's recommendations
- Inspect the cap block for wear and or damage and ensure it is in conformance with the manufacturer's recommendations. The date of the inspection and the cap block information is to be recorded on Form CS-1005, PILE DRIVING LOG
- Measure the distance from the top of the ram to the top of the chamber (This should be done during the cap block inspection and will be used to calculate the stroke length of the ram if not using a saximeter or proximity switch.)

PRIOR TO DRIVING PILES

- Notify the District Structure Control Engineer (SCE) at least 48 hours prior to driving test piles
 - 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.
- Ensure the excavation is complete to bottom of footing or pile cap unless directed otherwise
 - Plan elevation _____
 - Field elevation _____
- Is predrilling required? Yes _____ No _____
 - Plan elevation _____
 - Field elevation _____
- Check the layout of the piles, including spacing and location
- Ensure that the test pile(s) are identified and will be driven before the production piles
- Mark each pile at one-foot intervals, and one-inch intervals near the estimated length
- Ensure that the stroke indicator rod is legible from the inspector's line of sight

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DURING THE PILE DRIVING OPERATION

- A copy of the hammer manufacturers current operating specifications should be available on site
- Ensure a copy of the blow count chart from the pile hammer approval letter is available for reference in the field
- For diesel hammers, allow the hammer to warm up prior to driving for a minimum of three to five minutes. This time may need to be increased during cold weather.
- Drive test piles in the presence of the SCE
- Do not drive production piles until the SCE has established the driving criteria from representative test piles or dynamic pile testing
- Pile hammer performance monitored by:
 - Blow count
 - Pile Driving App for iPad or iPhone
 - Saximeter
 - Dynamic testing (PDA – Pile Driving Analyzer) Primarily used for test piles when specified in contract documents or the hammer approval letter; only in rare circumstances would a PDA be used for production piles
- Regardless of the monitoring method, Form CS-1005, PILE DRIVING LOG, must be filled out for all test and bearing piles
- Do not exceed the maximum approved stroke length of the ram
- Ensure the leads maintain the proper alignment of each pile
- The contractor should frequently check the pile for plumbness or for required batter
- Monitor the hammers performance throughout the pile driving operation. Unusual performance may indicate overheating of the diesel hammer.
- If piles are not driven within the tolerances as specified in Publication 408, Section 1005.3(b)3, notify the SCE

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ADDITIONAL INFORMATION ON PILE HAMMERS

Open-End Single Acting Diesel Hammers and Closed-End Double Acting hammers account for the vast majority of hammer submittals on PennDOT projects. The following are common issues which may affect the performance of these types of pile hammers to operate in conformance with the specifications.

Open-End Single Acting Diesel Hammers

Sluggish hammer operation and shorter strokes can result from inadequate piston lubrication, low grade fuel; and worn parts (check manufacturer's recommendations). Note: Worn compression rings can be diagnosed at hammer test by aborting the fuel flow and tripping the piston to fall onto a dry anvil block. Proper compression will be noted by the piston's rapidly decaying bounce on the entrapped compressed air (see manufacturer's recommendations for minimum decay time).

Erratic hammer operation and variable stroking can result from foreign material or water in the fuel lines, fuel filter or pump (according to manufacturer's recommendations).

A decrease in the average and maximum strokes over the day for a water-cooled diesel hammer may be the result of the boiling of the water in the water jacket (check for cooling water in water jacket).

Vibratory Pile Hammers

- Vibratory pile driver/extractors **are not** accepted as bearing pile drivers. PennDOT does not permit their use for bearing piles unless approved by the Chief Bridge Engineer. Where the use of a vibratory driver/extractor has been accepted in installing bearing piles the following approach has been used:
 - The vibrator has been permitted to drive a bearing pile to within ten feet or so of expected normal penetration. An accepted impact hammer has then been placed on the pile to take it to acceptable bearing and final penetration in the normal fashion.

REPLACES C.11.1	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART C	SECTION 11	PAGE 1-1
DATED 04/01/2014	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT SHEAR CONNECTOR CERTIFICATION				

The Department accepts studs for field applied use based upon certification by the manufacturer. The Contractor must submit to the Engineer for approval before installation, the following information:

1. The name of the manufacturer.
2. Description of the stud and arc shield.
3. A certification from the manufacturer that the studs are qualified according to AASHTO M 169 and as specified in Publication 408, Section 1105.02(e).
4. A notarized copy of the qualification test report.
5. Documentation (mill test report or other) indicating the studs were melted and manufactured in the USA.

Many projects will receive structural members with the studs supplied by the fabricator. In this case, the above documentation is not required as the requirements will be verified through in-plant inspection.

REPLACES C.11.2	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART C	SECTION 11	PAGE 2-1
DATED 04/25/2013		DATE April 1, 2020		
SUBJECT INSPECTION, ERECTION AND ACCEPTANCE OF GALVANIZED STEEL CONSTRUCTION ITEMS				

To ensure galvanized steel items meet specifications, all field inspectors should:

1. Thoroughly inspect all galvanized items before erection.
2. Determine if any defects exist due to improper application of zinc coating (such as: lumps, blisters, grit), improper handling, stacking, loading, unloading and storage.
3. Thoroughly re-inspect after erection.
4. Instruct the Contractor to repair all damage as specified in Publication 408, Sections 620.3(a), (b) and 1105.02(s)2.
5. Submit samples to the Laboratory Testing Section for testing if it is doubtful whether the certified material meets specifications. The samples should be identified by supplier, fabricator, manufacturer and pertinent contract information.

See the following sources for the frequency and size of sample for sampling and testing.

- For Products, Hot Dipped Galvanized: According to ASTM A123.
- For Hardware, Hot Dipped Galvanized: According to ASTM A153.
- For Hardware, Mechanically Galvanized: According to ASTM B695.

REPLACES C.11.3	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART C	SECTION 11	PAGE 3-1
DATED 04/25/2013		DATE April 1, 2020		
SUBJECT FABRICATED STRUCTURAL STEEL WELDING CODE REQUIREMENTS				

Publication 408, Section 1105.03(m)1, requires that welding of structural steel for highway bridges be performed according to the AASHTO/AWS D1.5 Bridge Welding Code in its entirety.

Welding of tubular structures, however, is not included in AASHTO/AWS D1.5. Section 1105 indicates that welding for tubular structures should be done according to AASHTO/AWS D1.1 Structural Welding Code. Refer to Publication 408, Section 1105, and the contract drawings for the applicable code year.

Questions related to welding and fabrication of structural steel should be directed to the Bureau of Project Delivery, Structural Materials Section.

REPLACES	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART	SECTION	PAGE
DATED		C	11	4-1
SUBJECT	PROJECT OFFICE MANUAL	DATE March 1, 1996		
SHIPPING, STORING AND CUTTING ELASTOMERIC MATERIALS				

Adequate shelter is required for elastomeric materials. Elastomeric materials should be stored on flat surfaces in well-ventilated rooms away from heat and the sun's direct rays.

Elastomers, such as neoprene bearing pads, should be shipped and stored on flat, fully supporting surfaces, and should not be rolled or folded. Elastomers, such as polyvinyl chloride or neoprene waterstop, neoprene tubing and closed cellular neoprene sponge, may be shipped and stored in coils if the inside coil diameter is sufficient to prevent material set. Closed cellular sponge should not be stored in stacks higher than 12 inches to prevent material set.

Pre-cut elastomers may be bought for specific projects or in bulk unless otherwise noted in the specifications or special instruction. Cutting bulk shipments of bearing pads and sponge is limited to prestressed concrete beam producers, and should be supervised by the Plant Inspector. Bearing pads and sponge should be cut with a rotary knife or other approved means to insure a smooth, straight, vertical cut free from nicks or surface irregularities. Freehand cutting is prohibited. Waterstop and tubing may be cut at the job site under the Project Inspector's supervision. Cutting and welding waterstop, tubing, etc., should conform to the Department's standards or manufacturer's Department-approved recommendations.

REPLACES C.11.5	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART C	SECTION 11	PAGE 5-1
DATED 04/01/2017		DATE April 1, 2020		
SUBJECT FIELD WELDING OF PILES & INSPECTION CHECKLIST				

Field Welding of Piles includes both pile extensions and welding of the pile section to tip reinforcement.

Only the Shielded Metal Arc Welding (SMAW) aka ‘stick’ welding is permitted for field welding. Wire feed welding processes such as Flux Core Arc Welding (FCAW) or Gas Metal Arc Welding (GMAW aka ‘mig’) are prohibited for field welding. While these processes are capable of providing acceptable weld quality under controlled (fabrication shop) conditions, environmental factors encountered during field welding can result in weld defects that could otherwise be avoided.

Publication 219M, BC-757M, requires that welding be performed only by AWS certified welders. Welders performing work must be qualified to either AWS D1.5 (Bridge Welding Code) for H – piles or AWS D1.1 (Structural Welding Code) for tubular piles.

Contractors are required to submit a Weld Procedure Specification (WPS) to the District Structural Control Engineer for approval prior to welding. After approval, the WPS is to be made available to Department inspection staff on the project.

The following inspection checklist was developed to assist District personnel:

1. Require the contractor to submit a shop drawing for approval. Verify that the material types – grade, dimensions, joint details and weld symbols are properly detailed.
2. Require the Contractor to provide certified mill test reports for the pile materials.
3. Verify welder certifications prior to welding.
4. Require the Contractor to submit their WPS for approval prior to production welding. Approved WPSs can be used for applicable situations on any project until the expiration date.
5. During production, verify electrode, joint configuration and welding equipment settings conform to the approved WPS.
6. Ensure the welding electrodes are being handled (dried) as shown on BC-757M.
7. Perform visual non-destructive evaluation in accordance with the applicable welding code to ensure minimum weld sizes and profiles are met.

Assistance in evaluating contractor WPS’s can be arranged by contacting the Bureau of Project Delivery, Bridge Design and Technology Division, Structural Materials Section, Steel Unit.

REPLACES D.1.1	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART D	SECTION 1	PAGE 1-1
DATED 04/01/2019	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT SEMI-FINAL/FINAL INSPECTION & ACCEPTANCE CERTIFICATE				

Semi-Final Inspection

The semi-final inspection is an optional procedure to be utilized if requested by the Contractor. The semi-final inspection will have no direct impact on the establishment of interest charges, time charges, or contractor responsibility. The semi-final inspection will be as follows:

- The Contractor requests a semi-final inspection when the project or a designated section of the project is substantially complete and ready for the development of a punchlist of items requiring completion or revision in order to be accepted by the Department.
- The District will respond in a timely manner and participate in a mutually arranged semi-final inspection.
- The Engineer will note, by stations and in detail, any work or conditions requiring correction or completion.
- More than one semi-final inspection may be conducted depending on the nature of the project.
- If a semi-final inspection is not requested by the Contractor, only a final inspection will be conducted.

Final Inspection

The final inspection will be conducted as follows:

- The Contractor requests that a final inspection be conducted, as specified in Publication 408, Section 110.08(a), for the project or a designated section of the project.
- The District will respond in a timely manner and participate in a mutually arranged final inspection. For projects with a National Pollutant Discharge Elimination System (NPDES) Permit, the District will ensure that a representative from the Pennsylvania Department of Environmental Protection (DEP) or their designee, County Conservation District, participates in the final inspection.

PART D	SECTION 1	PAGE 1-2	DATE April 1, 2020
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- The Final Inspection Form, Form [CS-4137](#) (See Page D.1.1-5), must be completed for all projects. The date of physical work completion and the date of project acceptance will be established on the form. Provide a copy of the completed Final Inspection Form to the Contractor.

Complete the Final Inspection Form as follows:

- Complete all items on the Final Inspection Form. Not all items on the Form will apply in all situations. Insert "N/A" for items that are not applicable.
- List all attendees.
- Record the date on which the Final Inspection is conducted. Only one final inspection is to be held per project or for any substantially completed project section.
- The District will designate a Department representative to be responsible for ensuring that all punchlist items are addressed. The Department representative must be available and able to respond in a timely manner.
- **Item 1.** If or when all physical work has been satisfactorily completed, sign in the space provided and record the date as the Date of Physical Work Completion.
- **Item 2.** If the final inspection reveals that items of physical work remain to be completed or corrected, sign in the space provided to acknowledge the production of a punchlist. Form [CS-4136](#), Punchlist Form (See Page D.1.1-6), or the Punchlist mobile application, may be utilized for this purpose. With the exception of the physical work items identified on the punchlist form, the Contractor is relieved of responsibility and liability for satisfactorily completed work items on the project as of the date of the final inspection.
- **Item 3.** If material certifications, work order support documentation, or any other contractually required documents have not been furnished as of the date of the final inspection, sign in the space provided to acknowledge the production of a punchlist for such documents. Form [CS-4136](#), or the Punchlist application, may be utilized for this purpose.
- **Item 4.** If or when all contractually required certificates and/or documents have been properly furnished, record the date and sign in the space provided.
- **Item 5.** If or when physical work on a designated section of the project has been satisfactorily completed and contractually required certificates and/or documents have been properly furnished, with the exception of those physical work items and/or required documents identified on the punchlist form / application, record the date and

PART D	SECTION 1	PAGE 1-3	DATE April 1, 2020
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sign in the space provided. The date indicated here will be the date that the Contractor is relieved of responsibility for further physical work, maintenance, and third party liability for all satisfactorily completed work items on the designated section of the project. The Contractor will be relieved of responsibility and liability for punchlist items as of the completion date for these items as indicated on the punchlist form / application.

- **Item 6.** If or when all physical work has been satisfactorily completed and all contractually required certificates and/or documents have been properly furnished, record the date and sign in the space provided. The date indicated here will be the date that the project is accepted by the District. The Acceptance Certificate is to be issued immediately upon satisfying the requirements of this item.

Complete all applicable items and dates on the Final Inspection Form. The dates that must be indicated prior to submitting this form are as follows:

- Final Inspection Date
 - * This date corresponds to the ECMS Finalization Checklist screen field labeled "Final Inspection" and is to be input accordingly.
- Date of Physical Work Completion (Item 1)
 - * This date corresponds to the ECMS Finalization Checklist screen field labeled "Physical Work Completed" and is to be input accordingly.
- Contractually Required Certificates and/or Documents (Item 4).
 - * This date corresponds to the ECMS Finalization Checklist screen field labeled "Required Documents Received" and is to be input accordingly.
 - * This date is important because interest charges do not accrue for items of final payment which have not been paid due to a lack of required information from the Contractor.
- Acceptance Date (Item 6)
 - * This date corresponds to the ECMS Finalization Checklist screen field labeled "Project Acceptance". This date should also correspond to the latter of the dates shown in Items 1 and 4.

PART D	SECTION 1	PAGE 1-4	DATE April 1, 2020
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Acceptance Certificate

The District is responsible to generate the Acceptance Certificate in ECMS.

- The Acceptance Certificate cannot be created until the Finalization Checklist has:
 - Final Inspection date
 - Physical Work Complete date (project is in “post-construction” status)
 - Required Document Received date entered
 - Verified that no construction items with available quantities exist

Also, the Department will not consider a construction project accepted until the required materials certifications and/or other contractually required documents relating to verification that physical work items meet specifications have been satisfactorily furnished.

Be advised that an Acceptance Certificate is to be issued immediately upon satisfaction of all contractual requirements as indicated by the Final Inspection Form, Form [CS-4137](#). District project personnel are responsible for establishing the status of all physical work items and all contractually required certifications and documents at the time of final inspection.

Project Permit Close Out

- **Notice of Termination Form for NPDES Permits**
 - Upon receipt of a contractor's completed Notice of Termination (NOT) Form and its accompanying close-out documents as specified in Publication 408, Section 107.28, complete Section 8 and Section 2 of the NOT Completeness Review and Fieldwork Checklist. Submit the fully executed NOT Form to DEP or their designee within 14 calendar days to gain release from the NPDES Permit(s) related to the project. Upon submission of the NOT to DEP or their designee for acknowledgement, if release is not gained as a result of Contractor related non-compliance issues, provide the contractor written direction of the results so that compliance can be achieved. If there are no cited Contractor related compliance issues and the Department does not gain release from the permit for any other reason(s), execute and submit the DEP Co-permittee Liability Release Form to DEP or their designee no later than 75 calendar days after submitting the fully executed NOT Form.
- **DEP State Water Obstruction and Encroachment Permit**
 - Complete the Water Obstruction and Encroachment Permit Completion Report indicating that the work has been completed as approved and submit the Completion Report to the appropriate DEP Regional Office within 30 days of project completion.

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- **U.S. Army Corps of Engineers Pennsylvania State Programmatic General Permit (PASPGP)**
 - Complete the PASPGP Permit Compliance, Self-Certification Form upon completion of the verified work and required mitigation and submit the completed form to the appropriate Corps District.

Contract Time Charges

Contract time charges are to stop when all physical work on the project has been satisfactorily completed as indicated on the Final Inspection Form.

Interest Charges

For projects let after April 7, 1994, interest charges begin to accrue 30 calendar days after the date that all physical work under the contract has been satisfactorily completed, and run until the date when final payment is made. For projects let prior to April 7, 1994, interest charges begin to accrue on the day after all physical work is satisfactorily completed. The Date of Physical Work Completion is determined by the final inspection and is indicated on the Final Inspection Form.

If payment for an item or items is withheld due to lack of required information from the Contractor, interest charges for the item or items will not begin to accrue until 30 days after the date that the Engineer receives the information required for payment.

PART D	SECTION 1	PAGE 1-6	DATE April 1, 2020
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CS-4137 (4-11)



FINAL INSPECTION FORM

S.R. _____ Sec. _____ County _____ District _____

Contract No. _____ Contractor _____

A Final Inspection of the above project or substantial project section was held on _____.

ATTENDEES:

1. All physical work is satisfactorily completed.

Date of Physical Work Completed _____

(PennDOT)

2. The inspection revealed that physical work items, as noted on the attached punchlist form must be completed or corrected to ensure compliance with the contract. With the exception of those physical work items identified on the punchlist form, the Contractor is relieved of responsibility for further physical work and maintenance, for satisfactorily completed work items on the project

(PennDOT)

3. The contractually required certificated and/or documents, as noted on the attached list, must be furnished and completed in order to prepare the project for final acceptance.

(PennDOT)

4. All contractually required certificated and/or documents have been furnished and are satisfactory.

_____ Date _____

(PennDOT)

5. On the following designated section of the project, physical work items have been satisfactorily completed and contractually required certificates and/or documents have been furnished; with the exception of those physical work items and/or required documents identified on the attached punchlist form. The Contractor is relieved of responsibility for further work, and maintenance, for satisfactorily completed work items on the section.

Section Description _____ Sta. to Sta. _____

_____ Date _____

(PennDOT)

6. All physical work items have been satisfactorily completed and all contractually required certificates and/or documents have been furnished. I recommend an Acceptance Certificate be processed relieving the contractor of further responsibility on this project.

_____ Date _____

(PennDOT)

PART D	SECTION 1	PAGE 1-7	DATE April 1, 2020
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CS-4136 (4-11)



_____ OF _____

PUNCHLIST FORM

Contract No. _____ S.R. _____ Sec. _____

PHYSICAL WORK

ITEM/ACTION	DATE COMPLETED	DEPARTMENT VERIFICATION

REQUIRED DOCUMENTS

ITEM/ACTION	DATE COMPLETED/ RECEIVED	DEPARTMENT VERIFICATION

REPLACES	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART	SECTION	PAGE
DATED		D	2	1-1
SUBJECT	PROJECT OFFICE MANUAL	DATE March 1, 1996		
REVIEWS AND AUDITS				

When the last physical work has been completed on the project and a Final Estimate is to be developed, a comprehensive, complete check of each project must be made by the Finals Unit with reference to pay quantities and project recording of operations and events. Current estimate audits may occur while projects are under way.

Bear in mind that the auditors are not familiar with the project and must rely entirely upon the information submitted to them in the records. An audit trail must be provided by reference, so that original source documents can be quickly located for checking by the auditors. Adequate documentation and accurate reference must be readily available. Source documents contain the original recording of the field information and must be referenced through the Items/Estimate Book.

REPLACES	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART	SECTION	PAGE
DATED 03/01/1996		D	2	2-1
SUBJECT	PROJECT OFFICE MANUAL	DATE April 1, 2017		
"AS-BUILT" DRAWINGS				

Section B.1.16 discusses the importance of "as-built" drawings and the procedures to be used to maintain them throughout the life of the project.

After the construction has been completed, the "as-built" drawings together with the project field records are submitted to the District Finals Unit for review. The field changes noted on the "as-built" prints should be submitted as an electronic file to the District. The electronic files will be maintained by the District Plans Unit. These electronic files may be obtained for future use by maintenance or other forces that are in need of the information contained thereon.

On the "as-built" Plans, summary sheet, tabulation of quantities sheet or the required list, items with alternatives, such as pipes, binder courses, stabilized aggregate base course, shoulders, conduits, etc. should be recorded by showing only the choice used "as-built" and crossing out all other alternatives for the item involved.

The Title Sheet should contain the Contractor's name, project completion date, and the date that the project was opened to traffic.

REPLACES D.2.3	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART D	SECTION 2	PAGE 3-1
DATED 04/01/2019	PROJECT OFFICE MANUAL	DATE April 1, 2020		
SUBJECT RECORDS RETENTION				

PennDOT's Records Retention and Disposition Schedule needs to be followed. The District is responsible for providing adequate space for records storage.

The following policy is presented on records retention:

100% State Projects

Records must be retained for seven (7) years from the date when the project has been placed into Final Status.

Federal-aid Projects

The same as for 100% State projects or three (3) years from the date of FHWA Final Voucher (Form [FHWA-1447A](#)), whichever is later.

Currently, ECMS calculates the seven (7) year disposition time frame based on the Project Final Status date.

Exceptions

In the event a claim has been filed by the Contractor, the Office of Chief Counsel will provide directions on retention.

Certain Worker Health-related records for involvement with hazardous wastes such as asbestos or lead paint (e.g., blood test results for exposure) must be retained for up to 25 years.

Hazardous Waste Manifests must be retained for a period of 20 years as indicated in PennDOT's Record Retention and Disposition Schedule.

Electronic Records

Documents received electronically (e.g., emails, email attachments, digital photos, etc.) should be stored in the PennDOT Project Collaboration Center (PPCC) in the appropriate location (i.e., Project Files and Photos tab) and not printed out and saved as hard copies in the project files. Documents submitted and reviewed via PPCC, ECMS or eCAMMS should be stored in the system in which they were received and not be printed and saved as hard copies in the project files.

PART D	SECTION 2	PAGE 3-2	DATE April 1, 2020
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Paper Records

All documents that are received on the construction project as hard copies, such as, but not limited to, material invoices, and concrete and asphalt delivery tickets, must be retained in their original format.

Note:

All documents that reside in PPCC, with the exception of Shared Files, will be programmatically archived into the Enterprise Content Services (ECS) system one year after the project is placed into Final status.

All PPCC submittals must be reconciled before the ECMS **Finalization Checklist** item **“PPCC Submittals Closed and Documents in Shared Files moved to Project Files”** can be marked complete.

To assist in the audit trail, as outlined in POM Section B.1.2, all reconciled submittals must be adequately identified and cross referenced.

Any records elected to be scanned and saved (i.e., sketches and computations) must be legible, otherwise only the original record should be saved.

REPLACES	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART	SECTION	PAGE
DATED		D	3	1-1
SUBJECT	PROJECT OFFICE MANUAL	DATE March 1, 1996		
FINAL REPORTS				

Upon the completion of all projects, there are a number of reports which must be completed and submitted to various Central Office Units. These reports are required to be completed by either the Contractor or the District.

This section will provide guidance on the various reports that are required to be submitted for each project. The Contractor is to be reminded at the time of the final inspection of all outstanding reports and informed that all required forms and/or reports must be submitted before the Department will issue the Acceptance Certificate.

REPLACES D.3.4	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART D	SECTION 3	PAGE 4-1
DATED 04/01/2014	PROJECT OFFICE MANUAL	DATE April 1, 2017		
SUBJECT FORM FHWA-1391				

On Federal-aid Projects, all Contractors and Subcontractors with contracts of \$10,000 or more are required to submit annually, for the work force on project during the last active payroll period preceding July 31, Federal Form [FHWA-1391](#), Federal-aid Highway Construction Contractors Annual EEO Report Form. Log in using your ECMS user name and password, complete and submit the FHWA-1391 electronically at <https://www.dot18.pa.gov/fhwa1391> by August 15 of each year.

Contractors/subcontractors will be notified by email if they are required to submit a report. To log into the system, contractors/subcontractors must have a valid ECMS username and password.

All contractors/subcontractors are required to submit a report for all projects listed in the “Open Projects” tab.

If the contractor/subcontractor worked on the project in July, they must submit a report with their workforce numbers.

If the contractor/subcontractor was active on the project, but did not work on the project in July, they must submit a “No Workforce” report.

If the contractor/subcontractor has completed all their contracted work on the project, they must submit a “No Workforce” report.

If the contractor/subcontractor has not started their contracted work on the project, they must submit a “No Workforce” report.

The report covers employment and is to represent the project work force on board for the last active payroll period preceding July 31 each year.

Questions in regards to reporting should be directed to the Bureau of Equal Opportunity, Contract Compliance Division at 717-787-5891 or 800-468-4201.

REPLACES D.3.5	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART D	SECTION 3	PAGE 5-1
DATED 04/01/2017		DATE April 1, 2020		
SUBJECT FORM FHWA-1446B/1446A				

The District is responsible for generating the Form FHWA-1446B, Final Acceptance Form for Federal Oversight projects through ECMS.

