

# PENNSYLVANIA TURNPIKE COMMISSION

## CONSTRUCTION OPERATIONS MANUAL



2025 EDITION



JANUARY 2025



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# Preface

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DATED		DATE		
08-01-24		<b>06-01-25</b>		
SUBJECT	<b>INTRODUCTION &amp; DEFINITION OF TERMS</b>			

## 1. INTRODUCTION

The Construction Operations Manual (COM) is a compilation of Pennsylvania Turnpike Commission (PTC) policies, procedures, guidelines, and checklists relating to field administration and inspection of construction contracts. These procedures provide direction and guidance for highway, bridge, facility, and other types of construction projects administered by the Pennsylvania Turnpike Commission (PTC) system.

The Commission is responsible for ensuring that such projects receive satisfactory supervision and inspection and that these projects are completed in conformity with approved plans and specifications.

This document makes references to standard Commission, Department, and FHWA documents and publications. Where applicable, samples of standard and non-standard documents may be included for information and are noted as attached.

The COM is divided into the following parts:

- A – Pre-Construction Activities
- B – Project Administration
- C – Construction Inspection
- D – Project Finalization and Closeout
- Appendix

The parts are subdivided into sections in the Table of Contents.

For the COM revision process please refer to Preface Section ii.

Any questions or suggestions regarding this publication should be directed to the PTC Assistant Chief Engineer-Construction.

## 2. DEFINITION OF TERMS AND ABBREVIATIONS

**AASHTO** – American Association of State Highway and Transportation Officials

**Accounting Department** - Pennsylvania Turnpike Commission's Accounting Department.

**ACE** – Assistant Chief Engineer

**ASTM** – American Society for Testing and Materials



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**ATIS** – Advanced Traveler Information System

**ATMS** – Advanced Traffic Management System

**BMP** – Best Management Practices

**CAB** – Central Administration Building

**CCD** - County Conservation District

**BCO** – Business Compliance Officer

**CDS or CDSme** - Construction Documentation System (Millennium Edition)

**CEM** – Construction Engineering Manager

**Chief Engineer** – Pennsylvania Turnpike Commission - Chief Engineer

**CM/CI** – Construction Management / Construction Inspection

**COM** – Construction Operations Manual

**Commission** - Pennsylvania Turnpike Commission.

**Commission Personnel** - An employee or employees of the Pennsylvania Turnpike Commission.

**Commission Representative** - An employee or employees of the Pennsylvania Turnpike Commission, a Consultant or Construction Manager which is employed, paid by and directly accountable to the Pennsylvania Turnpike Commission.

**Comptroller** - Governor's Executive Offices, Budget Office, Comptroller Operations.

**Construction Engineering Manager** - Commission personnel that are assigned to oversee the project(s) and are in responsible charge and in full control of the project(s).

**Construction Unit** – Pennsylvania Turnpike Commission's Engineering Department, Construction Unit.

**DB** – Diverse Business

**DBE** – Disadvantaged Business Enterprise

**DEP** –Department of Environmental Protection

**Department** - Pennsylvania Department of Transportation.

**Directive** – An official notification issued by ACE - Construction to notify users the issuance of new COM version or revision.

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***DIRT*** - Documentation, Inspection, and Reporting Technology

***DME/DMM*** - PennDOT - District Materials Engineer/Manager

***DMS*** – Dynamic Message Sign

***DOM*** – Design Operations Manual

***E&SPC Plans*** - Erosion and Sediment Pollution Control Plans

***EEO*** – Equal Employment Opportunity

***EPA*** - U.S. Environmental Protection Agency

***EPM*** - Engineer Project Manager

***ERP System*** – Enterprise Resource Planning System

***FEMO*** - Facilities & Energy Management Operations

***FHWA*** - Federal Highway Administration.

***FPN*** – Federal Project Number

***GCE*** - General Consulting Engineer, Michael Baker International

***HMA*** – Hot Mix Asphalt

***IDR*** – Inspector’s Daily Report

***IIC*** – Inspector-In-Charge (Resident Engineer, Project Manager, etc.) - The Commission's authorized field representative responsible for the inspection of the performance of work on the project.

***JMF*** – Job Mix Formula

***Lane Patten Administrator*** – Construction field staff assigned to enter roadway restrictions in ATMS.

***LS*** – Lump Sum

***LTS*** – Laboratory Testing Section, Bureau of Project Delivery, Pennsylvania Department of Transportation

***MBE*** – Minority Business Enterprise

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***MPT*** – Maintenance and Protection of Traffic

***NECEPT*** - Northeast Center of Excellence for Pavement Technology

***NHS*** – National Highway System

***NOT*** - Notice of Termination

***NPDES*** - National Pollutant Discharge Elimination System

***NRC*** - U.S. Nuclear Regulatory Commission

***NTP*** – Notice to Proceed

***OB*** - Pennsylvania Turnpike Commission Operation Bulletin.

***OCC*** – Operations Control Center

***OCIP*** – Owner Controlled Insurance Program

***ODI*** – Office of Diversity and Inclusion

***OJT*** – On the Job Training

***OSHA*** – Occupational Safety and Health Administration

***PADEP*** – Pennsylvania Department of Environmental Protection

***PennDOT***- Pennsylvania Department of Transportation

***PCDS*** – Project Collaboration and Documentation System

***PCMS*** – Portable Changeable Message Sign

***PDC*** – Property Damage Claim

***PEMA*** - Pennsylvania Emergency Management Agency

***PFBC*** - Pennsylvania Fish and Boat Commission

***PHMC*** - Pennsylvania Historical and Museum Commission

***PM*** – Project Manager

***PO*** – Purchase Order

***POM*** – Project Office Manual – PennDOT Publication 2



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***PSP*** - Pennsylvania State Police

***PTC*** - Pennsylvania Turnpike Commission.

***PTM*** - Pennsylvania Test Methods – PennDOT Publication 19, Field Test Manual.

***PUC*** – Public Utility Commission

***QA*** – Quality Assurance

***QC*** – Quality Control

***RAR*** – Roadside Activity Report

***Representative*** – PTC Project Representative

***RFI*** – Request for Information

***ROW*** – Right of Way

***SAP*** – Systems, Applications, and Products (Data Processing Software)

***SRM*** – Supplier Relationship Management (Procurement Software)

***SR*** – State Route

***SOS*** – Source of Supply

***TCP*** – Traffic Control Plan

***TMA*** – Truck Mounted Attenuator

***UIR*** – Utility Inspection Report

***UMA*** – Utility Management Application

***USACE*** - U.S. Army Corps of Engineers

***USCG*** - U.S. Coast Guard

***USDOT*** - United States Department of Transportation

***UST*** – Underground Storage Tank

***VE*** – Value Engineering

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***WBE*** – Women Business Enterprise

***WBS*** – Work Breakdown Structure

***WRI*** – Wage Rate Interview

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DATED 05-28-20		DATE <b>01-08-24</b>		
SUBJECT  <b>REVISION PROCESS</b>				

## Overview

The COM is a dynamic document which may require periodic revisions due to changes in organizational structure, technological advancements, and/or construction practices. The COM will be reviewed quarterly if warranted. However, the volume and criticality of updates may not always warrant a revision. When revisions are minimal, the people affected by changes will be notified by other means. As a result, revisions/updates will be released as warranted by the criticality of changes. Critical changes will be incorporated into the COM, and the Assistant Chief Engineer – Construction will issue a directive to release a new COM version. The new COM version will be stored in the Project Collaboration Documentation System (PCDS)

## Revision Process

### First Stage: Change Request

Initially a change request is generated and submitted to the PTC Construction Engineering Manager - Construction Management & Quality Control. The Construction Engineering Manager or designee will coordinate with the appropriate PTC Engineering - Construction personnel and review the request for relevancy, redundancy, or reference to the existing section, and determine if the change is one of three categories:

1. New item to the COM
2. Revision to the COM
3. Deletion from the COM

A log is maintained on all the requests to update the COM. The initial submission is recorded and tracked for progress and as part of the Quality Control (QC) of the COM.

### Second Stage – PTC Review:

If the initial review indicates that the change is not necessary, a response is sent to the initiator indicating the reason why the change was not warranted, and the submission is recorded as closed. Initial reviews should be completed within one week.

If the initial review indicates that a change to the COM is necessary, the change is numbered in accordance with the COM section and the recommendation is transferred to the COM standard



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section format along with the recommendations and the appropriate options for change. The COM section is then submitted to the PTC's Construction Unit Champion for review. Review of the section is made and comments/concurrence to the change is provided to the PTC Construction Engineering Manager - Construction Management & Quality Control.

#### Third Stage - GCE Review:

If the PTC's recommendation is not to update the COM, the submission is closed.

Following PTC review, if necessary, the GCE will review the changes and provide comments/concurrence to the PTC Construction Engineering Manager - Construction Management & Quality Control.

#### Storage Location:

The COM is created and saved in portable document format (PDF) as a single file with a table of contents that electronically links the sections.

This document is stored in the PCDS in the PTC Reference Library File Manager, CI-PM-DM / ENG Construction folder. It can be viewed and downloaded by anyone with access to the PCDS. As with any standard or specification, updating these files can be as simple as a general email notification. A copy of the COM document is stored on the PTC's SharePoint for internal users.

As changes are officially made to the COM, the old versions are archived and remain available in the CI-PM-DM / ENG Construction / Archive COM folder. The current COM version is stored in the PCDS, and the file naming structure is updated to correspond to the COM version. The year in which the COM is revised become the COM version year. For example, the first release in 2024 is designated as COM 2024. The subsequent revisions within a year designated as follows: COM 2024-1, COM 2024-2. COM will be revised quarterly if revision warranty.

Part A

Pre-Construction

# Section 1

## Pre-Construction Meetings

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DATED		DATE		
12-14-21		<b>01-08-24</b>		
SUBJECT		<b>PRE-CONSTRUCTION DESIGN MEETING</b>		

The purpose of the Pre-Construction Design Meeting is to transfer information from the designer to the construction management.

#### 1. Schedule the Pre-Construction Design Meeting

The construction project manager should schedule the meeting prior to the Pre-Construction Conference being held with the contractor. As a minimum, the design project manager, the construction project manager, the consultant designer and the in-house/consultant construction manager should attend the meeting. Other invitees could include a GCE representative, Geotechnical Unit, Traffic Engineering and Operations, Traffic Incident Management Coordinator, Planning & Design Services Unit, Environmental Engineering Unit, Roadway Unit, Facilities Engineering Unit, Facilities Operations Unit, Total Reconstruction & Expansion Unit, Bridge Unit, the PTC IT, and the PTC's Fiber Operations, Maintenance, and Commercialization Vendor, etc.

#### 2. Prepare meeting agenda

The design project manager will formulate the agenda based on his experience during the design phase. A template for the meeting agenda can be found in the PCDS, PTC Reference Library. If the project includes a Transportation Management Plan (TMP), this should be on the agenda. Agenda items could also include the designer's intent of the project or specific parts of the project, special traffic, environmental issues, permits or ROW/Utility/Fiber issues, Temporary Shoring design reviews, temporary and permanent stormwater management facilities, etc., to gain familiarity of any unfamiliar new products or procedures and discuss any other sensitive or unusual issues or concerns.

For vertical construction, the agenda should include the status of all building permits and identify special inspection requirements which the PTC will be responsible for providing. Identify anticipated utility adjustments and responsibility for fees associated with these adjustments.

#### 3. Conduct meeting

The design project manager will run the meeting. Construction management personnel should be familiar enough with the plans and specifications to ask any questions that they may have at the time.

#### 4. Create and distribute meeting documentation

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The design project manager will be responsible for the preparation of the minutes for the meeting and will transmit the minutes to the PTC Construction Project Manager. The PTC Construction Project Manager will upload the agenda, attendance sign-in sheet, and meeting minutes into the Project Collaboration and Documentation System (PCDS) in accordance with the PTC *Kahua Construction Project Documentation Guide*. Do not file documentation for this meeting in the Meetings App.

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10-01-22		01-08-24		
SUBJECT		PRE-CONSTRUCTION CONFERENCE		

## A. PURPOSE

The purpose of the Pre-construction Conference is to discuss with the contractors/subcontractors all essential and specific matters pertaining to the proposed work. The Pennsylvania Department of Transportation (PennDOT) District Turnpike Coordinator will be invited to the pre-construction conference if coordination is required, as defined in COM Section B 1-3. The Construction Engineering Manager (CEM) or PTC Project Manager (PTC PM) will be responsible for the administration of the Pre-construction Conference process.

## B. PROCESS

- 1. Schedule Pre-construction Conference** – The CEM or designee will coordinate with the awarded contractor and pick a date, time, and location for the pre-construction conference. This date and time will be reviewed with key PTC personnel/design consultant. The contractor should be instructed to notify his subcontractors of the scheduled meeting time and place.
- 2. Announce Pre-construction Conference** - Send meeting notification letter through the Project Collaboration and Documentation System (PCDS) confirming the date, time and location of the conference and stating certain requirements for the contractor. Notify other concerned parties' (i.e., Contract Compliance Officer, PTC Maintenance Supervisor, PSP, PTC Fare Collection Regional Manager, PennDOT, railroad officials, other transit agencies, PA Department of Labor & Industry (L&I) inspector (for vertical construction), utility companies, PTC IT, PTC's fiber operations, Maintenance, and Commercialization Vendor, outside of the Project Collaboration and Documentation System.

Items to be included in the notification letter for the contractor to submit through the PCDS:

- Schedule of operations
- Source of Materials
- Mix designs
- Safety Plan
- EEO Policy
- Letter requesting permission to use or install access gates.
- Shop drawings
- Catalog Cuts
- Emergency Contact List
- Properly executed contracts attesting to the amount to be paid to each Diverse Business (DB) or Disadvantaged Business Enterprise (DBE).
- Listing of all subcontractors and items of work.

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- MS4 Training Verification
  - Fringe benefit letters
  - Proposed cash flow projection
  - Request for Non-Revenue Registration and Reimbursement
  - Lump Sum breakdowns
  - Breakdown by percentage for insurance, taxes, etc. for force account work
  - QA/QC Plans
  - Names and resumes for the Contractor's Project manager, superintendent, MPT supervisor, key foremen, and surveyor.
  - Letter indicating destination of all milled material from the project.
  - Completed W-9 form
  - Completed form for additional contractor, subcontractor, etc. PCDS users and contacts
- 3. Pre-Construction Communication with PSP** – The PTC PM will complete Form [PTC-PSPCOORD](#) and notify the PSP Troop T Work Zone Supervisor and Barracks / Station Work Zone Coordinator(s) of the new project information prior to the Pre-construction Conference. Distribute copies of Form [PTC-PSP COORD](#) to the PSP Troop T Work Zone Supervisor, and all Barracks / Station Work Zone Coordinators over which the project overlaps. Ensure the completed Form [PTC-PSP COORD](#) is uploaded into the (PCDS).
- 4. Review Plans, Specifications and Addenda** - The CEM or PTC PM will review the plans, specifications, and addenda to compile a list of pertinent items to discuss at the meeting (e.g. unique special provisions items, items that PTC wishes to stress, items on the plan presentation).
- 5. Create Conference Documentation** - The CEM, PTC PM or designee shall prepare a meeting agenda and conference attendance sheets within the Project Collaboration and Documentation System (PCDS).

As a minimum, the following agenda outline is to be discussed at the conference:

- a. Meeting Introduction – General remarks
- b. Participant Introduction
- c. Contract Dates – General remarks
- d. Project Collaboration and Documentation System (PCDS)
- e. Project Schedule
  - a. Contractor's overview
  - b. Anticipated start of work and intended shifts.
  - c. Cash flow projection
  - d. State Police notification
- f. Fare Collection
  - a. Non-Revenue Privileges - Request the contractor review Section 102.16, Access to Job Site.
  - b. PTC E-ZPass vs Non-PTC E-ZPass accounts
  - c. U-turn procedures – U-turn is prohibited.

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- d. Access Gates or Key – Requirements and use of Gate cards, keys for non-powered gates and/or temporary access gates.
- g. Contract Compliance
  - a. Commitment sheet – DB, or DBE Attachment A
  - b. EEO Program
  - c. Required submittals.
  - d. Required bulletin board postings.
  - e. List of Subcontractors and Bid Item to be Performed.
  - f. Lump Sum Breakdowns.
  - g. Estimates and payment date.
- h. Safety
  - a. Contractor's safety program
  - b. Emergency 24-hour contact information
  - c. Required Personal Protective Equipment
  - d. Water supply
- i. Utilities overview – including UMA
- j. PTC fiber network infrastructure
  - a. Pre-construction needs and design coordination (ex. temporary fiber relocation, locating and mark out, etc.)
  - b. Post construction needs (ex. reinstallation of underground microduct and fiber, fiber inspection, and as-built deliverables, etc.)
- k. Transit Agency involvement, if applicable (RR, SEPTA, Greater Pitt Airport, etc.)
- l. Environmental compliance and issues
  - a. Erosion and Sedimentation Control
  - b. Mitigation commitments
  - c. Waste/borrow areas.
  - d. Permits
  - e. Temporary and permanent stormwater management facilities
  - f. Contractor MS4 training
  - g. EPA Compliance Management Plan
  - h. DIRT Inspection Tool and automatic emails indicating deficiencies
- m. Maintenance and Protection of Traffic
  - a. Transportation Management Plan (TMP), if applicable.
  - b. Traffic Control Plan
  - c. Traffic restrictions
  - d. Work restrictions
- n. Vertical Construction Projects:
  - a. Facility and Energy Management Organization (FEMO) items - Impacts of new construction on existing facilities and coordination
  - b. Identify L&I Inspector and contact phone number found on the UCC Inspection Log
- o. Submittals – All submittals to be uploaded to the PCDS.
  - a. General submittals from Pre-Construction notification letter
  - b. Shop Drawings/Catalog Cuts, Submission and Review Procedures
  - c. Project correspondence, RFI's, certifications, etc.
- p. Quality Control



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- a. Contractor's QC Program
  - b. Inspection/Testing Procedures
- q. Training Requirement for the following:
  - a. Guide Rail
  - b. Permanent Impact Attenuating Devices
  - c. Temporary Impact Attenuating Devices
- r. Special Provisions
- s. Payment
  - a. Additional work or extra work
  - b. Current estimate payments
  - c. Material stored or on hand
  - d. Final inspection, acceptance, and final payment
  - e. Price adjustments (if applicable)
  - f. PTC Vendor Portal
- t. General discussion
  - a. Trailer location
  - b. Partnering
  - c. Contractor's Past Performance Report

The following attendees, at a minimum, are to be invited to the pre-construction conference:

- PTC Design Unit
- PTC Office of Diversity and Inclusion (DB & Labor Compliance)
- PTC CEM
- PTC Project Manager
- PTC Maintenance Unit
- Pennsylvania State Police
- PTC Total Reconstruction & Expansion Unit
- PTC Environmental Engineering Unit
- PTC Planning & Design Services Unit
  - Utilities Liaisons
  - ROW Liaisons
  - Roadway Site Design Liaisons
- PTC Roadway Unit
- PTC Bridge Unit
- PTC Geotechnical Unit
- PTC Traffic Engineering and Operations
- Contractor
- Consultant CM/CI, if applicable
- General Consulting Engineer, if applicable
- PTC IT, if applicable
- PTC Fiber Operations, Maintenance, and Commercialization Vendor, if applicable

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6. **Verification of Contract Status** - One day prior to the conference the CEM or PTC PM will check with the Contract Management Services Manager to obtain the status of the contract if Notice to Proceed has not been issued.
7. **Conduct Pre-construction Conference** - Conduct the meeting referring to the agenda. Entertain comments from all meeting participants.
8. **Schedule Future Meetings** - Set up future meetings (e.g., Utility, Trailer Location, MPT Stake Out in the Field, Emergency Pull Offs, scheduling meetings, job meetings, etc.). Notify and invite all appropriate design engineering, traffic engineering & operations, as well as any other appropriate Turnpike personnel to all future meetings. Notify and invite the Planning & Design Services Unit personnel of any meetings with utility infrastructure owners, and PTC IT and PTC Fiber Operations, Maintenance, and Commercialization Vendor for any meetings concerning PTC fiber network infrastructure.
9. **Prepare Post Conference Documentation** - The CEM or PTC PM or designee shall prepare the pre-construction conference minutes and a list of action (follow-up) items gathered from the meeting, including the person responsible and the due date. Upload the documents to the Project Collaboration and Documentation System (PCDS) in accordance with the PTC Kahua Construction Project Documentation Guide.

## Part B

# Project Administration

# Section 1

## Notifications

REPLACES	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART	SECTION	PAGE
B 1-1 page 1 of 1		<b>B</b>	<b>1-1</b>	<b>1 of 1</b>
DATED		DATE		
01-18-23		<b>01-08-24</b>		
SUBJECT				
<b>NOTIFYING INTERESTED PARTIES PRIOR TO START OF CONSTRUCTION ACTIVITIES</b>				

As a method of customer service to the public and to minimize any negative impacts of the construction project, the Construction Manager is to verify that the following interested parties were notified prior to the start of work or prior to significant operations that may affect the local community.

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. Pertinent public officials are notified by mail, telephone or through meetings.
3. Railroad officials: the Contractor is to notify railroad companies that highway construction work will be proceeding at or near their facilities unless the PUC Order directs the Commission to do so. Ensure compliance with the provisions of agreements, orders, and contracts regarding notification of, coordination and cooperation with railroad officials. Railroad officials should be informed of pre-construction conferences in a timely manner. Upon completion of the project, notify the PUC that the work has been completed so that a final inspection can be scheduled and conducted by the PUC.
4. "Other interested parties": i.e., those parties who, in addition to the parties mentioned above, may have an interest in or 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, newspaper, meetings, "open house," flyers, or by radio/TV spots.

REPLACES	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART	SECTION	PAGE
B 1-2 page 1 of 1		<b>B</b>	<b>1-2</b>	<b>1 of 1</b>
DATED		DATE		
01-18-13		<b>01-08-24</b>		
SUBJECT				
<b>AUTHORIZATION TO ENTER PRIVATE PROPERTY</b>				

The purpose of this section is to provide guidance on the proper execution of an Authorization to Enter (waiver of claim) agreement with an adjacent property owner.

This agreement between the Contractor and the adjacent land owner is for the contractor's convenience to provide lay down areas, field office sites, waste areas, etc. including access to the turnpike property.

This form is NOT required for the construction, operation, or maintenance of the project. The work typically benefits the property owner and contractor, and the project can be constructed as designed without entering this private property.

This form is typically used when there is no need or intent to develop a right-of-way plan.

The **Authorization to Enter Form** (waiver of claim) shall be prepared by the Contractor and an executed copy of the authorization shall be submitted to the Representative and filed in the Project Collaboration and Documentation System (PCDS).

This form 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 BE SIGNED ON BEHALF OF THE PENNSYLVANIA TURNPIKE COMMISSION***. If it is signed by the Commission, the form becomes a contract and must be approved for form and legality.

REPLACES	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART	SECTION	PAGE
B-1-3 page 1 of 1		<b>B</b>	<b>1-3</b>	<b>1 of 2</b>
DATED <b>01-18-13</b>		DATE <b>01-08-24</b>		
SUBJECT <b>CONSTRUCTION PROJECT COORDINATION WITH THE PENNSYLVANIA DEPARTMENT OF TRANSPORTATION</b>				

Construction project coordination with the Pennsylvania Department of Transportation (PennDOT) is required when a Pennsylvania Turnpike Commission (PTC) construction project is located over or under a State Route (SR) or there is any impact, including signing, traffic control or detours involving a State Route. For projects that have no impact on State Route, notify the PennDOT district for informational purposes.

The flowchart on the following page has been developed to define the project milestones at which coordination with PennDOT should be ensured throughout the construction project life cycle. Milestones NTP/Pre-Construction through Close Out are detailed here in the Construction Operations Manual.

Construction project coordination with PennDOT should be established with PennDOT's District Turnpike Coordinator.

During the Notice to Proceed (NTP) / Pre-Construction phase, PennDOT must be invited to the pre-construction conference and any project coordination meetings.

During construction, maintenance and protection of traffic is a major concern. Detours must be coordinated with PennDOT and impacts at all interchanges are to be addressed. PennDOT must be invited to any pre-pave, pre-placement, and pre-erection meetings. As the construction progresses, PennDOT is to be invited to progress meetings. PennDOT must be informed of any schedule changes and scope of work changes.

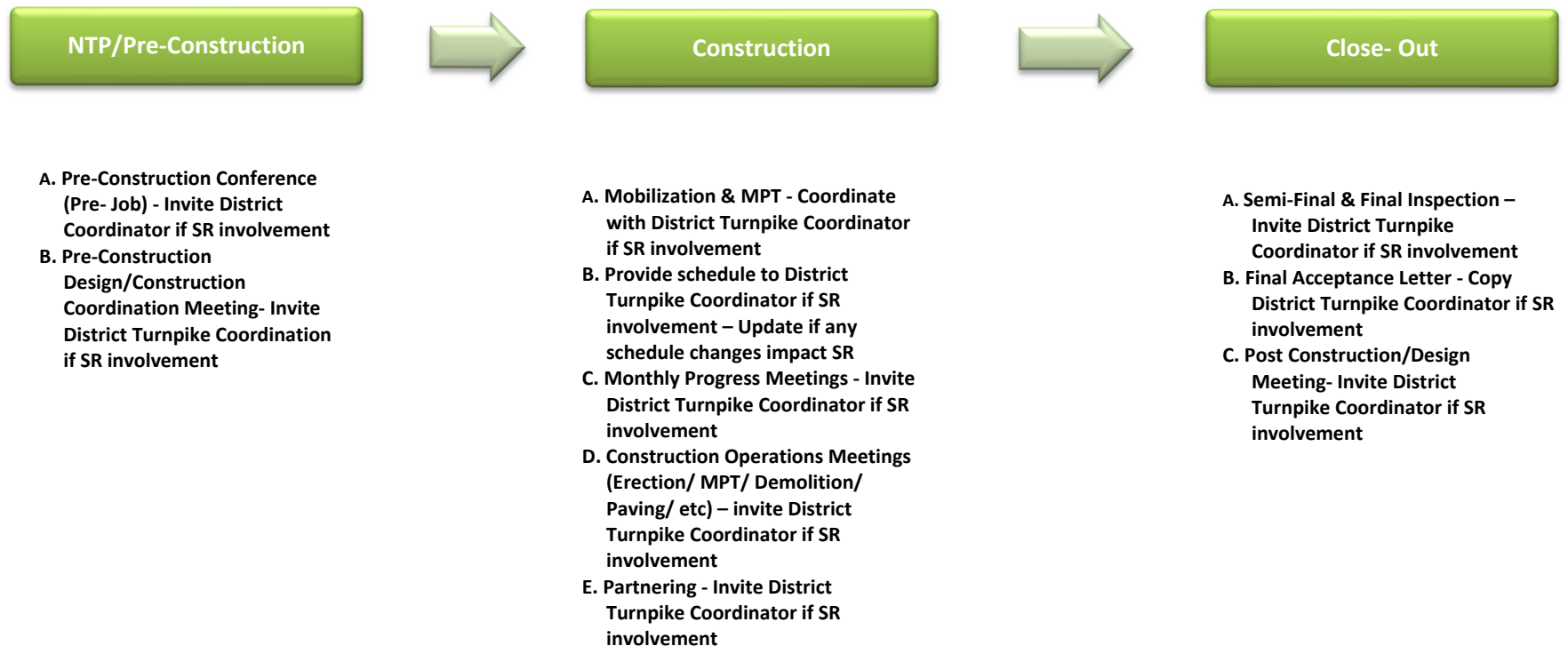
Once construction is complete, PennDOT must be involved in the Project Close Out. PennDOT is to be invited to the Final Inspection and Post Construction Design Meeting.

For PennDOT projects that affect the PTC, when a PTC Representative is notified of a meeting, the Representative should attend as required.

A flowchart of the construction phase Project Coordination Milestones is given below:

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## PA Turnpike Construction Project Coordination Milestones with PennDOT





## Section 2

# Documentation and Job Records

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DATED		DATE		
<b>01-09-15</b>		<b>01-08-24</b>		
SUBJECT				
<b>CDS SOFTWARE</b>				

The purpose of this section is to provide instructions on how to comply compliance with the regulations and requirements for proper inspection documentation for construction projects.

### **CONSTRUCTION DOCUMENTATION SYSTEM – (CDSme)**

The Commission utilizes CDSme as the computer software to document inspection activities, payment, and Quality Assurance (QA) reviews of construction contracts.

The main purpose of CDSme is to:

- Collect and assemble all field level CM/CI information, for the purposes of documentation for payment and cost control.
- Collect and assemble all field level CM/CI information for producing the legal daily record of the contractor's activity (Master Diary).
- Generate and allow authorization of estimate payments and change control.
- Function as electronic data retention for construction contracts.
- Satisfy all reporting needs and requirements, both at the field and management levels.
- Provide for QA reviews and reporting of the findings.
- Provide for QA materials sampling and results tracking.

The main functions of CDSme are:

- Input and tracking of contract-level information including, but not limited to:
  - The contractor(s) authorized to perform the work
  - Items of work to be performed
  - Track all contractor activity daily
  - Track pertinent dates from Bid to Acceptance
  - Payment estimates
  - Funding sources
  - Producing and tracking external invoices for property damage claims
  - Cost Drawdown projections for Capital Plan funding analysis
  - Contract changes
  - Source of Supply and material tracking
  - Field staff personnel tracking
  - Material acceptance and testing results
  - Job Mix Formula tracking
  - Asphalt and Diesel Price Adjustment calculations
  - DB compliance
  - Timely submission of certified payrolls.

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- Certified payroll issue tracking
- As-Built Title Sheet generation
- Contract close-out document generation
- Provide QA checklists for required field reviews
- Provide for QA to document materials sampling information
- Input of daily field inspection activities related to work performed such as:
  - Contractor working hours and personnel/equipment
  - Quantities of work completed daily
  - Work history activity performed by any contractor
  - Compliance/deviation from contract specifications
  - Materials sampling and testing conducted
  - Maintenance and control of traffic tracking
  - Field staff/hours/shifts/work assignments
  - Information for certification of materials
  - Information for materials incorporated (invoiced)Extra work or additional work authorization and activity
  - Official visitors
  - Public concerns/complaints
  - Accidents/incidents (motoring public or safety)
  - Deficiency tracking and resolution
  - Contract changes of work or scope
  - QA detailed reviews of major contract Items
  - QA detailed material sampling information
  - QA summary of findings
- Generation of daily, weekly, and monthly reports to satisfy on-demand needs, as well as contract reporting requirements.

REPLACES	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART	SECTION	PAGE
DATED		B	2-2	1 of 2
		DATE  01-08-24		
SUBJECT		WORK AUTHORIZATION - OPEN END		

All Open-End Contract Work Authorizations must go through the Assistant Chief Engineer – Construction or Construction Engineering Manager, based on the amounts authorized.

Amount	Authorizer
< \$250,000.00	Construction Engineering Manager
>= \$250,000.00	ACE – Construction

The design Project Manager will upload work authorizations for all open-end contracts and send the authorizations in PCDS to ACE-Construction or Construction Engineering Manager.

ACE-Construction or Construction Engineering Manager will review, and if warranted, establish Diverse Business (DB) requirements for non-emergency work, and forward the authorization to the construction Project Manager.

Refer to Section B-3-5 for DB requirements.

If the design PM does not provide a detailed scope of work, the construction Project Manager will provide a brief description of the proposed scope to the Assistant Chief Engineer – Construction or Construction Engineering Manager prior to requesting a price from the Contractor.

After the authorization is approved, the Construction Project Manager sends the approved authorization to the Contractor in PCDS.

### **Emergency works:**

- Emergencies are those that are deemed safety issues to the traveling public and require immediate repair. For these issues, typically authorizations may not be completed prior to the work being performed. At a minimum, the Project Manager is to e-mail the ACE – Construction with all details of the problem and planned repairs. If the work needs to be completed prior to response by the ACE-Construction (i.e., the emergency occurs in the middle of the night), the Project Manager should proceed with the work based on his/her determination that an emergency exists and warrants work to be performed immediately due to safety of the traveling public.
- A separate Work Authorization must be used for tracking emergency work even if a Work Authorization is already prepared for other work at the same location.

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- The Project Manager will include the initial email to the ACE in the PCDS documentation.
- The ACE will provide documented approval to the Project Manager to include in the PCDS even if the approval is provided post repairs.

REPLACES B2 -3 Pages 1 to 4	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART  <b>B</b>	SECTION  <b>2-3</b>	PAGE  <b>1 of 3</b>
DATED 01-08-24		DATE  <b>01-06-25</b>		
SUBJECT  <b>RECORDS MANAGEMENT AND RETENTION</b>				

The following is to provide guidance for the retention and management of Construction Project records vital to the Pennsylvania Turnpike Commission (PTC). These records have administrative, legal, fiscal, and/or historical value to the PTC.

## **RECORDS MANAGEMENT**

Retain project records in accordance with the PTC's Records Management Policy and the Records Retention Schedule.

### **GENERAL**

The Construction Unit will manage project records in accordance with the PTC Records Management Policy. The information contained in following sections is provided to aid in the process of preparing construction project records for inactive storage.

All records are to be stored electronically in the Project Collaboration Documentation System (PCDS) except for the following:

1. As-Built hard copies or electronic Drawings - are to be sent to the PTC's CAB Construction Office, Attention: Construction Engineering Manager – Construction Management and Quality Control (CEM – CM & QC). Also, the transmittal is to be uploaded to the Final Records folder of the PCDS.
2. Operations and Maintenance (O&M) Manuals – The Contractor is to provide O&M Manuals via email to the Project Manager. Once received, the Project Manager is to complete the O&M Manuals Submission Form and forward it with the Manual to the department responsible for the specific piece of equipment covered by the Manual. A copy of the completed O&M Manuals Submission Form is to be stored in the PCDS. O&M Manuals are not to be stored in the PCDS.