1. Finals Unit Supervisor, from ECMS **Finalization Checklist** screen
 - Scroll down to **Details** heading
 - Click **New** button in heading
 - Select **FHWA-1446B**
 - **FHWA-1446B** screen is displayed
2. Enter a **date** for Form FHWA-1446B record
3. Select **Yes** or **No** from Lighting/Signing Incorporated drop-down list (required)

The Form FHWA 1446-B cannot be created until the Finalization Checklist has:

- Form TR-4238A - Certification by District Materials Engineer/Manager is completed and Doc Linked
- Form TR-4238C - Letter of Certification is completed and Doc Linked
- Verified all Claims have been satisfied
- Contract Time has been addressed
- Acceptance Certificate has been completed
- Notification of Final Quantities has been completed

Upon completion of Form [FHWA-1446B](#), the District will submit it through the ECMS workflow process, and it will be routed electronically to the Bureau of Project Delivery (BOPD), Contract Management Section Chief and to the FHWA Approver for review and approval.

Federal Oversight Federal-aid Projects

The FHWA Area Engineer will complete Form [FHWA-1446A](#) when the project is complete and generally acceptable as a part of the FHWA routine construction monitoring of Federal Oversight Projects.

If findings/observations are noted by the Area Engineer, ensure that all FHWA findings have been resolved.

REPLACES D.3.7	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	PART D	SECTION 3	PAGE 7-1
DATED 04/01/2020	PROJECT OFFICE MANUAL	DATE April 1, 2021		
SUBJECT DISTRICT'S LETTER OF PROJECT MATERIALS CERTIFICATION				

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. According to 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. The District must submit Form TR-4238A in eCAMMS. The Form TR-4238A is due within 60 days of when the project reaches Semifinal status in ECMS and the physical work is complete, as designated by the Physical Work Complete (PWC) date in the ECMS Finalization Checklist. The submitted Form TR-4238A will be processed according to 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 413 material that results in a reduced payment.
3. Any 413 material that had one parameter with a PWL of 64% or less. For lots remaining in place with 50% (70% PWL) payment, submit the permission by the District Executive, as specified in Publication 408, Section 413.4(a) Table H. 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 50% payment, submit the permission by the District Executive, as specified in Publication 408, Section 110.10(d).1.
7. Materials incorporated into the work without the required certifications.
8. Materials incorporated in the project without the required acceptance testing as outlined in POM Section B.6.5.

PART D	SECTION 3	PAGE 7-2	DATE April 1, 2021
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If none of the above items were present, the following box is checked on Form TR-4238A:

"No Material Deviations"

For material failures, the Form TR-447 reference number, the material type, and the disposition of the material will be listed on Form TR-4238A.

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, according to POM Section B.6.2 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 POM Section B.6.2) prior to the DME/DMM initiating and signing Form [TR-4238A](#).

Form TR-4238A must also be signed by the Assistant District Executive for Construction on behalf of the District Executive and by 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 in POM Section B.6.2 and provide copies to the DME/DMM upon completion of the final inspection.

REPLACES D.3.8	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART D	SECTION 3	PAGE 8-1
DATED 03/01/2011		DATE April 1, 2020		
SUBJECT EVALUATION OF CONTRACTORS AND SUBCONTRACTORS				

Title 67, Transportation, Chapter 457, Prequalification of Bidders requires that all Contractors and Subcontractors be evaluated and rated upon completion of every contract.

This evaluation system is located electronically in ECMS under the “Closeout” section of the Project Information portal. The evaluator will enter ratings into the ECMS-Contractor Evaluation screen for the Contractor and for each Subcontractor who worked on the ECMS project.

The Final Prime Contractor Evaluation can be submitted after the final Disadvantaged Business Enterprise (DBE) payment has been submitted and approved.

For project durations lasting longer than 18 months, a midterm evaluation must be completed for the prime contractor.

For any guidance in completing the Prime Contractor Evaluation, the evaluator may utilize the guidelines set forth in [Form CS-4307G](#) (Contractor’s Past Performance Report Guidelines for Evaluations).

Manual projects not utilizing the ECMS Portal for project administration may still utilize the following links for the prime and subcontractor evaluation forms. An evaluation must be completed for each Prime and Subcontractor performing work on the project.

- Contractor’s Past Performance Report (Form [CS-4307](#))
- Subcontractor’s Past Performance Report (Form [CS-4307SUB](#))

Form CS-4307SUB does not need to be completed for Services and DBE Suppliers.

REPLACES D.3.9	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART D	SECTION 3	PAGE 9-1
DATED 03/01/2012		DATE April 1, 2014		
SUBJECT CONSTRUCTION PROJECT – QUALITY SURVEY FOR DESIGN ITEMS				

The Quality Survey entitled “Construction Project – Quality Survey for Design Items” has been developed to provide construction contractors and PennDOT construction managers an opportunity to evaluate design plans and items prepared by, or for, the Pennsylvania Department of Transportation. The Quality Survey can be used for all project types: Conventional Design/Bid/Build, Design/Build, and Modified Review Projects.

The “Construction Project – Quality Survey for Design Items” form is to be completed on-line. From the Project Information page in ECMS, select the “Quality Survey for Design Items” hyperlink under the “Closeout” section. The form is to be completed by the construction Project Manager or Assistant Construction Engineer/Manager and by a Contractor field representative. The Quality Survey is to be completed just prior to final inspection and discussed at the final inspection. After completing the form, an overall score is to be computed and can be found in ECMS under the Project Information page Detail Information section.

REPLACES D.3.10	PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PROJECT OFFICE MANUAL	PART D	SECTION 3	PAGE 10-1
DATED 04/25/2013		DATE April 1, 2020		
SUBJECT FABRICATED STEEL ERRORS ON SHOP DRAWINGS				

The Bureau of Project Delivery (BOPD) has requested that the Bridge Design and Technology Division (BDTD) be notified of any errors on shop drawings that cause problems during construction.

Consultants are engaged by the Department to check shop drawings for fabricated structural steel structures (including sign structures), and in order to determine the proficiency of these consultants, a monitoring procedure is established.

Please include a statement regarding the adequacy of shop drawings when completing the “Construction Project – Quality Survey for Design Items” described in POM Section D.3.9. If the shop drawings were inadequate or significant errors were detected, forward an additional copy of the Quality Survey to the BOPD, BDTD, with specific information regarding the errors.

APPENDIX A

**PUBLICATION 408 SECTIONS
AND/OR OTHER APPLICABLE
AREAS**

DESCRIPTION

**MATERIAL
CODE**

**MATERIAL
CLASS**

220.3(c) MIX DESIGNS CLASSIFIED BY TYPE FFTYPB = FLOWABLE FILL TYPE B FFTYPC = FLOWABLE FILL TYPE C FFTYPD = FLOWABLE FILL TYPE D	FLOWABLE BACKFILL – CONCRETE CYLINDER <i>testing and acceptance for compressive strength</i>	217	FFTYPB FFTYPC FFTYPD
220.3(c) MIX DESIGNS CLASSIFIED BY TYPE FFTYPB = FLOWABLE FILL TYPE B FFTYPC = FLOWABLE FILL TYPE C FFTYPD = FLOWABLE FILL TYPE D	FLOWABLE BACKFILL – CONCRETE CORE <i>testing and acceptance for compressive strength</i>	218	FFTYPB FFTYPC FFTYPD
341 BULLETIN 27	COLD RECYCLED DESIGNS	14	CRBC
360	ASPHALT FORENSIC ANALYSIS	5	ATPBC
360	ASPHALT MIX DESIGN <i>raw aggregate, liquid asphalt cement, & paper work for design check on hot-mix bituminous concrete; these requests originate from District Materials Engineer</i>	6	ATPBC
360	ASPHALT IGNITION FURNACE	97	ATPBC
360	ASPHALT SOLVENT EXTRACTION	98	ATPBC
410	<i>See Section 413</i>		
412 CLASSIFIED ACCORDING TO COURSE AND TYPE OF MATERIAL SP = SUPERPAVE WITHOUT RECLAIMED MATERIALS SR = SUPERPAVE WITH RECLAIMED MATERIALS (RAP, RAS OR RAP & RAS) WM = WARM MIX ASPHALT SUPERPAVE WITHOUT RECLAIMED MATERIALS WR = WARM MIX ASPHALT SUPERPAVE WITH RECLAIMED MATERIALS (RAP, RAS, OR RAP & RAS)	ASPHALT MIX DESIGN <i>raw aggregate, liquid asphalt cement, & paper work for design check on hot-mix bituminous concrete; these requests originate from District Materials Engineer</i>	6	SP6.3 SR6.3 WM6.3 WR6.3

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<p>412 CLASSIFIED ACCORDING TO COURSE AND TYPE OF MATERIAL SP = SUPERPAVE WITHOUT RECLAIMED MATERIALS SR = SUPERPAVE WITH RECLAIMED MATERIALS (RAP, RAS OR RAP & RAS) WM = WARM MIX ASPHALT SUPERPAVE WITHOUT RECLAIMED MATERIALS WR = WARM MIX ASPHALT SUPERPAVE WITH RECLAIMED MATERIALS (RAP, RAS, OR RAP & RAS)</p>	<p>ASPHALT DENSITY SAMPLES</p>	<p>11</p>	<p>SP6.3</p>	<p>SR6.3</p>	<p>WM6.3</p>	<p>WR6.3</p>
<p>412 CLASSIFIED ACCORDING TO COURSE AND TYPE OF MATERIAL SP = SUPERPAVE WITHOUT RECLAIMED MATERIALS SR = SUPERPAVE WITH RECLAIMED MATERIALS (RAP, RAS OR RAP & RAS) WM = WARM MIX ASPHALT SUPERPAVE WITHOUT RECLAIMED MATERIALS WR = WARM MIX ASPHALT SUPERPAVE WITH RECLAIMED MATERIALS (RAP, RAS, OR RAP & RAS)</p>	<p>ASPHALT IGNITION FURNACE</p>	<p>97</p>	<p>SP6.3</p>	<p>SR6.3</p>	<p>WM6.3</p>	<p>WR6.3</p>

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<p>412 CLASSIFIED ACCORDING TO COURSE AND TYPE OF MATERIAL SP = SUPERPAVE WITHOUT RECLAIMED MATERIALS SR = SUPERPAVE WITH RECLAIMED MATERIALS (RAP, RAS OR RAP & RAS) WM = WARM MIX ASPHALT SUPERPAVE WITHOUT RECLAIMED MATERIALS WR = WARM MIX ASPHALT SUPERPAVE WITH RECLAIMED MATERIALS (RAP, RAS, OR RAP & RAS)</p>	<p>ASPHALT SOLVENT EXTRACTION</p>	<p>98</p>	<p>SP6.3</p>	<p>SR6.3</p>	<p>WM6.3</p>	<p>WR6.3</p>
<p>413 CLASSIFIED ACCORDING TO COURSE AND TYPE OF MATERIAL SP = SUPERPAVE WITHOUT RECLAIMED MATERIALS SR = SUPERPAVE WITH RECLAIMED MATERIALS (RAP, RAS OR RAP & RAS) WM = WARM MIX ASPHALT SUPERPAVE WITHOUT RECLAIMED MATERIALS WR = WARM MIX ASPHALT SUPERPAVE WITH RECLAIMED MATERIALS (RAP, RAS, OR RAP & RAS)</p>	<p>ASPHALT MIXTURES <i>Theoretical maximum specific gravity (G_{mm}) verification samples</i></p>	<p>2</p>	<p>SP4.75 SP9.5 SP12.5 SP19B SP19W SP25B SP25BC SP37.5</p>	<p>SR4.75 SR9.5 SR12.5 SR19B SR19W SR25B SR25BC SR37.5</p>	<p>WM4.75 WM9.5 WM12.5 WM19B WM19W WM25B WM25BC WM37.5</p>	<p>WR4.75 WR9.5 WR12.5 WR19B WR19W WR25B WR25BC WR37.5</p>

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<p>413 CLASSIFIED ACCORDING TO COURSE AND TYPE OF MATERIAL SP = SUPERPAVE WITHOUT RECLAIMED MATERIALS SR = SUPERPAVE WITH RECLAIMED MATERIALS (RAP, RAS OR RAP & RAS) WM = WARM MIX ASPHALT SUPERPAVE WITHOUT RECLAIMED MATERIALS WR = WARM MIX ASPHALT SUPERPAVE WITH RECLAIMED MATERIALS (RAP, RAS, OR RAP & RAS)</p>	<p>ASPHALT MIX DESIGN <i>raw aggregate, liquid asphalt cement, & paper work for design check on hot-mix bituminous concrete; these requests originate from District Materials Engineer</i></p>	<p>6</p>	<p>SP4.75 SP9.5 SP12.5 SP19B SP19W SP25B SP25BC SP37.5</p>	<p>SR4.75 SR9.5 SR12.5 SR19B SR19W SR25B SR25BC SR37.5</p>	<p>WM4.75 WM9.5 WM12.5 WM19B WM19W WM25B WM25BC WM37.5</p>	<p>WR4.75 WR9.5 WR12.5 WR19B WR19W WR25B WR25BC WR37.5</p>
<p>413 CLASSIFIED ACCORDING TO COURSE AND TYPE OF MATERIAL SP = SUPERPAVE WITHOUT RECLAIMED MATERIALS SR = SUPERPAVE WITH RECLAIMED MATERIALS (RAP, RAS OR RAP & RAS) WM = WARM MIX ASPHALT SUPERPAVE WITHOUT RECLAIMED MATERIALS WR = WARM MIX ASPHALT SUPERPAVE WITH RECLAIMED MATERIALS (RAP, RAS, OR RAP & RAS)</p>	<p>ASPHALT DENSITY SAMPLES</p>	<p>11</p>	<p>SP9.5 SP12.5 SP19B SP19W SP25B SP25BC SP37.5</p>	<p>SR9.5 SR12.5 SR19B SR19W SR25B SR25BC SR37.5</p>	<p>WM9.5 WM12.5 WM19B WM19W WM25B WM25BC WM37.5</p>	<p>WR9.5 WR12.5 WR19B WR19W WR25B WR25BC WR37.5</p>
<p>413 CLASSIFIED ACCORDING TO COURSE AND TYPE OF MATERIAL SP = SUPERPAVE WITHOUT RECLAIMED MATERIALS SR = SUPERPAVE WITH RECLAIMED MATERIALS (RAP, RAS OR RAP & RAS)</p>	<p>SILO STORAGE <i>see Bulletin 27, Chapter 1, Section 2.10 and Appendix G for explication</i></p>	<p>15</p>	<p>SP4.75 SP9.5 SP12.5 SP19B SP19W SP25B SP25BC SP37.5</p>	<p>SR4.75 SR9.5 SR12.5 SR19B SR19W SR25B SR25BC SR37.5</p>		

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<p>413 CLASSIFIED ACCORDING TO COURSE AND TYPE OF MATERIAL SP = SUPERPAVE WITHOUT RECLAIMED MATERIALS SR = SUPERPAVE WITH RECLAIMED MATERIALS (RAP, RAS OR RAP & RAS)</p>	<p>HALF BATCH/FULL BATCH <i>see Bulletin 27, Chapter 1, Section 3.2 for explication</i></p>	<p>16</p>	<p>SP4.75 SP9.5 SP12.5 SP19B SP19W SP25B SP25BC SP37.5</p>	<p>SR4.75 SR9.5 SR12.5 SR19B SR19W SR25B SR25BC SR37.5</p>		
<p>413 CLASSIFIED ACCORDING TO COURSE AND TYPE OF MATERIAL SP = SUPERPAVE WITHOUT RECLAIMED MATERIALS SR = SUPERPAVE WITH RECLAIMED MATERIALS (RAP, RAS OR RAP & RAS)</p>	<p>HOT RAP DESIGN <i>see Bulletin 27, Appendix H for explication</i></p>	<p>17</p>	<p>SP9.5 SP12.5 SP19B SP19W SP25B SP25BC SP37.5</p>	<p>SR4.75 SR9.5 SR12.5 SR19B SR19W SR25B SR25BC SR37.5</p>		
<p>413 CLASSIFIED ACCORDING TO COURSE AND TYPE OF MATERIAL SP = SUPERPAVE WITHOUT RECLAIMED MATERIALS SR = SUPERPAVE WITH RECLAIMED MATERIALS (RAP, RAS OR RAP & RAS) WM = WARM MIX ASPHALT SUPERPAVE WITHOUT RECLAIMED MATERIALS WR = WARM MIX ASPHALT SUPERPAVE WITH RECLAIMED MATERIALS (RAP, RAS, OR RAP & RAS)</p>	<p>ASPHALT IGNITION FURNACE</p>	<p>97</p>	<p>SP4.75 SP9.5 SP12.5 SP19B SP19W SP25B SP25BC SP37.5</p>	<p>SR4.75 SR9.5 SR12.5 SR19B SR19W SR25B SR25BC SR37.5</p>	<p>WM4.75 WM9.5 WM12.5 WM19B WM19W WM25B WM25BC WM37.5</p>	<p>WR4.75 WR9.5 WR12.5 WR19B WR19W WR25B WR25BC WR37.5</p>

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<p>413 CLASSIFIED ACCORDING TO COURSE AND TYPE OF MATERIAL SP = SUPERPAVE WITHOUT RECLAIMED MATERIALS SR = SUPERPAVE WITH RECLAIMED MATERIALS (RAP, RAS OR RAP & RAS) WM = WARM MIX ASPHALT SUPERPAVE WITHOUT RECLAIMED MATERIALS WR = WARM MIX ASPHALT SUPERPAVE WITH RECLAIMED MATERIALS (RAP, RAS, OR RAP & RAS)</p>	<p>ASPHALT SOLVENT EXTRACTION</p>	<p>98</p>	<p>SP4.75 SP9.5 SP12.5 SP19B SP19W SP25B SP25BC SP37.5</p>	<p>SR4.75 SR9.5 SR12.5 SR19B SR19W SR25B SR25BC SR37.5</p>	<p>WM4.75 WM9.5 WM12.5 WM19B WM19W WM25B WM25BC WM37.5</p>	<p>WR4.75 WR9.5 WR12.5 WR19B WR19W WR25B WR25BC WR37.5</p>
<p>413</p>	<p>ASPHALT MIXTURE-ADDITIVE <i>mixing AC & fiber or rubber for homogenous mixture</i></p>	<p>186</p>	<p>ASTRIP FIBER RUBBER</p>			
<p>9000-616X – LONG LIFE ASPHALT PAVEMENT (LLAP) ASPHALT RICH BASE COURSE [Only to be used with the Long Life Pavement Asphalt Pavement, Asphalt Rich Base Course Special Provision] CLASSIFIED ACCORDING TO COURSE AND TYPE OF MATERIAL SP = SUPERPAVE WITHOUT RECLAIMED MATERIALS SR = SUPERPAVE WITH RECLAIMED MATERIALS (RAP, RAS OR RAP & RAS) WM = WARM MIX ASPHALT SUPERPAVE WITHOUT RECLAIMED MATERIALS WR = WARM MIX ASPHALT SUPERPAVE WITH RECLAIMED MATERIALS (RAP, RAS, OR RAP & RAS) -ARB = ASPHALT RICH BASE</p>	<p>ASPHALT MIXTURES <i>Samples for Theoretical Maximum Specific Gravity (Gmm)</i></p>	<p>2</p>	<p>SP25BC- ARB SP37.5- ARB</p>	<p>SR25BC- ARB SR37.5-ARB</p>	<p>WM25-BC- ARB WM37.5- ARB</p>	<p>WR25BC- ARB WR37.5- ARB</p>

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<p>9000-616X – LONG LIFE ASPHALT PAVEMENT (LLAP) ASPHALT RICH BASE COURSE [Only to be used with the Long Life Pavement Asphalt Pavement, Asphalt Rich Base Course Special Provision]</p> <p>CLASSIFIED ACCORDING TO COURSE AND TYPE OF MATERIAL SP = SUPERPAVE WITHOUT RECLAIMED MATERIALS SR = SUPERPAVE WITH RECLAIMED MATERIALS (RAP, RAS OR RAP & RAS) WM = WARM MIX ASPHALT SUPERPAVE WITHOUT RECLAIMED MATERIALS WR = WARM MIX ASPHALT SUPERPAVE WITH RECLAIMED MATERIALS (RAP, RAS, OR RAP & RAS) -ARB = ASPHALT RICH BASE</p>	<p>ASPHALT DENSITY SAMPLES</p>	<p>11</p>	<p>SP25BC-ARB SP37.5-ARB</p>	<p>SR25BC-ARB SR37.5-ARB</p>	<p>WM25-BC-ARB WM37.5-ARB</p>	<p>WR25BC-ARB WR37.5-ARB</p>
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<p>9000-616X – LONG LIFE ASPHALT PAVEMENT (LLAP) ASPHALT RICH BASE COURSE [Only to be used with the Long Life Pavement Asphalt Pavement, Asphalt Rich Base Course Special Provision]</p> <p>CLASSIFIED ACCORDING TO COURSE AND TYPE OF MATERIAL SP = SUPERPAVE WITHOUT RECLAIMED MATERIALS SR = SUPERPAVE WITH RECLAIMED MATERIALS (RAP, RAS OR RAP & RAS) WM = WARM MIX ASPHALT SUPERPAVE WITHOUT RECLAIMED MATERIALS WR = WARM MIX ASPHALT SUPERPAVE WITH RECLAIMED MATERIALS (RAP, RAS, OR RAP & RAS) -ARB = ASPHALT RICH BASE</p>	<p>ASPHALT IGNITION FURNACE</p>	<p>97</p>	<p>SP25BC-ARB SP37.5-ARB</p>	<p>SR25BC-ARB SR37.5-ARB</p>	<p>WM25-BC-ARB WM37.5-ARB</p>	<p>WR25BC-ARB WR37.5-ARB</p>
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<p>9000-616X – LONG LIFE ASPHALT PAVEMENT (LLAP) ASPHALT RICH BASE COURSE [Only to be used with the Long Life Pavement Asphalt Pavement, Asphalt Rich Base Course Special Provision]</p> <p>CLASSIFIED ACCORDING TO COURSE AND TYPE OF MATERIAL SP = SUPERPAVE WITHOUT RECLAIMED MATERIALS SR = SUPERPAVE WITH RECLAIMED MATERIALS (RAP, RAS OR RAP & RAS) WM = WARM MIX ASPHALT SUPERPAVE WITHOUT RECLAIMED MATERIALS WR = WARM MIX ASPHALT SUPERPAVE WITH RECLAIMED MATERIALS (RAP, RAS, OR RAP & RAS) -ARB = ASPHALT RICH BASE</p>	<p>ASPHALT SOLVENT EXTRACTION</p>	<p>98</p>	<p>SP25BC-ARB SP37.5-ARB</p>	<p>SR25BC-ARB SR37.5-ARB</p>	<p>WM25-BC-ARB WM37.5-ARB</p>	<p>WR25BC-ARB WR37.5-ARB</p>
<p>419 CLASSIFIED ACCORDING TO COURSE AND TYPE OF MATERIAL SMA = STONE MATRIX ASPHALT WSM = WARM MIX (WMA) STONE MATRIX ASPHALT</p>	<p>ASPHALT DENSITY SAMPLES</p>	<p>11</p>	<p>SMA95 SMA125</p>	<p>WSM95 WSM125</p>		
<p>419 CLASSIFIED ACCORDING TO COURSE AND TYPE OF MATERIAL SMA = STONE MATRIX ASPHALT WSM = WARM MIX (WMA) STONE MATRIX ASPHALT</p>	<p>ASPHALT IGNITION FURNACE</p>	<p>97</p>	<p>SMA95 SMA125</p>	<p>WSM95 WSM125</p>		

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<p>419 CLASSIFIED ACCORDING TO COURSE AND TYPE OF MATERIAL SMA = STONE MATRIX ASPHALT WSM = WARM MIX (WMA) STONE MATRIX ASPHALT</p>	<p>ASPHALT SOLVENT EXTRACTION</p>	<p>98</p>	<p>SMA95 SMA125</p>	<p>WSM95 WSM125</p>
<p>420 CLASSIFIED ACCORDING TO COURSE AND TYPE OF MATERIAL HR = HOT MIX ASPHALT MIX WITH RAP. HV = HOT MIX ASPHALT VIRGIN MIX. WR = WARM MIX ASPHALT MIX WITH RAP. WV = WARM MIX ASPHALT VIRGIN MIX.</p>	<p>ASPHALT IGNITION FURNACE</p>	<p>97</p>	<p>HRPERV19B HRPERV9.5</p>	<p>HVPERV19B HVPERV9.5 WRPERV19 B WRPERV9.5 WVPERV19B WVPERV9.5</p>
<p>420 CLASSIFIED ACCORDING TO COURSE AND TYPE OF MATERIAL HR = HOT MIX ASPHALT MIX WITH RAP. HV = HOT MIX ASPHALT VIRGIN MIX. WR = WARM MIX ASPHALT MIX WITH RAP. WV = WARM MIX ASPHALT VIRGIN MIX.</p>	<p>ASPHALT SOLVENT EXTRACTION</p>	<p>98</p>	<p>HRPERV19B HRPERV9.5</p>	<p>HVPERV19B HVPERV9.5 WRPERV19 B WRPERV9.5 WVPERV19B WVPERV9.5</p>
<p>489 CLASSIFIED ACCORDING TO COURSE AND TYPE OF MATERIAL UTBWC = ULTRA-THIN BONDED WEARING COURSE -A = TYPE A, -B = TYPE B, -C = TYPE C</p>	<p>ASPHALT IGNITION FURNACE</p>	<p>97</p>	<p>UTBWC-A UTBWC-B UTBWC-C</p>	

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489 CLASSIFIED ACCORDING TO COURSE AND TYPE OF MATERIAL UTBWC = ULTRA-THIN BONDED WEARING COURSE -A = TYPE A, -B = TYPE B, -C = TYPE C	ASPHALT SOLVENT EXTRACTION	98	UTBWC-A UTBWC-B UTBWC-C
489 CLASSIFIED ACCORDING TO COURSE AND TYPE OF MATERIAL UTBWC = ULTRA-THIN BONDED WEARING COURSE -A = TYPE A, -B = TYPE B, -C = TYPE C	ASPHALT FORENSIC ANALYSIS	5	UTBWC-A UTBWC-B UTBWC-C
501.2, 516.2(k), 1001.2(i) CLASSIFIED ACCORDING TO TYPE AND USE OF RESIN. SEC 501.2 {EPX 31, 33} SEC 516.2(k) {EPXDB} SEC 1001.2(i) {EPX 11, 13, 22}	EPOXY RESIN	404	EPX11 EPX22 EPX31 EPXDB EPX13 EPX33 EPOLIQ
503 CLASSIFIED ACCORDING TO TYPE PSEALER IS ANY PENETRATING SEALER	CONCRETE SEALER	402	ASPALL PSEALR
503.2 & 1019.2(a)	LINSEED OIL, BOILED	385	LSOBOD LSOBOI LSORAW
516.2(m) MATERIAL CLASSIFIED ACCORDING TO ASTM TYPE. BULLETIN 15	PREFORMED CELLULAR POLYSTYRENE <i>used in concrete pavement patching</i>	545	C578
601	ASPHALT ROOF CEMENT <i>mastic pipe sealer</i>	116	MASTIC

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<p>601.2(a)3a MATERIAL IS CLASSIFIED BY TYPE OF PIPE BULLETIN 15</p>	<p>PIPE - CONCRETE <i>used in construction of pipe culverts</i></p>	<p>225</p>	<p>CL1 CL2 CL3 CL4 CL5</p>			
<p>601.2(a)6.c thru 6.g, 604.2(a)1.c thru 1.h, & 610.2(a)3, & 615.2 MATERIAL IS CLASSIFIED BY THEIR AASHTO SPECIFICATION. BULLETIN 15</p>	<p>PIPE – POLYETHYLENE (PE/HDPE) <i>used in construction of pipe culverts, underdrains, base drains, and subsurface drain outlets.</i> <i>M294 = 12"-60" pipe,</i> <i>M252= 4"-15" pipe</i> <i>C = Type C (corrugated inside/outside),</i> <i>D = Type D (smooth inside/outside),</i> <i>S = Type S (smooth inside & corrugated outside),</i> <i>P = Perforated</i> <i>R = Recycled, V = Virgin</i></p>	<p>297</p>	<p>F714 F894 M252CP M252S M252SP</p> <p><u>Note:</u> PIPE Material Class used for Misc. PVC Pipes</p>	<p>M294CPR M294CPV M294CR M294CV</p>	<p>M294DPR M294DPV M294DR M294DV</p>	<p>M294SPR100 M294SPR50 M294SPV100 M294SPV50 M294SR100 M294SR50 M294SV100 M294SV50 PIPE</p>
<p>601.2(a)4, 602.2, 604.2(a)2, 610.2(a)7 & 610.2(a)8 MATERIAL IS CLASSIFIED BY PIPE TYPE. BULLETIN 15</p>	<p>PIPE - METAL <i>used in construction of pipe culverts, underdrains and base drains</i> <i>DI=ductile iron pipe. CAA=corrugated aluminum alloy</i> <i>CSMCI=corrugated steel pipe, metallic coated type I</i> <i>CSCMIA = CSMCI Type IA, HC=half circle pipe</i> <i>CSPAMC=corrugated steel pipe-arch, metallic coat</i> <i>CCGSB=coated corrugated galvanized steel, type B coat</i> <i>CCGSC=coated corrugated galvanized steel, type C coat</i> <i>CAAPA=corrugated aluminum alloy pipe-arch</i> <i>CCGSPA=coated corrugated galvanized steel pipe-arch</i> <i>CCGS10=coated corrugated galvanized steel, grade 10/10</i></p>	<p>290</p>	<p>PIPE DI CAA CAAPA</p>	<p>CCGSB CCGSC CCGSPA CCGS10</p>	<p>CSMCI CSMCI A CSPAMC HC</p>	

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<p>601.2(a)6.a, 601.2(a)6.c, 604.2(a)1.c, 604.2(a)1.e, 610.2(a)4, 610.2(a)6, & 860.2(c)3</p> <p>MATERIAL IS CLASSIFIED BY ASTM SPECIFICATION OR AASHTO SPECIFICATION. BULLETIN 15</p>	<p>PIPE - POLYVINYL CHLORIDE (PVC) <i>used in construction of pipe culverts, combination storm sewer and underdrain, underdrains and base drains, and storm inlet protection</i> <i>S = Type S (smooth inside & corrugated outside)</i> <i>P = Perforated</i></p>	<p>295</p>	<p>D2680 D3034</p> <p><u>Note:</u> PIPE Material Class used for Misc. PVC Pipes</p>	<p>F679 F758 F794 F949</p>	<p>M278S M278SP M304 M304P PIPE</p>
<p>610.2(a)5 and 610.2(a)6 MATERIAL IS CLASSIFIED BY ASTM SPECIFICATION. BULLETIN 15</p>	<p>PIPE - ACRYLONITRIALE BUTADIENE STYRENE (ABS) <i>used in construction of pavement underdrains and base drains</i></p>	<p>298</p>	<p>D2680 D2751 PIPE</p>	<p><u>Note:</u> PIPE Material Class used for Misc. ABS Pipes</p>	
<p>601.2(a)6.f, 601.2(a)6.g, & 604.2(a)1.h MATERIAL IS CLASSIFIED BY THEIR AASHTO SPECIFICATION. BULLETIN 15</p>	<p>PIPE – POLYPROPYLENE (PP) <i>used in construction of pipe culverts and combination storm sewers and underdrains. M 330 = 12"-60" pipe</i> <i>D = Type D (smooth inside/outside)</i> <i>S = Type S (smooth inside & corrugated outside)</i> <i>P = Perforated</i></p>	<p>299</p>	<p>M330D100 M330D50 M330DP50</p>	<p>M330S100 M330S50 M330SP50</p>	<p>PIPE</p> <p><u>Note:</u> PIPE Material Class used for Misc. PP Pipes</p>
<p>610.2(a)9 MATERIAL CLASSIFIED AS EITHER WALL OR EDGE DRAIN. BULLETIN 15</p>	<p>PREFABRICATED DRAIN <i>used in construction of pavement base drains</i> <i>Edge=edge drains for pavement</i> <i>Wall=wall drains for retaining walls</i></p>	<p>565</p>	<p>EDGE WALL</p>		
<p>678.2(a)1, 1031.2(n), 1103.9(b) AWPA11 CLASSIFIED ACCORDING TO TYPE OF PRESERVATIVE (WATER BASED, PENTACHLOROPHENOL, CREOSOTE).</p>	<p>WOOD PRESERVATIVE</p>	<p>460</p>	<p>CRSOTE PENTA WPWTR</p>		
<p>680.2</p>	<p>PRIMER - WATERPROOFING, See Bulletin 25</p>	<p>156</p>	<p>WA1 WM1</p>		

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<p>701.1(e) CLASSIFIED ACCORDING TO TYPE OF CEMENT</p>	<p>CEMENT <i>wLS = with Limestone as processing additive</i></p>	<p>276</p>	<p>1 2 3 4 5</p>	<p>1wLS 2wLS 3wLS 4wLS 5wLS</p>	<p>1L 1P 1S 2MH 2MHwLS SPLCEM</p>
<p>702 CLASSIFIED ACCORDING TO CLASS OR PERFORMANCE GRADE OF ASPHALT. BULLETIN 25 (PGS 21-26 & 67-70)</p>	<p>ASPHALT BINDER <i>standard grades are PG58S-28, PG64S-22, & PG64E-22 non-standard grades include all other grades</i></p>	<p>1</p>	<p>AR64-22 CR64E-22 PG46S-40 PG52S-28 PG52S-34 PG58S-28 PG58E-28</p>	<p>PG64S-22 PG64S-28 PG64H-22 PG64E-22</p>	<p>WA1 WM1</p>
<p>702</p>	<p>ASPHALT RECYCLING AGENTS</p>	<p>3</p>	<p>RA2 RA6</p>	<p>RA25 ERA25</p>	<p>RA100</p>
<p>CLASSIFIED ACCORDING TO COURSE AND TYPE OF MATERIAL. HD=HEAVY DUTY RP=RAP HR=HEAVY DUTY RAP SP=SPECIAL PROVISION</p>	<p>ASPHALT FORENSIC ANALYSIS</p>	<p>5</p>	<p>AC5 BCBC BCBCRP BCBCSP FJ1 FJ4 ID2B ID2BRP ID2BSP ID2W ID2WRP ID2WSP ID3W ID3WRP ID3WSP</p>	<p>SP6.3 SP9.5 SP12.5 SP19B SP19W SP25B SP25BC SP37.5</p>	<p>SR6.3 SR12.5 SR25B SR9.5 SR19B SR19W SR25BC SR37.5 WM6.3 WR6.3</p>

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<p>702 CLASSIFIED ACCORDING TO TYPE OR CLASS OF EMULSION BULLETIN 25 (PG. 27-58)</p>	<p>EMULSIFIED ASPHALT</p>	<p>41</p>	<p>AEP AET CMS-2 CMS-2s CNTT CQS-1h CQS-1hP CRS-1 CRS-1P CRS-2 CRS-2P</p>	<p>CSS-1 CSS-1h CSS-1hP CSS-1P E-10 E-1PRIME EDP HFMS-2 HFMS-2h HFMS-2s HFRS-2 HFRS-2P</p>	<p>MS-2 NTT RS-1 RS-2 RS-2P SS-1 SS-1h SS-1hP SS-1P UTFCEM TACK</p>
<p>702 CLASSIFIED ACCORDING TO TYPE AND GRADE OF CUTBACK. BULLETIN 25 (PGS 59-66 & 70)</p>	<p>ASPHALT CUTBACK</p>	<p>10</p>	<p>MC30 MC70 MC400 MC800</p>	<p>RC70 RC250 RC800 WP1</p>	
<p>703.1 CLASSIFIED ACCORDING TO AGGREGATE TYPE AND GRADATION. LW=LIGHT WEIGHT AGGREGATE.</p>	<p>FINE AGGREGATE</p>	<p>207</p>	<p>A A1 A2 AM AN</p>	<p>B1 B1M B1N B3 B3M B3N</p>	<p>C 2C 2D 10 FILLER LW 3/8 LW 4</p>

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<p>703.2 CLASSIFIED ACCORDING TO AGGREGATE TYPE AND GRADATION. LW=LIGHT WEIGHT AGGREGATE SL=SLAG</p>	<p>COARSE AGGREGATE</p>	<p>203</p>	<p>A1 A1SL A2A A2ASL A3 A3SL A4 A4GL A4SL A5 A5SL A7 A7GL A7SL A8 A8GL A8SL A9 A9GL A9SL AOGS AOGSSL A57 A57SL</p>	<p>B1 B1GL B1SL B2 B2A B2AGL B2ASL B2GL B2SL B3 B3GL B3SL B4 B4GL B4SL B5 B5GL B5SL B6 B6GL B6SL B7 B7GL B7SL</p>	<p>B67 B67GL B67SL B68 B68GL B68SL B78 B78GL B78SL B89 B89GL B89SL B357 B357GL B357SL B467 B467GL B467SL C1 C1SL C2A C2ASL C3 C3SL</p>
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<p>703.2 CLASSIFIED ACCORDING TO AGGREGATE TYPE AND GRADATION. LW=LIGHT WEIGHT AGGREGATE SL=SLAG</p>	<p>COARSE AGGREGATE</p>	<p>203</p>	<p>A67 A67GL A67SL A68 A68GL A68SL A78 A78GL A78SL A89 A89GL A89SL A357 A357GL A357SL A467 A467SL</p>	<p>B8 B8GL B8SL B9 B9GL B10 B10GL B10SL BOGS BOGSGL BOGSSL B24 B24GL B24SL B56 B56GL B56SL B57 B57GL B57SL</p>	<p>C5 C5SL C7 C7SL C8 C8SL COGS COGSSL C57 C57SL C67 C67SL C467 C467SL LW1/2 LW3/4 2RC</p>
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<p>703.2 CLASSIFIED ACCORDING TO AGGREGATE TYPE AND GRADATION. LW=LIGHT WEIGHT AGGREGATE SL=SLAG</p>	<p>COARSE AGGREGATE</p>	<p>203</p>	<p>A1GL A2 A2GL A2SL A2AGL A3GL A5GL A6 A6GL A6SL A10 A10GL A10SL A24 A24GL A24SL A56 A56GL A57GL A56SL A467GL AOGSGL</p>	<p>B9SL C1GL C2GL C2AGL C3GL C4 C4SL C6 C6SL C8GL C9 C9SL C10 C10GL C10SL C24 C24GL C56 C56GL C57GL C67GL</p>	<p>C68GL C68SL C78 C78GL C89 C89SL C357 C357SL C467GL COGSGL LW7 LW57 S2A S2AGL S2ASL SLGR SOGS SOGSGL SOGSSL 2C 2D 2E 2F 2RC</p>
<p>703.4 CLASSIFIED ACCORDING TO ANTI- SKID TYPE.</p>	<p>ANTI-SKID</p>	<p>249</p>	<p>AS1 AS4</p>	<p>AS2</p>	<p>AS3</p>
<p>704.1(c)1 CLASSIFIED ACCORDING TO CONCRETE CLASS. HES=HIGH EARLY STRENGTH LMC=LATEX MODIFIED CONC. AASRU=STRUCTURES AAPAVE=PAVEMENTS ACLCON=ACCELERATED CONCRETE ASC=ACCELERATED STRUCTURAL CONCRETE</p>	<p>CONCRETE CYLINDER <i>CONC=prestress and precast products</i></p>	<p>217</p>	<p>A AA AAA AAAP AAAPLW AALW AAPAVE AASRU</p>	<p>ACLCON ASC BOXBM BOXCVT C EDWALL HES HPC</p>	<p>IBEAM INLET JNCBOX LMC MEDNBR MHLSEC REWALL SDWALL</p>

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<p>704.1(c)1 CLASSIFIED ACCORDING TO CONCRETE CLASS. HES=HIGH EARLY STRENGTH LMC=LATEX MODIFIED CONCRETE AASTRU=STRUCTURES AAPAVE=PAVEMENTS ACLCON=ACCELERATED CONCRETE ASC=ACCELERATED STRUCTURAL CONCRETE</p>	<p>CONCRETE CORE <i>CONC=prestress and precast products</i></p>	<p>218</p>	<p>A AAA AAP AAPLW AALW AAPAVE AASTRU ACLCON ASC</p>	<p>BOXBM BOXCVT BTMNS C CORE EDWALL HES HPC</p>	<p>IBEAM INLET JNCBOX LMC MEDNBR MHLSEC SDWALL REWALL</p>
<p>704</p>	<p>CONCRETE MIX</p>	<p>268</p>	<p>FMCH MIX1 MIX2</p>	<p>PEQE RESR</p>	<p>SPOU 1212</p>
<p>705.1(b) & 705.1(c)</p>	<p>PREMOLDED EXPANSION JOINT MATERIAL <i>used in the construction of transverse & longitudinal joints in concrete pavement</i></p>	<p>424</p>	<p>CORK</p>	<p>FIBER</p>	<p>SPONGE</p>
<p>705.3 MATERIAL IS CLASSIFIED BY COMPLETE UNIT AND THE INDIVIDUAL DOWELS.</p>	<p>LOAD TRANSFER UNIT <i>used in concrete pavements letter following DOWEL indicates type of bond breaker, LTU is a basket assembly</i></p>	<p>267</p>	<p>DOWELA</p>	<p>DOWELB</p>	<p>LTU</p>
<p>705.4(b)</p>	<p>RUBBERIZED JOINT SEALING MATERIAL <i>used in the cleaning and sealing of transverse & longitudinal joints in existing asphalt and concrete pavements and for sawing and sealing new asphalt pavement overlays.</i></p>	<p>63</p>	<p>TYPE2</p>	<p>TYPE4</p>	
<p>705.4(c)</p>	<p>RUBBERIZED JOINT SEALING MATERIAL <i>used in the cleaning and sealing of transverse & longitudinal joints in existing asphalt and concrete pavements and for sawing and sealing new asphalt pavement overlays</i></p>	<p>63</p>	<p>TYPE1</p>		

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705.4(d) PREFORMED NEOPRENE COMPRESSION SEALS FOR PAVEMENT JOINTS.	NEOPRENE PAVEMENT SEAL	422	PAVMNT <u>Note:</u> Blank Material Class used for Misc. Seals	SEAL
705.4(d) PREFORMED NEOPRENE COMPRESSION SEALS FOR BRIDGE JOINTS	NEOPRENE BRIDGE SEAL	423	COMP	STRIP
705.4(e) CLASSIFIED ACCORDING TO ASTM TYPE. BULLETIN 15	PREFORMED CLOSED CELL POLYETHYLENE JOINT FILLER <i>used in the construction of transverse & longitudinal joints in concrete pavement</i>	605	D3204	
705.4(f) CLASSIFIED ACCORDING TO ASTM TYPE. BULLETIN 15	PREFORMED POLYURETHANE FOAM JOINT FILLER <i>used in the construction of transverse longitudinal joints in concrete pavement</i>	610	POLYUR	
705.4(g)	ASPHALT RUBBER SEALING COMPOUND <i>used for cleaning and sealing longitudinal and transverse joints and cleaning and sealing cracks in existing asphalt pavement surfaces as part of routine maintenance and before placing an overlay and also used for sawing and sealing new asphalt pavement overlays</i>	63	D5078	
705.5(b) CLASSIFIED ACCORDING TO ASTM TYPE. BULLETIN 15	PIPE GASKET <i>elastomeric gaskets for circular pipe</i>	600	C361	C443
705.5(c)2 POLYVINYL CHLORIDE WATERSTOPS USED IN CONCRETE PAVEMENT.	PVC WATERSTOP	416	WSTOP <u>Note:</u> Blank Material Class used for Misc. Waterstop	
705.6	GRAPHITE LUBRICANT	401	GLUBE	

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705.8	CAULKING COMPOUND	405	COMCAU		
705.9 BULLETIN 15	JOINT BACKING MATERIAL	615	JTBACK		
709.1 MATERIAL IS CLASSIFIED ACCORDING TO THE REBAR COATING.	REBAR <i>black = uncoated, epoxy = epoxy coated, galv = galvanized</i>	231	BLACK	EPOXY	GALV
709.3 MATERIAL IS CLASSIFIED BY COATING WITH A CLASS FOR THE TYPE WIRE.	WELDED WIRE MESH-PLAIN <i>black = uncoated, epoxy = epoxy coated, galv = galvanized</i>	230	BLACK CONCME	EPOXY PIPEME	WIRE
709.4 MATERIAL IS CLASSIFIED BY COATING WITH A CLASS FOR THE TYPE WIRE	WELDED WIRE MECH - DEFORMED <i>black = uncoated, epoxy = epoxy coated, galv = galvanized, deformed = rough surface</i>	235	BLACK GALV	EPOXY WIRE	
711.1(a) & 711.1(b) & 711.1(c) CLASSIFIED AS WHITE AND BURLAP- BACKED.	POLYETHYLENE SHEETING <i>used for curing concrete</i> BRLBKD = burlap-backed	409	WHITE	BRLBKD <u>Note:</u> Blank Material Class used for Misc. Sheeting	
711.1(d)	BURLAP <i>used for curing concrete</i>	407	BURLAP <u>Note:</u> Blank Material Class used for Misc. Burlap		
711.2(a), 711.2(b), 711.2(c) CLASSIFIED BY PIGMENT COLOR INTERM IS FOR BRIDGE DECK INTERMEDIATE CURING COMPOUND.	CURING COMPOUND	398	BLACK WHITE	CLEAR	INTERM
711.3(d), 711.3(e) CLASSIFIED ACCORDING TO TYPE. AEA = AIR ENTRAINING AGENT LATEX = LATEX EMULSION	CONCRETE ADMIXTURES	403	AEA	LATEX	

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<p>711.3(f) ACCL = ACCELERATOR CI = CORROSION INHIBITOR HRWR = HIGH RANGE WR WR = WATER REDUCER WR-ACCL = WATER REDUCER AND ACCELERATOR RE = RETARDER RR = WATER REDUCER/RETARDER TYPE S – SPECIFIC PERFORMANCE ADMIXTURES - CLASSIFIED BY TYPE: BA = BONDING AGENT CLR = COLORANT LI = LITHIUM FOR ALKALI SILICA REACTIVITY (ASR) PA = PUMPING AID PD = POLYMER DISPERSING SC = SHRINKAGE CONTROL OR REDUCTION SEA = STRENGTH ENHANCING ADMIXTURE TWW = TRUCK WATER WASHOUT UWVM = UNDERWATER VISCOSITY MODIFYING (ANTI-WASHOUT) VM = VISCOSITY MODIFYING WKR = WORKABILITY RETAINING WP = WATERPROOFING</p>	<p>OTHER ADMIXTURES</p>	<p>403</p>	<p>ACCL S-BA CI S-CLR HRWR S-LI WR S-PA WR-ACCL S-PD RE S-SC RR S-SEA S-TWW S-UWVM S-VM S-WKR S-WP</p>
<p>713.2 MATERIAL IS CLASSIFIED AS PRECAST CONCRETE BLOCK, SEWER BRICK & BUILDING BRICK.</p>	<p>MASONRY UNITS <i>block = precast concrete block</i> <i>sbrick = sewer brick, bbrick = building brick</i></p>	<p>221</p>	<p>BLOCK <u>Note:</u> Blank Material Class used for Misc. Masonry Units</p>

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713.1	BRICK	223	BBRICK <u>Note:</u> Blank Material Class used for Misc. Brick	SBRICK	
720.1 WATER FOR MIXING OR CURING CONCRETE.	WATER	420	WTRMIX	AH20	H20CUC
721	CALCIUM CHLORIDE	394	LIQUID	SOLID	
722	ROCK SALT	429	RSALT	MSALT	ESALT
724.2	FLYASH	276	FLYA FLYAC FLYAF		
724.3	GROUND GRANULATED BLAST FURNACE SLAG	276	GGBFS		
724.4	SILICA FUME	276	SIFUME		
735.1(a) MATERIAL IS CLASSIFIED ACCORDING TO THE VARIOUS CLASSES.	GEOTEXTILES used for erosion & sedimentation control, subsurface draining and separation of soils <i>CL = class (i.e., CL1 = class 1)</i> <i>PAVFAB = Paving Fabric (AASHTO M 288)</i>	417	CL1 CL3A CL4B	CL2A CL3B CL4C	CL2B CL4A PAVFAB
736	GEOMEMBRANE	410	SMOOTH	TEXTURED	
738	GEOGRIDS <i>CL = Class and TY = Type</i> <i>(i.e., CL1TYA = Class 1 Type A)</i>	412	CL1TYA CL1TYB	CL2TYA CL2TYB	CL3TYA CL3TYB
804.2(a)	FERTILIZER	419	FERT		
805.2(a)1d (MULCH) 808.2(g)1 (PEAT) FQ-P-166e. CLASSIFIED AS EITHER WOOD CELLULOSE OR PEAT	PEAT MOSS OR MULCH <i>ECM = erosion control mat</i> <i>ECMB = erosion control mulch blanket</i>	425	MULCH	PEAT	

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806.2(a) MATERIAL CLASSIFIED ACCORDING TO TYPE, USING THE FIRST LETTER OF EACH MATERIAL. BULLETIN 15.	EROSION CONTROL BLANKET <i>HVECMB = high velocity ECMB</i> <i>MISCHW = hardware for erosion controls</i>	525	ECM MISCHW	ECMB	HVECMB
806.2(b) MATERIA CLASSIFIED ACCORDING TO TYPE BY MATERIAL. MISCHW DEALS WITH MISCELLANEOUS HARDWARE SUCH AS STAPLES, PINS, STAKES, ETC. BULLETIN 15	TURF REINFORCEMENT MAT <i>POLY = polyethylene turf reinforcing mat</i> <i>NYLON = nylon turf reinforcing mat</i> <i>MISCHW = hardware for reinforcing mats</i>	530	POLY	NYLON	MISCHW
806.2(c) MATERIAL CLASSIFIED BY TYPE. BULLETIN 15	SYNTHETIC ECRM <i>ECRM = erosion control/revegetation mat</i> <i>MISCHW = hardware for ECRM</i>	535	ECRM	MISCHW	
850.2(a)	ROCK, GENERAL	283	CURB SIDEWK	R3 R4 R5	R6 R7 R8 RL
865 CLASSIFIED ACCORDING TO GEOTEXTILE TYPE. BULLETIN 15	SILT BARRIER FENCE <i>used in erosion & sedimentation control code in form:</i> <i>Class-Type-Measurement</i>	515	3A18 3A30	3B18 3B30	
901.3(b)	EMULSIFIED PETROLEUM RESIN DUST PALLIATIVES	12	EPR		
901.3(b)	CALCIUM LIGNOSULFONATE DUST PALLIATIVES	13	LIGNOS		
961.2 & 1103.14(a)	LINE, PLASTIC TRF-COLD	449	PERM	TEMP	
962.2(b) CLASSIFIED ACCORDING TO COLOR AND TYPE.	TRAFFIC PAINT	308	SOLWHT SOLYEL	WTRWHT WTRYEL	