### **NON-ELECTRONIC PROJECT DOCUMENTATION**

The following documents are to be kept until the completion of a project:

1. Handwritten IDR's and IDR Attachments -These are to be scanned and uploaded to the PCDS.
2. Material Delivery Tickets
  - a. Aggregate, Asphalt, and Concrete - If any paper tickets are received, the last delivery ticket is to be converted to electronic format and combined with the e-ticketing load log, as well as any required supporting documentation. These are to be uploaded to the PCDS.
  - b. All Other Materials – If any paper tickets are received, they are to be converted to electronic format and combined with any applicable CS-4171s. These are to be uploaded to the PCDS.

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For projects executed in 2024 or later, QA Records Retention Reviews (QARR Reviews) are to be conducted on a quarterly basis on all non-electronic documentation to verify they are retained electronically in the PCDS.

The Quarterly QARR Review will be conducted by the CDS Technician on the project. Once complete, the CDS Technician will send the Quarterly QARR Review to the QA Auditor via email and notify the Quality Assurance Manager. The QA Auditor will then complete a random audit on the non-electronic documentation for that Quarterly QARR Review period. Any incomplete findings during the QA Auditor's review will be returned to and corrected by the CDS Technician. Once the Quarterly QARR Review is complete, and all documentation has been verified, the QA Auditor will upload the completed Quarterly QARR Review to the PCDS.

Quarterly QARR Reviews are to be conducted in accordance with the Quarterly QA Records Retention Review Table below.

Documentation for each quarter includes all documentation from the end date of the previous quarter's audit through the end of the current quarter.

If a project ends before the quarter is complete, the quarterly audit will be performed on the documentation from the end date of the previous quarter's audit through the end date of the project.

**Quarterly QA Records Retention Review Table**

<b>Month of Project Execution</b>	<b>Quarterly Review Schedule</b>
January	April – July – October – January
February	May – August – November – February
March	June – September – December – March
April	July – October – December – April
May	August – November – January – May
June	September – December – February – June
July	October – January – March – July
August	November – February – April – August
September	December – March – May – September
October	January – April – June – October
November	February – May – July – November
December	March – June – August – December

For projects executed prior to 2024, only a QA Final Records Retention Review on all non-electronic documentation is to be conducted at project completion to verify they are retained electronically in the PCDS. Once complete, the CDS Technician will send the QA Final Records Retention Review to the QA Auditor via email and notify the Quality Assurance Manager. The QA Auditor will then complete a random audit on all non-electronic documentation for the project. Any incomplete findings during the QA Auditor's review will be returned to and corrected by the CDS Technician. Once the QA Final Records Retention Review is complete, and all

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documentation has been verified, the QA Auditor will upload the completed QA Final Records Retention Review to the PCDS.

## **DISPOSAL OF NON-ELECTRONIC PROJECT DOCUMENTATION**

Once QA has completed the PCDS Final Audit, and Final QA Records Retention Review to verify that all project documentation is retained electronically, all non-electronic documentation can then be disposed of properly by the project's construction management personnel.

## **ELECTRONIC PROJECT DOCUMENTS**

- Upon completion of QA's PCDS Final Audit, QA will notify the PCDS Administrator that the project is complete and can be configured as "Archived" in the PCDS.
- The PCDS Administrator will back up the project and post to Network/OnBase.

## **DISPOSAL GUIDELINES**

If there is the potential for a claim, all project records and documentation should be retained until the claim is resolved.

Contact the Construction Documentation Specialist and verify the final payment is processed and the project is closed before disposal.

<b>KEEP</b>	<b>DISPOSE</b>
Correspondence – Original with any appropriate hand-written comments need to be retained. They must be scanned and uploaded to the PCDS.	All Duplicate Correspondence. All paper copies after uploaded to the PCDS can then be disposed.
As-Built and Red Line Drawings (Keep Separate) – Hard copies or electronic drawings that are sent to the CAB. Upload the transmittal to the PCDS	Field Plan Drawings
Interim and Final CDS backups are stored in the PCDS for FO & QAQC.	Personal backups can be disposed.
Master Diaries, Original IDR's, and IDR attachments	Handwritten IDR's and Paper IDR attachments (after the PCDS Final Audit and Final QA Records Retention Review)
Invoices, Material Certifications, Bills of Lading, Etc.	Physical Samples (after Materials Supervisor review)
Material Delivery Tickets, Material Certifications, Etc.	Paper Material Delivery Tickets, Material Certifications, Etc. (after the PCDS Final Audit and Final QA Records Retention Review)
Project related email – downloaded to a .pdf catalog or .pst file uploaded to the PCDS.	Merge and purge all duplicate email

## **VERTICAL CONSTRUCTION PROJECTS**

Contact the FEMO Project Manager to have FEMO files sent to the project for merging and purging.



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DATED 04-04-23		DATE <b>01-06-25</b>		
SUBJECT  <b>RECORDS AND DOCUMENTATION</b>				

The purpose of this section is to provide guidance for the preparation of Inspector's Daily Reports and Contract Master Diary for work under contracts awarded by the Pennsylvania Turnpike Commission.

## **RECORDS AND DOCUMENTATION**

The project team is responsible for providing adequate assurance that the quantities of completed work are determined accurately and are in accordance with the contract documents. All such determinations and all related source documents, upon which payment is based, are made as a matter of record.

The project team will use the Commission's Construction Documentation System (CDSme), and the Project Collaboration and Documentation System (PCDS) to document project records and payments and to generate contract estimates and change orders.

### **Source Document**

The source document for field records shall be the Inspector's Daily Report (IDR). Source documents may be hand-written or electronically generated paper documents or can be "Direct Entry" information that is entered in CDSme by the inspector. IDRs must be either the inspector's handwritten, electronically generated (e.g. - fillable PDFs) or "Direct Entry" into CDSme by the inspector. IDRs and any attachments must be scanned and uploaded to the proper folder in the PCDS. All source documents are required to be completed in black ink/font. All information from the IDR must also be entered into CDSme. Hand-written or electronically generated paper documents and "Direct Entry" must be completed and submitted to the CDS Technician within 24 hours of the end of the inspector's shift. The CDS Technician must enter the IDRs into CDS within three working days.

### **IDR – Project Activities (Form PTC- 370A/B)**

IDRs are completed by the Inspector-In-Charge or designated inspector to report project operations and activities. All documentation needs to be adequately identified and cross referenced to provide a complete, clear, and concise audit trail. The Project Activity IDR may also be utilized by the inspector for documenting their time/activity when no project pay item or work history is required to be recorded for their shift of work.

- a) The Inspector-In-Charge is required to complete this report daily unless they are not on the specific project on that day and will not be charging hours worked to the project.
- b) If the Inspector-In-Charge was not on the project and will not be charging hours to the project for that day, another inspector will be assigned on the project that day who is charging hours to fill out report.
- c) Reports shall consist of a summary of project activities for the day, noting any problems encountered, instructions given and comments.
- d) Notes:

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- 1) Additional or extra work authorized will be noted in the appropriate section and attached with the corresponding Authorization for Contract Work (Form PTC 373).
- 2) Daily weather, temperature, and rainfall amount will be recorded on this IDR. If no measurable precipitation has occurred, a zero (0.00) must be entered on the Project Activity IDR and in CDS as the Master Diary record for that day. Do not leave the “Daily Weather/Temp” field blank. Refer to Section B 9-3 for projects that require a rain gauge in the contract.
- 3) Document the completion of the DIRT App E&S Inspection. Reference the inspection number and type of inspection and identify any inspections performed by others or permitting agencies.
- 4) Field staff responsible for E&S Inspections and the usage of the DIRT application shall be assigned an office letter in the Master Diary. A PTC 370A shall be completed each day when charging hours to the project whether the DIRT application was utilized or not. A brief narrative of duties shall be provided. When applicable, reference the PCDS folder and file name(s) for DIRT generated reports as attached. A General Construction IDR may be necessary to capture vital information to a contract item pertaining to inspection findings in addition to the DIRT application report. In this case, the Project Activity IDR would not be necessary.
- 5) If the Inspector-In Charge or designated inspector was not on the specific project and will not be charging hours worked to the project but has the need to document information to the project, the Inspector-In-Charge may do so by using the Work Assignment Code designating that they were not on the project with zero (0) hours for that day. One example would be that the contractor was on-site over a weekend with no inspection staff on-site. The Inspector-In-Charge would document the information on the day it occurred. If the activity were item related, the appropriate IDR would be used in the same fashion to document work history or payments.
- 6) If sufficient space is not available to capture the required details on the applicable IDR, a Project Activity IDR may be used as a continuation of that IDR. The Project Activity IDR should indicate what item number it is a continuation of.

#### **IDR – General Construction (Form PTC-371 and Form PTC-371L - Long Form)**

Completed by the inspector to document project pay items, work history and related information.

- a) There will be one contractor (or subcontractor) per page. The contractor will be marked as the prime or the subcontractor.
- b) Labor and equipment (Form PTC-372 attached and reference to the IDR) will be recorded for each contractor unless such information is captured on the PTC-371. The “Yes” or “No” box is to be checked to indicate if Labor or Equipment is attached on a separate sheet.
- c) This report provides for two item numbers identification (contract item numbers, new items approved on change order or control numbers). Additional item numbers should be placed on additional sheets. In the case of the Long Form, only one item/control number is captured.
- d) Each item number consists of a fund number, unit of measure, and description and will be filled out appropriately and entirely. If sufficient space is not available to enter the entire item description, ensure that the shortened name contains the important components that will distinguish it from similar item names.

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- e) There are multiple plan locations (ID Fields) available per each item number. In the case of the Long Form, there are plan locations (ID Fields) available. These will be completed as follows:
- 1) The ID and Plan Quantity fields will be recorded exactly from the Plan Location Report or the Control Number Plan Location Report.
  - 2) Record actual location accurately by stations or mile post designating EB/WB/RL/LL/ MED/SHLDR/RT/LT/RAMP as appropriate. Other designations are available in CDSme. Record the Stage when necessary. Writing “same” or “NG” in these fields is not permitted.
  - 3) If the location is new or additional, an appropriate “ID” will be established along with the station and/or mile post designating EB/WB/RL/LL/ MED/SHLDR/RT/LT/RAMP as appropriate. Plan Quantity will be -0-.
  - 4) The route number is necessary to distinguish between plan locations. Include the route number in the “Route” ID field or list it under “References/Remarks/Visitors” if it differs from the planned route.
  - 5) Pay quantities will be recorded in the “Actual Quantity” field. Verify quantity for accuracy by including dimensions and calculations under “References/Remarks/Visitors” if appropriate or record where the dimensions and calculations can be found as an attachment. Clearly indicate a negative “Actual Quantity.”
  - 6) “Reference/Remarks/Visitors” section is used to record dimensions, calculations, references to specific files/books with pertinent information related to the item number and/or related information pertaining to the item number. Additionally, it can be utilized to document the contractor’s installation activity including any issues/resolutions that arise.
  - 7) If only Work history is to be recorded, the “Actual Quantity” field should be filled in as -0-. It is extremely important to describe the work being performed for each work history location.
  - 8) After recording the payment or work history, check the appropriate box for the location as being “complete” or “not complete.” This only pertains to the corresponding location or ID field. “Complete” is indicating that no more payments for this location is anticipated.
  - 9) Be sure to check the “YES” or “NO” box for an item if you are including invoices, checklists, certifications, sketches, etc. for the item and designate in the field below “Attachments to this IDR” all that is being attached. Indicate what type of document and number of pages. Be sure to include references, if appropriate, to these attachments under the Item’s Location “References/Remarks/Visitors.”
  - 10) If corrections are needed on written sheets, a single line should be struck through the incorrect data and initialed/dated. The corrected data should be written in and initialed/dated. Corrections for previous IDRs need to be referenced to the incorrect IDR office number, date, and the item to be corrected. Quantity corrections are addressed as additions or negative units with justifiable reasoning supporting the correction (i.e., entry error by inspector). If corrections are made to a previously closed Master Diary date the “Review Note” feature shall be utilized within CDS.
  - 11) All IDR forms turned in for a work shift are to be sequentially numbered per individual. Attachments are not sequentially numbered as a continuation of the IDR forms.

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- 12) If sufficient space is not available to capture the required details on an applicable IDR, a Project Activity IDR may be used as a continuation of that IDR. Multiple Project Activity IDRs can be used, if required, as a continuation of the initial applicable IDR. Each Project Activity IDR should indicate the item number it is a continuation of at the beginning of the narrative.

Note: Whenever a pay entry is made (positive or negative) that is not the same date as the actual work completed, the actual installation date must be noted in the remarks section of the IDR for the ID Field being entered. Proper referencing to the Office Number/Letter and date(s) of work history for the installation must be noted also.

### **IDR – Labor & Equipment Worksheet (Form PTC-372)**

Completed by the inspector to document the contractor daily labor force and equipment that is on the project. The quantity and type of each labor classification and the quantity and types of equipment are entered under their correlating category. Labor types and equipment not listed are to be filled in the lines provided. For all other sections refer to “IDR-General Construction” above. Standard report heading information is captured. The PTC – 372 form allows for documenting one contractor per form.

### **IDR - Authorization for Contract Work (Form PTC-373)**

This form is completed by the Inspector-In-Charge to cover additional/extra work. This form is signed by the Inspector-In-Charge and the Contractor’s Representative. This form should be generated prior to the work being performed.

- a) Record the work as either Additional or Extra.
  - 1) Additional Work is work for which there is an existing contract item but no plan location quantity or insufficient plan location quantity. Additional Work can also be used to eliminate or reduce quantity from an existing contract item’s plan location quantity but not exceeding that plan quantity.
  - 2) Extra Work is work for which there is no existing contract item, or the work is out of the scope of an existing contract item and warrants a new negotiated price or done by force account. It is recommended to set-up a Control Number immediately for each Extra Work item.
- b) Identify the Additional/Extra Work cost justification as:
  - 1) Contract Unit Price: This should be designated after recording work as “Additional” for the purpose of Contractor concurrence.
  - 2) Force Account Work: This should be designated if the cost of the “Extra Work” item is to be determined by actual labor, material and equipment used.
  - 3) Extra Work at an Agreed Price: Within ten (10) days of this authorization, submit a price for extra work with back-up data. Force Account records will be maintained by the Representative until a price is accepted. This should be designated if a negotiated unit price will be used for the “Extra Work” item.
- c) List the Additional/Extra Work to be authorized.
  - 1) Record the existing item number or the control number to be used. Control numbers are automatically set-up by the CDSme system sequentially using the letters CTRL followed by a 4-digit number. Examples of the first and second control number are CTRL-0001 and CTRL-0002. The fund number, typically “10”, is optional depending on whether the project is funded by sources other than the Commission.

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- 2) Record the description of the existing item number/control number to be used. This description should be thorough but brief as this description carries through to the Change Order and becomes the permanent Item description on all documents. Long narrative should not be used for descriptions.
- 3) Record the Unit of measure of the existing item number/control number to be used. If the Unit of measure for a Control Number has not been determined, it is recommended to use "LS."
- 4) Record the Quantity of the Additional or Extra Work. If the Extra Work item is being done by Force Account, the estimated total cost of the extra work will be recorded for the Quantity. Indicate in the narrative that this is an estimation of costs/quantity when applicable. If the Additional/Extra Work is being done by "Unit Price," record the exact or estimated Quantity to be used.
- 5) For the Unit Price field, record the contract unit price for Additional Work or the negotiated unit price for Extra Work. If the Extra Work item is done by Force Account, the Unit Price would be \$1.00 when the "UNITS" field is "LS".
- 6) Total Cost would be the product of "Quantity" times "Unit Price."
- 7) It is appropriate to show "0" or "Unknown" or "To be determined" for Extra Work cost if an estimation of costs is not feasible. If costs are estimated indicate this in the narrative portion.
- 8) Provide pertinent information such as specific location(s) and details of the work to be performed. Provide references to drawings, correspondence, RFI's, meetings, or details when applicable.

#### **IDR –Asphalt Pavement (Form PTC-374A/B)**

For any asphalt placement, this is completed by the inspector to document the quality control asphalt pay items, work history and related information. Listed below are the sections when the Asphalt Pavement IDR differs from General Construction. For all other sections refer to "IDR-General Construction" above.

- a) This report provides for one item number (contract item numbers, new items approved on change order or control numbers)
- b) If recording Work history only, enter -0- in the actual quantity field. It is extremely important to describe the work being performed for each work history location. Every effort should be made to record the actual quantity on the day of placement.

Note: Whenever a pay entry is made (positive or negative) that is not the same date as the actual asphalt placement, the actual placement date must be noted in the "Reference/Remarks/Details of Placement & Preparation" section of the IDR. This pertains to any payment entry on the Form PTC 374 or PTC 371/371L. For Direct Entry reference/remarks are entered into the applicable fields provided in the General IDR NOT The asphalt IDR

#### **IDR – Concrete Placement (Form PTC-375A/B)**

For any cement concrete placement (excluding bag mixed), this is completed by the inspector to document concrete pay items, work history and related information. For all other sections refer to "IDR-General Construction" above. For Direct Entry reference/remarks are entered into the applicable fields provided in the General IDR NOT The concrete IDR

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### **IDR – MPT and Daily Operations Center Notification (Form PTC 376)**

Completed by the inspector to document the work history and related information of the Maintenance and Protection of Traffic (MPT) that is occurring on the project. The form is also used to document notifications and related information to the PTC's Traffic Operations Center. Additional information not shown on the form should be written in the inspector's General IDR under the appropriate MPT item number. Refer to the PTC COM Section 900-2 for additional details of usage of this form.

### **IDR – Pavement Markings (Form PTC 376P)**

Completed by the inspector to document the related details of the application and/or removal of pavement markings that occurs on the project. This report provides for multiple locations for the application and removal sections of the form. Additional information not shown on the form should be written in the inspector's General IDR.

This/these forms are to be emailed as a PDF upon completion of all pavement markings and/or removal activities for your Contract (or Stage, if applicable) to the group indicated on the PTC-376P form. Please note the file naming structure indicated on the form.

### **IDR – Sketches & Calculations (Form PTC-377) or Other Forms of Documentation**

Completed by the inspector for complex sketches, calculations or detailed data that is too large or numerous for an IDR. It can also be used to attach any other summary information to the IDRs with pay items or work history. (Tablet sheets or any other type of forms used in the field can also be attached to the IDR report. It is recommended that Form PTC-377 be used where possible. If it is not possible, try to use 8-1/2" x 11" sheets.)

- a) This form can be used to record sketches, calculations, graphs, explanations and comments with a pay item or work history. It is important to reference all sheets from the appropriate IDR source and from this form back to the appropriate IDR source.
- b) All calculated payments, regardless of the type of form used, must include the Inspector's office number/letter, signature and date calculated. Reference the IDR source payment using the payment date, office number/letter of payment, contract number, pay item number and location(s) and ID Field(s).
- c) Reference the sheet number(s) from the appropriate IDR source. Sheets are numbered sequentially by the total number of sheets attached; they are not numbered by type of form or IDR. Tablet sheets or any other type of form used must also have a sequential sheet number and contain the same heading information as the PTC-377 (Name, contract number, Off letter/number, etc.).
- d) When the sketch, dimensions and calculations are checked, the inspector who is attesting to the correctness of the calculations and information must also list their office number/letter, sign or initial, and date the calculated payment.
- e) Refer to COM Section B 6-1 for proper computation methods.

### **IDR – Receipt of Manufactured Materials (Form PTC-378)**

As manufactured material arrives on the project, Receipt of Manufacture Material form should be completed, and certifications attached. The form should indicate whether the material is stored and/or paid later. Rejected or defective material should be noted and deducted from payment quantities.

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## **Master Diary**

CDS Master Diary is to be completed as follows:

- a) The Master Diary is compiled by the CDS Technician, from the computerized CDS printouts and the inspector's IDR forms. It is organized in a logical and consistent fashion.
  - 1) The computer-generated cover page will be the first document of the daily Master Diary. The cover page, among other details, lists the daily weather and temperature, inspectors work assignments and hours, types of IDRs generated, Direct Entry indicators, and Change Authorizations created for the day. The cover page must be signed by the CDS Technician and by the Inspector-In-Charge after having reviewed content for accuracy and thoroughness.
  - 2) Each active assigned staff member will have a computer-generated printout detailing their activities for the day. The details are inputted from their daily IDR (or Direct Entry) and other forms and attachments.
  - 3) Upon acceptance by the Inspector-in-Charge, the calendar day is closed. The signed version of the Master Diary is uploaded, as generated by CDS in the order of the Office Letter, one file per Master Diary contract day, to the PCDS on a weekly basis. For example, for a week of Master Diaries from 12/17 through 12/21, the upload should be completed by 12/28. A daily upload is also permissible.
  - 4) Other than Direct Entry, the IDRs for each shift must be compiled in order of Office Letter (See #3 above). These must be converted to a single file (PDF) and uploaded to the PCDS to correspond to the CDS generated printout for the MD Day.
  - 5) IDRs must also follow #4 above for uploading requirements.

## **Quality Control Checklists**

Checklists for various work items are listed in the Forms and Checklists Indices section of the COM as a guide for the project team. The actual forms can be retrieved from the PCDS PTC Reference Library. The inspector is required to document in the IDR all items that the inspector checks. The inspector can utilize the checklists referenced in the COM for documenting the inspection items and attach the completed checklists to the daily IDR as indicated above in IDR – General Construction (Form PTC-371 and Form PTC-371L) part e) 11). The checklist does not relieve the inspector of reviewing the contractual requirements of contract specification and verifying those requirements. These checklists must be compiled at the end of the total Office Letter's IDRs that were generated for that shift. They must be uploaded with the corresponding IDR(s) as in Master Diary a) 5) above. For Direct Entry, due to the absence of a General IDR, the checklist will be inserted with other IDRs by sequential Office Letter. If all staff members are performing Direct Entry, the checklists will be organized in sequential order by Office Letter. The same Master Diary part a) 5) guidelines apply, and the same file naming guidelines must be utilized as if there are actual IDRs.

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DATED 08-07-18		DATE <b>01-08-24</b>		
SUBJECT  <b>SHOP DRAWINGS</b>				

The purpose of this section is to provide guidance to ensure the Shop Drawings are developed in accordance with the intent of the contract, design drawings, and all applicable standards, specifications, and special provisions.

### 1. Shop Drawing Submission Policy

Shop Drawings must be submitted to the PTC Project Manager (PM) in accordance with Section 105.02 and the contract special provisions. Shop Drawings requiring review must be properly reviewed by the PM, and “Accepted” or “Accepted As Noted” before fabrication begins.

### 2. Submission Procedure

The Contractor is responsible for furnishing Shop Drawings to the Commission in accordance with Section 105.02(c). All submissions are to be submitted in electronic portable document (PDF) format. Following the established procedures for the Project Collaboration Documentation System (PCDS), the Contractor shall prepare and transmit an electronic submittal package of Shop Drawings for review.

PCDS will automatically generate a log of the Shop Drawings to track the status of the submission.

### 3. Review Procedure

When Shop Drawings are submitted for a particular structure, establish a standardized electronic file name for each Shop Drawing. The electronic file name should include the structure name and any other required PCDS nomenclature. This will facilitate filing and retrieval.

Once received, the PM will review and stamp the drawings. The PM may forward the drawings to a support unit, (Designer of Record, Design Liaison, etc.) for review and stamping.

Review should be conducted against design plans, proposal with revisions, and all addenda. When the review is completed, any corrections to the drawings will be noted and uploaded to the PCDS. The drawings will be stamped either: “Accepted”, “Accepted As Noted”, “Revise and Resubmit”, “Rejected”, or “Receipt Acknowledged”.



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Drawings returned to the fabricator stamped “Accepted” or “Accepted As Noted” may be corrected by the fabricator as required and then be resubmitted for final distribution.

Drawings returned to the fabricator marked “Revise and Resubmit” must be corrected by the fabricator and then resubmitted for further review. If found satisfactory, these drawings may be returned to the fabricator stamped either “Accepted” or “Accepted As Noted” and then resubmitted for final distribution, after corrections, if any, have been made.

Before completion of the project, a “clean” or “As-Built” set of all permanent shop drawings must be submitted in PDF format in accordance with COM Section B2-7.

Prior to commencing with the Shop Drawing review, it is important that the reviewer is in possession of all the latest contract documents. That is, all design drawings, special provisions, addenda, specifications, etc.

Generally, Shop Drawings must be submitted for each structure individually (items pertaining to the same structure number). Each drawing must contain a title block in the lower right-hand corner with the required information indicated in Section 105.02(c).

#### 4. Technical Guidelines for Review

The reviewer should follow the “Technical Guidelines for Shop Drawing Review” found in PennDOT Design Manual 4, Appendix B. Following the technical guidelines will ensure that the drawings reflect the intent of the design.

#### 5. Quality Assurance Check

Adherence to the outlined procedures and guidelines will assure that structural materials specified in the contract documents are shown on fabrication drawings and reflect the intent of the design. It is up to the Commission’s inspection agents in the fabricating plants to ensure that the materials and details shown on the Shop Drawings are, in fact, used during fabrication.

#### 6. Handling of Fabrication Errors

When errors are made during fabrication which require changes from the original design, these changes must be approved by the PM and thoroughly documented. This documentation may require changing the design plans. Any change to the design plans must be approved by the Designer of Record.

#### 7. Welding Procedure

Welding procedures are approved by the Designer of Record, Construction Engineering Manager – Construction Management and Quality Control (CEM – CM & QC), or

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designee of CEM – CM & QC. These procedures must be reviewed as part of the Shop Drawing review.

8. Shop Drawing Review Finalization

The Shop Drawing reviewer must ensure that the Shop Drawings adhere to all material, technical requirements, and details indicated in the contract drawings, standard drawings, specifications, special provisions, and addenda. Any deviation must be approved in writing.

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DATED		DATE		
05-20-20		<b>01-08-24</b>		
SUBJECT				
<b>SUBMITTALS AND REQUESTS FOR INFORMATION</b>				

The purpose of this section is to provide guidance to ensure that required Contract Submittals and Request for Information (RFI) are submitted and reviewed in accordance with the contract documents and specifications.

### **Submission Procedure**

The Contractor is responsible for submitting all required information and any RFI's requesting clarification or additional information. All submissions are to be submitted electronically following the established procedures for the Project Collaboration Documentation System (PCDS). The Contractor shall prepare and transmit an electronic submission package for review.

PCDS will automatically generate a log of the submittals and RFIs to track the status of the submission.

### **Submittal and RFI Review**

Each submittal or RFI uploaded to the PCDS should be submitted in accordance with the *PTC Kahua Construction Project Documentation Guide*.

Submittal reviews should be conducted against design plans, proposal with revisions, and all addenda. When the review is completed, any corrections will be noted and uploaded to the PCDS. The submittal will be stamped either: ACC = "Accepted", AAN = "Accepted As Noted", RR = "Revise and Resubmit", RJ = "Rejected" or RA = "Receipt Acknowledged". RFIs will provide the requested information.

Submittals returned marked "Revise and Resubmit" must be corrected by the submitter and resubmitted for further review.

Submittals returned stamped "Accepted" or "Accepted As Noted" may be utilized immediately.

Prior to commencing with the review, it is important that the reviewer is in possession of all the latest contract documents. That is, all design drawings, special provisions, addenda, Specifications, Bulletins, and Standard Drawings.

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### **Material Source of Supply Submittals**

Source of supply submittals for highway or bridge related items are generally reviewed by the Project Manager against the applicable bulletins for pre-approved materials (i.e. Bulletin 15, Bulletin 42, etc.). Any material not preapproved will be reviewed by the Project Manager or designee for conformance to specifications. These materials will be accompanied with CS-4171 Certifications of Compliance before being incorporated into the work. Certain bulletin materials require supplemental or alternate certification as per Specification Section 106.03.

Building construction materials generally are not preapproved items. Catalog cut sheets and product data sheets will be submitted for approval of the materials. These materials will not require CS-4171, certifications. Before incorporating materials into a project, the IIC or designated inspector will verify the supplied materials match the approved cut sheets or product data sheets.

Source of supply for Building Construction will be submitted to identify the intended manufactured products and purchasing sources for record purposes.

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B 2-7 Pages 1 to 10		<b>B</b>	<b>2-7</b>	<b>1 of 8</b>
DATED		DATE		
12-03-21		<b>01-08-24</b>		
SUBJECT				
<b>PREPARATION OF “AS-BUILT” DOCUMENTATION</b>				

The purpose of this document is to provide guidance to ensure that all As-Built documents for Commission projects produced by or for the Commission have the necessary information regarding the modification(s) made during construction and to outline the As-Built procedure. Also, this procedure is to ensure that the electronic files are received in timely manner to be stored for future use and/or to share with other stakeholders. The process includes:

- An ongoing Field Red-Line Plan process during construction to record progress as it occurs.
- A QC process for Field Red-Line documentation through comparison of inspector and contractor-produced Field Red-Line Plans, and
- Production of the record As-Built Plans.

#### 1. **As-Built Plans – Administrative Procedure**

This procedure must be followed for maintaining and completing a set of “As-Built” Plans for all construction projects that have construction plans.

Field Red-Line Plans shall consist of a set of full-size “As-Bid” white prints. They shall be maintained in the field office for the purpose of showing all approved field construction changes. However, they are not intended to replace or be a part of the documented project records. Therefore, no reference to project records shall be made thereon.

All changes to these plans are to be made in red by the Inspector-In-Charge or their designee as work is completed.

The Field Red-Line Plans shall be clean, neat, and accurately prepared. Changes shall be made true to scales applicable to the plans. All field changes shall be made as soon as possible and not trusted to the memory of the recorder.

Field Red-Line Plans should be kept current as portions of the work are completed. Incrementally produced Field Red-Line Plans: (1) help to ensure record accuracy; (2) provide up-to-date interim construction documentation; and (3) help reduce the burden of attempting to produce accurate, after the fact representations. This will enable the As-Built Plans to be completed in a timely fashion when the entire project work is complete.

All mechanical and electrical changes due to field Request for Information (RFI) process, equipment shop drawings reflecting modified data due to submittal and approval process, and contract field and design modifications shall be incorporated in the Field Red-Line Plans.

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The Contractor shall also maintain and revise one (1) full size set of paper drawings by Red-Line process to show the As-Built conditions during the execution of the project as specified in Section 105.02(d).

The Inspector-In-Charge's Field Red-Line Plans and the Contractor's Field Red-Line Plans will be jointly reviewed for accuracy and completeness by the Inspector-In-Charge prior to submission. In the event of a conflict between the two sets of Field Red-Line Plans, the Contractor and the Inspector-In-Charge shall perform an inspection of the conflicted item or area and resolve the discrepancy.

If the Contractor's Field Red-Line Plans are not received, proceed with conversion of the Inspector-In-Charge's Field Red-Line Plans into the As-Built set. Complete and submit the As-Built set in a maximum of 60 days from the date of the Final Inspection. Submit As-Built Plans with the Notice of Termination (NOT) for the NPDES Permit or Water Obstruction and Encroachment Permit (Chapter 102) if applicable (see COM, Part D, Section 2-4, Finalizing Construction Contracts).

Shop Drawings and original contractor submitted designs that were not included in the As-bid plans, shop drawings that change the design, RFI's and Supplemental Agreements will all be documented. All final, accepted or accepted as noted Shop Drawing electronic PDF files are to be filed in the PCDS in accordance with the *PTC Kahua Construction Project Documentation Guide*.

For Digital Delivery projects, the Contractor is responsible to prepare deliverable As-Built electronic files in file formats specified in the contract documents. The Inspector in Charge reviews the deliverable for completeness and upload in PCDS.

## 2. Completing the Title Sheet

On the Title Sheet in the upper left-hand corner attach the CDS As-Built Title Sheet file that lists the following project data:

- Notice to Proceed
- Start Date and Completion Date
- Final Inspection Date
- Contractor's Name and Address
- List all Subcontractors and Operations Performed
- List Sources of Material
- List all Inspectors on the Project
- Final Inspection Attendees
- Chief Engineer
- Assistant Chief Engineer – Construction
- Contractor provided Field Red-Line Plans – Yes or No

This information is generated from the CDS system when all required information entry is completed.

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### 3. Quantity Adjustments

It is not necessary to revise the quantities on the Summary of Quantities and the Bridge Summary of Quantity Sheets to match the final quantities in the estimate book. It is not necessary to revise the quantities on the Tabulation of Quantities Sheets and the Structure Tabulation of Quantities Sheets to match the final quantities in the estimate book. The following note shall be placed on these sheets: “THE QUANTITIES LISTED ON THIS SHEET MAY NOT MATCH THE QUANTITIES FOR THE AS-BUILT PLAN REVISIONS.”

*A FINAL CONTRACT COMPARISON AND SUMMARY ANALYSIS REPORT* will be generated from the Commission’s CDS application and included with the As-Built Plans.

### 4. Maintenance and Protection of Traffic (MPT) Plan

The MPT plan sheets shall not be revised as As-Built Plans. MPT drawings that are revised will be made as part of the contract documents and approved by the Designer of Record. However, if the MPT is changed without changing the contract drawings, all letters approving changes to MPT shall be noted by date, correspondence number, and phase on the MPT drawings.

### 5. Items to be recorded on the As-Built Plans

All changes are to be shown in RED.

Mark “Final” on all Limits of Work. If the project Limits of Work were changed by an approved change order, identify the revised Limits of Work, date, and the approved change order number.

#### Drainage Changes:

- Note pipe and inlet relocations, extensions, size, and depth changes.
- Note additional underdrain locations and outlets.
- Record changes in topography, invert elevations and grades of drainage installed or affected as part of the project construction.

#### Guide Rail Changes:

- Show changed limits for guide rail and shoulder barrier installation.
- Note any end treatment changes.

#### Site Work Changes:

- Mark any on-site waste or borrow locations.
- Show changed roadway lighting, conduit locations, or foundation locations.

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- Indicate any changes to landscaping seeding or plantings.
- Note changed access gate or ROW fence locations.
- Note any site changes different than existing conditions shown on the as-bid plans such as topsoil stockpiles, pipe extensions, etc.
- Identify and locate any research products installed within the project limits.
- Note any changes to stormwater facilities including basins, pipes, outlet structures, swales, etc.