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1001.2(h) MATERIAL IS CLASSIFIED BY CLASSES OF STAY IN PLACE FORMS.	METAL BRIDGE DECK FORMS <i>SIP = stay in place, followed by grade</i>	242	SIP33 SIP50 <u>Note:</u> Blank Material Class used for Misc. Bridge Deck Forms	SIP37 SIP80	SIP40
1001.3(b) MATERIAL CLASSIFIED BY TYPE OF COATING. BULLETIN 15	REBAR CHAIR <i>stain = stainless steel, epoxy = epoxy coated, plast = plastic coated, galv = galvanized</i>	266	EPOXY GALV	PLAST STAIN	
1001.3(b)2 MATERIAL CLASSIFIED BY ASTM TYPE.	TIE WIRE <i>used to secure reinforcement steel in place</i>	580	A684		
Only to be used with the UHPC Non-Pay Item Related Special Provision UHPC = Ultra High Performance Concrete	UHPC – CONCRETE CYLINDER	217	UHPC		
Only to be used with the UHPC Non-Pay Item Related Special Provision UHPC = Ultra High Performance Concrete	UHPC = CONCRETE CORE	218	UHPC		
1002.2(c) MATERIAL CLASSIFIED BY BAR COATING. BULLETIN 15	MECHANICAL REBAR SPLICES <i>used in rehabilitation of concrete structures black = uncoated, epoxy = epoxy coated, galv = galvanized</i>	555	BLACK	EPOXY	GALV
1043	SHOTCRETE – CONCRETE CYLINDER	217	SHOTCRETE		
1043	SHOTCRETE – CONCRETE CORE	218	SHOTCRETE		
1060.2 CLASSIFIED ACCORDING TO APPLICATION ORDER.	STRUCTURAL PAINT	306	PRIME DRYFLM	INTER	TOP

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1101.09 THIS CODE IS USED FOR ALL ELECTRICAL CONDUIT.	ELECTRICAL CONDUIT <i>used in highway lighting</i>	430	ECOND		
1101.10 MATERIAL CLASSIFIED ACCORDING TO STANDARD DRAWINGS. BULLETIN 15.	JUNCTION BOXES <i>used in highway lighting</i>	560	JB1 JB11 JB12	JB2 JB25	
1103.07 & 1103.08	POST - METAL	237	GRAIL	RWFEN	
1103.14(a)2	GLASS BEADS	390	GBEADA GBEADD	GBEADB GBEADE	BGEADC
1107	BEAM CONCRETE	219	BEAM <u>Note:</u> Blank Material Class used for Misc. Beam Concrete		
1107.02(n)3.a, 1107.02(n)3.b, 1107.02(n)3.c, & 1107.02(n)3.d	PRESTRESSING STRAND	238	STRAND		
1107.02(p)1 MATERIAL IS CLASSIFIED ACCORDING TO TYPE SPECIFIED.	CLOSED CELL NEOPRENE SPONGE <i>used in prestress concrete bridge construction</i>	413	TYPE2C <u>Note:</u> Blank Material Class used for Misc.CC Neoprene Sponge		
1110.01(a) and (b) & 1016.2(a)1 THIS MATERIAL IS CLASSIFIED BY TYPE OF RIGHT OF WAY FENCE & PROTECTIVE FENCE.	FENCE FABRIC <i>RW = right of way fence, followed by type #</i> <i>PRTECT = protective fence</i>	233	RW1 PRTECT	RW2 RW5	GRAIL RWFEN
1111.02(b)1 & 1111.02(b)2	POT BEARING DISC BEARING	414	50POT	DISC	

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1111.02(c)5, 1111.02(c)6, & 1111.02(c)7	TEFLON	520	FILLED	UNFILL	
1113.03(f) 50 & 60 DURO. PLAIN & LAMINATED BEARING PADS.	BEARING PAD - NEOPRENE <i>used in prestress concrete bridge construction</i> <i>pl = plain, lam = laminated</i>	414	50PL 60LAM <u>Note:</u> Blank Material Class used for Misc. Bearing Pad	50LAM	60PL
1113.03(h) MATERIAL IS CLASSIFIED ACCORDING TO TYPE SPECIFIED.	BRIDGE SHOE BEDDING <i>used in prestress concrete bridge construction</i>	426	TYPEI	TYPEII	
THIS CODE IS TO BE USED FOR ALL ALUMINUM BOLTS, NUTS, WASHERS & MISCELLANEOUS HARDWARE USED IN A STRUCTURAL APPLICATION.	STRUCTURAL FASTENERS - ALUMINUM	246	BOLT NUT <u>Note:</u> Blank Material Class used for Misc. Fasteners	MISCHW	WASHER
THIS CODE IS TO BE USED FOR ALL ALUMINUM BOLTS, NUTS, WASHERS & MISCELLANEOUS HARDWARE USED IN HIGHWAY LIGHTING.	HIGHWAY LIGHTING FASTENERS - ALUMINUM	247	BOLT NUT	MISCHW	WASHER
THIS CODE IS TO BE USED FOR ALL STEEL BOLTS, NUTS, WASHERS & MISCELLANEOUS HARDWARE USED IN HIGHWAY LIGHTING.	HIGHWAY LIGHTING FASTENERS - STEEL	255	BOLT NUT	MISCHW	WASHER
THIS CODE IS TO BE USED FOR ALL BOLTS, NUTS, WASHERS & MISCELLANEOUS HARDWARE USED IN GUIDE RAIL.	GUIDE RAIL FASTENERS	257	BOLT NUT	MISCHW	WASHER

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THIS CODE IS TO BE USED FOR ALL STEEL BOLTS, NUTS, WASHERS & MISCELLANEOUS HARDWARE USED IN A STRUCTURAL APPLICATION.	STRUCTURAL FASTENERS – STEEL <i>DTI = Direct Tension Indicating Washers</i>	259	BOLT NUT <u>Note:</u> Blank Material Class used for Misc. Fasteners	MISCHW DTI	WASHER
THIS CODE IS TO BE USED FOR WELDERS CERTIFICATIONS & FOR BRIDGE STEEL SAMPLES, BASED ON CROSS-SECTIONAL SHAPE.	BRIDGE STEEL <i>RECT = rectangular</i>	261	ROUND <u>Note:</u> Blank Material Class used for Misc. Bridge Steel	RECT	
MATERIAL CLASSIFIED BY TYPE OF ANCHOR. EPOXY IS USED TO ANCHOR BOLTS OR DOWELS.	ANCHOR BOLT - STEEL	265	WEDGE TIE	HOOK WIGGLE	EPOXY DROPIN

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<p>PDT-REFLECTIVE SHEETING SPECIFICATION. MATERIAL IS CLASSIFIED ACCORDING TO CLASS, COLOR AND WHETHER OR NOT IT IS SCREEN PROCESSED.</p>	<p>REFLECTIVE SHEETING MATERIAL</p>	<p>434</p>	<p>1BK 1BL 1BLSP 1BR 1FLOR 1GO 1GR 1GRSP 1OR 1ORSP 1RD 1RDSP 1WH 1YL 2BK 2BL 2BLSP 2BR 2BRSP 2FLOR 2GD 2GR 2GRSP 2OR 2ORSP 2RD 2RDSP 2WH 2YL</p>	<p>3BL 3BLSP 3BR 3BRSP 3FLOR 3GR 3GRSP 3OR 3ORSP 3RD 3RDSP 3WH 3YL 4BL 4BLSP 4BR 4BRSP 4FLOR 4GR 4GRSP 4OR 4ORSP 4RD 4RDSP 4WH 4YL 5RD 5WH 5YL 6FLOR</p>	<p>7BL 7FLOR 7FLYLG 7GR 7OR 7RD 7WH 7YL 8BL 8BR 8FLOR 8FLYL 8FLYLG 8GR 8OR 8RD 8WH 8YL 9BL 9FLOR 9FLYL 9FLYLG 9GR 9OR 9RD 9WH 9YL TYPE1 TYPE2 TYPE3 TYPE4 TYPE5 TYPE7 TYPE8</p>
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Note: Blank
Material
Class used
for Misc.
Sheeting

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PDT-FLEX. REFLECTIVE SHEETING SPECIFICATION MATERIAL IS CLASSIFIED ACCORDING TO CLASS, COLOR AND WHETHER OR NOT IT IS NON-VINYL OR VINYL MATERIAL.	FLEXIBLE REFLECTIVE SHEETING	435	1FXBL 1FXGR 1FXOR 1FXRD 1FXWH 1FXYL 2FXBL 2FXGR 2FXOR 2FXRD 2FXWH 2FXYL	3FXBL 3FXGR 3FXOR 3FXRD 3FXWH 3FXYL 4FXBL 4FXFLO 4FXGR 4FXOR 4FXRD 4FXWH 4FXYL	6FXBL 6FXFLO 6FXGR 6FXOR 6FXRD 6FXWH 6FXYL TYPE1 TYPE2 TYPE3 TYPE4 TYPE6
PDT-TRAFFIC CONE SPECIFICATION. MATERIAL IS CLASSIFIED BY SIZE.	TRAFFIC CONES	438	18INCH	28INCH	36INCH
PTM 418 (not in Publication 408).	NUCLEAR GAUGES	445	3430	3440	
ANY AND ALL ELECTRICAL CABLE IS CLASSIFIED BY THE CODE.	ELECTRIC CABLE	450	ECABLE <u>Note:</u> Blank Material Class used for Misc. Cable		
PDT SPECIAL PROVISION FOR WATERPROOFING MEMBRANE.	WATERPROOFING MEMBRANE	510	WPM	HDM	TROUGH
PDT ARROWBOARD SPECIFICATIONS. CLASSIFIED AS EITHER VEHICLE OR TRAILER MOUNTED.	ARROWBOARD - DIESEL	570	VEHICL	TRAIL	
PDT ARROWBOARD SPECIFICATIONS. CLASSIFIED AS EITHER VEHICLE OR TRAILER MOUNTED.	ARROWBOARD - SOLAR	575	VEHICL	TRAIL	

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PDT - TRAFFIC COUNTER HOSE SPECIFICATION.	TRAFFIC COUNTER HOSE	585	HOSE		
PDT - CHANGEABLE MESSAGE SIGN SPECIFICATION. CLASSIFIED AS 1, 2, OR 3 LINE SIGN.	CHANGEABLE MESSAGE SIGN - DIESEL	590	1LINE	2LINE	3LINE
PDT - CHANGEABLE MESSAGE SIGN SPECIFICATION. CLASSIFIED AS 1, 2, OR 3 LINE SIGN.	CHANGEABLE MESSAGE SIGN - SOLAR	595	1LINE	2LINE	3LINE
PDT - SPECIFICATION FOR CARBIDE USED FOR SNOWPLOWS. BLADES SENT TO LTS FOR HARDNESS TESTING.	SNOWPLOW BLADES	620	SNOW		
CLASSIFIED AS NEW (ABRASN) OR SPENT (ABRASS).	SPENT ABRASIVE	310	ABRASN	ABRASS	
WATER FOR ENVIRONMENTAL PURPOSES.	WATER	421	WTRENV		
PRM24 (not listed in Publication 408).	WINTERIZED DIESEL FUEL	399	DFUEL		
See Chart	SOIL, DISTURBED	302	BACKFL FOUN RM 6 TPSOIL	CUTSLP RM 2.8 SLSRVY	EMBKMT RM 4 SUBGRD
See Chart	SOIL, UNDISTURBED	303	CUTSLP RM 2.8	EMBKMT SLSRVY	FOUN SUBGRD

SOILS CHART

Material Class	Embkmt	Tpsoil	Cutslp	Backfl	Subgrd	Slsrvy	Undisturbed Soil
Publication 408 section:	206.2(a)	802.2	203 & 204	206.3	210.3(b)		206.2(a). 210.3, 203/4

Test

Test	Embkmt	Tpsoil	Cutslp	Backfl	Subgrd	Slsrvy	Undisturbed Soil
sample prep, hydrometer, sieve analysis	X	X	X	X	X	X	X
liquid/plastic limits, specific gravity	X		X	X	X	X	X
moisture/density	X				X		
measure resistivity	X			X			
expansion	X						
direct shear	X		X	X	X		X
California bearing ratio	X				X		
pH factor	X			X			
wet and dry ignition	X	X				X	
consolidation and triaxial comp.	X			X	X		X
cement stabilization	X						
natural water content						X	X
natural density and unconfined comp.						X	X
gradation and wet/dry				X			
chlorides and sulfates				X			
permeability				X	X		X

Note: Undisturbed Soil has three material classes, EMBKMT, SUBGRD, and CUTSLP, whose Publication 408 section corresponds to Publication 408 section of the same material class for disturbed soil.

EMBKMT = EMBANKMENT [206.2(a)]

TPSOIL = TOPSOIL [802.2]

SLSRVY = SOIL SURVEY

BACKFL = BACKFILL [206.3]

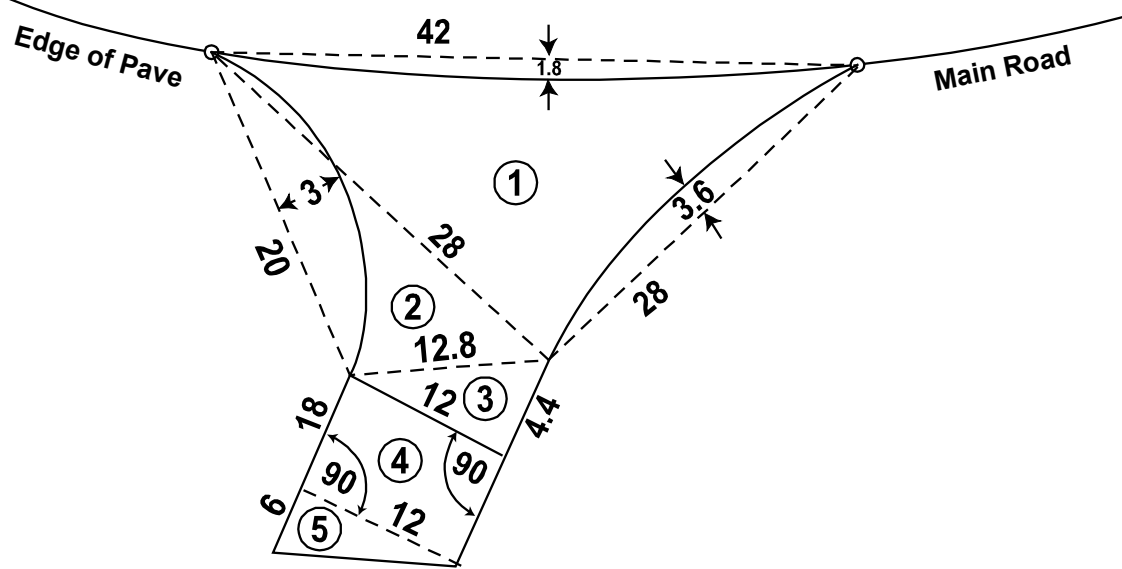
SUBGRD = SUBGRADE [210.3(b)]

CUTSLP = CUTSLOPE [203 & 204]

FIELD COMPUTATION GUIDES

The following field computation guides are provided to assist project personnel in computing various pay quantities.

Suggested Method and Measuring and Computing Approach Areas



Triangle No. 1

$$S = \frac{1}{2} \text{ Perimeter}$$

$$42 + 28 + 28 = 98$$

$$\frac{1}{2} \text{ of } 98 = 49$$

$$S = 49$$

$$\text{Area} = \sqrt{S(S-42)(S-28)(S-28)}$$

49	49	49
-42	-28	-28
7		
21	21	

$$\text{Area} = \sqrt{49 \times 7 \times 21 \times 21}$$

$$\text{Area} = \sqrt{151263} = 388.93$$

Triangle No. 5

$$\text{Area} = \frac{1}{2} B \times H$$

$$\text{Area} = \frac{1}{2} 6 \times 12$$

$$\text{Area} = 3 \times 12$$

$$\text{Area} = 36$$

Triangle No. 2

$$\text{Area} = \sqrt{S(S-28.0)(S-20.0)(S-12.8)}$$

30.4	30.4	30.4
-28.0	-20.0	-12.8
2.4		
10.4	17.6	

$$\text{Area} = \sqrt{30.4 \times 2.4 \times 10.4 \times 17.6}$$

$$\text{Area} = \sqrt{13354.53} = 115.56$$

Deductions

Triangle No. 1 = $\frac{2}{3} (42 \times 1.8)$
 = $\frac{2}{3} (75.6)$
 = 50.4

Triangle No. 1 = $\frac{2}{3} (28 \times 3.6)$
 = $\frac{2}{3} (100.8)$
 = 67.2

Triangle No. 2 = $\frac{2}{3} (20 \times 3)$
 = $\frac{2}{3} (60)$
 = 40.0

Triangle No. 3

$$\text{Area} = \frac{1}{2} B \times H$$

$$\text{Area} = \frac{1}{2} 12 \times 4.4$$

$$\text{Area} = 6 \times 4.4$$

$$\text{Area} = 26.4$$

Triangle No. 1 388.93

Triangle No. 2 115.56

Triangle No. 3 26.40

Rectangle No. 4 216.00

Triangle No. 5 36.00

Total = 782.89

Deductions = 157.60

Total Paved = 625.29

Deductions

Tri No. 1 = 50.4

Tri No. 1 = 67.2

Tri No. 2 = 40.0

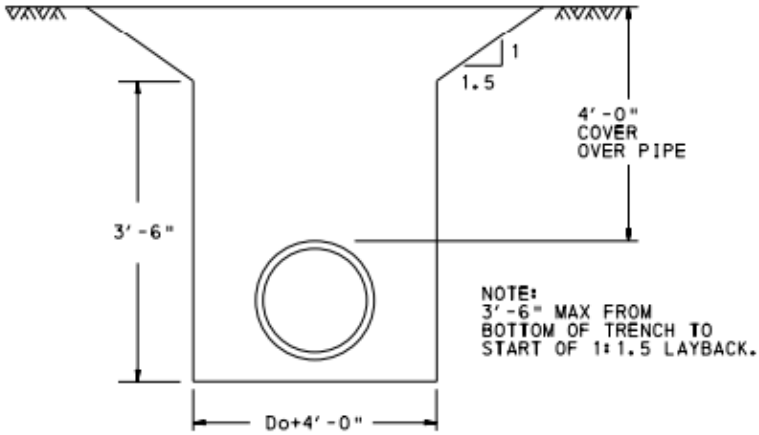
Total = 157.6

Rectangle No. 4

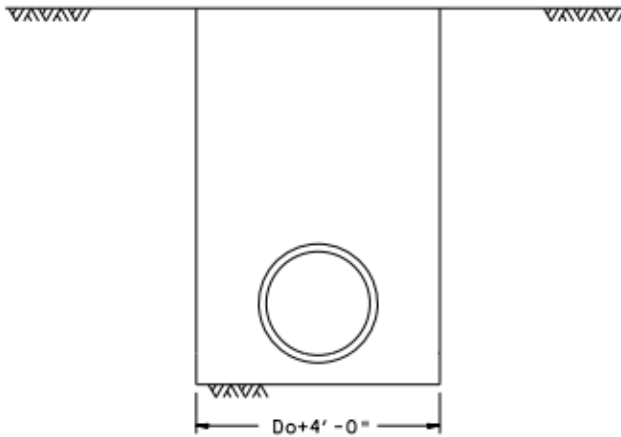
$$\text{Area} = W \times L$$

$$\text{Area} = 12 \times 18$$

$$\text{Area} = 216$$



ABOVE DRAWING SHOWS EXCAVATION
FOR PIPE IN CUT OR FILL WHERE
SUBGRADE IS 3'-6" OR MORE
ABOVE THE BOTTOM OF THE TRENCH.



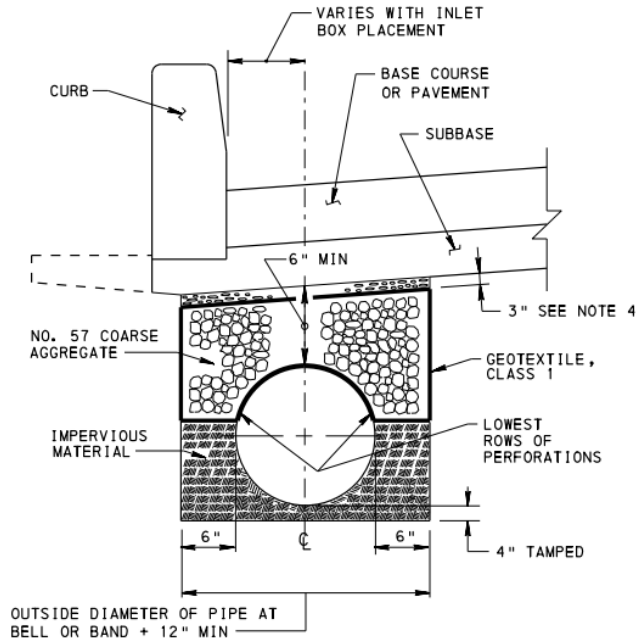
ABOVE DRAWING SHOWS EXCAVATION
FOR PIPE IN CUT OR FILL WHERE
SHORING OR A TRENCH BOX IS USED.

PIPE EXCAVATION

LEGEND

Do = OUTSIDE DIAMETER OF PIPE.

Refer to Publication 72M, Roadway Construction Standards, RC-30M for more detail.



**COMBINATION
STORM SEWER AND UNDERDRAIN**

FORMULA:

$$\text{END AREA} = \frac{0.1073D^2 + 11.52D + 72}{1296}$$

* If greater than 6 in. by X in. add:

$$\frac{12X + DX}{1296} \text{ to the end area}$$

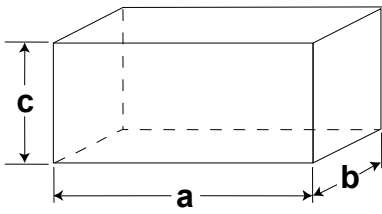
To obtain payment quantity (cubic yards), multiply end area by length of pipe placed (feet) then divide by 3.

PIPE SIZE (in.)	END AREA (yd ²)
12	.17
15	.21
18	.24
21	.28
24	.32
27	.36
30	.40
33	.44
36	.48
42	.57
48	.67
54	.78
60	.89

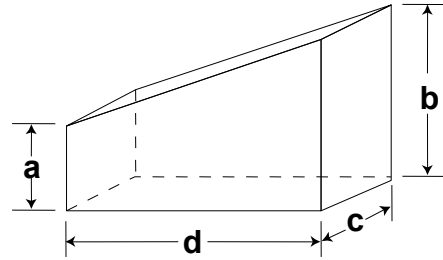
Refer to Publication 72M, Roadway Construction Standards, RC-30M for more detail.

CONCRETE REINFORCING
STANDARD REINFORCING BARS

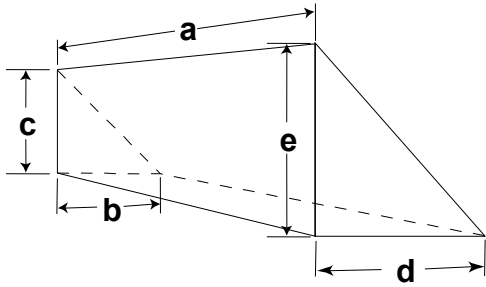
BAR SIZE	Nominal Dimensions		
	Weight lb/ft	Diameter inches	Area in ²
3	0.376	0.375	0.11
4	0.668	0.500	0.20
5	1.043	0.625	0.31
6	1.502	0.750	0.44
7	2.044	0.875	0.60
8	2.670	1.000	0.79
9	3.400	1.128	1.00
10	4.303	1.270	1.27
11	5.313	1.410	1.56
14	7.650	1.693	2.25
18	13.600	2.257	4.00



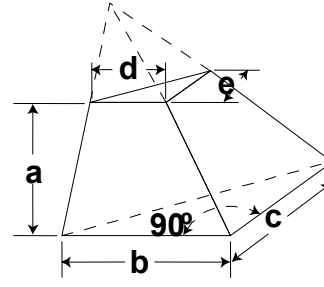
$$\text{Vol.} = a \times b \times c$$



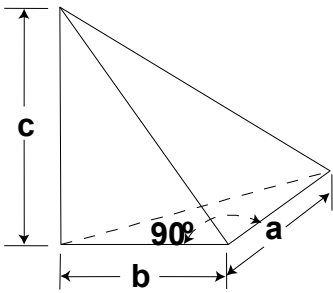
$$\text{Vol.} = \frac{a+b}{2} \times c \times d$$



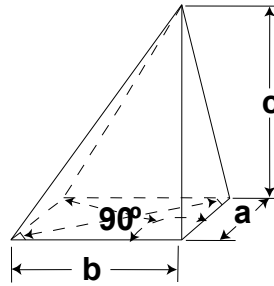
$$\text{Vol.} = \frac{a}{6} \left[\frac{bxc}{2} + \frac{dxe}{2} + 2 \left(\frac{b+d}{2} \times \frac{c+e}{2} \right) \right]$$



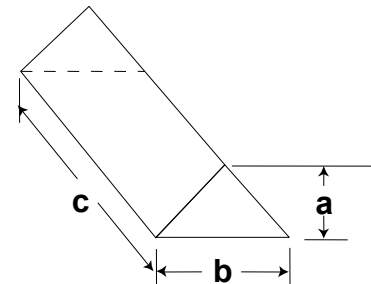
$$\text{Vol.} = \frac{a}{3} \left[\frac{bxc}{2} + \frac{dxe}{2} + \sqrt{\frac{bxc}{2} \times \frac{dxe}{2}} \right]$$



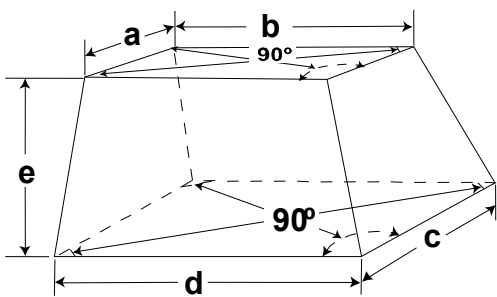
$$\text{Vol.} = \frac{a \times b}{2} \times \frac{c}{3}$$



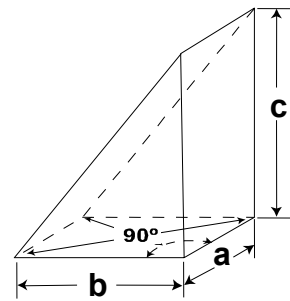
$$\text{Vol.} = a \times b \times \frac{c}{3}$$



$$\text{Vol.} = \frac{a \times b}{2} \times c$$



$$\text{Vol.} = \frac{(a \times b) + (c \times d)}{2} \times e$$



$$\text{Vol.} = a \times b \times \frac{c}{2}$$

Volume Formulae for Geometrical Solids

FORMS

The following forms are referenced in the Project Office Manual. The list is categorized for easy reference.

CONTRACTOR COMPLIANCE FORMS

<u>Form No.</u>	<u>Title</u>
	Commonwealth Nondiscrimination Clause
CS-4339R	Request for Subcontractor Approval
DOL-308	Request for Wage Determination and Response to Request
EO-107	Bulletin Board Acknowledgement Signature Sheet
EO-354	DBE Commercially Useful Function Report
EO-363	Contractor's On-the-Job Training Program Classifications
EO-364	PennDOT OJT Program Enrollment Form
EO-365	Highway Contractor Training Report
EO-380	DBE Participation for Federal Projects
EO-400	Highway Contractors Monthly EEO Report
EO-402	Monthly DBE Status Report
FHWA-1273	Required Contract Provisions
FHWA-1273A	Required Contract Provisions Appalachian and Local Access Roads
FHWA-1391	Construction EEO Report
FHWA-1494	Labor Compliance Enforcement Report
LLC-25	Payroll Certification for Public Works Projects
EEOC	Equal Employment Opportunity is the Law
OSHA 3165	Job Safety and Health Protection (Poster)
WH 347	Contractor's and Subcontractor's Payroll Statement
WH 1284	Notice to Workers with Disabilities
WH 1321	Notice to Employees
WH 1420	Family and Medical Leave Act

DOCUMENTATION FORMS

<u>Form No.</u>	<u>Title</u>
CS-4346	Items Quantity Book
D-428	Surveyor's Notebook

WORK ORDER FORMS

<u>Form No.</u>	<u>Title</u>
CS-110	Payment Authorization for Materials Stored or On Hand
CS-442A	Authorization for Additional / Extra / Force Account Work
CS-4347	Force Account Daily Sign-Off
CS-4347AA	Final Summary (Projects Let On or After August 25, 2016)
CS-4347AA	Final Summary (Projects Let Prior to August 25, 2016)
CS-4347AS	Subcontractor Summary
CS-4347BA	Material / Service By Others Breakdown
CS-4347CA	Labor Breakdown
CS-4347CJ	Force Account Estimate
CS-4347D	Daily Labor Breakdown
CS-4347E	Equipment Breakdown
CS-4347F	Daily Equipment Breakdown
CS-4347MA	Force Account Material Affidavit
CS-4347EER	Estimated Effective Rate Computation Unemployment Taxes
CS-4350A	Work Order "Explanations" - Additional Work / Extra Work Category
CS-4350B	Work Order "Explanations" - Administrative Category
CS-4350C	Work Order "Explanations" - Legal Category
CS-4350D	Work Order "Explanations" - Value Engineering Category
D-476	Distribution of Contract Time
FHWA-1365	Record of Authorization to Proceed with Major Contract Revision

SOIL AND EARTHWORK FORMS

<u>Form No.</u>	<u>Title</u>
CS-4345	Borrow and/or Waste Agreement
D-1	Environmental Due Diligence (EDD) Phase 1, Visual Inspection Form
D-2	Clean Fill Environmental Due Diligence (EDD) Phase 2
D-412A	Computation of Earthwork
TR-478A	Report on Compaction Density Non-Movement
TR-4247	Method for Calculation of Moisture Density Relationship
TR-4276A	Report on Compaction Density by Nuclear Method

MATERIAL FORMS

<u>Form No.</u>	<u>Title</u>
CS-7	Defective Asphalt Pavement Review
CS-200	Source of Supply-Materials
CS-201	Source of Supply-Traffic Items
CS-409	Minimum Quality Control Plan for Field Bituminous Paving Operations (for projects let before April 10, 2020)
CS-413	Minimum Quality Control Plan for Field Asphalt Paving Operation (for projects let on or after April 10, 2020)
CS-413EQC	Extended-Season Paving Quality Control Documentation
CS-413ES	Minimum Extended-Season Paving Plan
CS-430	Notification of Inspection
CS-458A	Report of Compressive Strength of Portland Cement Concrete
CS-616	Request for Plant Material Substitution
CS-704	Minimum Quality Control Plan for Field Placement Concrete Operations
CS-1042	Minimum Quality Control Plan for Field Placement of Latex Modified Mortar or Concrete Wearing Surface
CS-4171	Certificate of Compliance
CS-4171B	Certificate of Compliance for Daily Bituminous Mixtures
CS-4171C	Supplemental Certification for Epoxy Coated Reinforcement - Coater
CS-4171F	Supplemental Certification for Epoxy Coated Reinforcement – Fabricator
CS-4171LA	Certificate of Compliance for Locally Approved Non-Bulletin Materials
CS-4171S	Supplemental Certification, Steel Products Containing Foreign Steel
CS-4211	Material Plant Book Table of Contents
CS-4211A	Material Test Results
CS-4211B	Project Summary
CS-4211C	Scale Check
CS-4211D	Plant Summary
CS-4211E	LTS Sample Submission Record
CS-4211F	Compression Tests
CS-4211I	Material Test Results Aggregate No. 57
CS-4211J	Material Test Results Aggregate No. 8
CS-4211K	Material Test Results Fine Aggregate
CS-4211L	Material Test Results Aggregate No. OGS
CS-4211M	Material Test Results Aggregate No. 67
CS-4211N	Material Test Results Aggregate No. 2A
CS-4219C	Asphalt Penetration
CS-4221A	Moisture Tests
CS-4221B	Material Temperatures
CS-4221C	Record of Daily Orders and Releases
CS-4221E	Equipment Calibration Record
CS-4221G	Anti-Skid Summary and Moisture Record

<u>Form No.</u>	<u>Title</u>
CS-4337	Annual Inspection of Transit Truck Mixers
CS-4337A	Producer's Transit Truck Mixers
TR-430A	Aggregate Source Evaluation Report
TR-447	Sample Identification
TR-455	Disposition of Failed Materials
TR-498	Bituminous Concrete Plant Inspection Report
TR-800	Structural Materials Quality Comment Sheet
TR-4109	Portland Cement Concrete Plant Report
TR-4126A	Aggregate Laboratory Report
TR-4221A	Concrete Mix Design Form
TR-4238A	District's Letter of Project Materials Certification
TR-4276B	Optimum-Rolling Pattern for Bituminous Density Acceptance by Nuclear Method
TR-4276C	Optimum-Rolling Pattern for Bituminous Density Acceptance by Electrical Impedance Measurement Method PennDOT NOTICE TO WORKERS (for PennDOT employees using nuclear gauges)

INSPECTION and ACCEPTANCE FORMS

<u>Form No.</u>	<u>Title</u>
CS-2	Construction Project – Quality Survey for Design Items
CS-6	Pipe Installation Inspection Form
CS-9	Project Facilitation Type Score Sheet
CS-10	Partnering Workshop and Facilitator Evaluation
CS-101	Inspector's Field Office and Inspection Facilities Project Development Checklist
CS-101A	Construction Field Site IT Equipment Request Form
CS-600	Post Installation Pipe Inspection Report
CS-601	Post Installation 100 Year Design Life Pipe Inspection Report
CS-901	Work Zone Traffic Control Compliance Checklist and Notification
CS-1005	Pile Driving Log
CS-4136	Punchlist Form
CS-4137	Final Inspection Form
FHWA-1446A	Construction Inspection Report
FHWA-1446B	Final Acceptance Report
FHWA-1447A	Final Voucher for Payment Under 23 U.S.C. 117
M-7	Contractor IRI Data Collection Form

OTHER FORMS

<u>Form No.</u>	<u>Title</u>
CS-111	Subcontractor/Supplier Request for Estimate Monitoring
CS-118	Checklist for the Administration of Locally Sponsored Federal Aid Projects
CS-4307	Contractor's Past Performance Report
CS-4307G	Contractor's Past Performance Report Guidelines for Evaluations
CS-4307SUB	Subcontractor's Past Performance Report
CS-6105	District Weigh Team Record
D-4232	Request for FHWA Authorization
EPA 8700-12	Notification of RCRA Subtitle C Activity
EPA 8700-22	Official Pennsylvania Manifest
DOT F4220.6	Summary of Labor Standards Investigation Report
M-937R	Route/Bridge Restriction
M-937RO	Route/Bridge Restriction Opening
OS-100	Right-to-Know Request
	Compliance Response Policy (CRP) Memo
	Stormwater Self-Audit (SSA) Program Memo
	Summary of Compliance Response Policy Table

QUALITY ASSURANCE REPORTING SYSTEM

The following Quality Assurance Reporting System (QARS) checklists are utilized by the CQAS representatives, and they are available upon request through the Assistant Construction Executives.

CONSTRUCTION OPERATION REVIEWS

<u>Specification Section</u>	<u>Description</u>
COR 105.17	Bridge Construction Loadings
COR 106	Certification and Acceptance of Materials
COR 107.08	Project Safety Compliance
COR 107.22	Project Labor Compliance
COR 110	Project Documentation
COR 110.03	Work Orders
COR 206	Embankment
COR 210	Subgrade
COR 303	Cement Treated Permeable Base Course (CTPBC)
COR 313	Superpave Asphalt Base Course
COR 350	Subbase
COR 360	Asphalt Treated Permeable Base Course (ATPBC)
COR 404	Asphalt Pavement Ride Quality
COR 413	Superpave Asphalt Pavements
COR 470	Asphalt Seal Coat
COR 483	Micro-surfacing
COR 501	Cement Concrete Pavement
COR 505	Bridge Approach Slabs
COR 506	Cement Concrete Pavement (RPS)
COR 507	Concrete Pavement Ride Quality
COR 516	Concrete Pavement Patching
COR 601	Pipe Culverts
COR 620	Guide Rail
COR 623	Concrete Median Barrier
COR 626	Gabions
COR 658	Cement Concrete Shoulders
COR 704	Incidental Cement Concrete
COR 901	Maintenance and Protection of Traffic
COR 910	Highway/Sign Lighting
COR 950	Traffic Signals
COR 1000	Prefabricated Retaining Walls
COR 1001	Cement Concrete Structures - Substructures
COR 1001.3(k)6	Cement Concrete Structures - Bridge Decks
COR 1001.3(k)12	Cement Concrete Structures – Bridge Barriers
COR 1001.3(q)2.b	Structure Backfill

Specification

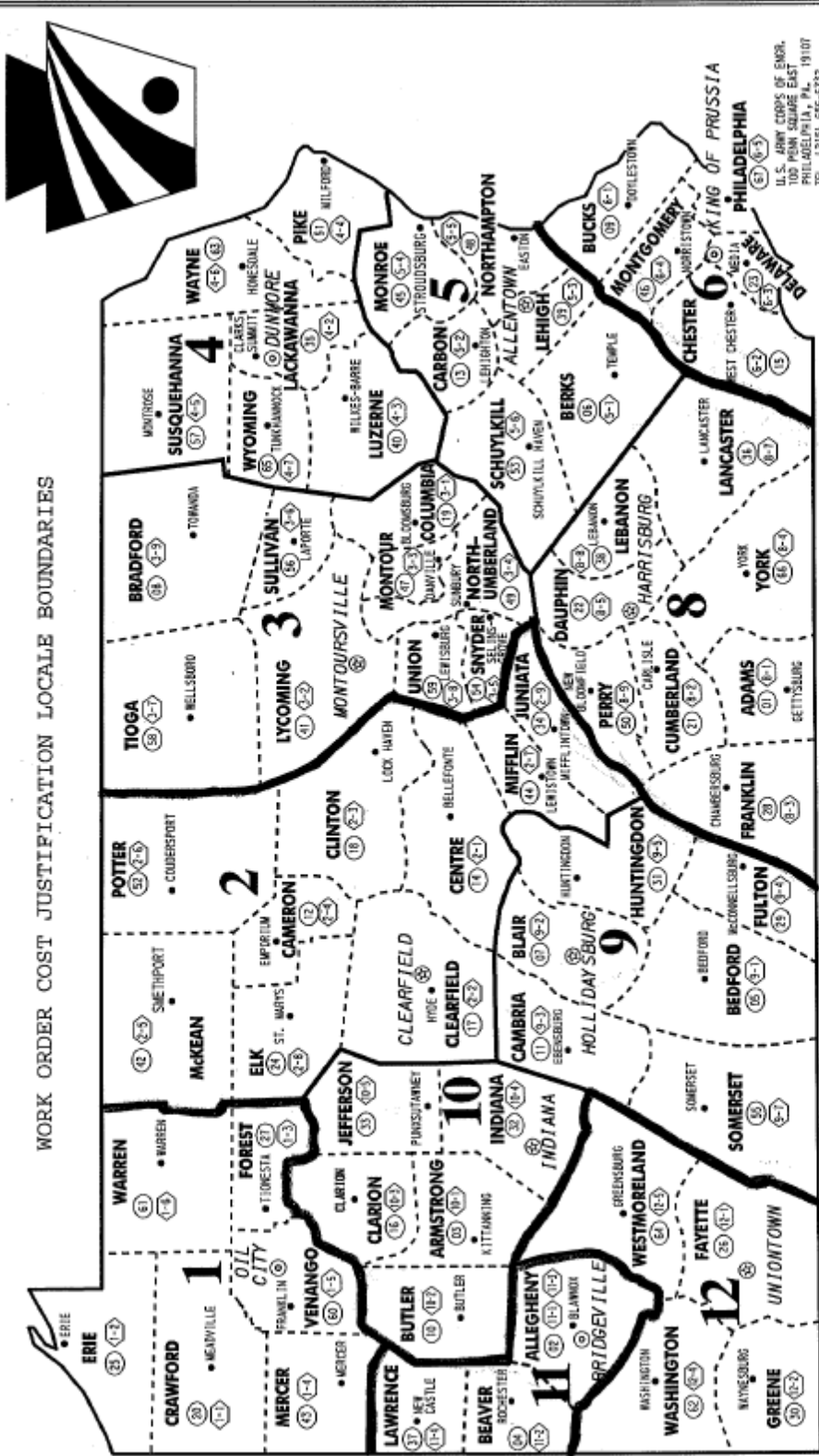
<u>Section</u>	<u>Description</u>
COR 1005	Piles
COR 1006	Drilled Caissons
COR 1042	Latex Bridge Decks
COR 1046	Epoxy Overlay for Bridge Decks
COR 1050	Steel Bridge Superstructure
COR 1060	Painting Structural Steel
COR 1085	Precast Reinforced Concrete Box Culvert
COR 1086	Sound Barriers
COR 1090	Asphaltic Plug Expansion Dam System
COR 1107	Concrete Beam Erection
COR ADA	ADA Curb Ramp Compliance
COR DME	DME Project Certification
COR E&S	Environmental Compliance
COR MISC	Miscellaneous Construction
COR SMP	Project Sampling

MATERIAL OPERATION REVIEWS

MOR 413	Asphalt Plant
MOR 703	Aggregate Source
MOR 704	Portland Cement Concrete Plants
MOR B15	Bulletin 15 Source

PENNSYLVANIA

WORK ORDER COST JUSTIFICATION LOCALE BOUNDARIES



U.S. ARMY CORPS OF ENGR.
100 PENN SQUARE EAST
PHILADELPHIA, PA. 19107
TEL. 12151 656-6722

ENGINEERING DISTRICT ADDRESSES

- 1*** 255 ELM. ST.
P.O. BOX 398
OIL CITY, PA. 16301
TEL. (814) 678-1016
- 2*** 1924 DALSY ST. EXT.
CLEARFELD, PA. 16830
TEL. (814) 765-0410
- 3*** 715 JORDAN AVE.
P.O. BOX 218
MONTGOMERY, PA. 17754
TEL. (717) 568-4200
- 4** 55 KEYSTONE
INDUSTRIAL PARK
DUNMORE, PA. 16812
TEL. (717) 563-4010
- 5** 1002 HAMILTON ST.
ALLENTOWN, PA. 18101
TEL. (610) 871-4113
- 6** 7000 GEORGE BLVD.
KING OF PRUSSIA, PA. 19106
TEL. (610) 202-6661
- 8** 2140 HERR STREET
HARRISBURG, PA. 17103-1699
TEL. (717) 772-0778
- 9** 1520 NORTH JUNIATA ST.
HOLLIDAYSBURG, PA. 16648
TEL. (814) 696-7100
- 10*** 2650 OAKLAND AVE.
P.O. BOX 429
INDIANA, PA. 15701-0429
TEL. (724) 357-2806
- 11** 45 THOMS RUN ROAD
BRIDGEVILLE, PA. 15017
TEL. (412) 429-5004
- 12*** 825 N. GALLATIN AVE. EXT.
P.O. BOX 459
UNIONTOWN, PA. 15401
TEL. (724) 439-7340

- 8** ENGINEERING DISTRICT
- 9** ENGINEERING DISTRICT OFFICE
- 10** ENGR. & MAINT. OFFICE COMBINED
- 11** MAINTENANCE DISTRICT OFFICE
- 12** MAINTENANCE DISTRICT NUMBER
- 22** COUNTY NUMBER

PROJECT OFFICE MANUAL REVISION PROCESS

Overview

Editions of the Project Office Manual are released every three years, with revisions released annually as needed. Each edition and revision cycle begins approximately three to six months before the release. Revisions will be released as warranted by the volume and criticality of changes.

Beginning with the January 2009 edition, the Project Office Manual is only distributed in electronic format.

Decision Points / Quality Checkpoints

There are several decision points and quality checkpoints documented in the flowchart as diamonds. Diamonds reflect questions to determine the proper flow of the process from that point forward.

Detailed Task Description

The task descriptions provide detailed information for each task identified in the POM Revision Flow Chart.

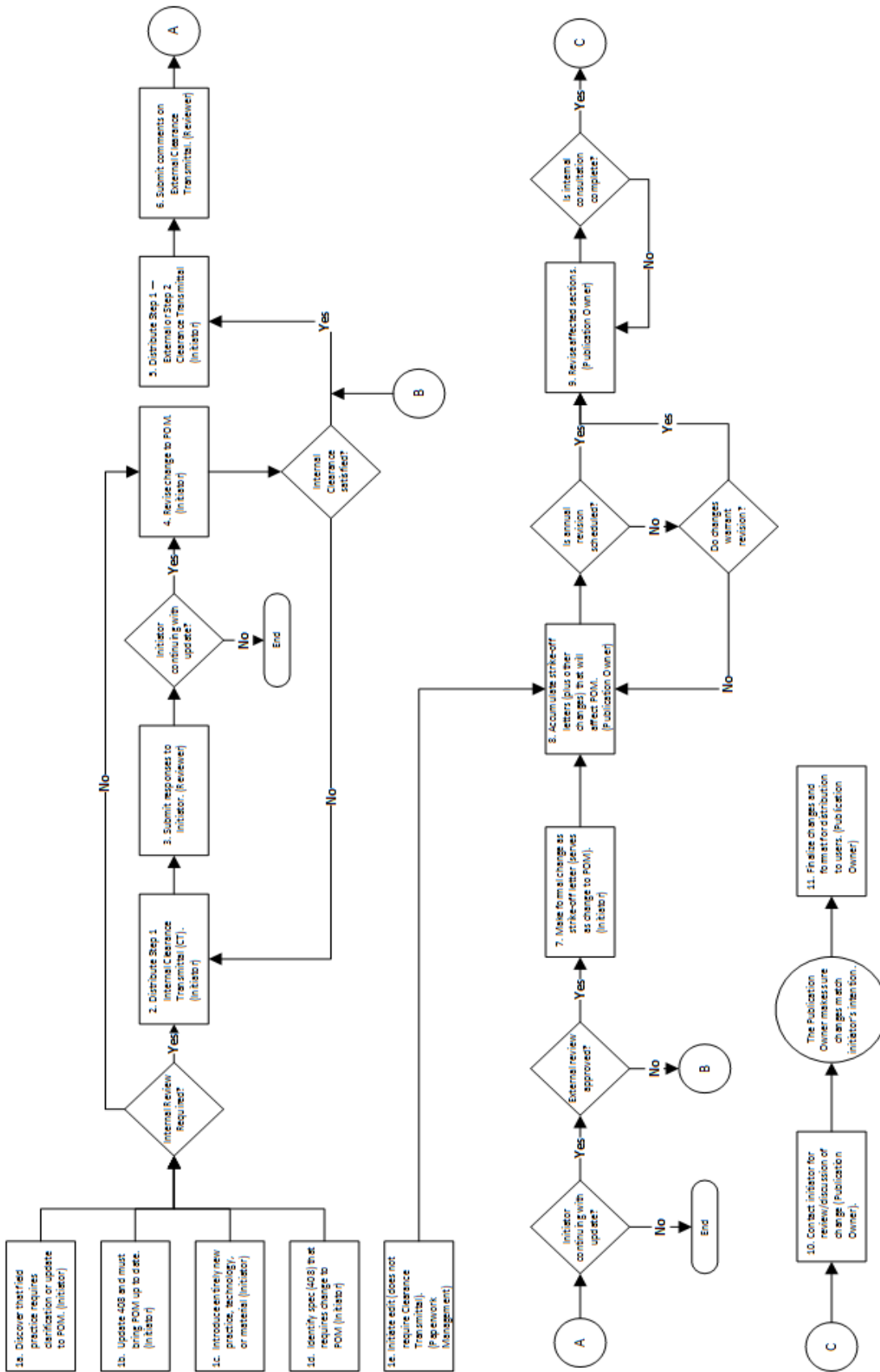
Task	Description
1a - 1d	Changes to the POM are identified via various methods.
2	If internal review is necessary, an internal Clearance Transmittal is developed by the initiator and distributed as appropriate within the initiating organization.
3	Reviewers of the internal Clearance Transmittal respond within the specified time period to the initiator.
4	Based on the comments received from reviewers, the initiator of the Clearance Transmittal will determine whether to continue with the development of the POM revision.
5	An external Clearance Transmittal is developed by the initiator and distributed as appropriate within the initiating organization, and externally to other PennDOT Bureaus and business partners, as appropriate.
6	Reviewers of the external Clearance Transmittal respond within the specified time period to the initiator.
7	Based on the comments received from the Clearance Transmittal reviewers, the initiator of the Clearance Transmittal will determine whether to continue with the development of the POM revision. If the initiator is able to resolve the comments, the revision (Final version) to the POM is sent back to the Publication Owner, working in the Bureau of Project Delivery (BOPD), New Products and Innovations Section (NPIS) to be included in the next POM update. The initiator should issue formal revisions to the POM via Strike-Off Letter, when necessary.
1e	During use and review of the POM, necessary edits to the POM are identified.

Task	Description
8	The Publication Owner, working in the BOPD, NPIS, accumulates the changes from Strike-Off Letters and identified edits. If changes warrant a revision, a revision to the POM could be issued. Typically, the collected revisions will be held until the annual POM revision.
9	The Publication Owner will make the appropriate changes and revisions, with internal consultation as necessary, to the POM.
10	The Publication Owner will provide the change initiator with a copy of the revised POM Section to ensure that the revised section reads as intended.
11	The Publication Owner finalizes the changes and formats the revised portions of the POM.
12	The Publication Owner develops the List of Changes summarizing the changes to the POM to be provided to the end users

Cycle and Process Times

Activity Sequence	Process Time	Cycle Time
1 – 7	N/A	Continually (depending on proposed changes)
8 – 12	2 weeks	2 - 6 weeks depending on volume

POM Revision Flow Chart



APPENDIX B
USE GUIDELINES FOR STANDARD SPECIAL PROVISIONS

USE GUIDELINES FOR ASPHALTIC PLUG EXPANSION DAM SYSTEM
c10902 ITEM 3090-____(ITEM 1090-____) - ASPHALTIC PLUG EXPANSION DAM SYSTEM,____MM(")
DEPTH, BITU

The above-referenced Standard Special Provision is for the use of asphaltic plug expansion dams for in-service bridge decks.