Utility Changes:

- The actual locations, kinds and sizes of all subsurface utility lines and pipes not shown on the plans should be located, sized, and identified where possible.
- In order that the locations of these lines and appurtenances may be determined in the event the surface openings or indicators become covered over or obscured, these plans shall show, by offset dimensions to two (2) permanently fixed surface features, the end of each run including each change in direction. Valves, splice boxes, and similar appurtenances shall be located by dimensioning along the utility run from a reference point. The average depth below the surface of each run shall also be recorded.

Structure Changes:

- Note if stay-in-place forms were used and if styrofoam inserts were incorporated.
- Note reinforcement bar changes to size and configuration.
- Show pile location changes and note tip elevations.
- Note any sheeting or shoring material not removed from excavations.
- Show changed zone paint limits.
- Record location and dimensions of any changes for the structure or within the building structure.

Foundation Changes:

- Note any footing elevation changes.
- Note any reinforcing changes.
- Note any pile location, batter, or length changes.
- Note any pile tip elevation changes.



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Other Changes:

- Correct grade, elevations, cross section, or alignment of roads, earthwork, structures, or utilities if any changes were made from contract plans.
- Record any changes in details of design or additional information obtained from shop drawings specified to be prepared and/or furnished by the Contractor; including but not limited to changes in fabrication, erection, installation plans and placing details, pipe sizes, insulation material, dimensions of equipment foundations, etc.
- Record changes or modifications which result from the final inspection.
- Where contract drawings or specifications present options, only the option selected for construction shall be shown on the completed As-Built Plans.
- Include, as supplementary drawings, any systems designed or enhanced by the Contractor, such as, but not limited to, HVAC controls, fire alarm, fire sprinkler, irrigation systems, pumping equipment, hydraulic operating system, fuel system, electrical controls, one-line diagram, telemetry and SCADA system, conduit, and piping layout, etc.
- If borrow material for this project is from sources on Commission property, or if Commission property is used as a spoil area, the Contractor shall furnish a contour map of the final borrow pit/spoil area elevations. Update the As-Built Plans including changes to the cross sections.
- The Final As-Built Ground Line (Finish Grade) is to be shown on the cross sections.
- Sketches may be added that clarify or document new findings or field modifications that need to be recorded.

## 6. Plan Revision Control

If a revised sheet is issued, the new sheet shall be sealed and signed by the Designer of Record (PE) making the revision.

The original as-bid sheet is not discarded. An “X” must be drawn from corner to corner of the borders. The lines should not be so wide as to obscure any details that should remain visible.

The revised sheet should be numbered with the same sheet number and includes a revision line with the revision number, description, date, and initials of the person making the changes.

If a single sheet is being revised several times, an “X” must be drawn on the original sheet and all subsequent sheets until the last revised sheet has been issued. Place sheets behind the original in chronological order, numbering them using the original sheet number and the Revision Number. Label the sheet with the number and next letter in the alpha

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designation sequence using uppercase alpha characters (i.e., 18A, 18B, etc.) in the title block.

If there were multiple revisions for a single sheet, all revisions should be transferred onto the last revision sheet.

All revisions will be clouded and if necessary numbered using the triangles legend.

## **7. Proper Mark-up for Corrections/Changes**

Since no erasure of original information is permitted, changes for minor revisions are to be made by adding the new information and crossing out the incorrect data. In areas where space is limited, cross out (X) and cloud the incorrect data and direct it to a new detail of the area.

A revision symbol should be placed at or near the locations of the revision and may be used with or without leaders.

The revision symbol size shall be three TIMES (3x) the letter height of the revision letter placed in it unless the area where the symbol is to be placed is crowded. A smaller sized symbol shall be used for crowded areas.

New details or sections which are added to a drawing shall be clouded and a revision symbol placed by the detail or section title.

In areas where space is limited, cross out and cloud the incorrect data and direct it to a new detail of the area.

For changes to schedules, a revision symbol shall be placed either by the schedule heading or by the change in the schedule.

## **8. In-House Inspection, As-Built Plan Process**

For projects with in-house inspection, the Inspector-In-Charge or their designee shall complete and forward the Field Red-Line As-Built Checklist, the Final Contract Comparison and Summary Analysis Report, and the As-Built Plans (or As-Built electronic files) to the PTC Project Manager for a Quality Control review at the end of each project. All final, accepted or accepted as noted shop drawings provided by the Contractor in electronic PDF format are to be archived in the PCDS Final Records folder.

After review and concurrence, the PTC Construction Project Manager shall forward the Field Red-Line As-Built Checklist, the Final Contract Comparison and Summary Analysis Report, and the As-Built Plans (or As-Built electronic files), to the PTC Construction Engineering Manager – Construction Management & Quality Control. Additionally, the PTC Project Manager shall post the As-Built Plans transmittal and Field Red-Line As-Built Checklist in the Project Collaboration and Documentation System. Notification is to be sent to the PTC Construction Engineering Manager – Construction Management & Quality

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Control when all final accepted or accepted as noted shop drawings are included in the Final Records folder.

The PTC Construction Project Manager shall copy the Assistant Chief Engineer - Design; Assistant Chief Engineer - Construction; Construction Engineering Manager - Regional; Design Engineering Project Manager; Environmental Engineering Manager; Environmental Project Manager; Roadway Engineering Manager; Bridge Engineering Manager; Facilities or other related design department; and, the construction file on the As-Built Plans transmittal.

## 9. Consultant Inspection, As-Built Plan Process

The Consultant Project Manager and the Inspector-In-Charge will consult to determine which process will be used to create the project As-Built Plans and will obtain concurrence from the PTC Construction Project Manager. They can choose one or a combination of the following processes:

**Process One** – If the final Field Red-Line Plans are a hand-written mark-up **full size** hard copy and are clean, complete, and legible, they can be scanned to PDF and converted to the As-Built Plans.

- a. To minimize a loss in quality, the full-size prints shall be scanned to a PDF with the print quality setting of 300 dpi.

**Process Two** – A copy of the As-Bid plan set is Red-Lined electronically (using Adobe Acrobat Pro or similar PDF mark-up application) and is clean, complete, and legible. This set shall be designated the As-Built Plans.

- a. As-Built information to be recorded in RED.
- b. PDF files must be saved **without** layer information.

**Process Three** – The Consultant Project Manager transcribes all the Red-Lines electronically onto the plans using the As-Bid CADD files that have been obtained from the Commission’s Engineering Automation Coordinator.

- a. As-Built information to be placed on a layer named “As-Built”.
- b. As-Built information to be recorded in RED.
- c. PDF files to be plotted at 300 dpi and **without** layer information
- d. Publish a PDF set of As-Built Plans.
- e. Any sheet that contains hand sealed/signature must be As-Built using Process One or Two above.

In all three processes above, proper drafting technique shall be followed.

The As-Built set shall be completed in a maximum of 60 days from the date of the Final Inspection.

The Inspector-In-Charge will compare the Contractor’s Field Red-Line Plans against the Inspection maintained Field Red-Line Plans for completeness and accuracy. In the event of a conflict between the two sets of Field Red-Line Plans, the Contractor and Inspector-

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In-Charge shall perform an inspection of the conflicted item or area and resolve the discrepancy.

If the Contractor's Field Red-Line Plans are not received, convert the Inspection maintained Field Red-Line Plans into the As-Built set. Include a note on the As-Built set cover sheet indicating the Contractor did not provide Field Red-Line Plans.

Once the Field Red-Line Plans are converted into the As-Built set and the Field Red-Line As-Built Checklist is completed, the Inspector-In-Charge will notify the Consultant Project Manager, that the As-Built Plans have been completed. The Consultant Project Manager will perform a Quality Control review and check that all pages are viewable and ensure that the files do not contain un-readable or corrupt files. If the As-Built deliverables contain corrupt or unreadable files, the Consultant Project Manager will notify the Inspector-In-Charge of the discrepancy and request the delivery of a new file.

The Consultant Project Manager will notify the PTC Construction Project Manager and the Inspector-In-Charge when the As-Built Plans are complete and approved. The PTC Project Manager shall review the approved As-Built Plans.

Following review and concurrence of the approved As-Built Plans, the PTC Construction Project Manager will direct the Consultant Project Manager to forward the completed Field Red-Line As-Built Checklist, Final Contract Comparison and Summary Analysis Report, and As-Built Plans (or As-Built electronic files) to the PTC Construction Engineering Manager - Construction Management & Quality Control. Additionally, the Consultant Project Manager shall post the As-Built Plans transmittal and Field Red-Line As-Built Checklist in the Project Collaboration and Documentation System. Notification is to be sent to the PTC Construction Engineering Manager – Construction Management & Quality Control when all final accepted or accepted as noted shop drawings are included in the Final Records folder.

The Consultant Project Manager shall copy the Assistant Chief Engineer - Design; Assistant Chief Engineer - Construction; Construction Engineering Manager - Regional; Design Engineering Project Manager; Environmental Engineering Manager; Environmental Project Manager; PTC Construction Project Manager; Roadway Engineering Manager; Bridge Engineering Manager; Facilities or other related design department; and the construction file on the As-Built Plans transmittal.

## **10. Completion of As-Built Plans**

The As-Built Plans shall be completed as follows:

When final revisions have been completed, the cover sheet drawing shall show the wording "RECORD DRAWING AS-BUILT" and the DATE in letters at least 5 mm / 3/16 inch high in red ink. All other contract drawings shall be marked either "AS-BUILT" denoting no revisions on the sheet or "REVISED AS-BUILT" denoting one or more revisions.

The AS-BUILT/REVISED AS-BUILT markings shall be placed in red ink and in the lower right corner of the plan sheet near the title block.

# Section 3

## DBE Contract Provisions

REPLACES	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART	SECTION	PAGE
B 3-1 Page 1 of 1		<b>B</b>	<b>3-1</b>	<b>1 of 1</b>
DATED		DATE		
01-08-19		<b>01-08-24</b>		
SUBJECT				
<b>EQUAL OPPORTUNITY</b>				

The Commission, as contracting agency, shall be primarily responsible for obtaining compliance with the equal opportunity provisions of the contract; particularly Section II (Non-discrimination) of the “Required Contract Provisions, Federal-aid Construction Contracts” and the “Commonwealth Non-discrimination Clause.” The Commission shall ensure these Provisions are included in all applicable contracts (Contractor and Subcontractor), purchase orders, and any lower tier subcontract that may in turn be made.

The Commission’s Affirmative Action Plan and Policy shall remain in effect and be applicable to all contracting and subcontracting agencies as necessary.

The Director of the Office of Diversity and Inclusion shall review and verify that the Commission is administering an effective equal opportunity compliance program. Deficiencies shall be reported in writing to all concerned and applicable parties.

The Inspector in Charge shall be responsible for coordinating the submission of all applicable EEO forms such as the “Monthly DBE Status Report,” “Highway Contractors’ Monthly EEO Report,” “Federal Aid Highway Construction Contractors Annual EEO Report,” Trainee Enrollment Form,” “Monthly Training Report,” “Monthly EEO Report,” etc.

A representative of the Office of Diversity and Inclusion may visit some project sites to determine if the monitoring program is effective. The Inspector in Charge will be notified by the Office of Diversity and Inclusion if any serious deficiencies are apparent.

The Office of Diversity and Inclusion shall be responsible for conducting compliance reviews in coordination with the Inspector in Charge.

**Reference Forms:**

EO-354 PTC, Commercially Useful Function

EO-363 PTC, OJT Program

EO-364 PTC, OJT Enrollment

EO-365 PTC, OJT Monthly Report

EO-382R PTC DBE/DB Participation Revision Request (completed via vendor portal)

EO-400 PTC, Monthly Workforce

EO-402R PTC DBE/DB Monthly Status (completed via vendor portal)

EO-1391 PTC, Annual Workforce

REPLACES	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART	SECTION	PAGE
B 3-3 Pages 1-3		B	3-3	1 of 3
DATED 01-11-16		DATE 01-08-24		
SUBJECT  DBE CONTRACT PROVISIONS FOR FEDERAL AID PROJECTS				

Perform the necessary steps to comply with the DBE Requirements. Utilize the Commission's established DBE specifications and procedures for information regarding DBE contract provisions and follow the special provision "Disadvantaged Business Enterprise (DBE) Requirements" approved by the FHWA for federally funded projects.

The following procedures are for administering the DBE contract provisions:

I. Pre-Construction Meetings

- A. Attachment A must be thoroughly reviewed. The amount shown on Attachment A must be the actual amount awarded the DBE; not the prime contractor's bid price for the item involved.
- B. The award letter must be reviewed for conditions of award and the present status of previously unprequalified and/or uncertified DBEs.  
NOTE: The Inspector in Charge is to receive a copy of the award letter. The award letter contains conditions applicable to Attachment A approval. These conditions will alert the Inspector in Charge to potential problems that may affect the execution and progress of the work.
- C. The contractor is to be reminded to submit Subcontractor Approval for all DBE subcontractors listed on Attachment A. A complete copy of the DBE subcontract must be submitted to the Inspector-in-charge and maintained at the project site.
- D. The actual or estimated starting dates for all DBEs must be established.
- E. The type of work to be performed by the DBE must be established (subcontractor, regular dealer, manufacturer, Transaction Expeditor/Broker or Service Provider).
- F. Manufacturers or producers of construction materials must be checked for approval as listed in Bulletins 14, 15, 41 or 42. (On-Site Inspector in Charge will do this).
- G. The Inspector in Charge must assure that the contractor performs his responsibility of ensuring that all regular dealers approved on the Attachment A supply material in accordance with the Commission's specifications.
- H. The contractor is to be reminded that he is to prohibit the start of work by a subcontractor until the subcontract is approved by the Commission.
- I. The Commission shall request the presence of the contractor's contact person, who is named on Attachment A.

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- J. The contractor must be advised that failure to meet the approved DBE goal by the Project's completion could result in sanctions including prequalification suspension for up to three (3) years.
  - K. The Commission's Office of Diversity and Inclusion (ODI) must be contacted immediately if the DBE work is imminent and his prequalification and/or certification status is not established. See Item B under Field Monitoring by Project's Inspector in Charge.
  - L. Reporting responsibilities are to be reviewed with the contractor.
  - M. Mobilization Payments to DBEs shall be discussed.
- II. Reporting Procedures / Reports
- A. The Commission's Office of Diversity and Inclusion is responsible for monitoring the contractor's goal according to the approved Attachment A and revisions.
  - B. The contractor must file PTC Form EO-402R - Monthly DBE/DB Status Statement monthly via the vendor portal, for each project, listing the DBEs paid during the calendar month and the corresponding amounts. The contractor must certify that the amounts were actually paid and keep cancelled checks on file in the home office for inspection and audit by the Commission. The PTC Form EO-402R report is due to the Inspector in Charge within five (5) working days after the end of the month. The Inspector in Charge will review the reports and report any apparent or potential problems to the Commission's ODI. These reports will be uploaded to PCDS.
- The final PTC Form EO-402R report must be submitted to the Inspector in Charge no later than 5 days after the end of the month. This final PTC Form EO-402R report must list all approved DBE firms utilized on the specific project. The report must contain: original contract amount, final settlement amount; DBE percentage goals established by the contract special provisions; and the final certified amount paid to teach DBE. The Inspector in Charge must submit a final Goal Attainment report (Cover letter) summarizing the information contained in the final PTC Form EO-402R report. If the actual DBE percentage paid is less than the required percentage, the Inspector in Charge must provide a complete explanation and a recommendation regarding action to be taken under paragraph I.(c) of the DBE Special Provisions (Failure to comply with the DBE Requirements). The PennDOT Good Faith Efforts Review Committee will make the final determination regarding breach of contract and possible sanctions.
- III. Field Monitoring by Project Inspector in Charge
- A. The Inspector in Charge must assure that the prime contractor does not allow a DBE to start work on the project until the DBE is properly certified and/or prequalified,



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if required, and until a copy of the executed subcontract and subcontract approval are available on the project and have been acknowledged by the Inspector to contain the provisions required by the prime contract.

- B. If, for any reason during the life of the contract, it is necessary to replace DBE that fails to perform successfully, or is not properly certified/prequalified, the contractor must make a good faith effort to re-contract the work with another DBE or subcontract other work items to DBE firms to make up the DBE shortfall.
- C. If the projected DBE participation of an approved Attachment A exceeds the goal amount for the contract, without counting the amount committed to the defaulting DBE, then no contract shortfall exists and the contractor is not required to replace the defaulting DBE. The contractor must comply with Substitution section of the DBE Requirements special provision. Work that is contracted to a DBE must not be performed by others. If this occurs, it must be reported to the Commission's ODI.

#### IV. Revisions to Attachment A

- A. Any and all revisions to the original Attachment A must be processed in accordance with DBE Requirements special provisions.
- B. The Inspector in Charge must not allow the substitute DBE to perform any work until the Revised Attachment A is approved.

#### **Reference Forms:**

PTC Form 502002213 (Attachment A)

PTC Form EO-402R (Monthly DBE/DB Status Statement) (completed via vendor portal)

REPLACES	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART	SECTION	PAGE
<b>B 3-4 Pages 1 to 5</b>		<b>B</b>	<b>3-4</b>	<b>1 of 5</b>
DATED <b>01-09-15</b>		DATE <b>01-08-24</b>		
SUBJECT <b>TRAINEE TRAINING PROGRAMS</b>				

When construction contracts include a training item along with 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 PTC for approval:

### **Training Program**

1. Within ten (10) days following the Notice to Proceed, the Contractor is to submit to the Project Manager the number of trainees to be trained in each selected classification and the corresponding training programs to be used. Submit Form EO-363 "Highway Contractor's On-The-Job Training (OJT) Program for review and approval. The distinction between Apprentices and On-The-Job Trainees (OJT) must be understood. The Project Manager or his/her designee reviews Form EO-363 for proper information and provides a recommendation of approval/disapproval to the Business Compliance Officer (BCO) within five days of the Contractor's submission. The BCO will review the submission and the Project Managers' recommendation and will provide approval/disapproval within fifteen (15) days of submission. Once approved, Form EO-363 will be posted in the Project Collaboration Document System (PCDS).
2. The Contractor's submission will first be reviewed by the Project Manager or his/her designee for the following:
  - a. The Contractor's Form EO-363 is complete with all the required information.
  - b. The number of trainees submitted must comply with the number designated in the contract. (1000 Hours = 1 Trainee)
  - c. Apprentices are permitted when they are individually registered under a bona fide apprenticeship program registered with a state apprenticeship agency (PENNSYLVANIA APPRENTICESHIP AND TRAINING COUNCIL). The Contractor is to provide a copy of the apprenticeship agreement and a cover letter from the apprenticeship agency outlining the apprentice's present status toward completion of the program.

The training program for each classification must be complete and contain all the information required by the Special Provisions.

- (1) If the Contractor's training program includes Apprentices approved by the U.S. Department of Labor, the following statement must be included: "The

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Contractor will provide 800-1000 hours of training for each Apprentice”. Trainees coming into the program from approved Apprenticeship programs should be referred to as Apprentices not OJT Trainees. Both Apprentices and OJT Trainees are to be persons of the targeted group (i.e., minority, female or disadvantaged person).

- (2) If the Contractor’s training program is to be an OJT program, the program number must be included in the submission.
- d. Training programs will be approved only if they meet the standards set forth with regard to:
  - (1) The primary objectives of training and upgrading minority group workers, women and disadvantaged persons.
  - (2) The development toward journeyman status.
  - (3) The minimum length and type of meaningful training.
  - (4) The minimum wage to be paid to OJT Trainee (No less than Common Labor rate for project). For apprentices, pay (% rate) is dictated by the year they are enrolled in their program.
  - (5) Anticipated start date for each trainee (Month, Year).
  - (6) Contractor to keep records and submit reports.
  - (7) Trainee Certificate attached (Original and Professional documents).

If the Contractor’s submission is not acceptable, or if in the opinion of the reviewer, the character, duration or nature of the project operations cannot support the proposed training classification, the Training Program will not be approved. The Contractor’s submission will be returned for correction and resubmission.

3. The Contractor is to provide each trainee with a copy of the Training Program for the applicable classification. If the trainee is the employee of an approved Subcontractor, the Subcontractor must also be provided a copy of the Training Program.

### **Trainee Enrollment & Monitoring**

1. The Contractor is responsible for submitting the completed Trainee Enrollment Form (Form EO-364) to the Project Manager or his/her designee prior to filling any training position. This report is to ensure the Contractor has taken “Positive Steps” to recruit for a minority/female/disadvantaged person and the selected trainee has not previously completed training in the same classification. The Project Manager or his/her designee will review the form for proper documentation and will approve/disapprove the Trainee Enrollment Form. The Project Manager will notify the BCO and the Contractor within fifteen days of the submission. Trainee working

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hours completed prior to receipt of Project Managers' approval will not be counted toward the training program's hours and will not be eligible for payment under the bid item for training.

- a. If a non-minority male is proposed for the training position, written documentation of Good Faith Efforts to recruit a minority/female/disadvantaged individual must accompany the Trainee Enrollment Form. This documentation is to ensure that the Contractor has taken appropriate steps to recruit a minority/female/disadvantaged person and the selected trainee has not previously completed training in the same classification.
  - b. A trainee 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. Apprentices must be able to complete at least 800 hours of the assigned program prior to attaining Journeyman status.
  - c. Changes in classification will be considered during construction provided sufficient time remains to complete the proposed classification. The Inspector-in-Charge will be consulted when revisions are submitted to review the remaining time and scope of work.
  - d. If the Contractor's submission is satisfactory, BCO contacts PennDOT's Bureau of Equal Opportunity to verify that the trainees have not been previously trained in proposed classification or trained more than three times, which make them ineligible for training. (PennDOT maintains a database of names of trainees that have previously completed training).
2. The Contractor is to submit completed and signed (original) Monthly Training Report (Form EO-365 PTC Highway Contractor's Monthly Training Report) by the fifth working day of each month. The Inspector-in-Charge or his/her designee will review by the 15<sup>th</sup> working day of each month to confirm status of accomplishments of trainee's requirements. The "hours of training" reported during the month must be broken down in the summary of Specific Tasks Performed box on the report. The Contractor should utilize the back of the form if more space is necessary. After review, the Monthly Training Report (Form EO-365) will be posted in the PCDS. The BCO will confirm that the requirements are being met by the 20<sup>th</sup> of each month. Review will consist of: hours of training completed this month, to date and remaining, date completed, tasks performed, and trainee evaluation.
  3. 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 with the

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training program or the trainee has been terminated without ample opportunity to complete the program.

4. 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 and the BCO must review the remaining scope of work for the possibility of selecting another training class. Subsequent to this review, if the Contractor and the BCO concur that there are no other possible training classes (due to no fault of the Contractor) the training classification will be determined to be closed and hours completed paid.
5. If the training requirements are not being met, the BCO and PM will meet with the Contractor (or Subcontractor) to discuss the next steps to assure that the requirements will be met. The PTC reserves the right to place an entry of “non-compliance” on the “Contractor’s Past Performance Report” and will notify the Prequalification Office at PennDOT, Contract Management Division, Bureau of Project Delivery regarding this entry.
6. The Contractor shall submit a Training Completion Certificate when a trainee completes the OJT Program. The final Monthly Training Report (Form EO-365) for that classification along with the Training Completion Certificate are then posted in the PCDS.
7. Refer to the chart below summarizing the OJT Program & Trainee Approval Process Milestones.

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<b>On-Job Training Program &amp; Trainee Approval Process Milestones</b>		
<b>Activity</b>	<b>Responsibility</b>	<b>Milestone</b>
Submit Training Program (Form EO-363) for approval	Contractor	Within 10 days of Notice to Proceed Date
Review Training Program	Project Manager	Within 5 days of Submission
Approve/disapprove Training Program (EO-363) and post on Project Record and Contract Compliance Repository.	BCO	Within 15 days of Submission
Submit Trainee Enrollment (Form EO-364) for approval	Contractor	Prior to Trainee Starting Work
Review Trainee Enrollment	Project Manager	Within 5 days of Submission
Approve/disapprove Trainee Enrollment (Form EO-364) and post on Project Record and Contract Compliance Repository.	BCO	Within 15 days of Submission
Submit Highway Contractor's Monthly Training Report (Form EO-365)	Contractor	Within the 5 <sup>th</sup> working day of each month
Submit Completion Certificate	Contractor	When program goals are met

References in Form File:

- Form EO-363 – Highway Contractor's On-the-Job Training (OJT) Program
- Form EO-364 – PTC Trainee Enrollment Form
- Form EO-365 – PTC Highway Contractor's Monthly Training Report

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<b>Part B Pages 1-3</b>		<b>B</b>	<b>3-5</b>	<b>1 of 2</b>
DATED <b>06-07-21</b>		DATE <b>01-08-24</b>		
SUBJECT  <b>DIVERSE BUSINESS</b>				

The Commission, as a contracting agency, shall be primarily responsible for obtaining compliance with the Diverse Business (DB) Requirements of the contract for projects containing no federal funds in accordance with Section 107.34. The Commission shall ensure these Provisions are included in all applicable contracts.

The Commission's Affirmative Action Plan and Policy shall remain in effect and be applicable to all contracting and subcontracting agencies as necessary.

The Director of the Office of Diversity and Inclusion shall review and verify that the Commission is administering an effective Diverse Business compliance program. Deficiencies shall be reported in writing to all concerned and applicable parties.

The Inspector-In-Charge shall be responsible for ensuring the Contractor's submissions of all applicable DB forms such as the "[\*EO-402R DBE/DB Monthly Status Report\*](#)" are submitted by the 20<sup>th</sup> of the following month.

- Once the EO-402R Monthly Status information is provided in the vender portal then uploaded to the Project Collaboration and Documentation System (PCDS) by the contractor, the Inspector-In-Charge (IIC) will review, sign and log into CDS & upload the form back into PCDS.
- There are to be no changes to the approved DB firms or commitment amounts unless approved by the Commission. Submit changes to the DB firms or commitment amounts using PTC [\*Form EO-382R DBE/DB Participation Revision Request\*](#) to the PTC Project Manager for uploading to the PCDS. The Office of Diversity and Inclusion will review for approval.

A representative of the Office of Diversity and Inclusion may visit some project sites to determine if the monitoring program is effective. The Inspector-In-Charge will be notified by the Office of Diversity and Inclusion if any serious deficiencies are apparent.

The Office of Diversity and Inclusion shall be responsible for conducting compliance reviews in coordination with the Inspector-In-Charge.

The Inspector-In-Charge receives executed copies of subcontracts/purchase orders and uploads to the Project Collaboration and Documentation System.

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- Diverse Business Requirements are also included in contracts with work authorizations. Refer to Section B 2-2. For Work Authorizations When work authorizations for open end contracts are issued to the Contractor and, if the ACE – Construction or Construction Engineering Manager designates DB requirements, the Contractor must submit the DB good faith documentation along with the cost. Commitments are to be submitted on PTC [\*Form 22-95-32WA\*](#).
- The Project Manager will verify the good faith documentation is submitted for the designated work authorizations prior to approving the work authorization. No work may begin on a work authorization requiring DB good faith documentation until the documentation is received.
- A copy of the Work Authorization and PTC Form 22-95-32WA is to be provided to the Office of Diversity and Inclusion.
- The Project Manager will ensure that the documentation is identified and filed by work authorization number.
- At the completion of the work authorization, the Contractor is to submit documentation similar to the Monthly DBE/DB Status Statement (EO-402R) for any DB used.
- After the completion of all work authorizations and before final payment, the Project Manager will notify the Office of Diversity and Inclusion that the contract is completed. The Office of Diversity and Inclusion will conduct a post-construction evaluation to determine compliance with the diverse business requirements.



## Section 4

# Labor Compliance

REPLACES B 4-1 Pages 1-6	PENNSYLVANIA TURNPIKE COMMISSION	PART <b>B</b>	SECTION <b>4-1</b>	PAGE <b>1 of 6</b>
DATED 06-09-19	<b>CONSTRUCTION OPERATIONS MANUAL</b>	DATE <b>01-08-24</b>		
SUBJECT		<b>LABOR COMPLIANCE</b>		

PA Turnpike Commission institutes a Contract Labor Compliance Program to fulfill labor compliance provisions of State, Federal, and Toll Funded construction projects. The Federal Highway Administration and PA Department of Labor and Industry provide requirements for labor compliance on construction projects. This Program is applicable to all federal-aid and toll funded projects which are designated as requiring prevailing wages.

The Business Compliance Officer (BCO) shall assist the PTC Project Manager (PTC PM) in ensuring compliance on all construction contracts. The Director of Diversity & Inclusion should be informed when a contractor repeatedly fails to comply with the Pennsylvania Prevailing Wage Act and the FHWA Labor Compliance Manual. Refer to ***PennDOT Project Office Manual (Publication 2) Part B, Section 10***, for additional guidance regarding wages for Maintenance and Protection of Traffic labor, truck drivers (owner operated), survey crew, etc.

**1. Fringe Benefit Letters** - Fringe benefit letters are a critical component in determining prevailing wage rate compliance. Payment of proper wage rates cannot be assured without consideration of fringe benefits.

**1.1. Fringe Benefit Letter Requirements** - Fringe Benefit Letters are intended to explain how and where a contractor is paying each employee's fringe benefit hourly rate as specified in the contract. The fringe benefit letter is to be submitted by the contractor and used when verifying wage rates submitted on certified payrolls. **Fringe Benefit Letters must match the payroll certification.**

1.1.1. Prevailing wage rates in the contract contain two parts; the **Hourly Base Rate** and the **Hourly Fringe Benefit Rate**. An employee must be compensated the sum of both rates, whether the fringe benefits are paid all in cash, a combination of cash and partial fringe benefits paid to an approved plan, or all the fringe benefits are paid to an approved plan.

1.1.2. Fringe benefits paid in cash

"All fringe benefits paid to employees are paid in cash for all hours worked."

1.1.3. Fringe benefits paid in combination (cash and to an approved plan)

"Provide an hourly breakdown of the cost of the benefits provided to the employee."

1.1.4. Fringe benefits are paid to an approved provider

"Provide an hourly breakdown of the cost of the benefits provided to the employee."

**1.2. Responsibilities:** The PTC PM and Construction Manager (CM) shall **assure the following:**

1.2.1. The prime contractor and all subcontractor fringe benefit letters must be submitted to the PTC PM prior to the commencement of physical work.

1.2.2. All applicable work classifications/crafts are addressed in the fringe benefit letter.

1.2.3. The dollar amount of provided benefits listed in the fringe benefit letter conforms to contract requirements, and the name of company/individual where the contributions are made is listed.

a. It's not enough to state, "Fringe Benefits are paid *per* contract requirements." The dollar amount(s) must be indicated on the fringe benefit letter and subsequent payroll submissions.

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- b. If the amount indicated is insufficient to meet the contract requirements, the contractor must include a statement, such as, “The remainder (with dollar amount indicated) of fringe benefits will be paid in cash.”

1.3. **Documentation:** Copies of the Fringe Benefit Letters shall be maintained in the Project Collaboration and Documentation System (PCDS).

2. **Wage Rate Interview** - For Federally Funded projects, wage rate interviews shall be conducted as follows for at least one person from every contractor and subcontractor on the job site. At the time of the wage rate interview, indicate what work the employee is performing and the equipment that he/she is operating, if applicable.

Interviews should be performed on at least two different occasions individually and in private as follows:

- An initial interview should be performed within the first two weeks after construction begins and whenever a new subcontractor begins work on the project.
- The second interview should be performed closer to substantial completion, but while workers are still on site.
- Additional interviews should be performed when issues or discrepancies arise and should be targeted at the contractor in question.
- Participation by the employee of the contractor or subcontractor is voluntary.

2.1 Responsibilities of the PTC PM and CMs are to:

- 2.1.1. At least one person from each contractor and subcontractor is interviewed on each occasion
- 2.1.2. The “Wage Rate Interview” form (**Form PTC-384**) is completed with the hourly rate reported by the employee being interviewed. If the employee does not know the hourly rate they should be receiving, indicate “UNKNOWN”. The interview form containing employee personal information should be kept confidential from contractors.
- 2.1.3. The employee’s work activity/craft is described in sufficient detail to properly classify the work being performed to the applicable contract wage rate.
  - a. The work activity/craft listed is the actual work being performed by the interviewee **at the time of the interview**. The work activity/craft described are specific. For example, with 5 groups of operators and 7 groups of laborers it is **NOT** enough to indicate “operator” or “laborer” on the “Wage Rate Interview” form.
 

e.g.: Work activity/craft should be described as such: “running wacker”, “cutting lumber for forms”, “D-6 dozer”, “shoveling dirt from trench”, etc.
- 2.1.4. Comments/Complaints are adequately described and, if necessary, the BCO has been notified.
- 2.1.5. The employee’s hourly rate identified during the Wage Rate Interview and the contract rate should be cross referenced with the certified payroll to verify the employee is receiving the correct rate of pay.
- 2.1.6. Document the review of cross reference check on the “Wage Rate Interview” form (PTC-384).

2.2. **Documentation:** Copies of the Wage Rate Interviews will be maintained in the PCDS.

3. **Certified Payroll Submission** - The Contractor or subcontractor’s certified payroll submission is critical

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to determine whether the contract requirements for prevailing wage rates are being paid.

3.1. Responsibilities of the PTC PM and CM are to **assure the following**:

- 3.1.1. PTC PM conducts the Preconstruction Conference and discusses certified payroll submission requirements. In accordance with federal regulation 29 CFR 5.5(3)(ii)(A), the Commission will not accept certified payrolls that contain the employee's full social security number and full home address. Certified payroll records submitted to the Commission shall only include an individual identifying number (e.g. the last four digits of the employee's social security number).
  - 3.1.2. PTC PM is responsible to ensure that payrolls and certifications are submitted within **7 calendar days of the employee pay date for federal projects** and **14 calendar days for PTC funded projects**.
  - 3.1.3. Contractor and Subcontractors upload payrolls and certifications to the PCDS within 7 calendar days after each payday, on U.S. Department of Labor Payroll Form (**Form WH-347**), for federal projects and within 14 calendar days on PA Department of Labor and Industry Weekly Payroll Certification Form (**Form LLC-25**) for Public Works Projects, on PTC funded projects. On federal-aid projects and PTC funded projects, Subcontractors submit payrolls and certifications to the Contractor, for submission to PTC PM. The certified payrolls must identify each employee's pay date. First and last payrolls on PTC funded projects must be notarized.
  - 3.1.4. PTC PM, or designee, reviews payrolls and certifications submitted for classification and wage rate errors and completes the [Certified Payroll Review Checklist](#).
    - a. The initial payroll for the contractor and each subcontractor is to be reviewed for compliance, classification, and wage rate errors. Document on the Certified Payroll Review Checklist.
    - b. Review 10% of payroll submissions weekly for compliance, classification, and wage rate errors. Document on the Certified Payroll Review Checklist.
  - 3.1.5. PTC PM reports errors, electronically, to the Contractor for corrections. **Payrolls are not to be returned to the Contractor for corrections or for any reason.** Supplemental payrolls and certifications must be submitted electronically to correct any errors. Additionally, PTC PM notifies the Contractor, electronically, immediately when payrolls are late. Contractor pay estimates may be held until payrolls are received. When payrolls are late more than three times, the PTC PM is to advise the Contractor, electronically, that continued lack of payroll submission will cause to recommend that BCO take appropriate action. The BCO must follow up appropriately.
- 3.2. **Documentation:** Copies of the Certified Payroll submissions and Certified Payroll Review Checklist will be maintained in the PCDS.
4. **Certified Payroll Reviews** - PTC contract specifications require that the prime contractor and all subcontractors submit weekly certified payroll forms in such detail that the requisite prevailing wages for all employees may be adequately identified and verified. At a minimum, the certified payroll format must accurately identify actual **hourly base rates** and **hourly fringe benefit rates**. For the purpose of consistent reporting, the BCO requires that the PA Labor & Industry form LLC-25 (Weekly Payroll Certification for Public Works Projects) or a form with the same information contained in form LLC-25 be utilized by all contractors and subcontractors on PTC funded projects. In addition to providing accurate and discernible information, the weekly certified payroll submission should contain only project specific data related to the contractor's wage rates. PTC PMs should communicate and reaffirm the above statements with the prime contractor and subcontractors at the Pre-Construction Conference and at the monthly project status

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meetings.

4.1. Responsibilities of the PTC PM and CMs are to **assure the following**:

- 4.1.1. Employees are paid weekly.
- 4.1.2. Payrolls and certifications are received (for prime & subcontractors) in the PCDS within **7 calendar days on Federal Aid Projects & 14 calendar days on PTC Funded Projects** after the employees' pay date on the certified payroll form.
- 4.1.3. Receipt of payrolls is logged into CDSme (Certified Payroll Module).
  - a. In the CDSme Certified Payroll Log, indicate acceptance, any related comments and/or issues and the resolution date.
- 4.1.4. Certified payroll submission must be randomly reviewed for classification and wage rate accuracy. Document the review on the [Certified Payroll Review Checklist](#).
- 4.1.5. If an error or discrepancy is found:
  - a. Document the problem and the corrective action in the CDSme Certified Payroll Log and in the CDSme Deficiency Log (if necessary).
  - b. Minor violations should be addressed by the CM.
    - b.1. If compliance is obtained within 14 calendar days, notification of the BCO will not be required.
    - b.2. If the issues are not resolved within 14 calendar days or if the finding is a Major violation, the BCO must be notified.
- 4.1.6. DO NOT return payrolls to the contractor for corrections. Revised payrolls are to be submitted electronically.
- 4.1.7. Owner/Operator Notes:
  - a. A truck driver that owns and operates his/her own truck (owner/operator) is **exempt** from Federal Prevailing Wage Rates.
    - a.1. Owner/Operator exemptions apply to TRUCKS ONLY. This does not apply to backhoes, cranes, drill rigs, etc., these are not "services" and they must have subcontractor approval.
    - a.2. Contractor is to submit a list of owner/operators used each week with the weekly payroll. The PTC PM shall forward the list of owner/operators to the BCO.
    - a.3. On PTC funded projects, owner/operators must submit weekly certified payrolls. If the drivers are not owner/operator, they must be shown on a certified payroll as an employee being paid the appropriate wage rate as identified in the contract.
  - b. The CM should request a copy of the owner/operator's vehicle registration card, driver's license, and insurance card to be kept on file in the project record.
  - c. The owner/operator's name and the classification "Owner/Operator" appears on the certified payroll.
    - Note: If the name on the driver's license does not match the name on the vehicle registration card (or if the vehicle is registered to a company), ask if the driver is leasing the truck.
    - c.1. If YES – A copy of the lease agreement must be submitted to the BCO for review.
    - c.2. If NO – Contact the BCO as soon as possible.

4.2. **Documentation:** Copies of the Contractor's Certified Payroll review checklist will be maintained in

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the PCDS.

**5. Contractor Employee Complaints** - PTC PM and BCO are responsible for handling complaints from contractor employees regarding wage issues.

5.1. Responsibilities of the PTC PM and CM are to **assure the following**:

5.1.1. Employee files complaint regarding wages with PA Department of Labor and Industry Complaint Form (**Form LLC-15**) for PTC funded projects, and with BCO for federal-aid projects, using US Department of Labor Complaint Form.

5.1.2. PA Department of Labor and Industry reviews wage complaint from contractor's employee, on PTC funded projects. Complaint is submitted to BCO for resolution.

5.1.3. BCO reviews wage complaints and notifies PTC PM of the pending issue, within five working days of receipt of complaint. BCO and PM handle complaints in accordance with Section 6 Guidelines for Handling Labor Compliance Problems.

5.2. **Documentation**: Copies of the Contractor's Employee Complaints will be maintained in the PCDS.

**6. Guidelines for Handling Labor Compliance Problems** - BCO is responsible for ensuring that all labor compliance issues are satisfactorily resolved.

6.1. BCO and PTC PM determine whether the complaint is a minor or major violation, as follows:

**6.1.1. Minor Violation** - includes, but is not limited to, random occurrences of employee being classified incorrectly, incorrect number of hours worked, employee's payroll missing, and arithmetic errors. Such violations should be adjusted by the next pay period with supplemental certifications and payrolls.

**6.1.2 Major Violation** - includes, but it not limited to, flagrant violations of the Davis-Bacon or Copeland Anti-Kickback Acts, the Contract Work Hours Safety Standard Act or the Pennsylvania Prevailing Wage Act. Major violations also occur when payrolls are not submitted, payroll certifications are not submitted, fringe benefit information is missing on payrolls, fringe benefits or wages are not being properly paid, and failure to correct minor problems.

**Minor Violation Process**

6.2. If the complaint is a minor violation, PTC PM notifies the Contractor of deviations, in writing, and states that corrections are necessary within two weeks, and provides notes in CDS regarding wage issues. BCO coordinates complaint with PA Department of Labor and Industry.

6.3. Contractor may correct errors to the payrolls by attaching a letter to each payroll explaining the corrections and also may provide supplemental payrolls and certifications.

6.4. If the minor violation is not resolved in two weeks, the minor violation is to be considered a major violation.

6.5. Wage complaint is considered as resolved when Contractor satisfactorily submits adjustments with supplemental certifications and payrolls. The CDS operator documents labor compliance issues in CDS, Project Record and Contract Compliance Repository.

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### **Major Violation Process**

- 6.6. If the complaint is a major violation, BCO investigates employee complaint or wage issue precipitated by periodic payroll reviews. BCO contacts PTC Legal Office to obtain additional guidance. BCO coordinates complaint with PA Department of Labor and Industry and Bureau of Labor Law Compliance, if necessary.
- 6.7. PTC Legal reviews employee wage complaint information from BCO and PTC PM and provides a recommendation regarding the employee complaint to BCO.
- 6.8. BCO reviews information from PTC Legal and discusses it with PTC PM. BCO develops a written report with recommendations for resolution and submits it to the Chief Compliance Officer, PTC PM, Assistant Chief Engineer for Construction (ACE-Construction) and others, as required.
- 6.9. PTC PM notifies the Contractor of deviations, in writing, and states that corrections are necessary within two weeks, and provides notes in CDS regarding wage issues.
- 6.10. If PTC PM receives satisfactory adjustments with supplemental certifications and payrolls from Contractor, PM notifies BCO regarding resolution and provides notes in CDS.
- 6.11. If major violations are not resolved in two weeks, PTC PM may withhold payment of the amount of wages unpaid or not paid in accordance with the Prevailing Wage Act performed by the employees in question, from the next estimate for the benefit of the workman. PM notifies Contractor of potential of withholding payment and provides notes regarding wage issues in CDS. Contact PTC Legal with any questions.
- 6.12. If the major violations are not rectified in five weeks from notifying the Contractor, PTC PM may withhold the amount of wages unpaid or not paid in accordance with the Prevailing Wage Act until the violations are satisfactorily resolved or pursue other remedies set forth in the Contract PTC PM notifies BCO and ACE-Construction. PM provides notes regarding wage issues in CDS.
- 6.13. In the case of final payment to a Contractor, the PTC may withhold final payment from the Contractor if the Contractor fails to pay employee wages under the Prevailing Wage Act. However, if a subcontractor fails to pay an employee prevailing wages in accordance with the Prevailing Wage Act, the PTC may not withhold final payment from the Contractor.
- 6.14. Wage complaint is considered as resolved when Contractor satisfactorily submits adjustments with supplemental certifications and payrolls. The CDS operator documents labor compliance issues in CDS, Project Record and Contract Compliance Repository.

REPLACES B 4-2 Pages 1-4	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART <b>B</b>	SECTION <b>4-2</b>	PAGE <b>1 of 2</b>
DATED  03-06-19		DATE  <b>01-08-24</b>		
SUBJECT		<b>PROJECT BULLETIN BOARD</b>		

The Project Bulletin Board serves an important purpose to the project workforce. The required Bulletin Board Postings provide valuable information such as prevailing wage rates, personnel to contact if problems are encountered on the project, safety information, and EEO postings. The Project *Bulletin Board posting Lists* identifies the required postings for both State and Federal funded projects.

Bulletin Board Postings shall be discussed, and the Bulletin Board Posting Lists distributed to the Contractor at Pre-construction Conference. Verify that the Contractor is getting the most updated postings from Federal and State website and complies with the required bulletin board postings. The websites for both federal and state postings are provided below.

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

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

The sample notice flyer letter should also be distributed to all contractors at Pre-construction conference. It includes the required contractor's notices concerning EEO policies and procedures.

The Bulletin Board Posting Lists and sample notice flyer are available in PCDS for contractors use.

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

- Workplace notices and posters must always be displayed 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.
- 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.
- On mobile projects with no field office, staging area or gathering area, the Prime Contractor and Subcontractors must display all notices or posters where hiring is conducted, and each employee must be provided copies of all the notices or posters and sign a statement acknowledging they received and understood the content of all the notices or posters.



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## **Responsibilities of the Project Manager and Construction Managers:**

### **1. Assure the following:**

- a. The Bulletin Board is placed in an area where the employees congregate.
  - All employees (prime and subcontractors) must always have access to this information.
- b. The Bulletin Board is in place prior to the start of work.
  - All the required postings are in place.
  - Prevailing Wage Rates must be complete, and every page must be displayed.
  - Spanish versions of postings are required for projects in an area where the Spanish language is commonly spoken.
- c. Postings are clearly visible (placing postings in book form is not permitted).
- d. Postings are to be maintained in satisfactory condition for the life of the project.
- e. **Review postings on a quarterly basis** and documented on the *Bulletin Board Checklist*. The checklist is available in PCDS for inspection use.

**Note:** Projects with no field office does not relieve the contractor of his responsibility of a Bulletin Board.

2. **Documentation** - Completed copies of the Bulletin Board Checklist must be uploaded to the Project Collaboration and Documentation System (PCDS).

## Section 5

### Change Orders

REPLACES	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART	SECTION	PAGE
B 5-1 Pages 1 to 17		<b>B</b>	<b>5-1</b>	<b>1 of 16</b>
DATED		DATE		
01-08-24		<b>01-06-25</b>		
SUBJECT				
<b>PREPARATION OF CHANGE ORDERS ON CONSTRUCTION CONTRACTS</b>				

## A. PURPOSE

The following is to provide guidance for the preparation and processing of Contract Change Orders for work under contracts awarded by the Pennsylvania Turnpike Commission pursuant to the provisions of the Pennsylvania Department of Transportation's Specification, Publication 408, and the Commission's Specifications.

Supplemental guidance regarding Change Order submission presentation is provided in the Appendix. Review the [Change Order Presentation Guidelines](#) prior to Change Order submission to ensure the presentation guidelines are utilized.

## B. GENERAL

A Change Order is defined as "An order, signed by the Representative, authorizing the performance of additional or extra work, or extra work on a Force Account basis, as specified Section 110.02 and 110.03."

A Change Order is a contract revision that requires written authorization to incorporate additional and/or extra work into the construction contract. An authorized Representative must give written authorization to the Contractor to permit the performance of additional and/or extra work. The written authorization is to be provided **prior** to the commencement of the work, whether a price has been accepted by the Representative. The Commission [Form PTC-373](#), "*Authorization for Contract Work*", is the preferred format for providing the required written authorization. Change Orders provide the means for approval of quantities of work and for the approval of the prices to be paid.

The Inspector in Charge is responsible to complete Form PTC-373, gather the required signatures and distribute the fully executed copies to the PTC Project Manager, Contractor, CDS Technician and project staff.

### Form PTC 373 - Authorization for Contract Work

- Ensure the scope of work is clearly stated.
- Ensure the form is completed in its entirety.
- Obtain the contractor's signature.
- Sign and date the form.

A Change Order may be initiated for the following reasons:

1. Construction Field Changes
2. Design Changes
3. Specification Changes
4. Changes in Project Scope of Work
5. Emergency Repairs
6. As-Built Quantities
7. Contract Time Adjustments, Extensions or Reductions

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8. Incentive/Disincentive Adjustments or Payment of Acceleration Costs.
9. Implementation of a decision of the Commission in resolving a claim, settlement, litigation, or a court decision.
10. Assessment of Liquidated Damages/Road User Costs/Lane Rentals
11. Acceptance of a Value Engineering submission

### **Normal Quantity Adjustments**

- For minor adjustments to existing plan locations, an authorization for contract work is not required.
- An authorization for contract work is required for a change in excess of +25% of the item's original plan quantity if that change is greater than \$10,000.00. One authorization for contract work is required for the item and may include multiple locations.
- An authorization for contract work is required for any new locations not included in the original plan.

A Change Order is to be signed by the contractor's authorized representative, which will serve to verify that the contractor agrees with the quantity, time adjustment, and associated price or prices in the Change Order. The Change Order is to be accompanied by cost justification documents, such as, an authorized Force Account prepared on Commission or Department forms, on cost justification documents prepared by the responsible party, or on [Form PTC 373](#).

All documents authorizing contract changes shall include the following information:

1. Contract Number
2. Type of authorization (Additional work, Extra Work or Force Account Work)
3. Item Number if Additional Work. Include a Control Number if item number is not known.
4. Description of work to be performed.
5. Quantity or Estimated Quantity of Work
6. Unit Price (if known)
7. Location of work
8. Statement indicating quotation for Extra Work or statement that Extra Work will be performed on a Force Account basis.
9. Reference to the contract specification and/or plans, if applicable
10. Reference to notification/coordination of extra work (out-of-scope) with other PTC Departments.

Supporting documents can be attached to the Authorization for Contract Work form, if necessary.

The Inspector-in-Charge (IIC) shall obtain the concurrence of the PTC Project Manager prior to authorizing any contract Change Order work. In an emergency, the IIC shall obtain the concurrence of the PTC Project Manager as soon as reasonably possible. The IIC, with the concurrence of the PTC Project Manager, may authorize up to a maximum of \$25,000.00 per location of contract change. This maximum value is listed as a guide and is at the discretion of the Construction Engineering Manager. Authorizations in excess of \$25,000 per location shall require approval from the Construction Engineering Manager.

The IIC shall be responsible for coordinating the preparation of Change Order documents and initiating the securing of required signatures prior to authorizing any payment to the Contractor against the Change Order. Copies of all documents authorizing contract work are to be included with the contract Change Order when

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submitted for approval. Authorization forms, PTC-373, for contract work should be completed and signed prior to the commencement of Change Order work.

In preparing a Change Order, the goal should be to offset as much positive value as is feasible, with any unused quantity or items. Attempts should be made to not continually add contract value without regard to deducting value. Also, consider Price Adjustment items carefully when adding to a Change Order so that positive values are not added to the contract only to be deducted at a later date.

It is the intent to have a Final Change Order on each contract to balance a minor dollar value. Care should be taken through the course of generating interim Change Orders to allow for this.

## C. CATEGORIZATION OF CHANGE ORDERS

A system of Change Order categorization has been developed to facilitate the review and approval levels for changes required on construction contracts awarded by the Commission. The two Change Order Categories are: *Changes* and *Supplements*. If any item in a Change Order is classified as a Category 2 change, the entire Change Order is a Category 2.

The following list defines each of the Change Order categories and provides an example of circumstances that would normally be included within each category.

### CATEGORY 1: CHANGES - Revisions within Original Scope of the Contract

- Adjustments required to meet actual field conditions encountered.
- Work in amounts greater than the original scope.
- Adjustments in quantities to reflect actual work performed.
- Changes in design and/or specifications that maintain the original intent of the project.

### CATEGORY 2: SUPPLEMENTS - Revisions outside the Original Scope of the Contract

- Changes in design for addition of work beyond the original intent of the project.
- Specification changes for addition of work beyond the original intent of the project.
- Work required beyond the original scope or outside the project limits. (See Section B 5-3 Limit of Work Extension Request Process)
- Contract time adjustments.
- Implementation of a decision of the Commission in resolving a claim by settlement, litigation, or a court decision.
- Assessment of liquidated damages, lane rental fees, road user costs, incentive/disincentive payments or payments of acceleration costs.
- Category 1 Change Orders above the contingency.

### ***Change Order Approval Authority***

A contingency value will be set at the time of contract award to provide a maximum adjustment of the contract amount equal to the sum of the award amount plus the contingency amount for Category 1 Change Orders approved by staff. The following establishes the review and approval levels required for construction contract Change Orders within Category 1 and having a net cumulative value under the established contingency. The limits represent the absolute value for individual Change Orders.

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- Construction Engineering Manager \$250,000 Absolute Value
- Assistant Chief Engineer – Construction \$500,000 Absolute Value
- Chief Engineer Over \$500,000 Absolute and Under Contingency Amount Net Value

In other words:

- A contingency value will be determined for each contract based on the scope and characteristics of the contract.
- The contingency value will not be included in the contract as a contract item; it will be used as a change control value for category 1 Change Orders.
- Once the net cumulative value of all category 1 Change Orders exceed the contract contingency value then the Change Order will be a category 2 and must be submitted for Commission approval.
- The absolute value of an individual category 1 Change Order determines the authority level for approval.
- The IIC must track contract changes and the contingency value to ensure that proper approval and change control measures are maintained.
- Category 2 Change Orders automatically require Commission approval and **do not** affect the contract contingency value.

For example:

1. A contract with a bid value of \$5,000,000.00 and a contingency value of \$400,000.00 would have a maximum allowable category 1 net change value of \$400,000.00. Therefore, Commission approval would be required for category 1 Change Orders once the cumulative net value of all category 1 Change Orders exceeded \$400,000.00. Until the contingency limit is reached, approval for category 1 Change Orders would be dependent upon the absolute value of the individual Change Order.
2. An individual category 1 Change Order containing additions of \$125,000.00 and deductions of \$75,000.00 has an absolute change value of \$200,000.00 and a net change value of \$50,000.00. Assuming that the contingency value for this contract has not been exceeded, this Change Order would require the approval of the Construction Engineering Manager. The \$50,000.00 net change value would be deducted from the remaining contingency value.
3. An individual category 1 Change Order containing additions of \$125,000.00 and deductions of \$175,000.00 has an absolute change value of \$300,000.00 and a net change value of (-\$50,000.00). Assuming that the contingency value for this contract has not been exceeded, this Change Order would require the approval of the Construction Engineering Manager and the Assistant Chief Engineer-Construction. The (-\$50,000.00) net change value would be deducted from the remaining contingency value.

On projects where the General Consulting Engineer provides Construction Overview Services, the Project Manager obtains approval from the GCE prior to processing the Change Order for payment.

Category 1 Change Orders that meet the above approval criteria will be submitted to the Department (PennDOT) by the Construction Documentation Specialist for concurrence subsequent to internal approvals. The Department's concurrence is required for category 1 Change Orders, but it is not a prerequisite to processing the Change Order for payment.

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The following must be submitted for Commission approval:

- All Category 2 Change Orders
- All Final Change Orders
- All Change Orders on Federally Funded Projects

#### **D. ADJUSTMENT OF LUMP SUM ITEMS**

The adjustment of lump sum items shall be in accordance with Section 110.02(e).

#### **E. ADDITIONAL WORK**

Additional work will be paid in accordance with Section 110.03(b).

When there is a significant change to the plan quantity of a contract item, refer to Section 110.02(d), for additional guidance.

#### **F. EXTRA WORK - AGREED PRICE**

Extra work will be paid in accordance with Section 110.03(c). Refer to COM section B 5-5 for additional guidance on development and review of the extra work cost submission.

The Representative is to obtain satisfactory unit or lump sum prices from the Contractor. Correspondence discussing work and payment methods are to be completed in Kahua Communications. **Cost Justifications** are to be submitted into the Kahua Submittal (#9000) package by the contractor for review and approval by the Representative.

#### **G. EXTRA WORK - FORCE ACCOUNT**

Force account work is as specified in Section 110.03(d). Refer to COM section B 5-5 for additional guidance on development and review of the extra work cost submission.

If the Representative and Contractor cannot agree on a price for extra work and the work is such that force account records can be kept using the Force Account Daily Sign-off (Form CS-4347), the Representative will authorize that such work be performed and paid on a force account basis. Correspondence discussing work and payment methods are to be completed in Kahua Communications. **Force Accounts** are to be submitted into the Kahua Submittal (#9000) package by the contractor for review and approval by the Representative.

#### **H. TIME EXTENSION/REDUCTION**

Time extensions/reductions must be processed as category 2 Change Orders as soon as **the adjustment is deemed to be warranted**. Time extensions are to be processed prior to the contract **completion date**. Liquidated damages are to be assessed if a time extension is not processed before the contract completion date. In addition, every time a Change Order is contemplated, the need for a time adjustment shall be evaluated.

- Refer to Section 108.06 for the allowable reasons for a time extension/reduction. The contractor's letter of request should indicate which allowable time extension reason justifies the request for additional time.
- Prepare a separate set of Change Order questions to explain any time extension/reduction requests.

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- If the time extension request is being included on the Change Order with the items of work that caused the extension or reduction in contract time, group the affecting items of work with the explanation for the time request. However, provide sufficient detail to substantiate the request with the items of work that caused the delay. It is preferred to include the items of work that correlate directly to the time request on the same Change Order that is requesting a time adjustment.
- Reference and include the letter of the request for time from the contractor.
- Include letter from the PTC accepting or approving the time.
- Document that a schedule revision was submitted on the Change Order.
- Document and reference the schedule analysis to determine which critical items were affected to warrant time extension.
- Correspondence discussing time extension costs and payments are to be completed in Kahua Communications. Cost Justifications/Force Accounts for the ***time extension costs*** are to be submitted into the Kahua Submittal (#9000) package by the contractor for review and approval by the Representative.

#### **I. PTC DEPARTMENT REQUEST FOR WORK**

All additional or extra work that is requested for inclusion into a construction project by a PTC Department must be justified by the requesting Department and approved by the Assistant Chief Engineer - Construction. The requestor/sponsor of the work must supply all the required information and provide documentation and/or justification for the work. The work request must be approved by all the responsible parties prior to the execution of work. The PTC Construction Unit shall coordinate the preparation of the contract Change Order documents for the approved request in accordance with the Change Order preparation procedures.

#### **J. EXPLANATIONS**

For all items a complete detailed explanation is to be provided with the Change Order, for each of the following questions. Provide a separate response for each question, for each item or group of similar items. The Commission's CDS software program shall be utilized to prepare and generate the Change Order questions and attachment listings.

##### **1. Why is this work necessary?**

- If the change was due to another PTC department (Bridge, Design, FEMO, Maintenance, etc.), cite the request and reference the correspondence by letter number or e-mail and date. Include the correspondence as an attachment.
- Document any analysis used in determining resolution to a field problem.
- Example for eliminating an Item (unused quantity - Unforeseen Water Pollution Control) or a credit.
  - **"Item \_\_\_\_ - \_\_\_\_ Unforeseen Water Pollution Control is being eliminated in its entirety. This item was not required to complete the project in accordance with the contract or specifications."**

##### **2. What changes are involved?**

- Explain what changes to the contract are needed.
- If the change involves a change in original design of structure or foundation either attach a sketch or copy of the revision or refer to officially revised drawings in the explanation.



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- Include reference to applicable Design Change Notice or issued revised drawings with revision number.
- 3. Where are the changes to take place?**
- Cite the specific stationing or Mileposts where the work is to be completed.
  - For FEMO projects specify the room number or area of building where the change occurred.
- 4. What is the cost justification?**
- Provide justification in accordance with Sections D thru G above.
  - **Contract Unit Price.**
    - Include and reference the attached form PTC-373.
  - **Historical Pricing.**
    - Attach documentation showing analysis of past project pricing.
  - **Negotiated Price.**
    - Attach completed approved negotiated cost justification. (All CS-4347CJ forms) without backup documentation.
    - Include and reference correspondence discussing work and payment methods.
    - Include and reference the attached form PTC-373.
  - **Force Account.**
    - Attach completed approved cost justification (Force account CS-4347 AA/AS forms) without backup documentation.
    - Include and reference correspondence discussing work and payment methods.
    - Cite file location for entire cost justification that includes all backup documentation. Backup documentation includes all supporting invoices, payrolls, truck slips, etc.
- 5. Explain how the change will affect the contract schedule.**
- Consider the following criteria:
    - How many working days are allocated? Include basis for allocation.
    - Does the work affect a controlling operation? Identify which critical items were affected.
    - Will there be a recommendation to change the contract completion date?
    - Reference the letter received from the contractor if a time adjustment has been requested.
    - Reference that a revision to the schedule has been received and reviewed.
- 6. Period when work took place.**
- Note the anticipated month(s) and year work will be performed.
  - Note the actual work dates for each item.
  - For multiple items, include a general timeframe the work was or will be completed.
- 7. Identify any change that affects DB/DBE item quantities or participation levels.** (Refer to contract special provisions.)
- If the change is a substantial change in contract value, explain why or why not additional participation is warranted or not.
  - If the change affects an identified DB or DBE contractor, identify the contractor and the affect the change will have on the participation level requirements.

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- Example statement for a Change Order that does not affect DB/DBE items or participation levels.
  - **“There are no items included in this change that were included on the commitment sheet for any DB/DBE contractor. Therefore, the participation levels of the DB/DBE contractors are not affected.”**

The questions enumerated above are the minimum required. The IIC or the person authorizing the Change Order work is responsible for providing the required explanations. The Assistant Chief Engineer - Construction may require that additional questions be addressed to facilitate internal controls and management.

Each of the explanations should contain enough information to stand on its own and be transparent. Explanations that state no more than "See attachments" are unacceptable. The responses are to provide brief summaries, at least, and all attachments must be referenced in the summary. All attachments shall be assigned letter/number designations and shall be listed in a tabular format within the Change Order explanation.

Example for referencing attachments and cost justifications can be found in the [Change Order Presentation Guidelines](#). Change order information is collected in a PTC database and regularly evaluated to determine what type of changes are being made during construction across the entire PTC system. This information is used to determine what changes may need to be implemented into the Design and Construction practices.

Each item on a Change Order must be explained. Normal differences between planned and actual quantities may be explained as a group, but a listing of each item in the group is to be included in the Change Order. If an item is in excess of +25% of the item's original plan quantity and if that change is greater than \$10,000.00, an authorization for contract work is to be included. Any item in excess of +25% of the item's original planned quantity shall be explained separately on its own set of Change Order questions.

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, the Representative is to attach a sketch or print of the revision to the Change Order or refer to officially revised drawings in the Explanations for the Change Order.

The Construction Unit is to consult with other organizational elements (Bridge, Design, FEMO, Geotechnical, Materials, R/W, etc.) whenever a Change Order involves them, and this consultation is to be noted in the Change Order as part of the documentation.

Each Change Order must be prepared 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 Orders are to contain all the items required for performance of the subject work and the total estimated cost. A piecemeal approach involving several Change Orders is unacceptable.

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

Change orders for payment of claims based on a Commission Review, Board of Claims or court decision are to have attached a copy of the decision and a copy of the recommendation to pay from the Chief Engineer or the Office of Chief Counsel, as applicable.

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***Explanation Summary:***

To improve the tracking and reporting of Change Order items and to facilitate the management of Change Order approvals, provide a simple up-front summary to the Change Order Form PTC-1060 explanations, support documentation and/or required attachments. The summary shall specify the items or groups of items by “Change Type”.

Table 1 – Change Order “Change Types” that shall be used:

Change Type Code	Change Type Description	Remarks
A	Normal Quantity Adjustment	Balancing Overruns and Underruns
B	Unforeseen Condition	Field changes required due to unforeseen or differing site conditions
C	Construction Changes	Field changes required due to actual field conditions (not considered unforeseen), or field changes directed by the Representative and/or the IIC
D	Design Requested Changes	Field changes required by the Design Engineer and/or Design Project Manager
E	Facilities Requested Changes	Field changes required by the Facilities Engineer and/or Facilities Project Manager
F	Fare Collection Requested Changes	Field changes required by the Fare Collection Department
G	Maintenance Requested Changes	Field changes required by the Maintenance Department
H	Other PTC Department Requested Changes	Please specify
I	NOT USED	
J	Property Damage Claims - Reimbursable	
K	Property Damage Claims – Non-Reimbursable	
LD	Liquidated Damages	Examples: Non-compliance of MPT, Road User Costs, Lane Rental Fees, Liquidated Damages, incentive/disincentive payments, and any other similar fees or payments
M	Other	Please specify
N	Design Errors	****
O	Design Omissions	****
P	Open-End Repair Contract	Adjustments to the not-to-exceed amount or time extensions.
PA	Price Adjustment	Examples: Asphalt, Diesel, and Steel Price Adjustments

\*\*\*\* Note: A **Design Error** is defined as a design flaw in a set of plans, specifications, contract documents or design computations because of negligent engineering or document preparation. Negligent engineering and/or document preparation is a failure to meet the standard of reasonable care, skill, and diligence that an engineering professional would ordinarily exercise. All design error information is to be forwarded to the design error review committee. A **Design Omission** is defined as an oversight in design that results in

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additional or extra work that should have been included in the original contract documents. See B 5-2 Design Errors and Omissions.

Please note, the summary should be a simplified form listing the Change Order items (or group of items), the item description and the “Change Type Description”. All the required item justification details should be attached. The “Change Type Code” will be used for internal Construction Change Order tracking and reporting. The “Remarks” listed in the above table are for informational purposes and are not considered all-inclusive. Engineering judgment will need to be exercised when assigning change types to items.

## **K. PREPARATION AND APPROVAL OF CHANGE ORDER FORM PTC-1060**

Change Order Form PTC-1060 shall be generated utilizing the Commission's Construction Documentation System (CDS). All items of work to be included in the Change Order shall be keyed into the Change Order module of the CDS program and shall include the following:

1. Item Number
2. Item Description
3. Quantity
4. Unit
5. Unit Price
6. Cost Extension, Addition or Deduction

All new items of work shall be given an eight-digit Item Number 9XXX - AABB where:

Table 2

### ***PTC Change Order Item Numbering Guidelines & Examples for Pub 408 and Commission Specification Items***

9XXX-AA-BB	All New Change Order Item Numbers shall begin with a 9
XXX =	The Pertinent Section of Publication 408 or Commission Specification that Specifies the Item of Work. See below for common examples
AA =	The Change Order Number (i.e. 01, 02, etc...)
BB =	The Consecutive Number of the New Item of Work Contained in the Change Order (i.e. 01, 02, etc...)

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### **Change Order Examples for Pub 408 and Commission Specifications**

9203-AABB	Class 1, Class 1A & Class 1B Excavation
9506-AABB	Reinforced or Plain Cement Concrete Pavements, R.P.S.
9962-AABB	Painting Traffic Lines and Markings
9005-AABB	Piles
9040-AABB	Concrete Bridge Deck Repair

### ***PTC Change Order Item Numbering Guidelines & Examples for the AIA Divisions for Building Construction***

97XX-AABB	All New Change Order Item Numbers shall begin with 97.
XX =	The pertinent section of the AIA Division as indicated in the Contract.
AA =	The Change Order Number (i.e. 01, 02, etc...)
BB =	The Consecutive Number of the New Item of Work Contained in the Change Order (i.e. 01, 02, etc...)

### **Change Order Examples for AIA Divisions for Building Construction (See Contract for a complete listing of Divisions)**

9703-AABB	Concrete (footing)
9712-AABB	Furnishings
9722-AABB	Plumbing
9731-AABB	Earthwork
9733-AABB	Utilities

In addition to the item information as indicated above, the Change Order quantity for existing plan station breakdowns and new locations of work must be entered into the item breakdown section of the CDS Change Order module. When all the required item information has been entered into the module, it can then be processed, printed, and saved in CDS. During the processing, any contract time adjustments need to be entered with appropriate justification.

The CDS program will not allow payments to appear on an estimate for any new item of work until such time as an approved Change Order is authorized. The Construction Engineering Manager, PTC Project Manager or their designee can authorize Change Orders within the CDS program. Authorization for contract work

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(PTC-373) forms can be completed within the CDS change authorization module and within the CDS payment module.