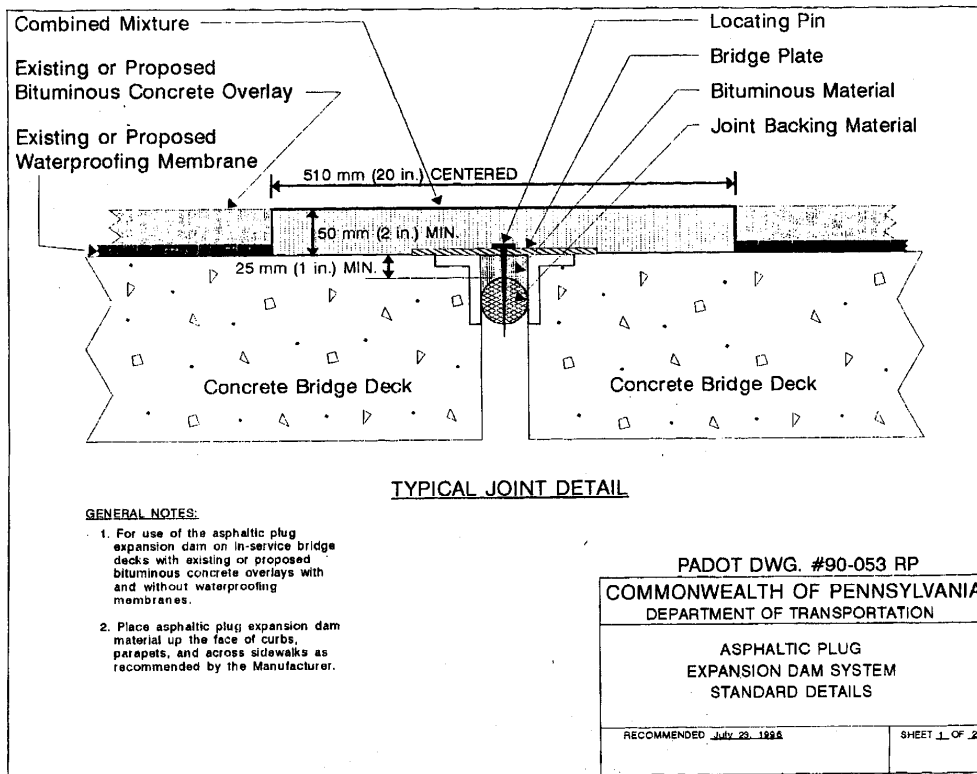
Advantages to using asphaltic plug expansion dams are as follows:

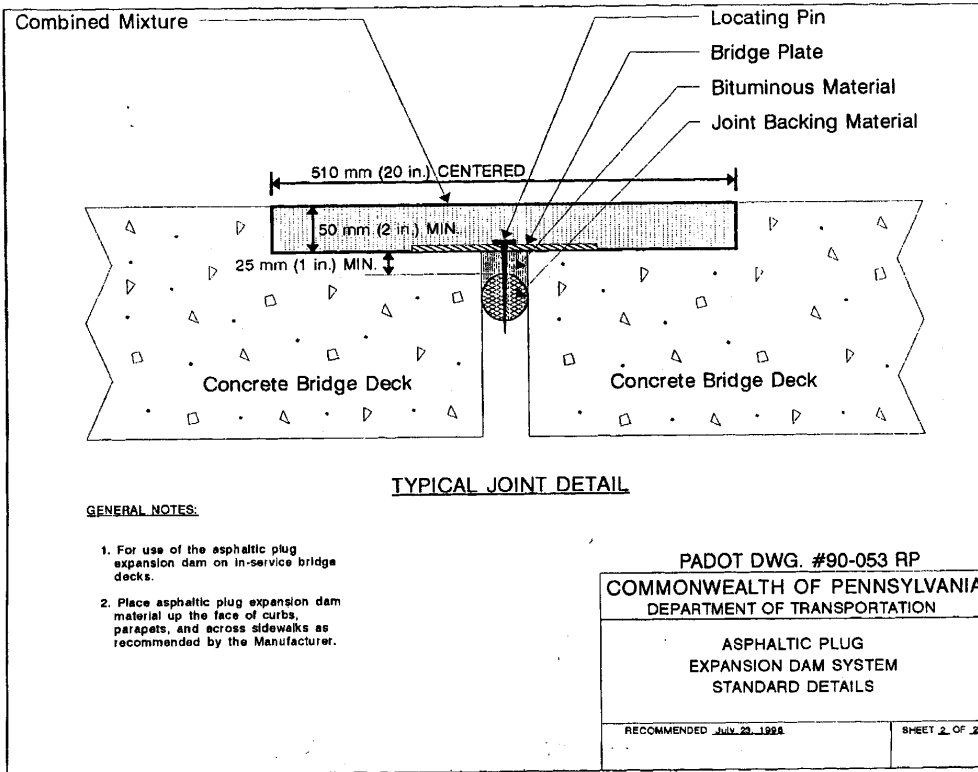
- Accommodates bridge joints with movement ranges of 1 1/2 inches.
- Suitable for placement on existing cement concrete decks, and on decks with existing or proposed asphalt overlays with or without waterproofing membranes.
- Prevents joint leakage if installed on suitable joints.
- Provides a smooth ride for the traveling public.
- Easy to install with some specialized equipment.
- Can be installed and opened to traffic within one working day with single lane closures.
- Repairable if cracks develop.

Use asphaltic plug expansion dams for in-service bridge decks as follows:

1. Install the asphaltic plug expansion dam on bridge joints with a thermal and/or rotational movement range of 1 ¼ inches or less.
2. Install the asphaltic plug expansion dam system in a thickness of 2 inches minimum.
3. Install the asphaltic plug expansion dam on joints with skew angles from 45 degrees to 90 degrees.
4. Installation is not limited by Average Annual Daily Traffic (AADT) or Average Daily Truck Traffic (ADTT).
5. Eligible for 100% state and/or for certain federal participatory funding.
6. For existing cement concrete decks without an asphalt overlay, use asphaltic plug expansion dams as a temporary joint rehabilitation technique (less than 8 years) until the bridge deck or joints undergo a complete standard rehabilitation. Existing armored expansion dams or modular expansion dams may need to be removed prior to placing an asphaltic plug expansion dam. Specify and include limits on the removal of these existing expansion dams in the contract or construction plans.

7. For cement concrete bridge decks with existing asphalt overlays with or without waterproofing membranes, use asphaltic plug expansion dams as a temporary joint rehabilitation technique (less than 8 years) until the bridge deck or joints undergo a complete standard rehabilitation.
8. For existing cement concrete bridge decks planned to receive an asphalt overlay with or without a membrane, place the asphalt overlay over the entire bridge deck first. Upon completion of the asphalt overlay, use the asphaltic plug expansion dam in this case, to serve only as long as the expected life of the asphalt overlay.
9. Repair cracks in existing asphaltic plug expansion dams by heating the asphaltic plug material surrounding the crack with a propane torch until the asphaltic plug material is soft enough to move with a hand trowel. Trowel the heated material into and over the entire crack. Maintain traffic control for 30 minutes after the repair or until the asphaltic plug material has sufficiently cooled to accept traffic without damage.
10. Perform an economic evaluation to justify an asphaltic plug expansion dam over an alternate repair or rehabilitation technique such as bridge joint sealing, repair/replacement of existing joint system, or other approved joint system.





**USE GUIDELINES FOR
BRIDGE JOINT POLYMER MORTAR EXPANSION DAM INSTALLATION USING
TWO PART, RAPID CURE SILICONE JOINT SEALANT**

c07051 ITEM 9705-2101 (ITEM 9705-0101) - POLYMER MORTAR FOR BRIDGE JOINT EXPANSION DAM
ITEM 9705-2102 (ITEM 9705-0102) - SILICONE SEALANT FOR BRIDGE JOINT EXPANASION DAM

The above-referenced Special Provision is for the use of a bridge joint polymer mortar expansion dam installation using a two-part, rapid cure silicone joint sealant. Approval is based upon field evaluations and testing performed by Valley Forge Laboratories for PennDOT, and documented in Research Project No. 93-063, Bridge Deck Joint Systems. If at any point the Department becomes concerned with the condition of the installed joint seals, or any problem is demonstrated with their use, the Special Provision will be withdrawn from future use.

Some advantages of using the polymer mortar/silicone joint sealer include:

1. Combines a tough, wear-resistant polymer for expansion joint nosing with a rapid-curing high movement silicone for sealing the joint.
2. The silicone seal is cold applied and remains pliable in cold or warm temperatures.
3. The silicone sealant bonds to itself, allowing separate lanes to be sealed one at a time, but joinable when the adjacent lanes are eventually sealed.
4. Can cure, within 8 hours, allowing earlier traffic movement.
5. Sealant accommodates movements of +100/-50% of joints 1 to 3 inches and +/-50% for joints of 3 to 4 inches.
6. Seals irregular surfaces.
7. Unaffected by sunlight, rain, snow, ozone or temperature extremes.

An advantage of the polymer mortar/two-part epoxy joint sealer system is that it allows all preliminary work and preparation, and then easy installation, by County bridge maintenance crews.

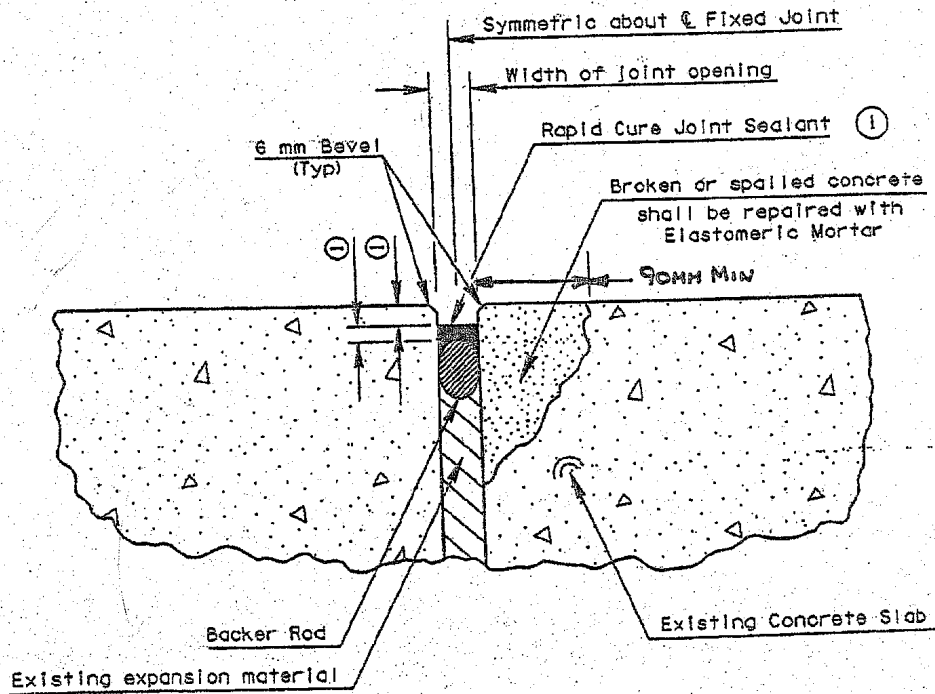
The following drawings show the variety of installation designs that are possible, using this sealing system, and which meets all requirements of the provisional specification as established for this product. The region designated PNS is the polymer mortar. The properly prepared joint can have a width of from 1 inch to 3 inches.

This Special Provision is intended to be bid as an alternate to other joint repair systems.

JOINT REPAIR FOR FIXED JOINTS WITH NO OVERLAY

Sheet No. 1

- ① Refer to Table 1
- ② Do not bond Elastomeric Mortar to weak or rotten concrete.

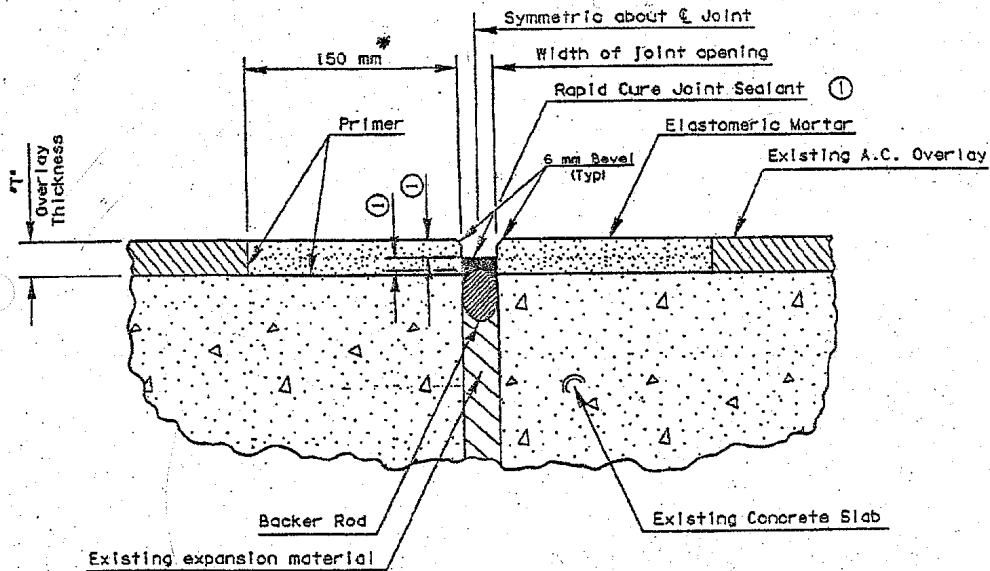


NOTE: Remove broken or spalled concrete to solid material. In some instances the concrete removal may be so extensive that it may be necessary to reinforce the Elastomeric Mortar.

Nosing of sufficient thickness can be ready for traffic in 2-4 hours depending on temperature.

JOINT REPAIR FOR FIXED
JOINTS WITH A.C. OVERLAY

- ① Refer to Table 1
- ② Do not bond Elastomeric Mortar to weak or rotten concrete.



* Minimum Width of Nosing shall be 6".
If the overlay thickness "T" exceeds 3" in depth, the
installer shall use a 2 to 1 width to thickness ratio.

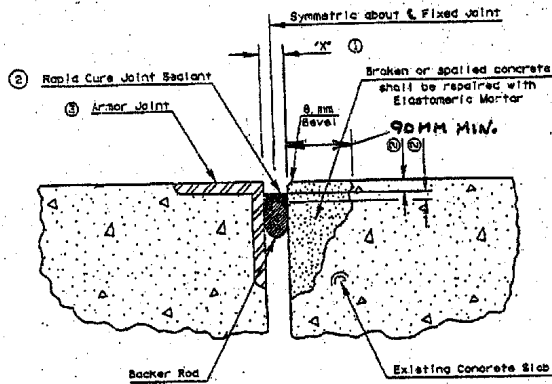
NOTE: Asphalt Concrete Overlay across the bridge
deck and the approach slabs at the Joint
Sealant Locations shall be cut and removed as
detailed and the concrete surface prepared in
accordance with the Sealant manufacturers
specifications.

Nosing of sufficient thickness can be ready for
traffic in 2-4 hours depending on temperature.

**JOINT REPAIR FOR EXPANSION
JOINTS WITH NO OVERLAY**

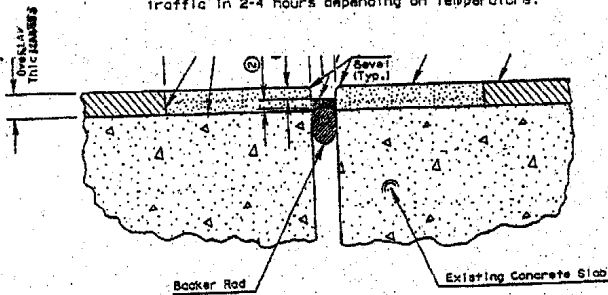
Sheet No. 3

- ① "x" should be in the range of 25 mm to 75 mm. See Table 2
- ② Refer to Table 1
- ③ If Armor Joint is loose, removal of the Armor Joint is strongly recommended.
- ④ Do not bond Elastomeric Mortar to weak or rotten concrete.



NOTE: Remove broken or spalled concrete to solid material. In some instances the concrete removal may be so extensive that it may be necessary to reinforce the Elastomeric Mortar.

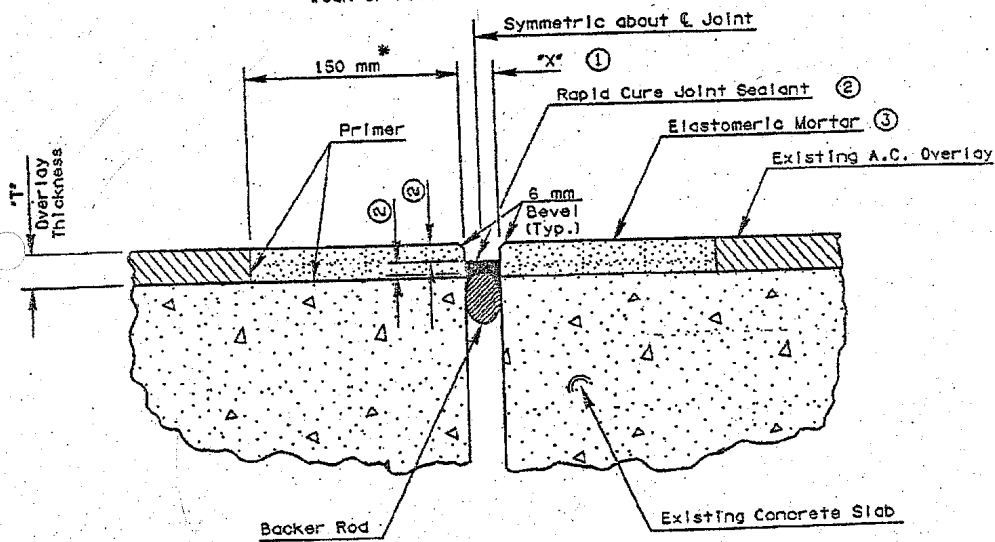
Neosing of sufficient thickness can be ready for traffic in 2-4 hours depending on temperature.



NOTE: Asphalt Concrete Overlay across the bridge deck and the approach slabs of the Joint Sealant locations shall be cut and removed as detailed and the concrete surface prepared in accordance with the Sealant manufacturers specifications.

JOINT REPAIR FOR JOINTS HAVING
OVERLAYS AND OPENINGS OF 25 mm to 75 mm

- ① "x" should be in the range of 25 mm to 75 mm
- ② Refer to Table 1
- ③ Do not bond Elastomeric Mortar to weak or rotten concrete.



* Minimum Width of Nosing shall be 6".
If the overlay thickness "T" exceeds 3" in depth, the
Installer shall use a 2 to 1 width to thickness ratio.

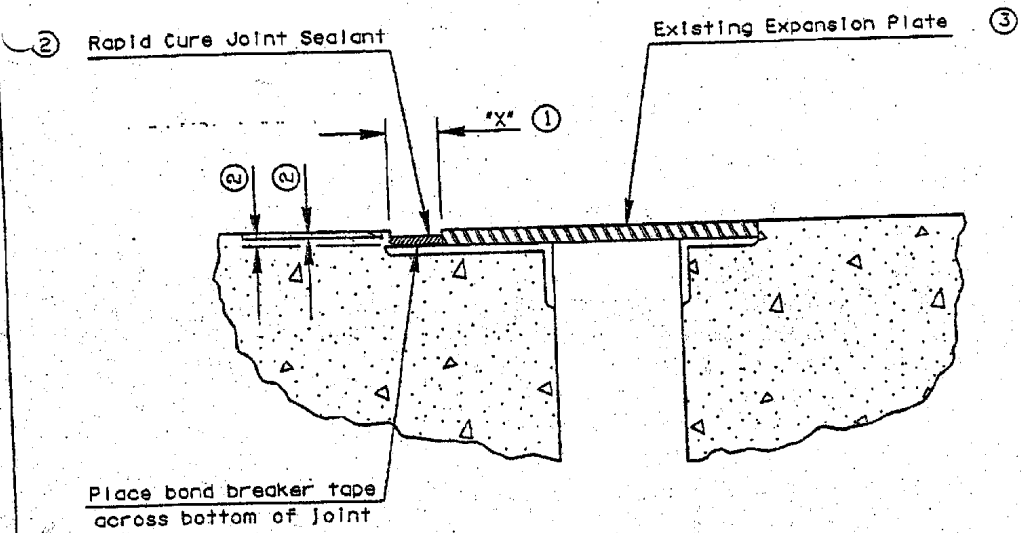
NOTE: Asphalt Concrete Overlay across the bridge
deck and the approach slabs at the Joint
Sealant Locations shall be cut and removed as
detailed and the concrete surface prepared in
accordance with the Sealant manufacturers
specifications.

Nosing of sufficient thickness can be ready for
traffic in 2-4 hours depending on temperature.

Can be used if
approved by
District Bridge
Engineer

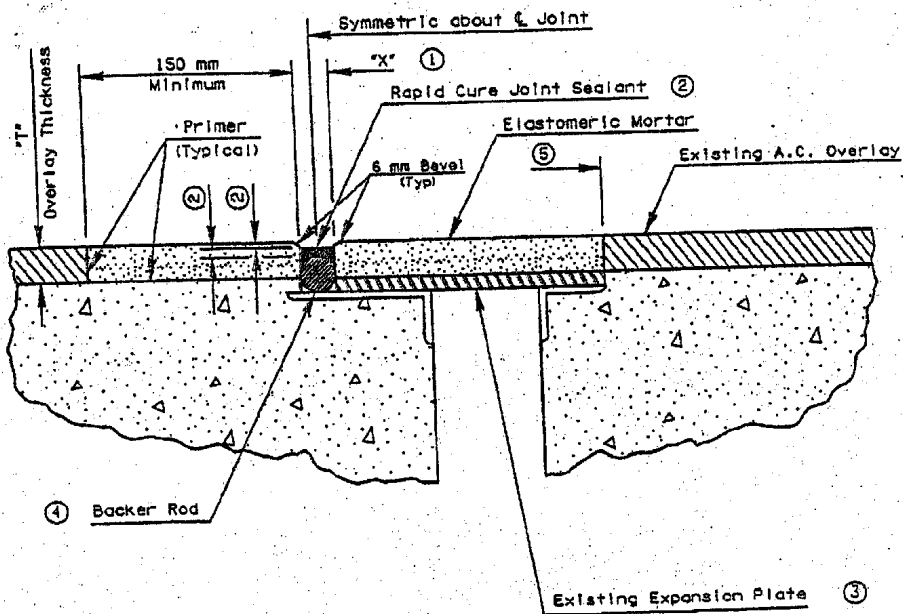
JOINT REPAIR FOR JOINTS HAVING
SLIDING PLATES AND NO OVERLAY

- ① "X" should be in the range of 25 mm to 75 mm.
See Table 2
- ② Refer to Table 1
- ③ If steel plates are loose, removal
is strongly recommended.
- ④ Sealant shall be applied when the
temperature is 27° C or higher.



**JOINT REPAIR FOR JOINTS HAVING
SLIDING PLATES AND A.C. OVERLAY**

- ① "X" should be in the range of 25 mm to 75 mm. See Table 2
- ② Refer to Table 1
- ③ If steel plates are loose, removal is strongly recommended.
- ④ When depth of joint opening is too shallow to allow proper recess and sealant depth, backer rod may be cut to fit depth. When backer rod cannot cut to fit, bond breaker tape may be used. Sealant thickness must not exceed manufacturer's specifications.
- ⑤ Elastomeric Mortar shall extend to the end of the steel plate or shall have a minimum length of 150 mm, whichever is greater.
- ⑥ Do not bond Elastomeric Mortar to weak or rotten concrete.

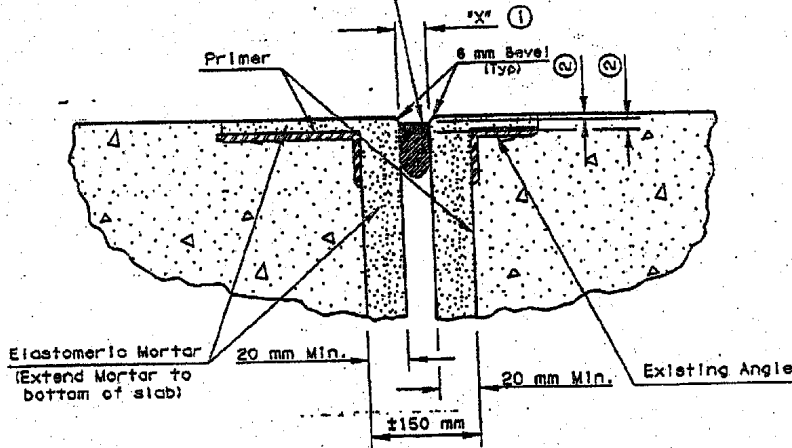


Can be used if approved by District Bridge Engineer

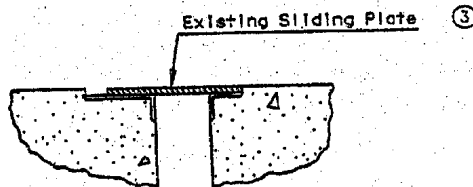
JOINT REPAIR FOR JOINTS HAVING SLIDING PLATES AND NO OVERLAY

- ① "x" should be in the range of 25 mm to 75 mm. See Table 2
- ② Refer to Table 1
- ③ If sliding plates are loose remove the plate and replace with Elastomeric Mortar. If the plate is not loose leave in place.
- ④ Do not bond Elastomeric Mortar to weak or rotten concrete.

② Rapid Cure Joint Sealant



DETAIL OF EXPANSION JOINT WITH SLIDING PLATE REMOVED



DETAIL OF EXPANSION JOINT WITH SLIDING PLATE IN PLACE

Note: Nosing of sufficient thickness can be ready for traffic in 2-4 hours depending on temperature.