#### **L. COMMISSION APPROVAL OF CHANGE ORDER FORM PTC-1060**

The IIC shall be responsible for coordinating the preparation and approval of the contract Change Order. See additional [Change Order Presentation Guidelines](#) for additional guidance for assembling the Change Order.

The IIC shall obtain the signature of the contractor's authorized representative on the Change Order form. The IIC shall attach all pertinent authorizations, justifications, and/or documentation to the printed Form PTC-1060. When construction overview services are provided by the General Consulting Engineer, the IIC shall obtain the signature of the General Consulting Engineer's authorized representative on the Change Order form. The IIC shall also sign and forward it to the PTC Project Manager for review. The PTC Project Manager will complete the [Change Order Review Checklist](#) and forward it with the Change Order to the Construction Engineering Manager for processing. The IIC shall upload the Change Order (the submitted portion) into the PCDS in accordance with the PTC Kahua Construction Project Documentation Guide.

##### ***Change Orders Not Requiring Commission Action:***

*Includes: Category 1 Change Orders that meet the approval criteria as defined in Section C, "Categorization of Change Orders"*

The PTC Construction Engineering Manager, or designee, shall forward by email the complete Change Order to the Construction Documentation Specialist. Based on the approval levels as detailed in the Category 1 criteria, the Construction Documentation Specialist shall forward the Change Order to the appropriate personnel for approval. The Construction Documentation Specialist will obtain the Independent Professionals Review and Concurrence form, if applicable. Any revisions to the Change Order required by review comments shall be forwarded to the Construction Documentation Specialist by email. The Construction Documentation Specialist will incorporate the changes into the complete Change Order *and* notify the author of the Change Order of such revisions. Upon approval, the Construction Documentation Specialist shall then provide a hard copy of the complete Change Order to PennDOT for approval and signature. Once it is approved and returned to the PTC, the Construction Documentation Specialist uploads the final, approved with CAB signatures, complete record copy of the Change Order in the PCDS folder and updates the PTC's SAP System.

##### ***Change Orders Requiring Commission Action:***

*Includes:*

- *Category 2 Change Orders*
- *All Final Change Orders*
- *All Change Orders on Federally Funded Projects*

The PTC Project Manager shall review the Change Order with the Construction Engineering Manager and the Assistant Chief Engineer – Construction. The PTC Project Manager shall then forward the Change Order to the Construction Documentation Specialist for completion of the proper forms.

The Construction Documentation Specialist:

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1. Prepares agenda item.
2. Obtains the Independent Professionals Review and Concurrence form.
3. Secures the signature of the Assistant Chief Engineer - Construction on the agenda item & Change Order.
4. Secures the signature of the Chief Engineer on the agenda item & Change Order.
5. Sends the agenda item to the Secretary-treasurer for inclusion on the agenda & the signature of the CEO.
6. Sends the Change Order to PennDOT for signature.
7. Following Commission approval and return from PennDOT, sends the Change Order to the Secretary-Treasurer for signature.
8. Updates contract amount in SAP and SRM.
9. Scans and uploads the final, complete, signed Change Order to the PCDS in accordance with the PTC Kahua Construction Project Documentation Guide.

#### **M. PAYMENT OF APPROVED CHANGE ORDER ITEMS**

Upon notification of the approved Change Order, the Change Order can be approved in the CDS program and all eligible item quantities on the Change Order can be paid on an estimate. Documentation of payment entries should follow established documentation procedures.

#### **N. CDS CONTROL NUMBER**

To document the performance of work for authorized extra and force account work, the CDS Technician shall establish a CDS Control Number in the CDS Program. The Control Number provides a method for the timely documentation of payments and work history for non-contract items of work. Performance payments on a CDS Control Number will not be posted to an estimate until such time that a Control Number is assigned a contract item number on a Change Order and the Change Order is approved by the Commission and authorized in CDS.

CDS Control Numbers will be assigned eight characters plus a funding code. However, the following format shall be used:

Control Number: CTRL- YYYY Funding: 10

Where: YYYY is a sequential number

For example, Control Number one on Contract Number T-031.00T001-3-02 would be:

CTRL-0001. The funding code used for 100% Turnpike projects is: 10

Additional information required to establish a CDS Control Number is the same information required to complete the PTC-373 (Authorization for Contract Work) form.

1. Item Description
2. Change Order Quantity
3. Unit
4. Unit Price (If known)
5. Operation Code
6. Funding Code
7. Location Breakdowns

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The CDS Control Number program will also prompt the IIC to complete Form PTC-373 (Authorization for Contract Work). For assistance in establishing, documenting, and assigning of CDS Control Numbers, contact a CDS Administrator.

## **O. FEDERAL AID CONSTRUCTION PROJECTS**

Guidance for the eligibility of Federal-Aid on construction projects can be found in the Code of Federal Regulations at the following location: Title 23 CFR 635.120 – Changes and Extra Work.

### **1. *Federal-aid Eligibility***

Care must be taken in the preparation of the Change Order to assure that items are not included for Federal participation which are clearly non-participating items. The FHWA is prohibited from participating in costs related to routine or recurring maintenance (snow removal, graffiti removal, litter pickup, mowing, roadside vegetation control, etc.), however, the FHWA may participate in preventive maintenance work that is shown to be cost effective (such as pavement joint repair, crack sealing, drainage clean out work, etc.) or compensation to the contractor for material purchased but not used on the project.

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

If additional or extra work is to be performed on a Federal-aid project, with a portion of the work to be paid on the basis of part Turnpike and part Federal participation, and a portion to be paid on the basis of 100% Turnpike participation, two Change Orders must be prepared. One for that portion covered by part Turnpike and part Federal funds and one for the portion covered by 100% Turnpike funds. If the additional or extra work is to be performed on a federal project having multiple Federal Project Numbers (FPN's), with all the work to be paid on the basis of Federal participation, multiple Change Orders must be prepared; one Change Order for the portion of the work covered by each FPN.

### **2. *Preparation, Processing and Approval***

The Representative shall make no change which will increase the cost of the project or alter the termini, character, or scope of the work without authorization by an approved contract Change Order. [Form FHWA-1365](#) should be used for this authorization.

The Representative shall prepare a timely Change Order for all additions/deletions to contract items and all additional/extra work in the Commission's standard format.

The Construction Engineering Manager and/or IIC shall coordinate the review of all proposed Change Order items with the Department's District and the FHWA field representatives to obtain their concurrence on the performance of Change Order work. The Department's District and FHWA field representative's concurrence must be obtained prior to generating a contract Change Order for submission.



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Changes in contract time, as related to contract changes or extra work, should be submitted at the same time as the respective Change Order for approval by FHWA. Justification for a time extension should be supported by the project schedule.

The Change Order shall be generated in the field and approved by the Inspector-In-Charge, Contractor, General Consulting Engineer if an oversight agreement is in place, and Construction Engineering Manager prior to submittal to the Commission for approval.

The Construction Engineering Manager and/or PTC Project Manager will coordinate approval through the Commission, Department and FHWA. The Commission must approve all Change Orders prior to submission to the Department. The Department will then review the Change Order and forward it to FHWA for approval. Upon securing FHWA approval, the Department should forward the approved Change Order to the Construction Documentation Specialist for distribution. The Commission shall coordinate any actions requiring a modified Federal-aid project agreement with the Department. The Change Order shall be up-loaded into the Project Collaboration and Documentation System and the Construction Documentation Specialist will update the information into the PTC's SAP System.

### 3. ***FHWA Authorizations***

#### a. Scope of Work Changes

An amended *Form D-4232* (Request for FHWA Authorization) must be submitted by the Department to the Bureau of Project Delivery for FHWA approval when the work will substantially change the scope of work as it was described on the original approved form.

Scopes of work changes include changes in the limits of work; the type of pavement; the typical sections; the width of roadway or shoulders; or the number, type, or location of structures. The FHWA Area Engineer is to be consulted prior to approval of the Change Order if there is a question regarding the need for an amended Form D-4232.

#### b. Federal-aid Projects

Anticipated Change Orders are to be discussed with the FHWA Area Engineer. Statements of conceptual approval by the Area Engineer are to be included in the supporting data for the Change Order only when the approval is specifically and accurately described, the date of discussion is noted, and the Area Engineer is identified. [\*Form FHWA-1365\*](#) (Record of Authorization to Proceed with Major Contract Revision) and FHWA Construction Inspection Report can be used for Change Order support documentation. Approval Form FHWA-1365 must be obtained if the work is to begin prior to approval of the Change Order and is to be attached to the Change Order.

#### c. Additional Instructions

FHWA Prior Approval of Major Construction Contract Changes on Federal Oversight (Non-Exempt) projects:

Federal regulations define a "major change or major extra work" as a change which will significantly affect the cost of the project to the Federal Government or alter the termini, character, or scope of the work.

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For 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 Change Orders. The prior approval requirement is not intended for individual Change 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. FHWA Form 1365 is to be used to document the approval **prior to directing the contractor to perform the work**. The PTC Project Manager should consult with the District and the FHWA Transportation Engineer as soon as major contract changes are anticipated. Refer to the appendix for a copy of form FHWA-1365. The form can also be accessed via the FHWA website at [www.fhwa.dot.gov/programadmin/contracts/fhwa1365.cfm](http://www.fhwa.dot.gov/programadmin/contracts/fhwa1365.cfm).

For project changes that will alter the termini, character, or scope of the work, regardless of cost, formal, prior FHWA approval will be required. An amended Department Form D-4232 is to be used to document the approval. The PTC Project Manager should consult the District and the FHWA Transportation Engineer if there is a question as to the need for an amended form D-4232.

#### 4. *Approvals*

- a. FHWA and Department Change orders for Federal aid projects require signed approvals by the Department and by the FHWA.

Change orders requiring Department and FHWA approval are approved by the Department prior to submission for FHWA approval. If a Change Order, wholly or in part, is not approved by the FHWA, a copy of all related FHWA correspondence will be forwarded to the Department. The Department can either attempt to rebut the FHWA position or process the necessary Change Orders to comply with the FHWA position.

For Change Orders requiring Department approval, submit the following:

- One copy of the Change Order signed by Department's authorized representative.
- Two copies of the explanations and supporting data. One set will become part of the Department's file. The other will become part of the FHWA file.

Work of an emergency nature, that is, work that must be performed before written approval can be obtained from the Department, is to have verbal approval prior to performance. Verbal Department approval will require, as a prerequisite, a confirmation of District/FHWA review and verbal approval.

Verbal approval of emergency work will require the immediate processing of [\*Form FHWA-1365\*](#) and submission of the signed form to the Department. The form may be prepared by the Department but must be signed by the FHWA to illustrate their conceptual approval.

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DATED		DATE		
01-07-20		<b>01-08-24</b>		
SUBJECT				
<b>DESIGN ERRORS AND OMISSIONS</b>				

The purpose of this section is to provide guidance for notification and communication of potential design errors in consultant prepared construction plans and contract documents discovered after contract letting.

## **DESIGN ERROR**

A design error is defined as a design flaw presented in a set of plans, specifications, contract documents or design computations because of negligent engineering or document preparation. Negligent engineering and/or document preparation is a failure to meet the standard of reasonable care, skill, and diligence that an engineering professional would ordinarily exercise.

A design error requires a change in work attributed to a mistake in judgment, work incorrectly done in design, or work that cannot be constructed according to the standards or specifications.

## **DESIGN OMISSION**

A design omission is defined as an oversight in the plans, specifications, contract documents or design computations that results in additional or extra work that should have been included in the original contract documents.

## **NOTIFICATION PROCESS**

At the first indication of a potential design error or omission, the Inspector-in-Charge (IIC) shall notify the PTC Project Manager and the Construction Engineering Manager and document the notification in the project records. This could be prior to or after construction of the item or items of work related to the design error or omission. If discovered after construction, the IIC shall direct the inspection staff to provide detailed documentation of labor, equipment and materials required to perform the work. Provide supporting photographic documentation of the existing condition and corrective actions taken.

The PTC Construction Project Manager (PM) or designee will notify the Assistant Chief Engineer – Construction as soon as a potential design error or omission is discovered. If the Assistant Chief Engineer - Construction believes a potential design omission has occurred, the work will proceed following B.5-1 Preparation of Change Orders on Construction Contracts.

If the Assistant Chief Engineer - Construction believes a potential design error has occurred, the PTC Construction PM or designee will notify the PTC Design PM, PTC Design Category Manager, Design Consultant (if applicable), and Design Manager (if applicable) of the potential design error through an RFI or other correspondence requesting assistance resolving all construction issues resulting from the potential design error.

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In coordination with the Construction Engineering Manager, the IIC or PTC Project Manager shall provide all relevant documentation related to the potential design error to the Assistant Chief Engineer - Construction.

For additional information on the Design Errors and Omissions Procedure, refer to the Design Operation Manual.

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DATED		DATE  <b>05-18-16</b>		
SUBJECT  <b>LIMIT OF WORK EXTENSION REQUEST PROCESS</b>				

## **A. Description of Process**

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 or when an emergency situation develops where using an existing contract provides an expedited resolve to a threat to public health, welfare and safety. A Limit of Work Extension and associated additional/extra work shall be processed as a Category 2 Change Order and approved by the Commission prior to authorizing the work.

## **B. Purpose**

Section 104.02 Alteration of Drawings or Work states the following regarding Limits of 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 Representative.*

## **C. Procedures**

The following activities shall occur to complete the process:

1. The Representative identifies a potential need to expand the Limits of Work on a transportation project.
2. The Representative contacts the Assistant Chief Engineer - Construction to discuss whether expanding the Limits of Work is appropriate. The Limit of Work Extension and associated additional/extra work cannot be authorized prior to Commission approval.
3. In the case of an emergency, the Representative contacts the Assistant Chief Engineer – Construction to discuss the situation and develop a plan to address the situation.
4. The Assistant Chief Engineer - Construction contacts the Chief Engineer and the PTC's Chief Counsel to discuss the request to determine if the contract addition can be supported by Chief Counsel.

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5. If the contract addition is deemed supportable, the Representative prepares the Request for Extension of Limits of Work on a Category 2 Change Order.
6. The change order must provide details of the Limit of Work Extension including the existing and proposed limits of work, the total length of the extension and a thorough description of the scope and estimated cost of the additional and/or extra work. Photos, sketches, plans or maps are included as needed. See Section B5-1, Preparation of Change Orders on Construction Contracts for additional details. Justification must be provided in sufficient detail that outlines the unique situation where unexpected additional work is identified that could not be reasonably bid as a standalone project or the emergency situation that would be alleviated through the extension of limits of the contract.
7. The change order is added to the next Commission Meeting agenda.
8. If approved the Representative authorizes the work and Limit of Work Extension and uploads the approved change order to the PCDS. The changed Limit of Work and additional/extra work details are denoted on the as-built drawings.

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05-28-20		<b>01-08-24</b>		
SUBJECT				
<b>EXTRA WORK AND FORCE ACCOUNT COST JUSTIFICATIONS</b>				

The following is guidance for the development, negotiation, and review of pricing for Extra and Force Account work for contracts pursuant to the provisions of Section 110.

Refer to **COM Section B5.1 – Preparation of Change Orders on Construction Contracts** and the **Change Order Presentation Guidelines** for preparing and processing of the contract Change Order for this work.

All Extra Work Agreed Price and Force Account cost justifications are to be transmitted to the PTC through the collaboration site as a “Submittal”. Approval stamps from submissions through the Project Collaboration and Documentation System (PCDS) are acceptable.

Verify costs and calculations are in accordance with the Specification applicable to the contract.

#### **EXTRA WORK - AGREED PRICE**

Extra Work will be paid in accordance with Section 110.03(c).

Agreed unit prices or lump sum prices must be satisfactorily justified by the Representative and/or the Contractor. This can be done with proper computations of estimated labor, materials, and equipment including appropriate standby costs, by the Force Account method, refer to Section 110.03(d).

The following form is to be used to submit cost data for the Extra Work – Agreed Price work.

#### **CS-4347CJ– Negotiated Price Cost Justification –** *(Include form with the change order)*

1. Ensure the appropriate percentages for overhead and profit are applied in accordance with the contract.
2. Ensure only labor costs, paid directly to the employee are included in the base labor and that costs are in accordance with the fringe benefit letter.
3. Verify the % ins., taxes, etc. is calculated properly and based on the rates accepted by the PTC through the Force Account Tax and Insurance Rate Submission and Acceptance Procedure outlined in the LABOR RELATED – FORCE ACCOUNT FORMS section below and including 6.20% Social Security Tax and 1.45% Medicare Tax. For construction contracts with an Owner Controlled Insurance Program (OCIP), if the work being performed by force account is covered by the OCIP, Worker’s Compensation Insurance and Liability Insurance should not be added in the indirect labor cost calculation.
4. Ensure owned equipment Rate/Hr. or Rate/Day is calculated in accordance with the Specification.
5. Ensure invoice quote is included to document rented equipment or consumables from stock costs.
6. Ensure any Subcontractor or Service By Others Costs are substantiated.
7. Ensure equipment hours, including standby hours, are reasonable and in accordance with the contract.

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8. Contractor and PTC representative must sign the estimate. Approval stamps from submittals through the Project Collaboration site are acceptable.
9. Ensure that the number of units is supportable by the amount of material indicated.

Alternately, Turnpike construction cost data can be used. Prices may also be justified by reference to the unit prices on at least two other Turnpike contracts, if the work is similar in quantity and characteristic. The similarity of the work should be explained in sufficient detail to justify the comparison of prices.

**Historical Costs** *(Include information with the change order)*

1. Reference unit prices and Turnpike contracts used to determine cost.
2. Explain the similarity of work in sufficient detail to justify the comparison of prices.
3. Attach the letter from Contractor agreeing to the price.

Whenever an Extra Work Agreed Price is justified based on a Force Account Estimate and the work is to be performed by a Subcontractor, refer to Section 110.03(d)6.

**EXTRA WORK - FORCE ACCOUNT**

Force Account work is as specified in Section 110.03(d).

If the Representative and Contractor cannot agree on a price for Extra Work and the work is such that Force Account records can be kept using the Force Account Daily Sign-off (Form CS-4347), the Representative will authorize that such work be performed and paid on a Force Account basis.

Payment for work performed on a Force Account basis will not be made until the Contractor has provided the Representative with an itemized statement of the cost of the work in the form of a properly completed Force Account record. Statements of labor costs are to be supported by certified payroll records. Statements of material, sales tax, and transportation costs are to be supported and accompanied by invoices.

If the entire duration of the Extra Work is tracked as a Force Account, the work must be paid as a Force Account. Work performed and tracked as an Extra Work Force Account cannot be changed to a Negotiated Cost after the work is complete.

The PTC has developed Microsoft Excel workbooks for the CS-4347 Series forms for use in generating the Force Account package. Ensure the proper excel workbook, applicable to Section 110.03(d), is utilized for development of the Force Account package. The workbooks and other Force Account forms can be found in the PTC Reference Library in the PCDS. The workbooks developed are as follows:

**ForceAccountForms(08/17)ContractorVersion**

**ForceAccountForms(08/17)SubcontractorVersion**

These workbooks contain the following Force Account forms as well as instructions for their use:

- CS-4347AA – Final Summary
- CS-4347AS – Subcontractor Summary
- CS-4347BA – Material Breakdown
- CS-4347CA – Labor Breakdown
- CS-4347D – Daily Labor Breakdown
- CS-4347F – Daily Owned Equipment Breakdown



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CS-4347OED – Owned Equipment Breakdown – Daily  
CS-4347H – Hourly Owned Equipment Breakdown  
CS-4347OEH – Owned - Owned Equipment Breakdown – Hourly  
CS-4347OEN – Owned Equipment Breakdown – No Blue Book Listing  
CS-4347RES – Rented Equipment Breakdown and Service By Others  
CS-4347CON – Consumables Breakdown

Other forms available in the PTC Reference Library include or download from the Department website:

**CS-4347** – Force Account Daily Sign-Off  
**PTC-4347CERT** – Liability Insurance Rate Certification  
**CS-4347CJ** – Negotiated Price Cost Justification  
**CS-4347EER** – Estimated Effective Rate Computation Unemployment Taxes  
**CS-4347MA** – Force Account Material Affidavit  
**CS-4347SFA** – Force Account Salaried Foreman Affidavit  
**CS-4347WCI** – Workers’ Compensation Insurance Computation Worksheet

*Note: Forms developed by the Contractor, such as computer-generated forms, may be used in lieu of Commission or Department forms if the data provided is as complete and in the same format as that on the Commission/Department form.*

Verify all forms are completed in their entirety including form headings.

All Force Account forms are to be checked. Initials and date of the representative performing the check are to be included on the Force Account Package.

The forms to be used to submit cost data for Force Account work are:

### **GENERAL – FORCE ACCOUNT FORMS**

#### **CS-4347– Force Account Daily Sign-Off**

1. Ensure the form is completed in its entirety.
2. Ensure the form is signed by both the Contractor and the Representative. Approval stamps from submittals through the Project Collaboration site are acceptable.
3. Review Comments section to ensure all are addressed and/or incorporated in the force account submission.

#### **CS-4347AA – Final Summary** *(Include form with the change order)*

1. Ensure the headings are completed in its entirety in the excel workbook.
2. Ensure indirect labor is not included for mark-up.
3. Ensure no owned equipment is included in the rented equipment cost section.
4. Ensure no owned equipment is included for mark-up.
5. Verify all Service By Others and Subcontractor costs.

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When required as part of a Force Account operation, specialized construction analyses, engineering services, or work not considered subcontract work requiring prequalification are to be treated as Services By Others in accordance with Section 110.03(d)4.

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

- a. Hauling services provided by an independent agency that furnishes the hauling vehicle and operator, where the operator is an employee of and the equipment is owned or leased by the Service provider.
  - b. 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.
  - c. 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.
6. Ensure the form is signed by both the Contractor and the Representative. Approval stamps from submittals through the Project Collaboration site are acceptable.

**CS-4347AS– Subcontractor Summary** *(Include form with the change order, if applicable)*

1. Ensure the mark-ups are used that are applicable to the contract.
2. Ensure indirect labor is not included for mark-up.
3. Ensure no owned equipment is included in the rented equipment cost section.
4. Ensure the form is signed by the Subcontractor. Approval stamps from submittals through the Project Collaboration site are acceptable.

**MATERIALS RELATED – FORCE ACCOUNT FORMS**

**CS-4347BA – Material Breakdown**

1. Verify that the item or product included on the breakdown has become a permanent part of the completed work.
2. Ensure supporting invoices are attached for all materials.
3. Ensure no equipment or consumables are included in the Material Breakdown.

**CS-4347MA – Material Affidavit**

1. If materials used in the Force Account work are not specifically purchased 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, 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.
2. In other words, if the Contractor does not or cannot submit an invoice for materials used then the Contractor must submit PTC/Department Form CS-4347MA. PTC/Department Form CS-4347MA

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has been developed for use by the Contractor in providing the required certification. Include the completed form as part of the Force Account statement.

3. Ensure the form is completed in its entirety and notarized.

#### **CS-4347CON – Consumables Breakdown**

1. Ensure supporting invoices, receipts, or cancelled checks are provided for all consumables. No payment is allowed without supporting documentation.
2. If an item, purchased specifically for the Force Account work, is completely expended in the performance of the work, but does not become a permanent part of the work, the item will be considered a consumable for cost reimbursement purposes.
3. For consumables taken from stock, ensure the % of value reimbursed is in accordance with Section 110.03(d) Table A.

### **LABOR RELATED – FORCE ACCOUNT FORMS**

#### **CS-4347D – Daily Labor Breakdown**

1. Review CS-4347 Force Account Daily Sign-Off to ensure labor hours are accurate.

#### **CS-4347CA – Labor Breakdown**

1. Statements of labor costs are to be supported by certified payroll records. Verify the number of hours listed match what is calculated on form CS-4347D.
2. Verify the correct base rates and HW/Pension rates are in accordance with the contract.
3. Ensure the Unemployment Taxes, Worker's Compensation Insurance, and Liability Insurance rates used are correct as accepted by the Force Account Tax and Insurance Rate Submission and Acceptance Procedure below.

#### **PTC-4347CERT – Liability Insurance Rate Certification**

1. Ensure the certification has been accepted (See Force Account Tax and Insurance Rate Submission and Acceptance Procedure below), pertains to the current policy period, and is submitted to the project in the PCDS.
2. For construction contracts with an Owner Controlled Insurance Program (OCIP), if the work being performed by force account is covered by the OCIP, this certification is not required and liability Insurance should not be added in the tax and insurance percentages used to calculate indirect labor costs for Force Account or Extra Work - Agreed Price justifications.

#### **CS-4347EER– Estimated Effective Rate Computation Unemployment Taxes**

1. Ensure the form has been accepted (See Force Account Tax and Insurance Rate Submission and Acceptance Procedure below), updated after April 15 of each calendar year and is submitted to the project in the PCDS.

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### **CS-4347WCI– Worker’s Compensation Insurance**

1. Ensure the form has been accepted (See Force Account Tax and Insurance Rate Submission and Acceptance Procedure below) and submitted to the project in the PCDS.
2. For construction contracts with an Owner Controlled Insurance Program (OCIP), if the work being performed by force account is covered by the OCIP, Worker’s Compensation Insurance should not be added in the tax and insurance percentages used to calculate indirect labor costs for Force Account or Extra Work - Agreed Price justifications.

### **CS-4347SFA – Force Account Salaried Foreman Affidavit**

1. Ensure the form is completed in its entirety and all backup documentation provided and uploaded to the PCDS for employees not included on the certified payrolls that were employed in the performance of Force Account work.
2. Ensure the form is signed and notarized.

### **Force Account Tax and Insurance Rate Submission and Acceptance Procedure**

All contractors and subcontractors are required to independently submit their Force Account Tax and Insurance information to the PTC Force Account Administrator for verification and approval. If the contractor is currently approved by PennDOT, the only documentation that will be required to be submitted is their ECMS approved Contractor Labor Taxes and Insurance form. If the contractor is not approved by PennDOT, they will need to submit forms CS-4347EER, CS-4347WCI, and PTC-4347CERT for verification and approval. Once the documentation has been verified by the Force Account Administrator and stamped, the contractor(s) will receive, via email, the approved document to be used for all their active projects. If the contractor is ECMS approved, they will receive their ECMS Contractor Labor Taxes and Insurance form back containing the approval stamp. If they are not ECMS approved, they will receive a PTC Contractor Taxes and Insurance Rates form containing the approval stamp.

Once this process is complete, this stamped document is the only document that is to be submitted by the contractor(s) to each of their active projects via the PCDS.

A list of approved PTC Contractor Taxes and Insurance Rates and their effective dates is maintained in the PCDS – PTC Reference Library and is distributed to the Project Managers monthly for review of expiration dates. Project Managers will notify contractors of any expired or near expired information for re-submission.

## **EQUIPMENT RELATED – FORCE ACCOUNT FORMS**

### **CS-4347F – Daily Equipment Breakdown**

1. Review CS-4347 Force Account Daily Sign-Off to ensure equipment hours are accurate.
2. Only “Owned” equipment is to be shown on this form. Includes equipment obtained from an affiliate or subsidiary company.

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

- a. If a piece of equipment is required to be at the site of Force Account work, where it is only used for periods of time throughout the day, the hours that the equipment is not performing physical work are to be paid as standby time.

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- b. Verify if the Contractor is working an 8-hour day, total equipment hours (operating + standby) is not greater 8 hours per day.
- c. Verify if the Contractor is working longer than 8 hours, total operating equipment hours are to be paid; however, if standby time is being paid (operating + standby) cannot exceed 10 hours.
- d. Verify if the Contractor is working longer than 40 hours in a week, total operating equipment hours are to be paid, however, if standby time is being paid (operating + standby) cannot exceed 40 hours total in a week.
- e. Standby time will not be paid for days on which the Contractor elects not to work.
- f. 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.

- g. Standby time will not be paid if equipment is awaiting repair, or while repairs are being made.
- h. Standby time will not be paid for maintenance or servicing of equipment.
- i. If the Contractor is delayed pending receipt of a decision from the Commission, consideration is to be given as to whether to pay standby time, pay for demobilization and remobilization, or return the equipment to other contract operations until the Contractor can be directed to resume the Force Account operation.
- j. 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:
  - 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.
  - 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 it is regarded as being included in the Contractor's bid for contract work.

**CS-4347OEH – Owned Equipment Breakdown - Hourly**

1. Ensure the form is completed in its entirety.

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2. Include backup documentation to support rates used. (I.e. Equipment Watch rate sheet).

**CS-4347OED – Owned Equipment Breakdown - Daily**

1. Ensure the form is completed in its entirety.
2. Include backup documentation to support rates used. (I.e. Equipment Watch rate sheet).

**CS-4347OEN – Owned Equipment Breakdown – No Blue Book Listing**

1. Ensure the form is completed in its entirety.
2. Ensure backup documentation is provided for equipment listed on this form.
3. Ensure owned equipment for MPT usage is listed in the correct section.

**CS-4347RES – Rented Equipment and Service by Others Breakdown**

1. Ensure the form is completed in its entirety.
2. Ensure backup documentation is provided as indicated on the form.

## Section 6

### Payment to Contractor

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DATED  09-25-20		DATE  <b>01-08-24</b>		
SUBJECT  <b>PAYMENT TO THE CONTRACTOR (ESTIMATES)</b>				

The purpose of this section is to provide guidance for the preparation and processing of current, current with retainage reduction, and final estimate payments to Contractors for work performed under construction contracts.

## **SPECIFICATIONS**

The Commission shall make payment to the contractor in accordance with Section 110.

## **ROUNDING OFF PAY QUANTITIES**

1. Measurements for computations are rounded to the hundredth [0.01], calculated to the thousandth and calculated for payment to the hundredth [0.00]. Complete all calculations prior to rounding the final payment entry to the hundredth [0.00].

*Note: There are exceptions to certain items. Review specification requirements.*

2. Lump Sum and Predetermined Amount type items can be paid out in dollars and cents calculating payment to the nearest whole cent.

## **CURRENT ESTIMATES**

1. Provides payment to a Contractor for work performed in conjunction with construction contracts.
2. Except for federally funded contracts, the Commission will retain 5% of the amount due the Contractor on current estimates for the duration of the contract or until the contract is substantially complete. All monies retained by the Commission may be withheld from the Contractor until release of final payment. There is no retainage held on federally funded contracts.
3. Unless otherwise noted, the Commission will prepare the estimate for work completed during the preceding 30 days and submits them to the Contractor for verification. Generally, estimates will be prepared on the 1<sup>st</sup> of each month for projects located in Districts 2, 3 and 5 and on the 15<sup>th</sup> of the month for projects in Districts 1, 4 and Expansion projects.
4. The estimates will be generated utilizing the Commission's Construction Documentation System (CDS). Payments for all items of work shall be made in CDS which is date driven to sequential estimate time periods. The payments are based on the documented verification and certification by the inspector on the Inspector Daily Report (IDR) of work performed by



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the contractor. After the Preliminary Estimate has been generated, the estimate will be exported into the Project Collaboration Documentation System (PCDS) for routing and approvals.

5. The workflow route begins with the Prime Contractor. After the Prime Contractor's verification, signature, and acceptance of the current Preliminary Estimate are obtained, the PCDS will route the estimate to the Inspector-in-Charge and then the PTC Project Manager for approval. If at any time during the review and approval process a reviewer disagrees with the Preliminary Estimate as presented, that individual may disapprove the estimate which will then be returned to the individual that originated the routing process for resolution.

*\* Projects involving the Commission's General Consulting Engineer require the signature of the GCE representative.*

6. After the applicable signatures are obtained, the 'Preliminary Estimate eSigned' file is sent from the PCDS in an auto-generated message to the originator of the workflow route. The recipient copies this file to the PCDS Team (Pay Estimates) folder in the PCDS.
7. After the applicable approvals are obtained, the CDS Technician on behalf of the PTC Project Manager, will approve and authorize the Preliminary Estimate in CDS.

***Note: Notify the QA Manager that an estimate has been authorized in CDS and is ready for final auditing.***

8. After authorization in CDS, the Field Approved Estimate (with signatures/dates) file will be exported into the PCDS Team (Pay Estimates) folder. The Field Approved Estimate is then sent to the Construction Documentation Specialist in Central Administration Building (CAB), the PTC Construction Inbox, and 'cc' the QA Manager.
9. The Construction Documentation Specialist receives the Field Approved Estimate from the PCDS. The Construction Documentation Specialist will enter the estimate information into the ***Enterprise Resource Planning (ERP) System*** and submit to Accounting/Accounts Payable.

***Note: A Facilities type contract may follow a different work process flow (Ex. - the Prime Contractor generating an AIA Preliminary Estimate first for concurrence by the Inspector-in-Charge This is prior to making pay entries into the CDS system.).***

10. No later than thirty (30) calendar days after acceptance of the current estimate, the Commission will make partial payment to the Contractor for work performed during the specified estimate period.

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## **CURRENT WITH RETAINAGE REDUCTIONS**

1. Retainage is to be held at 5% of the current estimate until work is substantially complete at which time retainage may be reduced. Retainage percentages from 1% up to 5% in increments of 0.5% are permissible.

Reductions in retainage to a specified dollar amount are also permitted; however, there can be no additional retainage held either as a specified dollar amount or as a percentage. Once retainage is reduced to a specified dollar amount, there can be no increase to that amount, nor can the retainage be reverted to a percentage. Only release of specified dollar amounts, or all retainages are permitted.

2. The Contractor submits a letter to the Commission requesting a reduction of money withheld. The Assistant Chief Engineer - Construction must be notified before processing the reduction.
3. After acceptance of the retainage reduction request by the Construction Engineering Manager (CEM) and notification to the Assistant Chief Engineer - Construction, the estimate will be generated utilizing the Commission's Construction Documentation System (CDS). The estimate will be generated at the regularly scheduled cut-off date, unless stated otherwise by the Commission, with the specified reduction in retainage along with any payments due that estimate period. An estimate may at times be generated for the sole purpose of releasing retainage. The amount retained must be sufficient to cover any outstanding work, issues, damages and /or claims.
4. The estimate type is "Current with Retainage Reduction" and must include the following note:  
Reduction of retainage in accordance with the terms of the Trust Indenture.
5. The current with retainage reduction estimate will be exported into the PCDS and routed for approval the same as the process identified in Current Estimates.

*\* Projects involving the Commission's General Consulting Engineer require the signature of the GCE representative.*

6. Estimates processed after the current with retainage reduction estimate are current estimates unless they further reduce retainage or are the final estimate.

## **FINAL ESTIMATES**

1. The Final Estimate releases all remaining money due to the Contractor for work performed.
2. Assure that all retention values are zero.

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3. The final estimate will be generated utilizing CDS by the project CDS Technician once the Contractor agrees with the final documented quantities and final contract value. The final estimate will be included in the final documents package for signature and routing. Refer to COM Part D - [Project Finalization and Closeout](#) for additional requirements.

## **PARTICIPATING AGENCY REIMBURSEMENT**

1. The estimates will be generated utilizing the Commission's Construction Documentation System (CDS). Estimates for payment shall be reviewed and approved by all responsible parties as identified previously within this document. However, the Funding Report for the specified estimate period should be generated and sent to the Construction Documentation Specialist along with the approved estimate.
2. After approval of the estimate, the Construction Documentation Specialist shall forward the estimate with the Funding Reports to the Accounting Department to generate payment to the contractor.
3. The Accounting Department shall review funding reports and generate an invoice to the participating agency for reimbursement.
4. Accounting tracks status of reimbursement on *Participating Projects* spreadsheet.

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01-18-13		<b>01-08-24</b>		
SUBJECT		<b>PARTNERING</b>		

The purpose of this section is to provide guidance for conducting and providing payment for the Commission's share of the actual costs where formal partnering is incorporated into the project.

## **PARTNERING PROCESS**

The contract specifications will describe the partnering process. The option to "Partner" a project is voluntary. If the Contractor does not desire to participate in partnering, the project will be managed in the traditional manner. If the Contractor does want to participate, the procedure set forth herein will be utilized for reimbursing the contractor for the Commission's share of the costs.

Since participation is not a requirement of the contract, there will be no pay item for Partnering in the contract. All eligible costs associated with Partnering are to be paid by the Contractor initially, and will be shared equally between the Contractor and the Commission.

Eligible costs include the facilitator's fee and expenses; facility charges such as room rental, classroom supplies, lunch and breaks for all workshop participants. Participating organizations will be responsible for any other costs incurred by each of their participants such as overnight lodging, travel, expenses, dinners, payroll, benefits, etc.

The facilitator and location must be acceptable to the Contractor and Commission. All key project stakeholders are to be invited to attend the workshop. The location will be a neutral site near the project.

The workshop agenda will consist of a discussion of partnering principles, development of a project charter with defined goals and objectives, and development of a defined problem-solving procedure, escalation matrix, and evaluation process.

## **REIMBURSEMENT**

The Contractor must submit paid invoices and receipts for the actual partnering costs. After review and acceptance, a new item will be created and change order developed for 50% of the actual cost with no percentage added for administration, overhead, or any other costs.

Upon approval of the change order, an estimate will be prepared to reimburse the contractor for the Commission's share of the partnering costs.

If the project is of lengthy duration and additional costs are expected, a new contract item can be created to draw on for the partnering costs. The dollar amount must be reviewed and accepted by the Construction Engineering Manager.

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Alternatively, if a Consultant Construction Manager is involved in the Partnering, payment for 50% of the actual cost of partnering may be made by the Consultant and submitted as a reimbursable expense to the Commission under the Consultant agreement.

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06-14-16		<b>01-08-24</b>		
SUBJECT				
<b>PAYMENT FOR MATERIAL STORED OR ON-HAND</b>				

The purpose of this section is to provide payment to the Contractor, if authorized by the Representative, for fabricated material stored or on-hand in accordance with Section 110.06.

Section 110.06 allows for certain material (i.e., end product manufactured material for fully fabricated products that are awaiting installation and/or incorporation into the finished work) to be paid before being incorporated into the work.

Upon the Contractor's written request and the Representative's written approval, the Contractor may be paid for 100% of the cost of the material, less the pro-rata share of the retainage, if any; provided the quantity of stored material does not exceed the total estimated quantity required to complete the project. The material must be delivered to the project or an approved location in the vicinity of the project.

Along with the letter of request for payment from the Contractor, Form CS-110 is to be completed in its entirety including all required supporting documentation. A list of supporting documentation is shown in the "Attachment" section of Form CS-110.

The cumulative amount of all stored material payments on a project cannot exceed 25% of the current contract amount. 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.

The Inspector-In-Charge must complete the approval section of Form CS-110, sign the form, and forward to the Construction Engineering Manager for approval prior to authorizing payment on a current estimate to the Contractor.

# Section 7

## Project Cost Control

REPLACES	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART	SECTION	PAGE
Part B 7-1 Pages 1 - 2		<b>B</b>	<b>7-1</b>	<b>1 of 2</b>
DATED		DATE		
01-10-17		01-08-24		
SUBJECT				
VALUE ENGINEERING				

The requirements and procedures for Construction Value Engineering (VE) are contained in Specifications Section 104.04. This section permits Contractors to apply cost reduction proposals and techniques without impairing essential functions and characteristics, (such as service life, reliability, ease of maintenance and safety features), of the final product.

- Construction VE Concept Proposals are to be submitted to the Representative.
- The Construction Engineering Manager will confer with the Assistant Chief Engineer – Construction and will Approve/Reject the VE Concept Proposal. As deemed necessary, the Assistant Chief Engineer – Construction will identify a review team of appropriate staff members for consideration of the VE Concept Proposal prior to finalizing the decision.
  - On Federal Oversight projects, the FHWA must also approve and concur with the VE Concept proposal.
- The Construction Engineering Manager will notify the Contractor of the Approval/Rejection of the VE Concept proposal.
- If the VE Concept Proposal is approved, the contractor will prepare and submit the official Construction Value Engineering Proposal to the Representative.
- The Construction Engineering Manager will confer with the Assistant Chief Engineer – Construction. As deemed necessary, the Assistant Chief Engineer - Construction will designate a review team of appropriate staff members for consideration of the Construction VE Proposal.
- If the official VE proposal is accepted (in whole or in part) or rejected, the Representative will notify the contractor via letter in PCDS.
  - On Federal Oversight projects, the FHWA must also approve and concur with the official VE proposal.
- If the VE proposal is accepted, the notification will serve as authorization for the Representative to process contract change orders in accordance with Section 110.07.



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- Upon acceptance of the VE Proposal, the initial contract change order will be processed and consist of:
  - A lump sum estimated VE savings item. This item will be created and paid in an amount equal to one-half of the estimated net cost savings associated with the VE work.
  - Additional items that are required to deduct or reduce the bid items affected by the VE proposal and new items added due to the approved VE proposal.
- Upon completion of all work related to the VE proposal, a final contract change order will be processed and consist of:
  - Adjustment of actual item quantities to make final payment and reconcile final quantities of the VE proposal items.
  - Adjustment of the VE savings item will be made by taking one-half of the actual net cost savings and deducting the amount paid under the initial contract change order.

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DATED		DATE		
01-11-16		08-01-24		
SUBJECT				
MANAGEMENT OF PROJECT ADMINISTRATION COST				

The purpose of this section is to ensure that the management of administrative and inspection costs and resources are utilized efficiently.

### **Staffing Plan**

Prior to the start of construction, the PTC Project Manager will prepare a proposed staffing plan for the duration of the project. The plan should show the estimated number of field staff required to adequately manage and inspect construction work for each phase of the project. An estimate of workhours, including overtime, should also be included with the plan. This plan will be submitted to the Construction Engineering Manager (CEM) for review/approval.

### **Overtime Hours Approval**

The Inspector-In-Charge (IIC) shall submit a weekly summary of overtime. The anticipated portion of the summary is to be submitted to the Project Manager via e-mail on Thursdays for pre-approval of overtime anticipated to be worked for the following week. Also, submit for review on Mondays a summary of actual overtime hours worked for the previous week for review and approval. Upon review and approval on Mondays, the project manager is to forward the complete summary to the CEM. The following must be provided for both planned and unplanned overtime on the [PTC Overtime Report](#) form:

- Description of the operation requiring inspection on overtime.
- The inspector(s) required for inspecting the operation and specific justification of overtime hours required.
- The reason the operation required inspection on overtime. Explain why the operation was critical and could not be inspected on the next regular shift.
- Contractor's/subcontractor's work schedule for the week.

All planned overtime must be pre-approved by the PM. The IIC must submit justification for all overtime.

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DATED		DATE		
06-09-19		<b>01-08-24</b>		
SUBJECT				
<b>CONSTRUCTION COST DRAW DOWN SCHEDULES FOR CAPITAL PLANNING</b>				

The Inspector-in-Charge (IIC) or Construction Manager (CM) (or their designee) shall have the responsibility to monitor the expenditures of the project and inform the Commission of expenditures which may impact the fiscal year budget or have significant impact on the final cost of the project.

- Review additional/extra work items and the impact they have on the anticipated monthly estimate values and the overall cost of the project.
- Maintain a list and status of additional/extra work items and related costs until the items are processed on a change order. Include this list in Monthly Progress Report.

### **Field Personnel Responsibilities**

- 1) The contractor is required to submit the Contractor's Estimated Monthly Values of progress for the project (cost draw down) in accordance with Section 108.03 and Construction Schedule special provision (if applicable).
- 2) The IIC or CM (or their designee) will review the cost draw down submitted by the contractor.
- 3) The IIC or CM (or their designee) will enter the anticipated monthly estimate fields in CDS within 7 days of receipt of the cost draw down from the contractor. Adjustments may need to be made to the cost draw down information prior to entering anticipated monthly estimate values in CDS. The cost draw down should also be reviewed against the contractor's work schedule, considering the time of the year, significant construction milestones and any anticipated additional or extra work. If the contractor's cost draw down information appears to be impractical, unrealistic or unreasonable, adjust the anticipated monthly estimate values in CDS accordingly. The anticipated monthly estimate information in CDS is to reflect the best information available to the IIC or CM (or their designee) at the time.
- 4) The IIC or CM (or their designee) will review the anticipated monthly estimate values in CDS monthly (at a minimum), after processing an estimate, to determine whether there is a significant deviation. A significant deviation is defined as any month where the anticipated monthly estimate is more than 10% (+/-) from the actual amount earned for the month, or when the total of the monthly estimates to date are more than 7%(+/-) from the total actual amount earned to date.
- 5) If there is not a significant deviation between the anticipated monthly estimate and actual amount earned information in CDS, no changes are necessary.
- 6) If there is a significant deviation as defined above, the IIC or CM (or their designee) will immediately request an updated Cost Drawdown schedule from the contractor and update the anticipated monthly estimate information in CDS using the best information available at the time.

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- 7) When a change is made to the anticipated monthly estimate information in CDS, the IIC or CM (or their designee) will notify the Project Manager and Construction Engineering Manager – Construction Management & Quality Control.
- 8) Return to item 2 when the contractor submits an updated cost draw down.
- 9) Return to item 4 for the next month if the contractor has not submitted an updated cost draw down.

**Notes:** Do not enter or update the anticipated monthly estimate information in CDS for open end construction contracts. Direct any questions regarding this process to the Construction Engineering Manager – Construction Management & Quality Control.

### **Central Office Personnel Responsibilities**

- 1) The Construction Engineering Manager – Construction Management & Quality Control will maintain a list of projects where changes have been made to the anticipated monthly estimate information in CDS since the prior month.
- 2) The Construction Engineering Manager – Construction Management & Quality Control will print to a .pdf file the "Contract Monthly Cost Drawdown Report - Systemwide by Contract" from CDS on the 15th of each month (or the next business day after the 15th of the month if the 15th is not a normal business day).
- 3) The Construction Engineering Manager – Construction Management & Quality Control will save the list of projects and the .pdf file from CDS to the PTC network.
- 4) The Construction Engineering Manager– Construction Management & Quality Control will notify the Highway Program Category Managers and Capital Planning Manager once the list of projects and the .pdf file from CDS have been saved to the designated location on the PTC network.
- 5) Highway Program Category Managers will review the list of projects where changes have been made to the anticipated monthly estimate information in CDS since the prior month along with the .pdf file containing the "Contract Monthly Cost Drawdown Report – Systemwide by Contract" prior to the monthly capital plan category review meeting.
- 6) At the monthly capital plan category review meeting the Category Manager will inform the Capital Planning Manager if any revisions are required to the planned costs in SAP.
- 7) The Capital Plan Category Manager will make any changes to the planned costs in SAP prior to the monthly meeting with the Chief Engineer.
- 8) Return to item 1 for the next month.

**Notes:** Category Managers will be responsible to inform the Capital Planning Manager if any revisions are required to any open-end contract planned costs in SAP. Construction or consultant field personnel will not enter and update the anticipated monthly estimate(s) information in CDS for open end construction contracts.

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DATED		DATE		
01-18-13		<b>01-08-24</b>		
SUBJECT				
<b>MONITOR CONSTRUCTION SCHEDULE</b>				

The Project Manager will be responsible for the review of the schedule and notification to the contractor of the acceptance of the schedule and any comments or corrections required.

The Contractor will provide a construction schedule in accordance with Section 108.03 and any applicable requirements identified in the Contract Special Provisions.

**Items to be considered during the initial approval of the Contractor's schedule shall include:**

- Schedule format acceptable and complies with the contract specifications.
- Appropriate level of detail for the complexity of the project.
- Specific activities which define the project Notice-To-Proceed date, Contract Completion Date, and any contractual Milestone dates, if applicable.
- Require separate submittal and approval activities.
- Project resources are identified (for complex projects resources loaded into the schedule per contract Special Provision)
- Check concurrent work items and resource conflicts.
- Activity durations appear reasonable utilizing the project resources and limited to the maximum allowable duration per contract specifications.
- Multiple working calendars may be required based on project complexity. Review working calendars for weather limitations, holiday restrictions, and minimum lane requirements, if applicable.
- Appropriate relationship and logic ties to reflect the contractor's intent on how the project will be constructed and satisfy the contract requirements.
- Schedule should utilize all available contract time.
- Schedule should make allowance for lost time due to weather.
- The use of contractor self-imposed milestones are acceptable but will not be binding upon the Commission. Acknowledgement of this condition will be included in the review comments to the contractor.
- Review adjacent or overlapping contracts and require appropriate milestones for potential impact dates.
- Require activities to track critical materials from shop drawing submittal and approval through fabrication and delivery.

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**Items to be monitored and documented during construction:**

- Monitor duration changes from the approved baseline schedule.
- Monitor activities for loss of float. These activities may need attention before impacting the critical path.
- Monitor critical path items and document any schedule impacts or delays to these items.
- Monitor the schedule for working out of sequence and document any impacts this has on the critical path items.
- Monitor additional/extra work activities that have been included and document any impacts this work has on the critical path items.
- Monitor activity start and finish dates for accuracy.
- Review any updates to the original baseline schedule for changes to the logic or critical path items. As with all schedule updates, the contractor should provide a written narrative that list the changes made from the original baseline schedule.
- Monitor for trends in schedule adjustments, made in order to comply with the completion date, by the reduction of planned activity durations and revising activity sequencing.

## Section 8

### Safety

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DATED		DATE		
09-10-19		<b>08-01-24</b>		
SUBJECT				
<b>SAFETY COMPLIANCE GUIDELINES AND RESPONSIBILITIES</b>				

The purpose of the safety compliance guidelines is to support OSHA regulations. Project personnel will be the focus of the safety compliance inspections. Project personnel include PTC employees, PTC prime and sub-consultants, prime and sub-contractors, and suppliers.

### **IN THE EVENT OF AN EMERGENCY – *CALL 911* FIRST.**

#### 1. Pre-Construction

- A. The PTC Project Manager (PM), or designee, should attend the pre-construction conference, receive and discuss the contractor's proposed safety program, and recommend any additional safety requirements.
- B. A US Department of Labor Form, OSHA #3165 (Job Safety and Health It's the Law!) and the Federal Hazard Communications Regulations (if applicable) are to be posted on the project bulletin board in accordance with the COM Part B Section 4-2.

#### 2. Project Inspection – Onsite

- A. The Inspector-in-Charge (IIC) and inspection staff will continuously monitor safety on a routine basis.
- B. The contractor is responsible for project safety.

If a safety issue is witnessed, have the problem resolved immediately or stop work on that operation. Notify the contractor and the IIC. If the problem is not corrected, notify the PTC Project Manager. If the problem is still not resolved inform the PTC Construction Engineering Manager. Document these notifications in the Inspector's Daily Report (IDR) and/or the Project Collaboration Documentation System (PCDS), as appropriate. **DO NOT EXPOSE YOURSELF TO A SAFETY HAZARD.**

#### 3. Reports and Notifications

- A. Emergencies
  - a. **In the event of an emergency, CALL 911 first.** The IIC shall use form PTC-350 to report any project related incident and/or injury that occurs to project personnel in the construction work zone. The IIC shall complete form PTC-350, upload the PTC-350 to the PCDS and notify the PTC PM and Construction Engineering Manager – Construction Management and Quality Control (CEM – CM & QC).



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## B. Serious Incidents

- a. Notify the PTC Ops Center at \*11, via cell phone, or 717-939-9551 X 4644 if a serious incident occurs within the construction work zone. The IIC shall report all project personnel work related disabling injuries and fatalities that occur within the project limits to the PTC PM and CEM – CM & QC. Complete form PTC-350, upload the PTC-350 to the PCDS and notify the PTC PM and CEM – CM & QC.

*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.

- b. Notify the PTC Ops Center at \*11, via cell phone, or 717-939-9551 X 4644 if a serious incident occurs to the public within the construction zone.

## C. Routine Incidents and Project Accidents

- a. The IIC will assure that the Contractor is notified of every known vehicle accident which occurs at the construction site. The CEM – CM & QC, or designee, will notify the IIC of any known vehicle accidents that occur during non-working hours that are noted within the PTC Operations Center Daily Report.
- b. Worker's compensation accidents in construction sites, which involve contractor employees only, are not to be reported to the contractor's insurance company by the Commission.
- c. The IIC shall report all contractor and/or PTC personnel work related routine incidents and accidents that occur within the project limits to the PTC PM and CEM – CM & QC. Complete form PTC-350, upload the PTC-350 to the PCDS and notify the PTC PM and CEM – CM & QC.

## 4. Project Safety Meeting

- A. The IIC is responsible for assuring that each inspector receives safety briefings regarding the potential hazards to the inspectors and any required safety procedures that are to be followed by the inspector for each construction operation to which they are assigned.
- B. The briefings are to consist of an initial briefing and refresher briefings. Participation in contractor conducted safety meetings or meetings by the PTC or their representative are acceptable.
- C. The initial briefing should be conducted within two (2) working days of the inspector being assigned to the project. This initial briefing will be a general discussion regarding the overall work and general safety precautions for the project.

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- D. Refresher briefings (Toolbox Talks) are to be conducted weekly for as long as the inspector is assigned to the project. More frequent briefings may be required as determined by the IIC or the PTC PM, or designee.
- E. A record of these briefings is to be uploaded to the PCDS and consist of the following information:

Date of Briefing	Subject of Briefing Initial or Refresher	Signature of Inspector
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- F. The inspection staff will monitor the contractor's operations to see that the contractor performs in accordance with his written project safety program and is to document in the IDR or other approved source reference, notifications of unsatisfactory practice and satisfactory resolution.

#### 5. Child Labor Law

- A. The Fair Labor Standards Act details the regulation regarding minors in the work force.
- B. The IIC is to request a birth certificate or certification of age when a violation is suspected. The Contractor is to be advised, and he must direct removal of any person in violation.

#### 6. Procurement Note

- A. Occupational Safety and Health Administration (OSHA) regulations pertaining to construction projects are contained in Federal Regulations for Labor, CFR 29 Parts 1910 General Industry and 1926 Construction.
- B. These regulations can also be found at <http://www.osha.gov/law-regs.html>

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DATED		DATE		
07-01-22		<b>01-08-24</b>		
SUBJECT				
<b>CONSTRUCTION SAFETY PROGRAMS</b>				

The purpose of the contractor and subcontractor safety program is to comply with all OSHA Regulations and protect workers in the workplace at all times during the life of each project.

## **SAFETY PROGRAM**

A project safety program is required from the contractor and shall be submitted in a written format in the PCDS in accordance with Section 107.08. All subcontractors and suppliers are to abide by the prime contractor safety program at a minimum. A Commission Representative will perform a cursory review of the contractor's written project safety program.

If the submitted contractor project safety program is deemed inadequate, the Commission Representative will respond to the contractor through the PCDS, noting any deficiencies with the project safety program and indicating the project safety program is to be revised and resubmitted.

## **OWNER CONTROLLED INSURANCE PROGRAM**

The Commission may elect to institute an Owner Controlled Insurance Program (OCIP) on select construction projects. Projects operating under OCIP will follow the safety, reporting, and documentation requirements identified in the contract special provisions and the approved Owner Controlled Insurance Program and Loss Control Organization Manual for the project. Required safety reports and documentation shall be uploaded to the PCDS.

## **GENERAL SAFETY CHECKLIST**

The General Safety checklist is for use on ***ALL PROJECTS*** and includes general safety plan and standard items that are typically included in a safety program. **The checklist should be completed at least quarterly** during active construction of the project to ensure compliance with the safety program and OSHA standards. The checklist is for informational purposes and does not necessarily include all requirements of the contractor safety program. Upload the completed checklist to the PCDS.

It is not the intent that project representatives' function as OSHA inspectors; however, it is necessary for project staff to be aware of OSHA Regulations and to be conscious of safety issues on the construction site. The Inspector-in Charge and inspection staff should be aware of the contractor's project safety program and its requirements which also cover subcontractor's personnel.

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DATED		DATE		
<b>01-03-14</b>		<b>01-08-24</b>		
SUBJECT				
<b>GENERAL LIABILITY CLAIMS WITHIN CONSTRUCTION PROJECT LIMITS</b>				

The purpose of this section is to provide guidance for managing general liability claims submitted by the public as a result of a construction project. The PTC Project Manager is responsible for coordinating resolution of all damage claims.

### **ACCIDENTS/INCIDENTS WHICH OCCUR WITHIN A WORK ZONE OR PROPERTY DAMAGE DUE TO CONSTRUCTION ACTIVITIES**

Customer submits complaint to the Risk Management Unit of the Finance & Administration Department.

- Note: Any customer submitting a claim directly to the project or the Contractor should be advised that all claims must be filed through the Risk Management Unit of the Finance & Administration Department.

The claim is forwarded to the appropriate Construction Engineering Manager or PTC Project Manager by the Claims Supervisor.

The Contractor is responsible for providing Liability Insurance in accordance with Section 107.31.

The Construction Engineering Manager's responsibilities include:

- Forward claim to Contractor's Representative for further investigation.
- Send letter to customer indicating the claim has been forwarded to the Contractor for investigation. (Upon review by Contractor, the claim is either accepted or rejected and notification is sent to customer and copied to the Construction Engineering Manager).
- Notify PTC Claims Supervisor of the results of the Contractor's determination.

The PTC Project Manager / Commission Representative's responsibilities include:

- Maintain all claims correspondence and supporting documentation will be maintained in the Project Collaboration and Documentation System (PCDS).
- Maintain log and tracks all incident reports/claims in PCDS through satisfactory resolution. Unresolved claims are to be added to the punch list.

Claims will be discussed / reviewed at monthly progress meetings.

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DATED		DATE		
04-08-16		<b>01-08-24</b>		
SUBJECT				
<b>CONSTRUCTION UNIT PROPERTY DAMAGE CLAIMS REPAIR PROCESS</b>				

The purpose of this section is to provide guidance for managing the *Property Damage Claim Repair Process*. The Risk Management Unit is responsible for managing the PTC Property Damage Claim process and to coordinate reimbursement from the appropriate parties. The PTC Project Manager is responsible for coordinating all property damage claim repair information with PDCLAIMS (Risk Management Unit) and to participate in the overall PTC Damage Claims Process.

It's the Commission's goal to complete damage repair work, issue invoice for payment, and provide final cost documentation to PDCLAIMS (Risk Management Unit) for all property damage claims within 12 months of the date of accident.

## OBJECTIVES

- Enable property damage repair work to be completed efficiently by any active mobilized contractor currently working for the Commission.
- Pay for all PTC Property Damage Claim (PDC) work directly against the SAP WBS number assigned to the PDC.
- Manage and document the PDC work through the construction contract utilizing established COM Documentation Procedures.
- Track and update the progress and status of PDCs and communicate all relevant information to PDCLAIMS (Risk Management Unit) frequently.

## ACTIVITIES

The *Property Damage Claims Repair Process* assesses the damage, ensures that repairs are performed, payment is made to the contractor, and provides the required information, and documentation to PDCLAIMS (Risk Management Unit).

Activities required to complete the *Property Damage Claims Repair Process* includes performing damage assessment, obtaining photos, creating a claim number, performing repairs, and obtaining reimbursement. The Maintenance Department assesses PTC property damage and requests the Construction Unit to complete the repair process.

The Maintenance Department may also request Engineering Design to perform an engineering assessment of the property damage. The Engineering Design Unit will then prepare the appropriate plans and requests for the Construction Unit to complete the repair process. The Risk Management

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Unit generates the claim number, manages the property damage claims process, and coordinates the reimbursement activities.

### **Required Format and Information for Requests**

- **Subject Line of the e-mail** – Include the following information:
  - WBS Request
  - Date
  - Event Number
- **Body of the e-mail** – Include the following information:
  - Requesting Department
  - Event Number
  - PSP Number
  - Date of Incident
  - Time of Incident
  - Responsible Person (Person who would approve any shopping carts)
  - Milepost/Direction or Location – Include Route Indicator
  - Damage Description (Be brief with the damage description but include enough detail to define the damage including roadway cleanup, etc.)
- **Attachments** – Photographs of damage are to be attached.

Damage being repaired utilizing a current active Contractor under an existing Construction Contract, the PTC Project Manager's responsibilities are as follows:

- Obtains the PDC claim number from the Risk Management Unit.
- Obtains photographs prior to, during, and after performing the repair to adequately document the actual damage and repair.
- Issues Authorization for Contract Work (Form PTC-373 or equivalent letter attached).
- Ensures the inspection staff documents work progress.
- Creates a *network* and *activity* for the PDC number. For guidance on creating networks and activities in SAP, see **Property Damage Claims – SAP Procedure for PMs** in the appendix. PO number will be provided by Contract Management.
- Upon completion of work, contractor submits a letter via PCDS requesting reimbursement for the total force account amount, with the signed and approved force account summary attached. Ensures the CDS Technician generates an external invoice from CDS and routes for approval following the Project Collaboration and Documentation System (PCDS) process.
- Creates a *network* and *activity* in SAP for Consultant inspection costs. PO number will be provided by Contracts Administration.
- Notifies inspection staff to document charges related to inspection of property damage claim and will charge labor time and expenses to the PDC number.

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- Receives a separate invoice for the costs associated with the PDC inspection work by consultants and routes for approval and payment.

#### **PDC REPAIR PROCESS SUMMARY**

1. Request PDC Number from PDCLAIMS (Risk Management Unit)
2. Create Control Number in CDSme Field Office (CTRL-XXXX) for PDC repair work.
3. DO NOT put PDC work on a construction change order.
4. Do not pay a contractor for damage to their own property. Contractors can submit their own claim(s) directly to the insurance company.
5. Generate External Invoice for CTRL# in CDSme.
6. Submit CTRL# invoice for payment with backup documentation to the Construction Engineering Contract Management Construction Documentation Specialist and copy PDCLAIMS (Risk Management Unit)

## Section 9

### Health and Environment



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DATED 01-18-13		DATE  01-08-24		
SUBJECT  CULTURAL RESOURCES				

Agreements made by the Pennsylvania Turnpike Commission (Commission), Federal Highway Administration (FHWA), as warranted (only if federal funds are involved), and other agencies to mitigate the impacts on eligible cultural resources, are legally binding documents. Construction activities are to be carefully monitored if cultural resources are involved in the project.

1. Cultural Resource Mitigation

A field view attended by the Contractor, Commission Representatives, FHWA (as warranted), and potentially the Pennsylvania Historical and Museum Commission (PHMC) should be conducted prior to construction to review and discuss the requirements of contract commitments concerning the mitigation of cultural resources, and how they will be met in the field. This coordination is vital to ensuring compliance with relevant Agreements.

2. Unanticipated Discoveries

If “unanticipated discoveries” of cultural materials are made during construction, the following notification procedures shall be followed:

- a. Construction will cease in the immediate area of the discovery to avoid disturbance and the Commission’s Environmental Manager will be notified. As warranted, the Commission will notify FHWA of the discovery and construction activities will resume in the subject area after the Commission receives approval from FHWA.
- b. The Commission is responsible for stabilizing and protecting the area of the discovery until it has been investigated, documented, and a plan of action has been approved.
- c. The Commission, in consultation with FHWA (as warranted), shall arrange to have an archaeologist visit the site within 48 hours of the discovery to determine the nature of the archaeological resource.
- d. The Commission will instruct the archaeologist to provide a description of the resource and develop a plan of action based on the decision of the Commission and, if warranted, the FHWA. The plan shall be submitted to PHMC for review and comment within 96 hours of the discovery, with copies forwarded to FHWA (as warranted). PHMC shall be provided an opportunity to meet in the field with the Commission, the archaeologist, and FHWA (as warranted), to assess the discovery and comment on the plan of action.

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- e. If the PHMC declines to meet or does not comment on the plan within 48 hours of notification, the Commission shall proceed with the implementation of the plan of action.

### 3. Human Remains

- a. If “human remains” are encountered during construction, work will cease in that area of the project, to avoid disturbance, and the Contractor shall notify the Commission and local law enforcement officials immediately.
- b. The Commission shall contact PHMC or review PHMC’s policy on “human remains” to properly adhere to PHMC’s policy regarding their involvement and recommendations. In addition, notify Troop T if remains found with-in the Commission ROW
- c. As feasible, human remains shall be preserved in-place rather than excavated for study or reburial. Treat all identified human remains in a respectful and responsible manner that takes into consideration scientific data and cultural values.

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DATED		DATE		
01-09-18		<b>01-08-24</b>		
SUBJECT				
<b>PERMITS AND MITIGATION COMMITMENTS</b>				

The purpose of this specification is to make contractors familiar with the regulated environmental issues within a specific project and to avoid violations of the permit conditions, therefore assisting in timely project completion and avoidance of fines.

Note: The PTC's Construction Representative is not authorized to execute local municipal zoning, land use or land development applications, municipal permits or other agreements or documents related to municipal land use ordinances. Any questions regarding such issues should be directed to the PTC design project manager and PTC Legal. No action should be taken without direction from PTC Legal.

#### 1. Permit Awareness

Gain awareness of the permits that have been filed for environmental concerns of the specific project. Further be aware of any mitigation commitments associated with the acquired permits. 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 10 CFR § 80-1711  
Material License
- Earth Disturbance Permit 25 Pa Code § 102.31
- National Pollutant Discharge 25 Pa Code §102.31  
Elimination System (NPDES) Permit
- Water Obstruction and Encroachment 25 Pa Code §105, 106
- Submerged Lands License Agreement 25 Pa Code §105.31-35
- Emergency Permit for Activities in a 25 Pa Code §105.64  
Waterway or Body of Water
- Federal 401 Water Quality Certification 40 CFR § 121
- 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 25 Pa Code Chapter 245  
Storage Tank Registration
- Open Burning Permit Inside 25 Pa Code Chapter 129.14  
an Air Basin

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- Waters of the US 40 CFR 230-Section 404 (b)(1)

These permits are most often approved and issued by the Pennsylvania Department of Environmental Protection in conjunction with the following:

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)  
Pennsylvania Fish and Boat Commission (PFBC)

## 2. Permit Compliance

Ensure all construction activities are performed in a manner as to comply with the permit requirements. Completion of this task will help ensure timely job completion and less remedial measure required at the end of construction.

## 3. Mitigation Commitments

Prior to completion of the construction project the mitigation commitments should be completed. If construction is required to be in compliance with the mitigation requirements, complete the construction of the mitigation prior to the closing the site.

## 4. Wetlands Issues

- Wetland locations identified on the construction plan should be identified on the site. This is necessary so all earthmoving activities do not impact areas protected under state and federal regulations.
- Review permits for wetland issues and special circumstances.
- As required, ensure wetlands are delineated with specified visible markings (i.e. flagging, stakes, fencing) to assist in complying with any applicable wetland permit conditions. Ensure unauthorized impacts do not occur.

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Part B 9-3 Pages 1 to 12		<b>B</b>	<b>9-3</b>	<b>1 of 12</b>
DATED		DATE		
01-08-24		<b>01-06-25</b>		
SUBJECT				
<b>EROSION AND SEDIMENT POLLUTION CONTROL</b>				

The purpose of this section is to provide guidance for compliance with Pennsylvania Department of Environmental Protection's Chapter 102 Regulations and help protect people, property, and the natural environment from harmful degradation.

Conduct a pre-operation meeting in accordance with COM Section C100-2 prior to the pre-construction meeting with the CCD. Document the meeting in the PCDS.

For projects with a NPDES or Non-NPDES permit, the PTC Construction Management Representative shall establish a pre-construction meeting with the Contractor and PTC Inspection Representative at the project site prior to any construction activities. The local County Conservation District (CCD) representative shall be invited to attend the meeting for projects with a NPDES permit.

Prior to the on-site pre-construction meeting, the contractor must complete the [Co-Permittee Acknowledgement Form for Chapter 102 Permits](#) for projects with a NPDES permit and provide that to the Construction Manager for PTC signature by the Assistant Chief Engineer – Design and submission to the CCD. Acknowledgement from the CCD that the contractor has been added to the permit as a co-permittee must be received prior to any earth disturbance occurring on the project.