Joint Opening	Sealant Thickness	Sealant Factor	Joint Opening Compression	Joint Opening Extension	Total Movement Range
1	1/2	1/2	1/2	2	1-1/2
1-1/2	1/2	1/2	3/4	3	2-1/4
2	1/2	1/2	1	4	3
2-1/2	1/2	1/2	1-1/4	5	3-3/4
3	1/2	5/8	1-1/2	6	4-1/2

TABLE 1.

¹ Table based on temperature of 77 degrees F. +/- 2 degrees and 50% RH +/- 5%.

² Mean opening (width at 77 degrees F. +/- 2 degrees and 50% RH +/- 5%).

For joints less than 1", or greater than 3" at time of sealing, contact Sealant Representative for recommendations.

If sealant is installed during cold weather (50 degrees F. or below), Sealant Representative should be contacted for specific installation instructions.

NOTE: ALL DIMENSIONS ARE IN INCHES.

Table 2: Expansion Openings

Steel Girders

Temperature Degrees C	L=30m mm	L=60m mm	L=90m mm	L=120m mm
0	59	61	66	71
5	54	58	61	64
10	53	54	56	58
15	*51	*51	*51	*64
20	49	48	48	45
25	48	45	42	39
30	48	41	37	32
35	44	38	32	28
40	43	35	27	19
45	41	32	22	13
Max. Jt. Movement 83 Temp. Range	24	48	71	95

Concrete Girders

Temperature Degrees C	L=30m mm	L=60m mm	L=90m mm	L=120m mm
0	59	61	66	71
5	54	58	61	64
10	53	54	56	58
15	*51	*51	*51	*51
20	49	48	46	45
25	48	45	42	39
30	48	41	37	32
Max. Jt. Movement 40 Temp. Range	13	26	39	52

Delta is the maximum anticipated joint movement.

* Unless otherwise specified on the Original Construction Plans.

Note: The setting temperature is used in installing expansion bearings and deck joints. The setting temperature of the bridge, or any component thereof, shall be taken as the actual air temperature averaged over the 24 hour period immediately preceding the setting event.

USE GUIDELINES FOR EMBEDDED GALVANIC ANODES
c07081 ITEM 9708-2600 (ITEM 9708-0600) EMBEDDED GALVANIC ANODES

The above-referenced Special Provision is for the use of embedded galvanic anodes. Approval is based upon a field evaluation conducted by the Structural Design Section, District 11-0, in response to a Product Evaluation, PE# 01-145 (Galvashield XP). Since the first application, others have been approved on the same basis (See [Bulletin 15, Section MISC: Miscellaneous, MISC Embedded Galvanic Anodes](#)): PE# 08-166 (Galvanode DAS), 10-013Q (Sentinel GL), 11-075 (Galvashield XP4), 14-117 (MasterProtect 8065), 14-118 (MasterProtect 8105), 14-119 (MasterProtect 8150), 18-185 (SikaFerroGard 650), 18-186 (SikaFerroGard 670), and 18-187 (SikaFerroGard 675). If at any point the Department becomes concerned with the condition of the galvanic anode installation, or any problem is indicated with their use, the Special Provision will be withdrawn immediately, or modified and reissued if the problem can be addressed.

An advantage of the embedded galvanic anodes is that all preliminary work, preparation and the anode installations can be performed by County bridge maintenance crews or by the contractor on site.

Embedded galvanic anodes are designed for placement in concrete patch repairs to provide localized protection for uncoated, black bar reinforcing steel. Each anode consists of a sacrificial zinc core surrounded by an active cementitious matrix. While each item is a different shape/size, and has a different electrical potential, they all work the same. Fastening the anode to prepared rebars provides galvanic protection, inhibiting rebar corrosion within an approximate 1+/- square yard area, and reducing the potential for new corrosion to develop in the surrounding chloride-contaminated or carbonated concrete.

Typical uses include applications in patch repairs for prevention of adjacent area corrosion commonly referred to as “Ring Anode” or “Halo” effect, installations along new/old concrete interfaces in bridge widening or joint replacement projects to prevent corrosion, and installations in prestressed concrete beam ends or other critical areas to provide localized corrosion protection to strands from corrosion caused by leaking joints.

Cathodic Protection (CP) systems are primarily intended to prevent or retard corrosion in concrete structures. In extremely corrosive environments, CP may be considered for steel structures. There are several key factors that need to be considered and evaluated before CP is deemed a technically acceptable and cost effective solution on an individual project.

Establishing the required electrical continuity in new construction comes only with significant effort and, in rehabilitation work, it is exceedingly difficult. Therefore, the design and use of CP systems for any structure, or part thereof, needs to be approved by the Bureau of Project Delivery, Bridge Design and Technology Division (BDTD).

Additional guidance is located in the Cathodic Protection (CP) Systems Use & Approval Guidelines at

http://www.dot.state.pa.us/public/pdf/BOCM_MTD_LAB/PUBLICATIONS/pub_35/Cathodic_Protection_Systems_Use_Approval_Guidelines.pdf

USE GUIDELINES FOR ENDWALL STAY-IN-PLACE FORM SYSTEM
c06052 ITEM 9605-2300 (ITEM 9605-0300) ENDWALL STAY-IN-PLACE FORM SYSTEMS

The above-referenced Special Provision is for the use of stay-in-place forms for pipe endwalls. Approval is based upon a field evaluation conducted by the County Maintenance Manager, Maintenance District 10-5, in response to a Product Evaluation, PE# 01-160. If at any point the Department becomes concerned with the condition of the stay-in-place endwall installations, or any problem is indicated with their use, the Special Provision will be withdrawn immediately, or modified and reissued if the problem can be addressed.

An advantage of the endwall stay-in-place forms is that all preliminary work, preparation, and the installation can be performed by County maintenance crews or by the contractor on site in a fraction of the time required for standard, cast-in-place endwalls.

The stay-in-place endwall form consists of three pre-formed sections and a pipe adapter, each made of linear low density polyethylene. The main endwall section is 36" high x 60" wide x 12" deep and weighs less than 100 lbs. It can be adapted to standard 18", 15" and 12" diameter pipe. The additional section pieces adjust the unit's height for depth of pipe, cover height, etc. The sections are easily fastened together with galvanized screws and then each is filled with Class A Cement Concrete.

The endwall stay-in-place forms can be bid or used as an alternate to standard, Type D-W endwalls which are cast-in-place using plywood forms.

HARTMAN EW SYSTEM

ALTERNATIVE TO TYPE D-W END WALL
 CAUTION - THIS WORK IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE APPLICABLE REQUIREMENTS OF SECTION 601.2 AS FOLLOWS:

- (1) EXCAVATION, EXCAVATE AS REQUIRED FOR GENERAL PIPE INSTALLATION AS PER SECTION 601.2 TO THE LOCATION OF ENDWALL EXCAVATION. THE BOTTOM OF THE EXCAVATION SHALL BE A MINIMUM OF 4" BELOW THE UTILITY'S DIA. AROUND THE STAY IN PLACE FORM.
- (2) BEDDING, CONSTRUCT BEDDING BY PLACING 1" OF 2A SUB-BASE COMPACTED TO 95% STD.
- (3) 30% MINIMUM COMPACTION REQUIRE - POUR CONCRETE FURTHER OR AHEAD OF SCOURING AS A SCOURING HEADWALL MAY BE PLACED IF REQUIRED. THE SCOURING HEADWALL SHALL BE PLACED IN THE EXCAVATION BEHIND THE PIPE. THE PIPE SHALL BE EXTENDED OUT 4 FEET TO THE FACE OF THE HEADWALL.
- (4) PIPE SIZE ADJUSTMENT, OPTIONAL. INSERT ADAPTER COLLARS TO ADJUST OPENING FOR SMALLER PIPE SIZES. IN THE COLLAR INTO STAY IN PLACE FORM. THE COLLAR SHALL BE PLACED ON THE BOTTOM OF BACK OF STAY IN PLACE FORM. ATTACH IDENTIFIED SCREWS & BRACES PROVIDED IN THE COLLAR.
- (5) END WALL POSITIONING, POSITION THE END WALL ON THE END OF THE PIPE, & ADJUST AS NECESSARY TO BE PARALLEL TO THE PIPE. THE END WALL SHALL BE 6" INTO THE PIPE. USE A SLOPE TYPE COMPATIBLE WITH THE TYPE OF PIPE BEING INSTALLED. PRE-DRILL SCREW HOLES IN PIPE WHERE NECESSARY.
- (6) END WALL MUST BE SET & ADJUSTED PRIOR TO FILLING.
- (7) PLACEMENT OF CONCRETE, PLACE CLASS 4 CONCRETE INTO STAY IN PLACE FORMS. CONSOLIDATE AS NECESSARY.
- (8) LIGHT ADJUSTMENT SECTION, PLACE THE HEIGHT ADJUSTMENT SECTIONAL PIECE ON THE CONCRETE IT FILLED STAY IN PLACE FORM. ATTACH WITH GALVANIZED SCREWS AT EACH OF THE INSIDE CORNERS. PLACE CONCRETE AS PER NOTE (1).
- (9) END WALL PLACEMENT, PLACE CAP & ATTACH WITH GALVANIZED SCREWS @ EACH CORNER.
- (10) BACK OF WALL, PLACE 2A SUBGRADE SHOVELL AROUND PIPE & STAY IN PLACE FORM AS PER SECTION 601.3(1) AND STANDARD DRAWINGS.
- (11) REFLECTIVE TAPE/DELIMITERS (OPTIONAL), ATTACH DELIMITERS & PROTRUDERS ON BACK CORNERS OF LID.
- (12) TO 2" CAN BE THE MINIMUM ENVELOPE PARALLEL TO THE PIPE.
- (13) TO 2" CAN BE THE MINIMUM ENVELOPE PARALLEL TO THE PIPE.
- (14) TO 2" CAN BE THE MINIMUM ENVELOPE PARALLEL TO THE PIPE.
- (15) TO 2" CAN BE THE MINIMUM ENVELOPE PARALLEL TO THE PIPE.

NOTE: NOTES BEST WHERE PIPE. BUT CAN BE USED ACROSS ALL PIPE.

PIPE TIRE SIZES (I.D.O.)	SIZES (I.D.O.)	SIZES (I.D.O.)
10" (11" x 12")	15" (16" x 18")	20" (21" x 24")
12" (13" x 15")	18" (19" x 21")	24" (25" x 28")
15" (16" x 18")	21" (22" x 24")	28" (29" x 32")
18" (19" x 21")	24" (25" x 28")	32" (33" x 36")
21" (22" x 24")	28" (29" x 32")	36" (37" x 40")



ALTERNATIVE TO INSTALLING END WALL ON SKEWED PIPE

FILL WITH CLASS 3 CONCRETE (CONSOLIDATE AS NECESSARY) ALWAYS FILL UNIT WHATEVER BEFORE BACKFILLING CAN BE DONE IMMEDIATELY AFTER FILLING UNIT. (SEE NOTE 3)

FILLING UNIT MATERIAL

DATE	DESCRIPTION	DATE BY	CUSTOMER	ORDER	PROJECT	LOCATION	STATIONING
			HARTMAN EW INC.		HARTMAN EW SYSTEM PRODUCT APPROVAL		

SCALE: 6:00

SHEET 1 OF 1

DATE: 6/20

SCALE: 6:00

SHEET 1 OF 1

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USE GUIDELINES FOR EPOXY-BASED SURFACE TREATMENT FOR BRIDGE DECKS

c10431 ITEM 9043-2101 (ITEM 9043-0101) - EPOXY-BASED SURFACE TREATMENT FOR BRIDGE DECKS

The above-referenced Special Provision is for the use of epoxy-based surface treatment for in-service bridge decks. These overlays were originally evaluated under Pennsylvania Research Project No. 83-29. See also 94-231, 00-168Q, 06-046Q, 07-002Q, 07-034, 08-140Q, 13-005, 13-011, 13-197B, 14-086A, 14-127MA, 15,007MB, 15-090M, 17-157, 17-276, and 18-199.

If at any point the Department becomes concerned with the skid resistance of the overlay, a skid resistance test can be performed. If further experience gained by the Districts demonstrates a problem with the use of a specific epoxy-based surface binder, the District should notify RA-pdBulletin15@pa.gov, and the product could be potentially withdrawn from Bulletin 15 (Qualified Products List for Construction).

Some advantages to these overlays include:

- Low dead load due to thinness (total thickness is 1/4 to 3/8 inch)
- Short application time; under good temperature conditions, an overlay may be able to be applied within 24 to 48 hours on a properly-prepared surface
- Low permeability to moisture
- Resistance to deicing salts
- Good bond strength to concrete bridge decks
- Restores skid resistance to deck surface
- Approximate service life of ten years with minimal maintenance

The following guidelines are to be used in the consideration of these overlays for in-service bridge decks:

1. The bridge deck replacement decision should still follow the procedures in Design Manual 4, Section 5.5.2.3.
2. The overlay can be used to improve or restore the skid resistance on concrete bridge decks without asphaltic overlays.
3. To reduce chloride penetration in concrete bridge decks without asphaltic overlays, use the following limiting factors to select potential bridge decks for application of the epoxy-based surface treatment.
 - a. Select decks on medium and high volume routes (ADTT > 100).
 - b. Select decks with a Deck Condition Rating (BMS Item E17) greater than or equal to 5 (i.e. light to moderate deterioration). Typically, deck scarification is not performed prior to overlay application (surface texture after scarification may be too rough for the thin overlay to smooth out). Without scarification, a slightly better bridge deck is

- required for these overlays compared to approved overlay alternatives. However, shotblasting of the entire deck surface is required prior to overlay application.
- c. Select decks with chloride contents less or equal to 2 lbs./cu. yd. over an average of the total deck. In Pennsylvania research projects, the overlays provided good resistance to chloride penetration.
 - d. Select decks containing good sound concrete with adequate strength before application of the overlay. The epoxy-resin based overlays will not repair unsound concrete or concrete susceptible to delamination. Known areas of deteriorated concrete should be removed and replaced before applying the overlay.
 - e. Use air content requirements outlined in Design Manual 4, Part A, Section 5.5.2.3.
 - f. Perform an economic evaluation to allow the use of this overlay in place of any other overlay alternatives.
 - g. The application of three layers (total thickness of 3/8 inch) is recommended for any route with ADTT > 250.
4. For concrete filled grid steel decks without overlays, use the following limiting factors to select potential bridge decks for this type of overlay:
- a. All concrete filled grid steel decks requiring rehabilitation are potential candidates for this type of overlay.
 - b. Remove deteriorated concrete and fill the cups with concrete if the full depth concrete is deteriorating. The epoxy-based resin overlay material can be combined with the fine aggregate to produce a slurry material that can be used to fill in small patches of cupped areas less than 3/4 inch average depth and no more than 1 1/4 inches deep. Fill steel grid flush with the top of the steel grid.
 - c. Perform an economic evaluation to allow the use of this overlay in place of any other overlay alternatives.
 - d. The application of three layers (total thickness of 3/8 inch) is recommended for any route with ADTT > 250.

The following guidelines are to be used in the consideration of these overlays for newly poured bridge decks:

1. Allow a minimum of 30 days of curing time before placing an Epoxy Based Surface Treatment.

USE GUIDELINES FOR GRADE ADJUSTMENT OF EXISTING MISCELLANEOUS STRUCTURES USING RUBBER RINGS

c06061 ITEM 9606-2050 (ITEM 9606-0050) GRADE ADJUSTMENT OF EXISTING INLETS USING RECYCLED RUBBER GRADE ADJUSTMENT RINGS;
ITEM 9606-2150 (ITEM 9606-0150) GRADE ADJUSTMENT OF EXISTING UTILITY HOLES USING RECYCLED RUBBER GRADE ADJUSTMENT RINGS.

Rubber Grade Adjustment Rings are available as an alternate to all types of grade adjustment rings. The contract must be let with these rings as an alternate bid item or the District may choose to put it into the contract as the sole item for adjustment rings.

Rubber adjustment rings are to be installed according to the manufacturer's recommendations. Maximum permitted total height for rubber adjustment rings is 3 inches; minimum height is 0.5 inch.

The rubber rings are lighter and easier to manipulate than steel rings. Currently available rings are manufactured from recycled tires. Provisional approval is granted for these grade adjustment rings based upon extensive test results provided by the manufacturer.

This Special Provision is Provisional. Until widespread experience with Rubber Grade Adjustment Rings is gained statewide, this product will retain a provisional status. Project designers are requested to consider any unusual site conditions that would affect the use of rubber adjustment rings.

Contact NPI before using: RA-pdBulletin15@pa.gov. If the Department observes any problems with the use of the Rubber Grade Adjustment Rings, the Special Provision will be withdrawn immediately, or modified and reissued if the problem can be addressed.

USE GUIDELINES FOR PREFORMED SILICONE JOINT SEALING SYSTEM

c10081 ITEM 9008-2101 (ITEM 9008-0101) - SILICONE JOINT SEALING SYSTEM;
ITEM 9705-2201 (ITEM 9705-0201) - JOINT BACKING MATERIAL

The above-referenced Special Provision is for the use of a preformed silicone joint sealing system. Approval is based upon field evaluation and testing performed by the Bureau of Maintenance and Operations through Research Project Nos. 93-157, 96-015, 11-030, 11-040A, and 11-040B.

Contact NPI before using: RA-pdBulletin15@pa.gov. If at any point the Department becomes concerned with the condition of the installed joints, or any problem is demonstrated with their use, the Special Provision will be withdrawn immediately, or modified and reissued if the problem can be addressed.

An advantage of the preformed silicone joint sealing system is that all preliminary work and preparation, and easy installation, can be performed by County bridge maintenance crews.

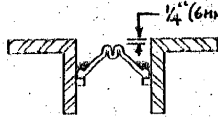
Preformed Silicone Joint Sealing Systems have applications for the repair of bridge joints where nosing or joint faces are in good condition and can be cleaned or abraded to ensure a good bond with the installed seal. Where required, the joint must first be redefined with new headers of elastomeric concrete or reconstructed nosings. The two preformed silicone joint sealing systems are intended for movement ranges of 1 ¼” to 3” and 2 ½” to 4”. The project designer must calculate the range of movement for the structure to determine the proper joint sealing system to use.

The following drawings show the variety of installation designs that are possible, using a preformed silicone joint sealing system, which meets the requirements of the Special Provision. Please note that the use of a preformed silicone joint sealing system is only guided by the attached installation drawings, but not limited to that particular vendor.

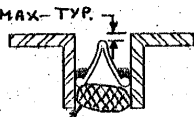
This Special Provision will be bid as an alternate to other joint repair systems.



Variations for Silicoflex™ Installations



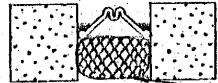
Silicoflex (4" MF) with steel header material (For larger movements).



Silicoflex (2 1/4" MF) with steel header material.



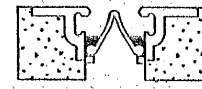
Silicoflex (2 1/4" MF) with Strip Seal Locking Mechanism A Extrusion.



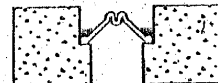
Silicoflex (4" MF) with concrete header material (For larger movements).



Silicoflex (2 1/4" MF) with concrete header material.



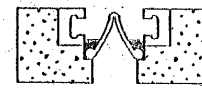
Silicoflex (2 1/4" MF) with Strip Seal Locking Mechanism A Extrusion.



Silicoflex (4" MF) with Flexcon A/C header material (For larger movements).



Silicoflex (2 1/4" MF) with Strip Seal Locking Mechanism E Extrusion.



Silicoflex (2 1/4" MF) with Strip Seal Locking Mechanism E Extrusion.

JOINT BACKING MATERIAL (TYP.)





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SF 225		SF 400	
			
MODEL	INSTALLATION WIDTH RANGE	MAXIMUM CLOSURE	MAXIMUM OPENING
SF 225	1 1/4" - 3"	3/4"	3"
SF 400	2 1/2" - 4"	1"	5"



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USE GUIDELINES FOR A PROCESSED TREATED CRUMB RUBBER MODIFIED ASPHALT

c04481 ITEM 9448-____ - DRY PROCESSED TREATED CRUMB RUBBER MODIFIED ASPHALT WEARING, BINDER, LEVELING, AND SCRATCH COURSES

c04491 ITEM 9449-____ - WET PROCESSED TREATED CRUMB RUBBER MODIFIED BITUMINOUS ASPHALT WEARING, BINDER, LEVELING, AND SCRATCH COURSES

The above-referenced Special Provisions are for the use of treated Crumb Rubber Modified (CRM) Asphalt. Approval is based upon Research Project No. 1995-054, "Evaluation of Tyrsolv Crumb Rubber Asphalt Modifier" conducted by the New Products and Innovations Section, Bureau of Project Delivery, in response to a Product Evaluation, PE #93-104. See also PE # 91-072, 94-031, 12-058, 13-097A, 13-098A, 15-179M. Satisfactory performance of this product was reported on two heavily trafficked experimental sections. This product can be used provided an economical approach can be developed to make it cost competitive with conventional sources of asphalt (such as funding to promote the use of recycled materials). The treated CRM can be used either as a fine aggregate/filler combination (dry process) or as a modifier to the asphalt cement (wet process).

The use of treated CRM as an aggregate (dry process) involves mixing the treated crumb rubber with the aggregate before incorporating the asphalt cement into the mix. In the wet process, the asphalt cement is reacted with the treated crumb rubber at elevated temperature in a constant agitation-blending unit for a prescribed amount of time (normally 1 to 2 hours, minimum) prior to blending the modified binder with the aggregate in the mix. The dry process potentially is more economical than the wet process and does not require any additional equipment to be installed at the asphalt plant. The wet process application was verified through Superpave performance testing and the benefits initiated these field applications. The dry process application was brought on board due to unavailability of equipment for wet process blending at the time of construction.

One possible advantage of using a treated CRM listed in Bulletin 15 is that the modified asphalt paving course mixtures may improve rutting resistance where small paving quantities would make the use of a Polymer-Modified binder impractical. The addition or substitution of treated CRM in the paving mixture could potentially enhance the high temperature performance of the asphalt cement without adversely affecting its low temperature performance.

It is noted that the wet process asphalt-crumb rubber mixture is extraordinarily sticky, and, thick (or multiple) lifts will typically be more difficult than normal to compact due to the elasticity imparted by the rubber component.

Contact NPI before using: RA-pdBulletin15@pa.gov. If at any point the Department becomes concerned with the condition of the treated CRM installation, or any problem is indicated with its use, the Special Provision will be withdrawn immediately, or modified and reissued if the problem can be addressed.

**USE GUIDELINES FOR
PROTECTIVE COATING FOR REINFORCED CONCRETE SURFACES AND
PROTECTIVE COATING FOR CEMENT CONCRETE PAVEMENT**

c10191 ITEM 9019-2152 (ITEM 9019-0152) PROTECTIVE COATING FOR REINFORCED CONCRETE
SURFACES

c05031 ITEM 9503-2152 (ITEM 0503-0152) PROTECTIVE COATING FOR REINFORCED CONCRETE
PAVEMENT

The above-referenced Special Provisions expand the use of Penetrating Sealers, for Protective Coating for Reinforced Concrete Surfaces and Cement Concrete Pavement. The intent is to permit all penetrating sealers listed in Bulletin 15 to be used on surfaces not exposed to vehicular traffic, as an alternative to boiled linseed oil. It is also the intent to permit penetrating sealers, classified as Silicates in Water and listed in Bulletin 15, to be used on surfaces exposed to vehicular traffic (concrete pavement and concrete bridge decks). Approval is based upon vendor test data, testing performed at the Laboratory Testing Section, and observations of field applications in District 1-2, District 12-2 and the Pennsylvania Turnpike Commission. Until additional experience is gained statewide, this product utilization will retain a provisional status.

Provisional status requires that the Districts notify the New Products and Innovations Section, Bureau of Project Delivery, of the use of silicates in water as a protective coating for reinforced concrete surfaces exposed to vehicular traffic, and cement concrete pavements, so that monitoring of the product and its application can be arranged with the District. Districts do not need to provide notification of the use of penetrating sealers used on surfaces not exposed to vehicular traffic.

An advantage of Silicates in Water is that the pavement treatment can strengthen, clean and seal concrete already in good condition. Silicates in Water penetrate the surface to react with the free alkali present in concrete filling voids and solidifying the masonry. The material is non-flammable and contains no volatile organic compounds.

Contact NPI before using: RA-pdBulletin15@pa.gov. If at any point the Department becomes concerned with the condition of treated Reinforced Concrete Surfaces and/or Cement Concrete Pavement or any problem is indicated with the use of Silicates in Water as a Protective Coating, the Special Provision will be withdrawn immediately, or modified and reissued if the problem can be addressed.

USE GUIDELINES FOR REPAIR OF ACCESS ROADS
c06001 ITEM 9600-1025 (ITEM 9600-3025) - REPAIR OF ACCESS ROADS

The above-referenced Standard Special Provision is intended to establish a predetermined amount of money for the repair of local roads used for access to state owned bridges under construction. The associated contract item is to have a unit of measure of Dollar, a unit price of \$1.00, and a quantity equal to the predetermined amount. The following guidelines are applicable to use of this specification:

- Access to the site of the proposed construction should be considered during the Design Phase of the project. Local access roads designated by the Department should be listed on the plans along with a note indicating that the Contractor may elect to use an alternate access route subject to the approval of the Department.
- The District must document the condition of the Department designated access route, or the Contractor's alternate access route, preferably through video logging and condition surveying, prior to the commencement of construction activities.
- Access to both sides of the bridge should be designated beginning at the point of departure from the permitted route(s).
- Hauling Restrictions, as specified in Publication 408, Section 107.23, are applicable to any designated access route as well as to a Contractor's alternate access route.
- When included in a proposal / contract, the Standard Special Provision will require a merge line document indicating which local roads have been designated by the Department for use as access roads.
- The predetermined amount of money allocated in the proposal / contract is to be used for the repair of access roads whether the designated route is used or the Contractor elects to use an approved, alternate access route.