At the on-site pre-construction meeting, the CCD representative is to be provided the following contact information and discuss the following items, at a minimum, for correspondence:

- Assistant Chief Engineer – Design (ACE-D)
- Construction Engineer Project Manager (EPM)
- The ACE and EPM shall be copied on all communications coming from the CCD such as permit modifications, earth disturbance reports, notice of violations, notice of termination, etc.
- Discuss and agree on whether the site inspection reports are to be conveyed to the CCD or submitted upon request.
- Discuss weekend/holiday rain events and inspection requirements.
- Discuss the frequency of notifications of changes for approval from the CCD.
- Discuss what would constitute a minor or major permit amendment.
- Discuss the frequency of transmitting inspection reports indicating non-functioning BMPs to the CCD or submitted upon request.
- Identify and discuss the role of the Licensed Professional Oversight of Critical Stages responsibilities for oversight of critical stages of implementation of the PCSM Plan.
- Discuss reporting requirements should an unanticipated non-compliance or potential pollution event occur.
- The PTC Construction Management Representative or their designee will record meeting minutes and distribute the meeting minutes to all attendees within 14 days of the meeting, requesting concurrence from the CCD for all items discussed. Keep a copy of the meeting minutes in accordance with the PTC Kahua Construction Project Documentation Guide.

Each project field office must have either a manual or an electronic rain gauge to record daily rainfall amounts. In the event the rain gauge is damaged or not available once earth disturbance begins, obtain storm event information from a weather station that is representative of the project site location and document as

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such in the Master Diary until a replacement is obtained. The Commission will provide the rain gauge unless the contract documents otherwise indicate that the contractor must supply a rain gauge. The location for placement of the rain gauge should be discussed and agreed upon. The rain gauge shall at a minimum have a 5” capacity with easy-to-read gradation readings of 0.1” and be constructed of weather resistant materials suitable for all weather conditions. Read the rain gauge once a day at the same time and document the 24-hour period accumulated precipitation in the Master Diary using Project Activity Form PTC-370A.

If the CCD does not waive the requirement for post storm event inspections occurring within 24 hours for weekend or holiday rain events, daily rainfall amounts, including weekends and holidays, are to be obtained and documented. Perform a post-rainfall event inspection within 24 hours of the event. If a documented agreement with the CCD is obtained that extends the requirement for conducting a post rainfall or snowmelt event, conduct the inspection within the timeframe agreed upon with the CCD.

## Training

Any current construction PTC staff or consultant responsible for inspecting stormwater controls or E&S controls must complete the Stormwater Inspection training prior to performing this work. This training includes both the PTC’s MS4 training, PennDOT’s CMP training Modules 1 through 7 and 9, and the PTC’s CMP training Module 8 related to the Documentation, Inspection, and Reporting Technology (DIRT) app. Provide evidence of training completion . This training is only required to be completed once. The PTC construction project manager is responsible to ensure the applicable PTC staff or consultant has completed the required training and has access to the DIRT application.

Verify that the contractor’s on-site representative has completed the required PTC MS4 training and have documentation uploaded to the PCDS. The contractor is to submit completed training certificates prior to conducting any earthwork on the site. Training must be completed at least once per year throughout the life of the contract and submitted to the representative prior to March 31st in each subsequent year.

## Required Inspections

These inspections are required for both Non-NPDES or NPDES permit projects. (All projects with an E&S plan.)

- **ROUTINE (Weekly) INSPECTIONS** – Perform the required routine inspections on the same day each week.
- **POST-STORM EVENT INSPECTIONS** – The post-storm event inspection is to be conducted within 24 hours of a measurable storm event defined as 0.25” or greater of rain in a 24-hour period or at the timeframe agreed upon in writing with the CCD.
- **SNOWMELT EVENT INSPECTIONS** – The definition of a snowmelt event is the occurrence of snowmelt sufficient to cause runoff. Perform a post-snowmelt event inspection within 24 hours of the event.
- **CORRECTIVE ACTION INSPECTIONS** – Conducted 24 hours after an observed deficiency in implementation of the E&S and PCSM Plans occur.

No borrow or wasting of material will be permitted on any site prior to the site receiving all required approvals and permits. The required approved Erosion & Sediment Pollution Controls (E&SPC) are to be installed prior to start of these operations.

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Chapter 102 Regulations require that all persons, municipalities, and agencies engaged in earthmoving activities shall develop, implement, and maintain effective erosion and sedimentation pollution control measures that will minimize accelerated erosion and prevent sediment pollution, including the following:

1. Review E&SPC Plans, Specifications and Maps.

Review all E&SPC Plans prepared by the plan designer. This includes reviewing all prepared site maps showing planned controls and measures to be implemented. The CCD approved plans shall be on-site at all times.

2. Review E&SPC Narrative

A narrative report describing the project and indicating the purpose and the engineering assumptions and calculations for control measures and facilities shall be on-site at all times as part of the E&SPC plan.

- a. Review and understand the E&SPC Plan Narrative.
- b. Take note of the construction sequence and how it relates to the E&SPC Plan explained in the narrative. Any uncertainties regarding the E&SPC Plan should be directed to the Construction Engineering Manager.
- c. Be aware of any special provisions and/or staging and sequencing for proper implementation of the Plan.

3. Submission of Alternate Plan

- a) Section 107.28 indicates the contractor may submit an alternate plan that will accomplish equal or better control of erosion and run-off. When the contractor chooses to submit an alternate plan, work shall not start until the proper approvals have been granted per Section 107.28.
- b) Any proposed changes or alternate plans must be agreed upon by the Representative prior to submission to the CCD.

4. Maintenance of the Plan

- a. The original copy of the CCD approved E&SPC Plan, the original Permit and any subsequent approved revisions are required to be maintained at the construction site according to Chapter 102 regulations.
- b. Become aware of the location of the on-site plan so agency personnel can readily view the designed controls. Employees of other agencies are to be extended every courtesy and assistance when they are working on Commission projects.

5. Implement the E&SPC Plan

- a. Fully and completely implement the E&SPC Plan according to the Plan design.
- b. Do not make any changes to the approved E&SPC Plan without prior written approval from the PTC Engineering Design Department and the CCD or DEP. Upload all approvals according to the PTC Kahua Project Documentation Guide.

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- c. Make necessary field changes in the interest of halting potential pollution situations to comply with State Regulations. The PTC Inspection Representative and PTC Construction Management Representative will coordinate with the contractor. Obtain written approval from the CCD prior to adding or relocating BMPs at the timeframe agreed to during the on-site Pre-construction meeting.
- d. For all rock cut/fill slopes that require seeding, discuss with the PTC Geotechnical Representative and the CCD upon finalizing the grading of cut/fill slope regarding seeding and potential germination issues.

## 6. Responsibilities

Refer to the tables titled “E&S Routine Inspection Responsibilities” and “Summary of E&S Compliance Response Policy” located within this section for a workflow of PTC personnel responsibilities and response actions during the construction phase of an NPDES/E&S permitted project. The sections after the tables go into further detail of the responsibilities of parties involved in E&S inspection and compliance.

The E&S Routine Inspection Responsibilities table provides a flow of action for PTC personnel within various categories during construction inspection of projects that have E&S plans. PTC personnel, including the PTC Inspection Representative and PTC Construction Management Representative, should reference the table to be aware of responsibilities including attendance and requirements for pre-construction, routine, snowmelt, and post-storm event inspection requirements, and filing requirements. Also included are expected contractor responsibilities and actions.

Similarly, the Summary of E&S Compliance Response Policy table provides a flow of action for PTC personnel if an E&S BMP is out of compliance at the time of inspection. PTC personnel, including the PTC Inspection Representative and PTC Construction Management Representative, should reference the table to be aware of sequence of actions and responsibilities once a project is no longer in compliance with the approved E&S plans and permit.



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## E&S Routine Inspection Responsibilities

Category	PTC Inspection Representative (IR)	PTC Construction Management (CM) Representative	Expected Contractor Responsibility	Notes
<b>1. Pre-Construction Conference COM A 1-2</b>	Attend pre-construction conference. Review overall expected contractor responsibilities with contractor.	Attend pre-construction conference. Review overall expected contractor responsibilities with PTC IR /contractor. Introduce PA DEP - Municipal Separate Storm Sewer System (MS4) requirements and overview. CM should coordinate with the PM to attend meeting for MS4 requirements.	Attend pre-construction conference with PTC CM/PM and PTC IR. Confirm understanding of inspection responsibilities and overall MS4 requirements. Complete PTC MS4 training and upload training record in PCDS.	Minutes from this meeting should be submitted within 14 days of meeting with concurrence received from the CCD.
<b>2. On-site Pre-Construction Meeting COM C 100-2</b>	Review E&S Plans, Narrative and Permits. Take note of Construction Sequence. Attend pre-construction meeting. Review expected contractor responsibilities with contractor.	Review E&S Plans, Narrative, Critical Stages of implementation and the Permits. Take note of Construction Sequence. Schedule and attend pre-construction meeting. Review expected contractor responsibilities with contractor.	Attend pre-construction meeting with PTC CM, PTC IR, and CCD. Review E&S Plans, Narrative and Permits. Take note of Construction Sequence. Confirm understanding of inspection responsibilities.	Copy of the approved E&S Plans, narrative and permits shall always be available on site including any permit modification approvals.
<b>3. Inspections</b>	Review all E&S measures. Deficiencies are to be documented in the DIRT App which will automatically notify the contractor and PTC CM.	Review all E&S measures. Deficiencies are to be documented in the DIRT App. Automatic notifications will be sent from the DIRT App. Refer to compliance response chart for procedure.	Review all E&S measures. If deficiencies exist, take immediate action to begin implementing corrective measures within 24 hours.	Inspect all E&S measures. Reinspect only the areas of non-compliance within 2 days as scheduled by the DIRT App.
<b>4. Frequency of Inspections</b>	Weekly and within 24 hours of every rainfall or snowmelt event.	Weekly and after every rainfall or snowmelt event or as necessary.	Weekly and within 24 hours of every rainfall or snowmelt event.	If the CCD agrees to waive the 24-hour inspection requirement for weekend/holiday rain events, inspect at the agreed upon timeframe.

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<b>5.Documentation</b>	Complete all required inspections in the DIRT App.	Confirm completion of all required inspections and review all noted deficiencies. For Regulatory Agency inspections with deficiencies, the CM is responsible for generating an agency inspection report in DIRT to track all deficiencies noted.	Acknowledge and review all inspection reports completed by the inspection team.	All completed inspections will be automatically stored by the DIRT App in Kahua in the following folder: Team → Environmental. If automatic upload fails manually uploads
<b>6. Filing</b>	All completed inspections will automatically be stored by the DIRT App in Kahua in the following folder: Team → Environmental	Verify the completed inspection report has been automatically stored in the PCDS in the Teams-Environmental folder.If automatic upload failed, manually upload the inspection report utilizing the file	Not applicable.	

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## Summary of E&S Compliance Response Policy

Category	Time to Correct	PTC Inspection Representative (IR) Action	PTC Construction Management (CM) Representative Action	Expected Contractor Action
<b>1. Deficiencies Resulting in Discharge of Pollutants</b>	Corrective action shall begin within 24 hours of notification of the deficiencies from the DIRT App.	Complete an inspection in the DIRT App and immediately direct contractor to complete corrective action work to correct the deficiency. Inform and discuss with the PTC CM.	If necessary, PTC CM can consider issuing Stop Work Order for all other work, withhold payment for applicable unpaid E&S Items, and/or assess Erosion and Sedimentation Control (E&S) Noncompliance Liquidated Damages in accordance with Section 108.07(d). Request written plan submitted from contractor to ensure repeat issue does not occur and file in the PCDS.	Perform necessary work immediately to stop discharge. Prepare a written plan and provide to PTC CM to ensure a repeat incident doesn't occur. Upon PTC agreement follow the approval process with the CCD.
<b>2. Deficiencies that Could Result in Discharge of Pollutants</b>	Corrective action shall begin within 24 hours of notification of the deficiencies from the DIRT App.	Complete an inspection in the DIRT App and immediately direct contractor to complete corrective action work to correct the deficiency. Inform and discuss with the PTC CM.	If necessary, PTC CM can consider issuing Stop Work Order for all other work, withhold payment for applicable E&S Items, and/or assess Erosion and Sedimentation Control (E&S) Noncompliance Liquidated Damages in accordance with Section 108.07(d).	Perform necessary work to mitigate risk of discharge of pollutants. Upon PTC agreement follow the approval process with the CCD.
<b>3. Failure to Comply with Approved E&amp;S Plans</b>	Immediately comply with PTC IR direction.	Immediately direct contractor to begin work and notify PTC CM. Document deficiencies in the DIRT App.	Withhold applicable unpaid E&S items from estimate until Contractor complies per Section 107.28. Assess Erosion and Sedimentation Control (E&S) Noncompliance Liquidated Damages per Section 108.07(d)	Perform necessary work to restore compliance with the E&S Plans.

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<b>4. County Conservation District Concerns – Construction</b>	Immediately begin work within timeframe specified by CCD after directed by PTC IR. Diligently continue until complete.	Evaluate CCD concern and coordinate with PTC CM and either immediately direct contractor to begin work or direct contractor to investigate issue and identify acceptable solution to CCD.	Evaluate CCD concern and coordinate with the PTC IR and consult with resource agencies, as necessary. Withhold applicable unpaid E&S items from estimate and/or assess Erosion and Sedimentation Control (E&S) Noncompliance Liquidated Damages in accordance with Section 108.07(d). Provide an Authorization of Contract Work if CCD requests result in additional and/or extra work.	Investigate issue and identify acceptable solution to CCD. Perform necessary work to restore compliance with or enhance the E&S Plans. Coordinate with PTC CM and PTC IR if work results in additional and/or extra work.
<b>5. County Conservation District Concerns – Design</b>	Varies	Refer to PTC CM for coordination.	Investigate issue and escalate to PTC Project Manager or PTC Construction Engineering Manager if necessary.	Not Applicable or Refer CCD to PTC CM.
<b>6. Failure to Perform Weekly, Rain Event, or snowmelt Inspections</b>	24 Hours	Immediately perform a site inspection in the DIRT App with PTC CM and Contractor.	Immediately perform a site inspection in the DIRT App with PTC IR and Contractor. Ensure coordination occurs between all parties. If coordination between parties is not occurring, then identify why it is not occurring and discuss with the PTC Construction Engineering Manager.	Immediately perform a site inspection with PTC IR and PTC CM.

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Projects that have National Pollutant Discharge Elimination System (NPDES) Permits or E&SPC Plans have specific requirements that include monitoring and reporting. All projects are required to have a site inspection weekly, and within 24 hours after each measurable rainfall or snowmelt event by the PTC Inspection Representative and the Contractor. If the CCD agrees to waive the 24-hour inspection requirement for weekend/holiday rain events, inspect at the agreed upon timeframe. The visual site inspections are to continue until the receipt and acknowledgement of the Notice of Termination (NOT) from DEP or authorized by the CCD. Document the findings of these inspections in the DIRT App.

For projects without an NPDES/E&S Permit but with an E&S Plan, document all inspections in the DIRT App.

In the event a Best Management Practice (BMP) is not functional or is noncompliant, document the deficiency in the DIRT App. The contractor will be notified via email by the DIRT App once the Inspection Report is finalized. The contractor shall begin repairing or replacing the non-functioning / noncompliant BMPs within 24 hours of notification. When the project identifies non-functioning BMPs and discharge is occurring, the PTC Inspection Representative or PTC Construction Management Representative shall contact the CCD no later than 4 hours after becoming aware of the noncompliant event. Complete a visual site inspection report in the DIRT App documenting the non-functioning BMPs and send a copy of the completed report to the CCD within 5 days. Follow all requirements as specified in the permit. Review all permit requirements at the pre-construction meeting.

Construction inspection personnel and the Contractor are both responsible to assure that all BMPs are adequately maintained and functioning satisfactorily.

Under no circumstance are construction inspection personnel to allow waste material to be placed outside of approved sites.

All necessary E&SPC measures and facilities are to be installed, maintained, and monitored throughout the duration of the construction project. Personnel involved with project administration and inspection (PTC Inspection Representative and PTC Construction Management Representative) are to aggressively enforce applicable environmental regulations.

To ensure compliance, if necessary, the PTC Construction Management Representative may consider issuing a Stop Work Order for all other work and if necessary, withhold payment for applicable unpaid E&S Items, and/or assess Erosion and Sedimentation Control (E&S) Noncompliance Liquidated Damages in accordance with Section 108.07(d) when construction related deficiencies result in or could result in a discharge of pollutants.

## **Documentation**

All documentation that is generated for the purposes of complying with the E&SPC Plans and the NPDES permit(s) including approved Red-Line E&SPC Plans shall be maintained in the PCDS in accordance with the PTC Kahua Construction Project Documentation Guide. In this file, keep records of any meetings with the CCD, or DEP and any decisions that are made during these

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meetings. All site inspection reports will automatically be stored in the PCDS. Store the transmittal confirmation sheet that the non-functioning BMP inspection report(s) has been transmitted to the CCD or a copy of an e-mail sent to the CCD. All site inspection reports documenting non-functioning BMPs must be conveyed to the CCD, if requested. 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. In addition to performing weekly inspections per the NPDES permit, perform a site inspection within 24 hours of each rainfall or snowmelt event, as defined in the permit. If the CCD agrees to waive the 24-hour inspection requirement for weekend/holiday rain events, inspect at the agreed upon timeframe. Document the site inspections in the DIRT App. Performance and documentation of E&S inspections will start with earth disturbance and continue until receipt of Notice of Termination.

For projects without an NPDES Permit but includes an E&S plan in the contract, document all inspections in the DIRT App.

Tracking of non-functioning and non-compliant BMP's will be completed through the DIRT App.

### **Permit Compliance and Enforcement Process**

It is the intent of the CCD and DEP to seek voluntary compliance for violations under each NPDES Permit and E&SPC Plans. When violators express their willingness to correct violations, CCD and DEP's efforts are typically focused on assisting the violator to correct any violation(s). The contractor will be directed towards restoring damaged areas, implementing, and maintaining non-functioning BMPs, and completing any other actions required to bring the project back into compliance with the NPDES permit and E&SPC Plans. Since it is recognized that voluntary compliance will not always be obtainable, the guidance outlined under the Conflict Resolution below provides steps necessary to complete the enforcement actions.

This guidance is intended to provide general instruction / assistance to those involved in compliance activities under the Commonwealth's E&SPC and NPDES Storm Water Construction Programs.

#### Enforcement:

The CCD, unless otherwise specified, is the responsible agency for performing site inspections in response to complaints. The PTC Inspection Representative and/or the PTC Construction Management Representative or designee will accompany the CCD during any site inspection along with a Contractor's Representative.

#### Permit Responsibilities:

It is the responsibility of the Commission and the Contractor as the Permittee and Co-Permittee to ensure that all requirements of the NPDES permit are being followed, including implementation of the approved E&SPC Plan.

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## **Conflict Resolution**

Refer to tables titled “Summary of E&S Compliance Response Policy” located within this section for a workflow of PTC personnel E&S compliance responsibilities and response actions during the construction phase of an NPDES/E&S permitted project.

1. Project personnel, both the Commission and Contractor, will monitor site conditions for compliance with the NPDES permit and E&SPC Plans. The PTC Inspection Representative is responsible for ensuring that the contractor is following the NPDES permit as well as the approved E&SPC Plans. The NPDES permit and approved E&SPC Plans shall be available for review in the project field office.
2. Immediately upon discovering non-compliance of the E&SPC Plans included with the NPDES permit the PTC Inspection Representative will:
  - Document the non-compliance issues in the DIRT App as outlined in the Documentation section of this section.
  - Notify the PTC Construction Management Representative or their designee of non-compliance issues. Notify the Contractor to inform them that they should implement an appropriate corrective action. If said non-compliance results in discharge of pollutants, then the PTC Construction Management Representative shall request the Contractor submit a written plan outlining why the discharge occurred and how a similar situation can be prevented in the future. File the plan in the PCDS in accordance with the PTC Kahua Project Documentation Guide
  - Unless otherwise directed by the CCD, notify the CCD of the nature of the non-compliance issue and the corrective action taken and anticipated timeframe.
3. The CCD may visit the project and perform an inspection. If the non-compliance issue(s) that have been noted have not been resolved the CCD will notify DEP. The inspection report will indicate a timeframe for the Contractor to address the violation(s) and indicate a date for a follow-up inspection. Depending upon the circumstances of the violation(s) the CCD may immediately contact the regional office of DEP for compliance assistance.
4. The CCD will return to the project for a follow-up inspection as noted on the inspection report. If “voluntary” compliance is achieved, the CCD will note on a new inspection report that no violations were found and that the site is in compliance.
5. If the site is not in compliance, the CCD will note the non-compliance issue and require corrective actions to be taken in the inspection report. The CCD will inform both the Commission and the Contractor that the Regional Office of DEP will be notified and requested to assist in the enforcement matter.

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6. Subsequently, if DEP and CCD staff inspect the project and find that compliance has been achieved, the CCD will note on a new inspection report that no violations were found and that the site is in compliance.
7. Violations reported to DEP will be entered into DEP's EFACTS system, an electronic file system, for future reference related to compliance history.
8. If "voluntary" compliance has not been achieved, the DEP regional staff will follow DEP Escalation Procedures.

#### **Authority for DEP to stop work**

A Compliance Order can be issued by the DEP Staff to the Commission requiring the contractor to cease all earth moving activities on the project except for any earth moving activities that would be required to bring the project back into compliance with the NPDES permit. A Compliance Order could be issued for, but is not limited to, the following: a site where a pollution event has occurred, a site that has the "potential" to pollute, a site that is operating without a permit, or a site where "voluntary" compliance cannot be achieved.

#### **Issuance of a Notice of Violation**

An inspection report with violations noted is sometimes confused with what is referred to as an "official" Notice of Violation (NOV). An official NOV is issued by DEP and will be assigned a DEP case number. A NOV can also be issued by the CCD. An official NOV is usually the result of a serious violation, which resulted in or had the potential to cause environmental harm or public health/safety issues. Issuance of an official NOV usually warrants some type of punitive action beyond correcting the non-compliance issue and/or the environmental harm.

If an official NOV is issued by DEP or the CCD, the responsible PTC Inspection Representative or PTC Construction Management Representative will submit a copy of the NOV within 24 hours to the PTC Chief Engineer. A copy of any Compliance Order or NOV issued shall be uploaded to the PCDS in accordance with the PTC Kahua Project Documentation Guide.

Any required written response to the NOV should be prepared and signed jointly by the permittee and co-permittee(s) and a copy should be uploaded to the PCDS.



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B 9-4 page 1 to 2		B	9-4	1 of 2
DATED		DATE		
01-18-13		01-08-24		
SUBJECT  OFF-SITE WASTE DISPOSAL				

The purpose of this section is to comply with the regulations for off-site waste disposal.

Excavation waste not specified to be incorporated into the project or wasted on a Commission-owned parcel or within PTC ROW may be hauled off site and disposed of contingent upon the following:

Section 105.14 specifies that the contractor is responsible for proper disposal of all excess excavation and waste material. The contractor is required to secure all necessary approvals and permits and is required to provide copies of all applicable approvals and permits and to comply with the Solid Waste Management Act (Act 97-1980, or as amended). The contractor is not permitted to utilize any proposed waste and/or borrow sites until all applicable approvals and permits are obtained.

If the contractor's proposed off-site waste area is within  $\frac{1}{4}$  mile from the project LOD, then the waste area must be added to the project's NPDES permit. If the contractor's proposed waste area is further than  $\frac{1}{4}$  mile from the project LOD, then a separate permit must be obtained by the contractor. If the contractor's proposed waste area is under one acre, then an E&S Plan must be prepared by the contractor and submitted to the PTC Representative.

In addition to obtaining the required documentation and to better ensure that our contractors are properly complying with all environmental issues:

- The PTC Project Manager will discuss all permit provisions at the Environmental Pre-construction Conference and at progress meetings as applicable. Utilize PTC environmental staff as necessary for assistance.
- At the Environmental Pre-Construction Conference, discuss with CCD how any modifications to the permit/approvals should be submitted (i.e.-electronically, hard copies, or both).
- The Project Manager will arrange a Pre-Construction E&S meeting with the local Conservation District and DEP (if the project has an NPDES permit) and the contractor at the site if deemed necessary.
- The Project Manager will notify via email the County Conservation District of all waste removed from the right of way, copying PTC Environmental unit, and uploading correspondence to the environmental folder in PCDS.
- Prior to allowing excavation waste to leave the jobsite, make sure the Environmental Due Diligence (EDD) Form and Form FP-001 are properly completed.

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- Follow the instructions on the FP-001 form for distribution and notification of agencies.
- Unless specifically required by the permit to the contract documents, do not allow the contractor to sample and test the soil proposed to be disposed of off-site. If the property owner will not accept the material based on the EDD and FP-001 form, then notify the CEM and the Environmental Unit so that an alternative plan for disposal can be discussed.

The Project Manager will ensure that the above measures are completed prior to any waste being hauled off site. Notifications should be issued for each specific waste disposal arrangement, not necessarily each specific waste movement. For projects with phases and/or time lags between disposal activities, it would be good practice to ensure notification in accordance with the phases or activity.

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B 9-5 page 1 of 1		B	9-5	1 of 1
DATED		DATE		
01-18-13		01-08-24		
SUBJECT				
OPEN BURNING				

The purpose of this procedure is to permit open burning while protecting human health, property, and the environment. Comply with the requirements of the Pennsylvania Air Pollution Control Act (Act 245-1972, or as amended).

1. Open Burning – Outside an “Air Basin”
  - a. Open burning, when approved by the Commission, is permitted outside of “Air Basins” if the emissions are not seen or an ill-smelling odor is not noticed outside of the property where the burning occurs.
2. Open Burning – Inside an “Air Basin”
  - a. Burning is permitted in a basin subject to the following requirements: [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 Commission 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 Commission.
    - The Commission reserves the right to rescind approval granted if a determination by the Commission 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.
3. Authorization for Open Burning
  - a. The Contractor shall obtain applicable permits from the state, county and local jurisdictions and submit the fully executed copies to the Commission.
  - b. The contractor is not to perform any of the above operations without prior written authorization from the Commission and, if applicable, the Federal Highway Administration.

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DATED		DATE		
01-08-13		<b>01-08-24</b>		
SUBJECT				
<b>UNDERGROUND STORAGE TANKS</b>				

The purpose of this specification is to comply with state and federal regulations and protect human health, property, and the environment.

1. Unexpected UST Discoveries

- a. All activities are to cease within the affected area and the area is to be made secure.
- b. The Inspector-in-Charge is to immediately contact the Commission's Environmental Department who will make the necessary notifications, and follow-up, since UST trained personnel must evaluate the situation.
- c. Prior to remediation efforts, hold a Pre-Operations Meeting that is attended by a representative from the PTC Environmental Unit.

2. UST Guidance

Currently there are specific guidelines from the PADEP for performing UST closures and subsequent investigations if a release has occurred. Further, there are guidelines for subsequent contaminated soil and groundwater clean-up operations.

3. Site Conduct

When employees are on-site of a UST removal operation, some general precaution should be observed.

- a. No smoking or other sources of ignition are allowed on-site during any UST removal activities.
- b. The lack of odor does not automatically mean a lack of contaminant. Treat all operations as though contaminants are present.
- c. When the potential danger for fire explosion exists, all unnecessary personnel must be kept away from the site. Only properly trained, equipped personnel should be allowed on-site.
- d. On-site personnel must display an informed, cooperative attitude and must be made aware of the potential dangers. A lack of cooperation can result in fatal mistakes.
- e. Operations must be conducted in the best possible manner protective of life and property.
- f. If confined spaces are identified on the site, under no circumstances shall untrained personnel be allowed to enter the confined space. Special precautions must be implemented prior to any entry into confined space and only properly trained personnel may enter into the confined space.

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01-18-13		<b>01-08-24</b>		
SUBJECT				
<b>HAZARDOUS WASTE</b>				

The purpose of this specification is to provide guidance for the proper handling of hazardous waste situations on a construction site when hazardous waste is encountered unexpectedly so that no threat occurs to human life, human health, or the environment.

1. Hazardous Waste

Hazardous Waste 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.

2. Unexpected Encounters

The PTC recognizes that at sites not suspected of being contaminated, as a result of previous investigative efforts, contaminated materials may be unexpectedly encountered. If substances are unexpectedly encountered the following procedures should be followed to minimize worker and public exposure, limit the migration of contaminants, and allow for the mobilization of trained and qualified staff to the site:

- a. 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.
- b. After ceasing operations and securing the area, the Inspector-In-Charge will immediately contact the Commission's Environmental Department who will make the necessary notifications. Notifications may include the Pennsylvania Department of Environmental Protection (PADEP), local fire or emergency response teams, or a qualified consultant engineer.
- c. Under no circumstance should workers perform activities they are not trained for and capable of performing. In such cases, the contractor should secure the site until appropriate personnel can enter the site to complete the remediation efforts.
- d. Site security is the responsibility of the contractor, who should take measures to secure the site. As a minimum, a physical deterrent against unauthorized site entry, such as barricade fencing and /or high visibility barricade tape, will be supplied and erected by the Contractor around the entire site perimeter.
- e. Prior to remediation efforts, hold a Pre-Operations Meeting that is attended by a representative from the PTC Environmental Unit.

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3. Documentation

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:

- a. Clean-up objectives are met.
- b. Health and safety of all employees involved in remedial activities are being maintained.
- c. Waste material removed from the site is being properly disposed of and documented.

4. Transportation of Waste

- a. Waste transported for off-site treatment, storage or disposal must be transported by a licensed transporter and accompanied by a manifest and United States Environmental Protection Agency (EPA) shipping form, which is obtained from PADEP 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.

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DATED		DATE		
05-20-20		<b>01-08-24</b>		
SUBJECT				
<b>PAINTING WASTE DOCUMENTATION</b>				

The purpose of this section is to provide guidance regarding painting waste documentation. Comply with state and federal regulations for hazardous waste documentation.

1. Coating Inspector Duties.

- a. An EPA ID number is typically included as an Appendix to the contract book for PTC construction contracts that include painting of existing structural steel. If an EPA ID number is not included with the contract book, the Inspector-in-Charge (IIC) or Commission Representative (Representative) shall contact the PTC - Construction Engineering Manager – Construction Management & Quality Control (CEM – CM & QC), to obtain the EPA ID number to provide to the Contractor for use on the manifest.
- b. The Commission 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. The Representative overseeing the project, is to sign the manifest on behalf of the Commission.

***NOTE:** PennDOT Publication 611, ([Waste Management Guidance Manual](#)) has further information on hazardous waste manifest documentation.*

- c. The Representative oversees and observes the testing, clean-up, removal, and loading of the hazardous waste and maintains sufficient involvement in this process to know that the process has been properly completed.
- d. The Representative reviews the completed manifest to assure that the information entered thereon is consistent with his observations and the following:
  - Site assessment
  - Approved clean-up plan prepared by the contractor or its subcontractors
  - Laboratory test results
  - EPA hazardous waste generator ID number
  - Any additional information provided by the contractor or its subcontractors
  - Additional site-specific knowledge or experience possessed by the Representative
- e. Once everything appears in order, the Representative then signs the manifest, and places an asterisk after his signature and add the following: “My certification is subject to the attached ‘Additional Information Sheet’.”

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- f. Complete the form entitled “Additional Information Sheet”, enter the manifest number, Representative title, sign and date. Sign and date the manifest. The manifest number must also be entered on the Lab Report.
- g. If information is incorrect, wrongdoing is suspected, or the Representative has questions, the Commission should be notified, and corrective measures should be taken prior to signing the manifest.
- h. Follow the manifest instructions for the number of copies and who should have copies of the manifest.

## 2. Document Retention.

All documents pertaining to the hazardous waste, including the manifests, and its attachments must be kept for a minimum of twenty years. A copy of the signed manifest and related documents should be kept in the construction project files, scanned and uploaded to the PCDS, in accordance with the *PTC – Project Documentation/Deliverable User Guide*.



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\*You May Photocopy This Form

### ADDITIONAL INFORMATION SHEET

My certification on the Hazardous Waste Manifest on behalf of the Pennsylvania Turnpike Commission is based upon lab test results, the site assessment and previous remediation records (if applicable) and upon information provided to me and to the Pennsylvania Turnpike Commission by the \_\_\_\_\_, it's subcontractors,

Name of Construction Contractor

\_\_\_\_\_, and the \_\_\_\_\_

Name of Consultant Representative (if applicable)

Name of Testing Laboratory

which I believe to be true and accurate.

Copies 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 Representative or firm completing the  
Manifest or form to which this Additional Information  
Sheet is attached

#### Description of Waste and Origin:

The waste is discarded blast waste from the preparation for painting on a Pennsylvania Turnpike Commission 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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DATED		DATE		
<b>01-18-13</b>		<b>01-08-24</b>		
SUBJECT		<b>LEAD PAINT REMOVAL</b>		

The purpose of this section is to ensure the proper plans for handling lead and other toxic metals have been submitted and approved by the Commission in accordance with Section 1070, OSHA, and/or any other Federal, State, County, and City Regulations. Compliance with these Specifications and Regulations is mandatory to protect human health, property, and the environment.

The Project Manager or Inspector-In-Charge (IIC) is to confirm that the contractor has submitted a written Compliance Program, under the direction of a Certified Industrial Hygienist (CIH), to establish and implement practices and procedures for protecting the health of those employees exposed to lead and other toxic metals.

The IIC is to ensure that the contractor's Compliance Program is received and on file within the PCDS prior to any work beginning on the applicable item.

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B 9-10 Page 1 of 1		<b>B</b>	<b>9-10</b>	<b>1 of 2</b>
DATED 01-18-13		DATE <b>01-08-24</b>		
SUBJECT  <b>ASBESTOS REMOVAL AND DISPOSAL</b>				

The purpose of this specification is to properly handle asbestos containing material on the construction site when the asbestos containing material is encountered expectedly or unexpectedly to ensure that no threats occur to human life, human health, or the environment.

Ensure that proper plans for handling Asbestos Containing Material (ACM) have been submitted and approved by the Commission in accordance with the contract document, OSHA, and/or any other Federal, State, County, and local Regulations. Compliance with these specifications and Regulations is mandatory to protect human health, property, and the environment.