**USE GUIDELINES FOR
STEEL FIBER REINFORCED CONCRETE WEARING SURFACE**

c10901 ITEM 3090-____(ITEM 1090-____) - STEEL FIBER REINFORCED CONCRETE WEARING SURFACE,
____mm(")

The above-referenced approved statewide Special Provision is for the use of Steel Fiber Reinforced Concrete (SFRC) as a thin overlay for in-service bridge decks.

The following information should be considered in the design of SFRC bridge deck overlays:

- SFRC does not eliminate cracking, but it does significantly reduce the growth and width of cracks.
- SFRC provides post-crack integrity, which enables the concrete to still carry loads even after cracking. This property increases the spall resistance and reduces spalls and/or pop-outs at the surface.
- SFRC overlays with a maximum water cement ratio of 0.43 for Class AAA concrete mixes are not impermeable, nor are they considered a water proof membrane or overlay. SFRC overlays with a maximum water/cement ratio of 0.43 should not be construed as an alternate to Latex Modified Mortar or Concrete Overlays.
- The impermeability of SFRC overlays can be improved by reducing the water/cement ratio to 0.40 or less. Reduction of the water/cement ratio is encouraged, and the Special Provision allows the use of high range water reducers to accomplish this.
- SFRC is recommended for overlays of structures where the existing conventionally-reinforced concrete bridge deck cannot be removed, such as in slab bridges and deck arches. These types of structures, where the allowable dead load has sufficient capacity, have typically received minimally-reinforced Class AAA concrete overlays in thicknesses up to five inches. Steel fiber reinforcement should provide beneficial properties in these types of overlays.
- If the water/cement ratio for SFRC is not decreased to improve impermeability, SFRC overlays are recommended to be used on bridge decks that are conventionally-reinforced with epoxy-coated reinforcement.
- A minimum thickness of two inches is recommended for all SFRC overlays to provide adequate coverage.

USE GUIDELINES FOR SUBGRADE STABILIZATION
c02033 ITEM 9203-2400 (ITEM 9203-0400) - CLASS 1C EXCAVATION

The above-referenced Standard Special Provision addresses the issue of providing payment for the removal and replacement of unstable subgrade and emphasizes that the Districts should make every effort, during project design, to adequately determine the subsurface conditions that will be encountered.

The subgrade undercut area and depth of excavation for a specific project can be affected by many factors including, but not limited to, known subsurface field conditions, the availability of suitable, excavated material from project operations for use as backfill, and the planned use of geotextile support fabrics or geosynthetics for subgrade stabilization. Consideration should also be given to the potential effect of Section 110.02(d) of the Specifications, Required Changes in the Scope of Work, which limits the Contractor's ability to recover additional costs in situations where an item experiences a significant change in character as a result of a decrease to below 75% of original contract quantity by limiting total compensation to the contract item's original value.

The following criteria should be considered, during project design, when determining the extent of unstable subgrade for the purpose of estimating a quantity for the Class 1C Excavation item (Item 9203-0400 or 9203-2400):

- Conduct a visual inspection of the project site checking for the presence of water; failed drainage systems; distresses, such as faulted or broken slabs, that may indicate a foundation problem; mid-slab and/or fatigue (alligator) cracking; low areas where water tends to collect; cut sections; slide areas and/or seepage associated with fill sections; and a locally high water table (i.e. roadway located near an existing stream or creek).
- Consult with District Construction personnel regarding their experience on adjacent projects.
- Consult with the District Pavement Engineer, District Geotechnical Engineer, and District Maintenance Engineer to ascertain whether any previous soils data is available and to obtain information on the maintenance history of the roadway (i.e. records from past maintenance work).
- Determine the potential for subgrade problems to develop as a result of planned construction operations.
- If applicable, include shoulder areas when estimating the undercut quantity for unstable subgrade.
- Obtain soil samples from within shoulder areas.

USE GUIDELINES FOR SUBGRADE TREATMENT
c02101 ITEM 9210-2022 (ITEM 9210-0022) - SUBGRADE TREATMENT

The above-referenced Standard Special Provision employs a tool box approach to improving the subgrade for reconstruction projects and provides for a cost effective uniform treatment across the entire project. The Subgrade Treatment Special Provision allows the contractor to choose between one foot of rock or chemically stabilizing the top foot to subgrade with a lime product to strengthen the subgrade soils.

The following subgrade stabilization design worksheet details soil studies needed to verify that soils are reactive with lime and to verify that soils achieve strength requirements prior to incorporating into contracts.

Subgrade Stabilization Design Worksheet

Stage I (40 hours)

1. Look at Old Soils Reports
and/or
2. Check Geology and Soils map
 - a. Know what type of soil you have based on bedrock or soils map.
 1. Limestone - Clay type soils
 2. Shale/Sandstone - Sandy with less clay

Stage II (30 hours)

1. Sampling
 - a. Take samples at each major change or at intervals determined by Stage I analysis. Samples should be taken at anticipated subgrade elevation.

Stage III (30 days to get results)

1. Testing
 - a. AASHTO M 145 Soil Classification
 - b. AASHTO T 265 Natural Moisture
 - c. AASHTO T 99 - Optimum Moisture/Maximum Density (without additives)
 - d. ASTM D 5102 - Unconfined compressive strength (without additives). Prepare sample cylinders according to ASTM D 5102, Method B with the following modification: Revise Section 12 to read: Cure compacted specimens in a plastic airtight moisture proof container at a temperature of 104°F for 7 days.
 - e. AASHTO T 193 - CBR (without additives)
 - f. ASTM D 6276 Using pH to determine Soil/Lime Proportioning. Determine the amount of lime that results in a minimum lime/soil pH of 12.4.
 - g. AASHTO T 99 - Optimum Moisture/Maximum Density (with lime, lime/fly ash, etc.)
 - h. ASTM D 5102 - Unconfined compressive strength (with lime, lime/fly ash, etc.).
Target minimum = 125 psi. Prepare sample cylinders according to ASTM D5102, Method B with the following modification: Revise Section 12 to read: Cure compacted specimens in a plastic airtight moisture proof container at a temperature of 104°F for 7 days.
 - i. AASHTO T 193 - CBR (with additives)

Stage IV (4 hours)

1. Do a confirmation inspection of exposed subgrade prior to starting stabilization.

**USE GUIDELINES FOR
TYPE 1 RIGHT OF WAY FENCE WITH COMPOSITE POSTS**

c06241 ITEM 9624-2___ (ITEM 9624-0___) - TYPE 1, RIGHT OF WAY FENCE WITH COMPOSITION POS

The above-referenced Special Provision is for the use of composite posts in the construction of Type 1, Right of Way fencing. Approval is based upon laboratory testing performed by the Laboratory Testing Section and observations of actual installations by other agencies. No field evaluations have been made of the composite post designs.

Some advantages of using these posts include:

1. Can be provided in five different colors.
2. Nonconductive, for use in high voltage application areas.
3. Bending strength equal to/or greater than Schedule 40 steel pipe.
4. Corrosion resistant to water, salts, temperature changes, acid rain, petroleum products.
5. Flexural “memory”; bends twice as far as steel, returns to original position when pulling force is removed.
6. Posts are compatible with standard commercial steel or malleable iron, hardware components.

The following guidelines are to be used in the consideration of these composite posts, for Type 1 Right of Way installations:

1. Posts cannot be driven but must be set in concrete footings not less than four (4) times the diameter of the post itself. Concrete should be 6” deeper than the post. Footings should be a minimum of 42” in depth and deeper where climatic or soil conditions warrant. Post footing caps to be trowel finished with slight slope away from post.
2. Most all fabricating methods used currently in the process of aluminum, steel, wood or other materials are available for the fabrication of composite post structurals.
3. Fabricating methods may require some changes in technique or modification of equipment.
4. Detailed fabrication manuals are available from composite post manufacturers.

Contact NPI before using: RA-pdBulletin15@pa.gov. If at any point the Department becomes concerned with the condition of the installed posts, or any problem is demonstrated with their use, the Special Provision will be withdrawn immediately, or modified and reissued if the problem can be addressed.

USE GUIDELINES FOR ROLLER COMPACTED CONCRETE

Introduction

The purpose of this guideline is to provide additional information to construction personnel about Roller Compacted Concrete (RCC) pavement that may not be covered in the Publication 408, *Specifications*.

As a result, of the Department's research project RP #2010-248 Evaluation of RCC as a Shoulder Alternative and other state DOT's research about RCC pavements, RCC has been approved as a concrete pavement, concrete shoulder, and concrete base course. For concrete pavement, RCC can be used on roadways with an ADT of less than or equal to 2,000 and a speed limit of 55 mph or less. For concrete shoulders, RCC can be used as alternate to plain cement concrete adjacent to reinforced or plain cement concrete pavements. Also, RCC can be constructed as a base course under a wearing course or surface treatment.

Product Description

RCC is a very dry concrete mix that is placed with a conventional or a high-density asphalt paver and then compacted with rollers. Essentially, RCC combines aspects of soils testing, Portland cement concrete pavement material practices, and asphalt pavement construction practices.

The RCC mixture is composed of the same basic ingredients of cement, aggregate and water as conventional ready mixed concrete. Differences are the mix design will have a lower water cement ratio, may use a dense aggregate gradation with a maximum aggregate size less than 1 inch, may or may not have air entrainment, and may have limited use of admixtures. The lower water to cement ratio (as low as 0.30, but typically 0.40) produces mixtures similar to damp gravel with no slump. The lower water cement ratio mix may produce a higher compressive strength pavement than conventional concrete pavements.

Construction of the RCC pavement is similar to asphalt paving in that the RCC mixture is transported from the plant to the construction site with haul trucks. The mixture is deposited onto a conveyor or into the hopper of a conventional or a high-density asphalt paver. The paver will place the RCC at a thicker depth than the required design depth, so that after compaction the RCC is at the proper depth. After placement, various size rollers are used to obtain the final thickness, density and surface texture.

The placement width and depth of the RCC pavement will depend on the paver dimensions and size. The desired pavement thickness may be achieved by placing RCC in single or multiple lifts. RCC does not require forms, steel reinforcing, or dowel bars. Control joints may or may not be required in the RCC pavement. The Department will require control joints in shoulders to match up with the mainline concrete pavement. If joints are required, the spacing requirements should be specified on the plan sheets.

Expectations

Life expectancy depends on construction materials, environmental conditions and traffic volumes. Typical RCC pavement design life is estimated to be 20 years.

The surface of RCC is rougher and has a more open texture similar to asphalt than conventional Portland cement concrete. However, with the proper mix and placement the surface appearance of RCC can be made as aesthetically pleasing as conventional concrete. This can be achieved by mix proportions, roller pattern, or diamond grinding the final pavement surface.

Pavement Design

RCC can be designed to support a wide range of traffic loading conditions. PennDOT RCC design procedures are in Publication 242, *Pavement Policy Manual*, Chapter 8. National experience with RCC pavement has been on roadways with lower speeds and with heavy repetitive loadings. For these types of roads, RCC was selected because its open surface texture is similar to hot mix asphalt and the high compressive strength could withstand the traffic volume loadings. RCC typically has a rougher surface than conventional Portland Cement Concrete pavement and asphalt pavement. The ride quality results will vary depending on the equipment used during placement. Do not select RCC pavements for locations where the International Roughness Index will be measured for ride quality and payment incentives.

The locations where PennDOT has decided to allow the use of RCC are for shoulders, temporary pavements, and roadways with an ADT ≤ 2000 (local and collector roads).

- For shoulders, RCC may be the final wearing course adjacent to reinforced or plain cement concrete pavements as specified in Publication 408, *Specifications*, Section 658.
- For temporary pavements (i.e., median crossovers and widening areas used for traffic control during construction), RCC may be used as final wearing course or as a base course as specified in Publication 408, *Specifications*, Section 502 and Section 323.
- For roadways with an ADT ≤ 2000 and speed limit ≤ 55 mph, RCC may be used as the final wearing course or as a base course under an asphalt wearing course or a surface treatment as specified in Publication 408, *Specifications*, Section 502 and Section 323.

If the RCC will have an exposed pavement surface and a speed limit of 35 miles per hour or greater, the pavement surface should be textured by diamond grinding. For locations where RCC is placed as a base course, the RCC pavement surface does not need diamond grinding before placing the asphalt wearing course or surface treatment. Diamond grinding, asphalt wearing courses and surface treatments should be separate construction items.

Control joints can be designated in order to initiate crack locations. For shoulders, control joints should match up to the spacing and alignment of the adjacent concrete mainline. For temporary median crossovers and roadways with an ADT ≤ 2000 and speed limit ≤ 55 mph, use spacing as shown on Publication 72M, RC-27M, or designate on the plans or using the following rules. For RCC pavements less than 8 inches thick, space control joints 15 feet to 20 feet and for RCC

pavement 8 inches or greater multiply the RCC pavement thickness by 2.5 for the control joint spacing in feet.

The structural behavior of RCC is similar to conventional concrete. To determine pavement design thickness, use current PennDOT concrete pavement design procedures in Publication 242, *Pavement Policy Manual, Section 8.15*. Design thickness can range from 4 inches to 18 inches. During the design selection, take into consideration RCC pavement compressive strength has the potential to be from 4,000 psi to 10,000 psi.

Construction

Equipment

Due to the lower water cement ratio, RCC mixtures are stiffer and harder to mix. Use concrete mixing plants capable of producing a drier mix. For even distribution of the paste, aggregates and water, smaller batches than normal plant capacity should be produced when using a central mix tilt drum plant. The selected plant should be capable of mixing the RCC more vigorously than normal concrete at the production rate needed for the project.

RCC is transported to the placement site in haul trucks. The haul trucks should be clean and have covers to reduce the rate of evaporation of the RCC mixture and protect it from detrimental weather conditions. Trucks should be loaded in multiple piles to reduce the possibility of the RCC mixture segregating during transport. An adequate number of trucks should be on hand to supply a continuous amount of RCC mixture to the paver.

Asphalt pavers used to place the RCC mixture can be modified conventional pavers or high-density pavers. Conventional pavers should be used for single lifts or multiple lifts totaling a maximum of 6 inches. High-density pavers should be used for single lifts up to 9 inches and multiple lifts totaling a maximum of 18 inches. The paver should be equipped with a vibratory leveling screed and one or more tamping bars. Both provide preliminary compaction. In addition, the paver should be equipped with automatic grade control devices to maintain required thickness. If a high-density paver is used, less rolling will be needed for compaction.

Smooth drum vibratory rollers and rubber-tired rollers are used for compaction after the paver. They are used to achieve final compaction, proper thickness and an acceptable pavement surface. Larger smooth drum (5 to 8 tons) rollers should be used for compaction. Smaller smooth drum (less than 5 tons) and rubber-tired rollers should be used for finishing and minimizing surface marks.

At least one water truck should be on hand for water misting, it should be available to moisten the aggregate base and to reduce the rate of evaporation of the RCC pavement surface. Additional trucks may be needed if the selected method of cure is water curing. Curing should begin as soon as final compaction is complete.

Material

Mix designs are developed using either proportioning by evaluation of consistency tests (workability approach) or by soil compaction method. Refer to *ACI 325.10R-95 Report on Roller-Compacted Concrete Pavements, Chapter 4*, or *Concrete Pavement Technology Center Guide for*

Roller Compacted Concrete Pavements, Section 4, for further explanation of both of these methods.

At central mix tilt drum plants, this stiff mixture should be produced in smaller quantities to minimize segregation and ensure consistent mixing. Twin shaft pugmills or central mix twin shaft plants can be operated at full capacity. The mixture is transported to the job site in covered haul trucks to reduce moisture loss during transit. Verify trucks are cleaned before new material is added for transport. Do not add water to the mixture after leaving the plant. After placement and compaction, fogging and misting of the pavement surface are acceptable to mitigate evaporation. Workability issues with the mix need to be discussed with the plant for admixture changes. Retarding admixtures can be utilized for maintaining moisture contents in the mix during longer haul times, or during hot, dry, and windy days to mitigate evaporation.

A test section of the material should be completed prior to full production and placement to verify the process. The RCC mix must be dry enough to support the weight of large compaction equipment, yet wet enough to allow for an even distribution of the cement paste throughout the mix during production and placement operations. During the test section placement, the contractor and inspector will learn if the plant will be able to produce a consistent mix, if the equipment will place the material at the required density and if the equipment will be able to achieve the proper thickness. The optimum rolling pattern can be established as well as determining an acceptable surface finish.

An approved mix design should be on file and in the inspector's possession before placement.

Testing

If the soil compaction method is used for the RCC mix design, the standard test *ASTM D 1557, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort*, should be used to determine the optimum moisture and density of the mix.

To determine the compressive strength of the RCC mix use *ASTM C 1435, Standard Practice for Molding Roller-Compacted Concrete in Cylinder Molds using a Vibratory Hammer*, for molding the test specimens. Cylinder molds need to be placed in rigid steel sleeves during molding for support. The RCC material lifts are consolidated using a vibratory hammer drill, not a tamping rod. The hardened and cured cylinders are tested using *PTM No. 604, Compressive Strength of Molded Concrete Cylinders*.

RCC mixtures are not tested for slump or air content.

After placement and rolling, the RCC pavement is tested for density using *ASTM C 1040, Standard Test Method for In-place Density of Unhardened and Hardened Concrete including Roller Compacted Concrete, by Nuclear Methods*.

Placement

Nationally, RCC pavements have been placed on various subgrade and subbase courses, ranging from existing surfaces with no improvements, rehabilitated subgrades and subbases using full depth reclamation, and newly constructed subgrades and subbases. All options have had successful results. For Department projects, RCC will be placed on a prepared subgrade and subbase course.

The acceptable subgrade and subbase for the project location should be determined during the design phase of the project. The subgrade and subbase courses selected should be able to support the compaction of the RCC pavement during construction. The subgrade and subbase should be a separate construction items. Do not place RCC on a frozen ground or foundation.

After the RCC mixture is delivered to the site, it is deposited onto a conveyor or directly into the asphalt paver hopper. Some modifications may have been done to the paver hopper size to adjust to using a stiff cement concrete mixture instead of an asphalt paving mixture. Having a shoe on the paver is recommended to improve the outside edge setup and to form a tapered safety edge. The paver should have automatic grade control devices, and a minimum compaction system of at least one tamping bar and a vibratory screed. The type of paver used during placement will establish the initial compaction of the RCC pavement and determine the size of vibratory rollers needed to achieve the final thickness, density, and surface appearance. The type of rollers and size required are specified in Publication 408, Section 502.3(d)4. The sequence and number of roller passes for Publication 408, Section 502.3(h), should be established during the test section placement.

RCC can be placed in more than one lift. Multiple lifts should be placed with equal thicknesses to achieve the final thickness. For example, a 10 inch pavement would be placed with two 5 inch lifts. The first lift may be initially placed at 5.5 inches and compacted to 5 inches, before placement of the second lift. Lifts can range from 4 inches to 9 inches. The initial thickness for each lift can be 10 to 25 percent more than the final thickness of each lift to allow for compaction, the percentage can be determined during the placement of the test section to accommodate each mixture during placement. The weather and mixture conditions will influence the set up time of RCC pavement.

For some locations, RCC placement will have vertical and horizontal joints. Roller patterns for joints are described best in *ACI 325.10R-95 Report on Roller-Compacted Concrete Pavements, Chapter 7.6, and Concrete Pavement Technology Center Guide for Roller Compacted Concrete Pavements, Section 7*. The time of placement between the lift materials determines if the vertical and horizontal joints are fresh or cold. For a fresh joint the RCC adjoining material lifts or vertical joints are placed within 60 minutes, while a cold joint the adjoining RCC material is placed together after 60 minutes. The standard time of 60 minutes may be adjusted depending on if the mix retarding admixtures are slowing the set time or if the ambient weather conditions are accelerating the set time. For placement requirements at these joint locations, follow the requirements in the Publication 408, *Specifications*.

RCC pavement surfaces are not smooth with horizontal or longitudinal tining like conventional concrete. The paver and roller combination used during placement will determine the outcome of the final pavement surface. Maintaining a continuous supply of RCC material, proper mix moisture and a steady forward movement of the paver will prevent tearing of the surface during placement. During the test section placement, establish and determine the best combination of roller size and pattern for final compaction, for removing surface tears and cracks during placement and for providing a tight knit pavement surface. A tight knit surface is smooth and does not have rips, tears, or cracks. The paste and aggregate are interlocked giving the surface a similar appearance to an asphalt wearing course.

Layout control joints, as indicated on the construction plans, saw cut to 1/4 depth of the compacted RCC pavement. Saw cut pavement, behind the rolling operation as soon as possible to prevent random cracking, use early entry saws set to the manufacturer's recommendations. Saw cutting should not cause raveling or other damage to the pavement; begin sawing no later than 18 hours after RCC placement.

Some of the benefits of RCC are that it can be constructed quicker than conventional concrete. It requires less labor because formwork is not required and it does not need any reinforcement, dowels, tie rods or steel. RCC pavement sets up and obtains strength quicker than conventional concrete.

Closing

These guidelines give general information about pavement design and construction of RCC pavement. If there are any questions, please contact the Bureau of Project Delivery, New Products and Innovations Section, at 717-787-7150.

APPENDIX C

**APPENDIX C
TRAFFIC CONTROL
PREVAILING WAGE COVERAGE**

**Application of Davis-Bacon labor standards on Federal-aid (Davis-Bacon) projects –
Coverage Principles**

The Davis-Bacon and related Acts (DBRA) require all contractors and subcontractors performing on covered contracts to pay laborers and mechanics employed on the site of the work at least the wage rates (including fringe benefits) determined to be prevailing for corresponding classes of workers engaged on similar projects in the locality.

The prevailing wage provisions of these statutes do not customarily apply to the employees of bona fide material suppliers serving the general public where those companies only manufacture and furnish materials, equipment, or supplies to a work site. Consequently, whether the Davis-Bacon labor standards apply to employees of a traffic control company and the extent of coverage depend on whether the company is performing on the contract as a subcontractor or material supplier.

As a general matter, for Davis-Bacon purposes, a subcontractor is a company that undertakes part of the prime contract's requirements. A traffic control company's status as a subcontractor or material supplier is therefore dependent on what is actually being required of the company in relation to the contract and is determined after an examination of the facts of a particular case. Pertinent facts include the specific requirements of the prime contract, the work the company agrees to perform, and the work the company actually performs on the contract. (It is immaterial for purposes of determining a company's status whether the company has a written subcontract, a rental agreement, or any other arrangement with the prime contractor or a subcontractor.)

While a definitive ruling concerning a specific case may require knowledge of the specifics of the case, in general if a traffic company performs any more than the delivery of the equipment and routine maintenance of the equipment, the company is performing part of the construction contract and is, for Davis-Bacon purposes, a subcontractor.

For example, employees of traffic service companies which operate as subcontractors on DBRA projects to set up and service traffic control devices (e.g., barricades, directional signs, lights, arrowboards, etc.) are generally covered by DBRA.

Also, employees of a material supplier who are required to perform more than an incidental amount of construction work in any workweek at the site of work would be covered by the Davis-Bacon labor standards and due the applicable wage rate for the classification of work performed on the site.

For enforcement purposes under U.S. Department of Labor guidance, an employee who spends more than 20 percent of their time in a workweek engaged in such activities on the site would be covered by Davis-Bacon contract clause requirements for all time spent on the site during that workweek.

However, traffic service companies which rent equipment to the prime contractor and perform only incidental functions at the site in connection with delivery of the equipment are regarded as material suppliers whose employees would not be subject to DBRA unless particular employees spend a substantial amount of time (20% or more) in the workweek on the covered site or sites.

Applicability of Davis-Bacon to workers on the “site of the work” and U.S. Department of Labor policy regarding material delivery truck drivers

Federal Davis-Bacon prevailing wage requirements apply to laborers and mechanics employed by a contractor or subcontractor on the **“site of the work”**.

The regulatory definition of the term **“site of the work”** and other regulatory definitions that apply to the administration and enforcement of the DBRA are set forth in the applicable U.S. Department of Labor regulations in Title 29 of the Code of Federal Regulations, Subpart A. The applicable definition of the term **“site of the work”** is stated in section 5.2(l).

In light of that definition and the definition of “construction ...” in section 5.2(j), off-site transportation of materials supplies, tools, etc., is not covered unless such transportation occurs between the construction work site and a dedicated facility located “adjacent or virtually adjacent” to the work site.

Three U.S. appellate court decisions in the 1990’s led DOL to reexamine and revise the regulatory definitions of the term “site of the work” and of the term “construction, prosecution, completion, or repair” as it applies to transportation. As a result of those court rulings, revised regulatory definitions issued in 2000 addressed the application of Davis-Bacon prevailing wage requirements to material delivery truck drivers. As stated in the 2000 final rule published in the *Federal Register* on December 20, 2000:

As a practical matter, since generally the great bulk of the time spent by material delivery truck drivers is off-site beyond the scope of Davis-Bacon coverage, while the time spent on-site is relatively brief, DOL chooses to use a rule of reason and will not apply the Act’s prevailing wage requirements with respect to the amount of time spent on-site, unless it is more than “de minimis.” Under this policy, the Department does not assert coverage for material delivery truck drivers who come onto the site of the work for only a few minutes at a time merely to drop off construction materials. 65 *FR* 80276.