### 1. Expected Encounters

The contract document will identify the area and amount of asbestos containing material. The contractor will develop a plan for removal and disposal of the material. The Representative will review the plan.

The Project Manager or Inspector-In-Charge (IIC) is to confirm that the contractor has submitted a written Compliance plan, under the direction of a Certified Industrial Hygienist (CIH), to establish and implement practices and procedures for protecting the health of those employees exposed to Asbestos Containing Materials.

Ensure that the Compliance Program is received prior to any removal and disposal of known ACM, as well as qualified personnel is present on site to monitor unidentified ACM during the removal effort.

### 2. Unexpected Encounters

Upon discovery of suspected asbestos containing material, the contractor will stop work, and secure the area. The Inspector-In-Charge will immediately notify the PTC Project Manager who will make the proper notifications. The Commission may direct the contractor to have the suspected material tested to verify if the material contains asbestos or have a certified laboratory test the material.

### 3. Identifying an Abatement Contractor

Upon receipt of positive test results, the contractor may be directed to solicit price quotes from certified asbestos abatement contractors, hire a certified asbestos contractor (Time critical operation) or the Commission may negotiate directly with a certified asbestos abatement contractor. If the contractor was directed to secure price quotes from several abatement contractors to perform the work, the prices should be sent to the Representative for their review and approval.

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#### 4. Documentation and Removal Procedures

After an asbestos abatement contractor has been secured the site should be secured. The amount of lost time to identify and remove the asbestos containing material should be documented. The certified asbestos abatement contractor should submit an asbestos removal plan to the Representative for review. Upon acceptance of the price and plan, the asbestos contractor should proceed to remove the asbestos containing material. At all times, the site should be secured for the protection of any and all workers.

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DATED		DATE		
01-18-13		<b>01-08-24</b>		
SUBJECT				
<b>CONTRACTOR/CONSULTANT NUCLEAR GAUGES</b>				

The Pennsylvania Turnpike Commission no longer possesses nuclear gauges.

Contractors and consultants must abide by their company nuclear licensing documents. When contractor/consultant personnel bring a nuclear gauge onto the 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 immediately call the PTC Traffic Operations Center Duty Officer and confirm that the contractor/consultant has notified the contractor/consultant Radiation Safety Officer (RSO).

Call the Duty Officer as noted above at one of the following:

- 717-831-7676
- 866-332-5889
- \*11 (if using a cellular phone)

The Inspector-In-Charge must document the above notifications within the Master Diary.

### **GAUGE STORAGE**

Contractor/consultant nuclear gauges must be stored in secure locations.

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DATED		DATE		
01-07-20		<b>01-08-24</b>		
SUBJECT	<b>ILLICIT DISCHARGE DETECTION AND ELIMINATION</b>			

The purpose of this section is to provide guidance for construction field personnel regarding an observation of a potential illicit discharge. The Pennsylvania Turnpike Commission (PTC) is undertaking the Illicit Discharge Detection and Elimination (IDD&E) Program as part of the coverage under its Municipal Separate Storm Sewer System (MS4) permit. The Illicit Discharge Detection and Elimination (IDDE) Field Guide provides details of the processes for identification, investigation, documentation and reporting of potential illicit discharges. The IDDE Field Guide can be found in the PCDS – PTC Reference Library / ENG Construction / Environmental Reference folder. For additional technical guidance contact the MS4 Central Office Team.

An illicit discharge is defined in PTC’s MS4 permit as “any discharge to a municipal separate storm sewer that is not composed entirely of stormwater, except authorized non-stormwater discharges”. Any on-site Representative that observes a Potential Illicit Discharge (PID) in the PTC drainage system must notify the PTC Construction Manager.

If the suspected illicit discharge results in (or is the result of) an emergency, immediately find a safe and secure location and call the Traffic Operations Center (\*11) prior to attempting to collect any other information or documentation related to the discharge. REMEMBER: SAFETY FIRST!

- 1. Types of Discharges** – The IDDE Field Guide provides examples, descriptions and photos of the various types of discharges. Refer to the IDDE Field Guide for additional information.
- 2. Potential Illicit Discharge Identification** - During field observations, suspect discharges should be evaluated as noted within the IDDE Field Guide.
- 3. Potential Illicit Discharge Investigation** – Any PTC Representative that observes a Potential Illicit Discharge (PID) in the PTC drainage system must notify the PTC Construction Manager. The PTC Construction Manager will establish the validity of the PID and the need for further investigation. Refer to the IDDE Field Guide for additional information.  
SAFETY REMINDER - At no time should anyone violate PTC safety rules in the investigation of a potential illicit discharge, including entering confined spaces.
- 4. Potential Illicit Discharge Documenting and Reporting**  
Good documentation is important to quickly resolve an illicit discharge report. It is critical that PTC employees report all potential illicit discharges. There is no harm in reporting a potential discharge that is determined to not be illicit upon further investigation.
  - a. Potential Illicit Discharge (PID) Report
    - The second page of the report includes instructions for completing each of the report fields.

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- The employee making the initial observation fills out the top of the form.
- The bottom of the report form is filled out by the responding entity.
- The employee making the initial observation and/or filling out the top of the report form does **not** fill out anything within bottom area of the report form.
- Fill out the PID Report form completely.

b. Photographs

- Photographs should be taken during the initial observation to support information in the Potential Illicit Discharge Report Form.
- Follow the guidance given in the IDDE Field Guide regarding photographic documentation.

c. Report Submission

- Send the completed PID Report and photographs to the MS4 Central Office Team
- The completed report and photographs must also be saved to the PCDS in accordance with the PTC - Project Documentation/Deliverable User Guide.

## Section 10

# Maintenance and Protection of Traffic



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DATED		DATE		
09-25-20		<b>05-03-21</b>		
SUBJECT				
<b>NON-REVENUE PRIVILEGES</b>				

The purpose of this section is to provide additional guidance for providing Contractors toll free access to the construction jobsite in accordance with Section 102.16.

## **1. Commercial Vehicle Operations E-ZPass Account**

Following contract award the Contractor is to complete the **Non-Revenue Registration and Reimbursement** form by **checking Registration** to register a Commercial Vehicle Operations E-ZPass Account for the specific project use.

Similarly, the Contractor can register the Commercial Vehicle Operations E-ZPass Account of any project subcontractor if the subcontractor vehicles are not listed in the E-ZPass account of the Contractor.

The Project Manager is to forward the account registration information to the PTC ETC Customer Service Operations Analyst .

Once an account is registered, the Project Manager is to notify the Contractor indicating the beginning and ending dates of the E-ZPass account registration for the specific project use.

### **PTC E-ZPass Account Holders - Automatic Toll Adjustments**

- The PTC ETC Customer Service Operations Analyst will enter the registration information into the E-ZPass Account Management System.
- Toll charges will be adjusted automatically to a registered PTC E-ZPass account daily.
- Contractors are **not** required to submit E-ZPass account statements in order to receive reimbursement.

### **Non-PTC E-ZPass Account Holders: - Manual Toll Adjustments**

- The Contractor is to complete the **Non-Revenue Registration and Reimbursement** form by **checking Reimbursement** and submitting with all E-ZPass account statement monthly transactions for Project Manager's review and approval.
- The statements must be in a Microsoft Excel file format and identify all contract-related toll charges.
- Upon reimbursement approval of the E-ZPass transactions, the Project Manager will submit the transactions with the completed form to the ETC Customer Service Operations Analyst.
- Toll charges will only be reimbursed to registered non-PTC E-ZPass account holders monthly.

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- The Project Manager will not approve for reimbursement any toll charges that have not been submitted within 60 days of the date of the transaction.
- Requests for toll charge reimbursement not meeting the contract requirements will be denied.
- All third party administered accounts such as Bestpass®, will be processed as Non-PTC E-ZPass Account.

E-ZPass account maintenance fees and any TOLL-BY-PLATE charges will not be reimbursed.

### **Registration Termination of E-ZPass Account Usage**

- Registration of an E-ZPass Account for non-revenue privileges will expire on the project completion date.
- The PTC Project Manager may extend the E-ZPass account usage if needed upon the Contractor's request.
- The Project Manager is to notify to ETC Customer Service Operations Analyst of any approved time extension request at least 14 calendar days prior to completion the contract date.

## **2. Door/Gate Cards**

Following contract award the Contractor is to complete the **Access Gate Card Request** form & Door-Only Card Use Agreement and forward to the Project Manager at least 30 calendar days prior to receiving door/gate cards.

As indicated in Access Gate Card Request form, a non-refundable card processing fee is required for each door/gate card.

The maximum number of door/gate cards allowed for each project is twenty-five (25).

The Contractor may request additional gate cards. Approval for the additional gate cards request should be determined at project level based on the scope of project.

Upon receiving and approving the door/gate cards request, the Project Manager will submit the contractor's request electronically via the PTC **Service Portal** .notify the CAB - Construction Documentation Specialist for follow up.

The Construction Documentation Specialist will collect and mail the cards to the Project Manager along with the Card Use Agreement.

### **Control of Access Door/Gate Cards**

Upon receipt of the door/gate cards, the Contractor is to maintain and provide the Project Manager a list of card use assignments consisting of the following required information:

- Card number
- Name, i.e. (Employee title, Subcontractor, or Supplier's Name)
- Date of issuance and expiration

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The PTC Project Manager is to upload the contractor's card use assignment list to the Project Collaboration and Documentation System (PCDS).

Each person receiving a door/gate card must sign the Card Use Agreement before using the card. The Project Manager will return all completed Card Use Agreements to CAB - Construction Documentation Specialist

If a card assignment is changed with approval of the Project Manager, the Contractor is to provide the Project Manager an updated card use assignment list. Usage of door/gate cards for non-business purposes will not be tolerated.

During periods of extended shut down, i.e. winter shutdown, all access gate cards should be in the possession of the Contractor.

The Contractor will provide each person receiving a door/gate card copy of the "Card Use Agreement".

Access door/gate cards are restricted for use at locations necessary to perform the work.

### **Monitoring Access Door/Gate Cards**

The Contractor will monitor door/gate cards usage by card number and assignment and provide the information to the Commission upon request.

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DATED		DATE		
09-19-16		<b>09-25-20</b>		
SUBJECT				
<b>ACCESS REQUEST AND SECURITY REQUIREMENTS FOR PERMANENT GATES WITH KEY ONLY ACCESS AND TEMPORARY GATES</b>				

The Commission maintains a system of gates throughout the system for use by Commission and emergency response personnel. Use of gates with key only access by the Contractor may be granted to provide access to the job site if door/gate card use is not available for the door/gate.

### **REQUEST TO USE PERMANENT ACCESS GATES WITH KEY ONLY ACCESS**

The Contractor shall submit a written request to the Construction Engineering Manager (CEM) identifying the access point by mile post and direction. The CEM will review and if acceptable will forward to the Construction Documentation Specialist for processing. The Construction Documentation Specialist will provide keys to the CEM along with a key agreement. The CEM will obtain the signed key agreement and a check for deposit in the amount indicated in the agreement for each key from the Contractor's authorized representative upon issuance of the keys. After each use, the gate must be closed and locked. Prior to submitting the final package to CAB, the CEM is to obtain the return of all keys issued to the Contractor. Any keys not returned are to be documented. The CEM will forward all gate keys returned and the missing key documentation to the Construction Documentation Specialist. An amount indicated in the key agreement will be deducted from the deposit for each key not returned.

### **REQUEST TO INSTALL TEMPORARY ACCESS GATES**

The Contractor may have a need to access the work site from an area which does not have permanent gate access. The Contractor shall submit a request to install a temporary access to the CEM. The request shall include a site plan of the requested access location along with details of the gate installation, security, and anticipated duration of the temporary access location. The CEM will review and if acceptable approve the request. Upon completion of the project, the temporary access gate shall be removed, and the area returned to pre-construction condition.

### **GATE MONITORING PROCEDURES**

Comply with Section 901.3(a).

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DATED  04-01-22		DATE  <b>01-08-24</b>		
SUBJECT  <b>PLANNING TRAFFIC STOPPAGES AND PACING ON CONSTRUCTION CONTRACTS</b>				

The purpose of this section is to prepare, coordinate, and properly plan for the execution of traffic stoppages (Plan X) and pacing of traffic for construction projects.

The need for a Plan X operation and pacing of traffic must be dictated in the contract specifications or deemed in the best interest of the Turnpike, to allow the implementation of a Plan X or paces. Time constraints for the Plan X or paces are in accordance with contract requirements.

Note: Traffic stoppage and pacing are not to be a substitute for lane closures.

### **Equipment Moves**

For paces solely for equipment moves, the PTC Project Manager will contact the Manager of Traffic Engineering to review the anticipated equipment move process. After the equipment move, process is agreed to by the PTC Project Manager and the Manager of Traffic Engineering, follow the procedures for notification of roadway restrictions. See Section [\*B 10-4 Procedures for Notification of Roadway Restrictions\*](#) for additional details.

### **Erection/Demolition Plan**

The contractor must submit for review and approval an erection/demolition plan, in accordance with contract requirements, prior to the Field Coordination meeting.

The PTC Bridge Engineering Manager or designee should be included in erection and demolition plan reviews.

Transfer the erection / demolition plan to Bridge Engineering Manager via the project collaboration system (PCDS).

### **Field Coordination Meeting**

Prior to the operation, in accordance with contract requirements, a coordination meeting shall be held to define roles for the upcoming event. The contractor's personnel will discuss the planned operation. The Turnpike will be represented by Engineering, Traffic Engineering & Operations, Maintenance, Fare Collection and PSP. PTC Project Manager will identify equipment and manpower needs of internal departments (including PSP). If the project has a Transportation Management Plan (TMP) the Traffic Incident Management Coordinator should also be invited to this meeting.

### **Roles and Responsibilities**

#### **PTC Project Manager**

- Hold Pre-Traffic Stoppages and/or Paces (PTSP) meetings and provide minutes to be distributed.
- Issue e-mail to Operations Center, Public Relations Department and all internal stakeholders notifying of upcoming stoppage or pace, including scheduled and back-up date, and required responsibilities.

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- Notify regional Concession Services Business Representative if Service Plaza is impacted.
- Provide charge number to all involved parties.
- Create Maintenance Service Request in SAP 1 week prior to event.
- Provide suggested advisory, provide Engineering Department approvals, and provide final review of press release to Marketing.
- Post final press release to project-specific website, if applicable
- Review project for controlled access for media to visit project (coordinate with Public Information)

#### **Inspector-In-Charge**

- Coordinate field responsibilities between contractor, PSP, MTC, etc.
- Establish contact chain (including phone numbers) for last minute problems/cancellations.
- Issue e-mail to Operations Center, Public Relations Department and all internal stakeholders 2 days prior to event providing final confirmation.
- Check DMS, and PCMS for proper messages, locations, and coverage. (Advance, during, after)
- Coordinate a final field meeting prior to stoppage or pace to ensure everything and everyone is prepared to go.
- Inform operations center when the operation begins and is complete.
- Verify inspection and following of the demo/erection plan.

#### **Lane Pattern Administrator**

- Enter the information for Plan X and/or Paces into the Advanced Traffic Management System (ATMS). See Section [B 10-4 Procedures for Notification of Roadway Restrictions](#) for details.

#### **State Police**

- Assist with traffic stoppages and/or paces and PTSP coordination.
- Sergeant of the affected Pennsylvania State Police (Troop T) will be notified. Sergeant or representative will attend PTSP meeting.
- Identify incident command (establish a control location and provide all on-site coordination with Operations Center)

#### **Maintenance**

- District Superintendent or designee attend PTSP meeting.
- Assist with traffic control.
- Close interchange ramps
- Provide additional PCMS.

#### **Fare Collection**

- District Manager or designee attend PTSP meeting.
- Notifications to public (handouts of detour)

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- Provide additional staffing at interchanges.

#### **Outside Townships/Municipalities/PENNDOT**

- Will receive additional traffic detoured from the turnpike.
- Off turnpike construction zones may be affected
- PennDOT's District Turnpike Coordinator to be invited for bridges carrying SRs.
- If SR is part of detour route, District Community Relations Coordinator copied on advisory.

#### **Marketing Department (Public Information)**

- Prepare and issue traffic advisories that will get media coverage.
- Post advisory to PTC website.

#### **Operations Safety and Incident Response**

- Attend PTSP meeting.
- Notify authorized services (fire, ambulances)
- Central communication control and coordination
- Activate permanent DMSs day of event.

#### **Contractor**

- Provide a list of activities and anticipated timeline of work to be performed during the traffic restriction to the PTC PM and IIC
- Provide a single contact for coordination.
- Provide the required traffic control.
- Ensure all over-dimension permits are obtained 1 week prior to event.
- Place the PCMS and post the message per standard guidelines in advance, in accordance with contract requirements.

#### **Project Inspection Team**

- Provide a single contact with cell phone number for coordination with PSP, contractor, and inspection staff.
- Assure staff is aware of time frames and communications for the traffic restriction.

#### **Technology to Utilize**

- Turnpike Web Site
- Project-specific web site, if applicable
- Multi-media (traffic advisory)
- Permanent DMS (Day of event)
- PCMS (in accordance with contract requirements)
- PENNDOTDMS (in accordance with contract requirements)

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**Documentation**

- Notifying individuals of meeting and specific responsibilities will be sent out through e-mail.
- Minutes to meeting will be issued via e-mail and will be filed in PCDS.



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DATED		DATE		
07-01-22		<b>01-08-24</b>		
SUBJECT				
<b>PROCEDURES FOR NOTIFICATION OF ROADWAY RESTRICTIONS</b>				

The PTC Traffic Operations Center is responsible for notifying customers about restricted lanes of travel on the Turnpike. The Traffic Operations Center staff will assist in providing this information by receiving reports from the field staff and contractors.

Contractor and Construction designees are responsible for notifying the Traffic Operations Center prior to any lane patterns being established and execution of all paces or Plan X - Traffic Stoppages (See [B 10-3 Planning Traffic Stoppages and Pacing on Construction Contracts](#)). These notifications are entered in the Advanced Traffic Management System (ATMS) by the Lane Pattern Administrators (LPAs) that are designated for each project. The notifications permit the Operations Center to update the Turnpike website, program any traffic warning devices, and notify media. Visual or anticipated backlogs will require backlog patrol(s) for the duration of the lane restrictions to provide early warning and queue detection to traffic as well as notify the Traffic Operations Center of backlog conditions.

It is everyone's responsibility to ensure the safety of our travelers and employees during roadway improvements. The Traffic Operation Center must be advised and updated on the status of all construction activities that have the potential to impact traffic. To provide consistent and timely notification, the following guidelines are to be followed every time a construction activity is anticipated to impact traffic:

### **Contractor**

Provide information for the [Construction Daily Lane Closure Report](#) to the PTC representative.

### **Lane Pattern Administrators**

Enter the information from the [Construction Daily Lane Closure Report](#) into the ATMS application. The [ATMS User Guide](#) provides guidance on requesting Business Partner access, accessing ATMS, and entering lane closure information. Anticipated lane patterns are required to be submitted at the beginning of each week.

The [ATMS User Guide](#) is available in the PCDS - PTC Reference Library/CI-PM-DM/ENG Construction/User Guides and Manuals.

Notes for entering information in ATMS:

1. Provide an estimate of the start time, the limits, and the duration when lanes are anticipated to be closed. Provide the worst-case scenario to minimize revisions of the lane closure duration.

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2. The start time is defined as when construction personnel will begin to erect or uncover signs. Safety is an important part of the process. The PTC Advanced Traveler Information System (ATIS) may be activated while setting up the traffic patterns. **Call the Duty Officer when construction personnel begin to erect or uncover signs.**
3. The milepost parameters of the work zone are defined as the first sign and last sign deployed.
4. **Call the Duty Officer when the lane restrictions are removed.** This time is defined when unrestricted travel begins. **Not when the pattern is in the process of being picked up.**
5. **Call the Duty Officer when there are any changes to the duration of the work or any changes to the traffic pattern (increase or decrease in length or lane changes).** Immediately call the Duty Officer as soon as this becomes evident. **Do not wait until the last minute** because the Traffic Operations Center needs time to update ATIS and notifications. If the lane restrictions are in effect longer than one shift, call the Duty Officer if there is a contact change and provide the necessary contact information.
6. For paces for equipment moves, include information within the ATMS “Purpose of Lane Closure” field, noting the approximate number of moves, start time, duration, and end time for the paces. **Call the duty officer when each pace starts and ends.**
7. **If a milled pavement section in a travel lane will remain after the end of a work shift, call the Duty Officer.** Provide the direction of travel, lane designation, and starting and stopping mileposts at the limits of the milled pavement section. This can be done when the Duty Officer is notified that the lane restrictions are removed.
8. When a long-term construction project with work behind barrier begins, call the Duty Officer to provide the location (nearest 1/10<sup>th</sup> of a mile in each direction of travel) of the first speed reduction sign, as well as the location of the speed limit sign past the “End Road Work” sign where normal speed resumes. Also, upon completion of a long-term construction project with work behind barrier, call the Duty Officer when the speed reduction signs are removed from the roadway.

**Call the Duty Officer Day or night as noted above at one of the following:**

- 717-831-7676
- 866-332-5889
- \*11 (if using a cellular phone)

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DATED		DATE		
01-09-18		<b>01-08-24</b>		
SUBJECT				
<b>WEATHER IMPACTS TO CONSTRUCTION</b>				

## **Pennsylvania Turnpike Commission Weather Event Management Playbook**

The Weather Event Management Playbook is designed to guide the operations of the Pennsylvania Turnpike when there is significant weather forecast. Weather event category descriptions are provided for a Weather Watch and Level 1 through Level 4 Storms. The playbook lists the procedures and responsibilities for the various PTC departments for all levels of storms. Refer to the most recent version of the Weather Event Management Playbook for additional details. The Traffic Engineering & Operations Department maintains and updates (as necessary) the Weather Event Management Playbook. As updates to the Weather Event Management Playbook are made, copies will be distributed to engineering construction staff and uploaded to the PCDS reference library. This section outlines responsibilities for construction projects.

### **Engineering Construction Weather Event Responsibilities**

#### **Weather Watch and Level 1**

- Assistant Chief Engineer - Construction participates with weather briefing (if held).
- Assistant Chief Engineer - Construction notifies the Engineer on Call and direct report staff of pending restrictions to be implemented to alert contractors.
- Project staff reviews, verifies, and updates (as necessary) contractor emergency contacts that have already been provided to the Traffic Operations Center for 24/7 coverage on projects.
- **As directed** by the Assistant Chief Engineer - Construction for Weather Watch and Level 1, project staff warns contractors and has them: check erosion and sedimentation (E&S) features; verify drainage systems and roadways are clear of debris; secure construction signs; identify construction activities that may impact field operations during weather incidents; and implement work prohibitions.

Note: Weather Watch and Level 1 event prohibitions will be dependent upon prevailing conditions.

#### **Weather Watch Level 2**

- Assistant Chief Engineer - Construction notifies the Engineer on Call and direct report staff of restrictions implemented to alert contractors.
- Project staff identifies any contractor construction activities that may impact field operations during weather incidents.

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- Project staff reviews, verifies, and updates (as necessary) contractor emergency contacts that have already been provided to the Traffic Operations Center for 24/7 coverage on projects.
- Project staff has contractors check erosion and sedimentation (E&S) features; verify drainage systems and roadways are clear of debris; and secure construction signs.
- Lane closures, shoulder closures, paces, and Plan X's are prohibited.
- Construction activities **not** behind physical concrete barrier are prohibited.
- Construction activities behind physical barrier are permitted if:
  1. Access into the work zone is from off the Turnpike system
  2. Access into the work zone from the Turnpike system is only occasional by light-duty pick-up trucks for other similar vehicles
- Construction activities behind physical barrier are **not** permitted if access into the work zone from the Turnpike is required for production or delivery vehicles such as dump trucks, excavators, concrete deliveries, asphalt deliveries, equipment deliveries, and other large construction vehicles.
- Project managers ensure that an adequate number of staff is available to conduct emergency operations.

#### Weather Watch Levels 3 and 4

Same as Level 2 plus:

- Once requested by incident command, coordinate with contractors for resources available to assist with the emergency. Note: Seasonally, the Assistant Chief Engineer - Construction will also coordinate with contractors regarding resources available to assist during Level 3 or 4 emergencies.

Note: For Levels 2, 3, and 4 without a pre-event meeting or advanced notification, as directed by the Assistant Chief Engineer - Construction, project staff warns contractors and has them: check E&S features; verify systems and roadways are clear of debris; secure construction signs; and identify construction activities that may impact field operations during weather incidents. Also, for Levels 2, 3, and 4 without a pre-event meeting or advanced notification, prohibitions will be dependent upon prevailing conditions as directed by the Assistant Chief Engineer - Construction.

#### Notifications

Once a Weather Watch or Level 1 through 4 notification is made by the Assistant Chief Engineer - Construction:

- Direct reports to the Assistant Chief Engineer – Construction will notify all of their project manager direct reports.
- Project managers will notify all PTC and consultant Inspector-in-Charge (IIC) level personnel; and,
- The IIC will notify the contractor.

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### **Documentation**

Within the Master Diary the IIC will document that:

- The contractor was given notice of the Weather Watch or Level 1 through 4 event.
- The Contractor's emergency contacts list for 24/7 coverage due to the storm was reviewed and either verified to be accurate or subsequently updated and provided to the Traffic Operations Center (if there are no updates to the emergency contacts list, there is no need to contact the Traffic Operations Center).
- E&S features were checked by the contractor and were either verified to be in good working order or subsequently repaired by the contractor to be in good working order.
- Drainage systems and roadway were checked by the contractor and were either verified to be clear of debris or subsequently cleared of debris by the contractor; and,
- Construction signs were checked by the contractor and were either verified to be secure or subsequently secured by the contractor.
- Any other activities required due to the Weather Watch or Level 1 through 4 Storms were performed.

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DATED 07-01-22		DATE  <b>01-08-24</b>		
SUBJECT  <b>PROCEDURE FOR NOTIFICATION OF EMERGENCY PULL-OFF (EPO), CONSTRUCTION ACCESS (CA), OR CROSSING CHANGES</b>				

The Pennsylvania Turnpike Commission's Traffic Operations Center must be advised and updated on the status of all construction activities that have the potential to impact travelers and Emergency Services. Emergency Pull-Off (EPO), Construction Access (CA), and Crossing locations throughout the Turnpike system are tracked by the Traffic Operations Center.

The Inspector-in-Charge (IIC) is responsible for updating the status of all EPOs, CAs, and Crossings for the project. Update when the following changes occur:

- New EPO, CA, or Crossing is established
- EPO, CA, or Crossing is changed in configuration or location
- EPO, CA, or Crossing is removed

Whenever an EPO, CA, or crossing is established, changed, or removed, enter the required information for the construction project within the Advanced Traffic Management System (ATMS). Refer to the ATMS User Guide for additional information. This information is referenced by the Traffic Operations Center if there is a need to dispatch emergency services to an EPO, an incident within the work zone, or any other operational need.

Also, whenever an EPO is established, changed, or removed, the IIC shall complete the Emergency Pull-Off, Construction Access and Crossings Locations Form and upload the completed form to the PCDS. The form is a record of all EPO, CA, combined EPO/CA and crossing locations and/or changes throughout the duration of the project.

Note: EPOs are intended for customer use, Emergency pull-offs may be used by the Contractor to access construction areas only if the emergency pull-off is unoccupied.

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DATED  05-10-17		DATE  <b>01-08-24</b>		
SUBJECT  <b>TRANSPORTATION MANAGEMENT PLAN (TMP) OVERSIGHT AND MAINTENANCE DURING CONSTRUCTION</b>				

The purpose of this section is to provide guidance for oversight and maintenance of the Transportation Management Plan (TMP) throughout the construction project. Determination is made during the design phase of a project as to whether a TMP is required on a construction project. The purpose of a TMP is to provide details of coordinated strategies that will be used to manage the operational impacts of a project during construction. Consideration is given to impacts on worker safety, motorist safety, emergency response, roadway queues and delays, business and property access, concurrent adjacent projects, etc.

Projects are categorized using criteria to determine whether the project is considered a Significant Project with respect to the work zone impacts. The TMP will include the following:

- Traffic Control Plan (TCP)
- Transportation Operations Plan (TOP)
- Public Information Plan (PIP)

The TMP lists the contact information and responsibilities for project stakeholders to facilitate interagency coordination. Stakeholders included in the TMP are PTC, Contractor, Emergency Services, Local Government Agencies, Utilities, PennDOT, Business and Property Owners, Schools, etc.

The PTC will designate a person at the project level to maintain the TMP. This PTC designee would have the responsibility and sufficient authority for implementing the TMP and other safety and mobility aspects of the project. The PTC designee will monitor and document the day-to-day activities being performed under the TMP. The PTC designee will ensure that monitoring activities are documented in the Inspector's Daily Report (IDR) and report any TMP issues to the PTC Project Manager (PM). The PTC PM will report and discuss any TMP issues with the PTC's Manager of Incident Management & Traffic Operations (MIM&TO, of PTC Traffic Engineering and Operations). If the issue requires TMP revisions to resolve, the PTC PM and the MIM&TO will agree to the resolution after receiving any necessary input from other stakeholders. Changes to the TMP will be communicated to all applicable stakeholders by the PTC PM, or designee. The TMP and any revisions should be uploaded to the PCDS.

The TMP should be reviewed monthly at a minimum and also prior to any change in phase or stage to assess the overall performance of the TMP and to ensure that the tasks and responsibilities outlined in the TMP are being performed. The TMP should be an agenda item for every project meeting and the MIM&TO, or their designee, should be invited to these meetings:

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- Pre-Construction Design Meeting (Section A.1-1) – Review the TMP requirements and construction staff responsibilities.
- Pre-Construction Conference (Section A.1-2) – Review TMP responsibilities and schedule a planning meeting with all stakeholders, if necessary.
- TMP Meeting – A separate meeting should be held to review the TMP. Hold additional TMP meetings, as necessary, throughout the duration of construction to revise or update the plan after any major incident (incident duration longer than two (2) hours) and prior to any major work zone changes such as Traffic Control Phase or Stage changes. This meeting may include a table top exercise with emergency responders to discuss:
  - Incident scenarios and procedures for special events during construction;
  - Mitigation strategies; and,
  - Additional coordination efforts.
- Monthly Progress Meetings – Discuss TMP performance and any issues.
- Plan X and Traffic Stoppage Pace Coordination Meetings (Section B.10-3) – Discuss the impacts of traffic stoppages, pacing, or Plan X on the requirements of the TMP.
- Pre-Operation Meetings (Section C100-2) – Discuss the TMP and review the TMP requirements.
- Post-Construction Design Meeting (Section D.2-1) – Review the overall performance of the TMP and discuss lessons learned to determine which elements should be included or improved in future TMPs.

The TMP should be reviewed to ensure the strategies and processes included in the plan are still relevant and adequate. Some general criteria used for assessing the performance of the TMP are as follows:

- Monitoring the overall work zone performance
- Verification and documentation requirements are being conducted
- Evaluating the individual TMP strategies
- Real-time traffic monitoring
- Number of crashes/incidents
- Promptness of incident response
- Travel time reliability
- Responsiveness of 24-hour contacts and accuracy of the contact information

Examples of TMP monitoring and status requirements that may be included in the contract documents are as follows:

- Updating contact names and 24-hour contact phone numbers
- Recurring traffic congestion (travel time, queue lengths, etc.)



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- Vehicular accidents within the construction limits
- Incident response and clearance times
- Lane closure installation and removal
- PCMS operation
- Combined issues/impacts with nearby concurrent projects
- Compliance with the TMP and contract requirements
- Community and environmental impacts

Section 11  
Materials Control – On Project

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DATED		DATE  <b>01-03-14</b>		
SUBJECT  <b>MATERIAL ACTION PLAN</b>				

The purpose of this section is to prescribe policies, procedures and guidelines that will be used to determine that the quality of the construction and materials incorporated into all PTC projects are in full compliance with the PTC, PennDOT, and FHWA policies, procedures and contract specifications.

The Materials Action Plan shall be followed on all PTC funded projects including Federal-Aid Highway Projects administered by the Pennsylvania Turnpike Commission.

The Material Action Plan consists of a multiple step process of a Quality Control Program, Acceptance Program, and Quality Assurance Program.

To ensure compliance to this policy this document presents specific details necessary to effectively control the production and acceptance of materials and construction for the Pennsylvania Turnpike Commission. The need for and use of a Quality Control (QC) and Quality Assurance (QA) function cannot be overemphasized for this purpose.

Quality cannot be tested or inspected into a product; it must be “built in”. As stated in Section 105.01(c) and the *AASHTO QC/QA Specification and Implementation Guide*, QC is the responsibility of the contractor. Thus it is imperative that the contractor have a functional and responsive QC Plan.

When a QC Plan is required, minimum requirements are helpful as a guide to the contractor. This approach provides a uniform basis for bidding and ensures a minimum level of QC. It is important that a QC Plan address the actions needed, including the frequency of testing to:

- a) Keep the process in control
- b) Quickly detect when it goes out of control
- c) Respond adequately to bring the process back into control

It is especially important to establish practical and realistic control limits based on the process capability to best determine when the process should be adjusted and when it is best left alone.

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The Commission will implement an organizational structure that provides a separation of the administration to assure an independent evaluation of the acceptance procedures exists. The *Quality Control Program* will be administered by the Contractor. The *Acceptance Program* will be administered under the Materials Management Supervisor. The *Quality Assurance Program* will be administered under the supervision of the Quality Assurance Supervisor. Personnel involved in these programs will be knowledgeable in proper construction, sampling, and testing procedures and will be certified by NICET, or have any equivalent combination of experience and/or training which provides required knowledge, skill and ability.

**Quality Control Program** - The Contractor shall provide and maintain a QC system for all operational activities that will provide reasonable assurance that the materials and products submitted to the PTC for acceptance conform to the specification requirements whether manufactured or processed by the contractor or purchased from suppliers or subcontractors. The contractor shall perform or have performed the inspection and tests required to substantiate product conformance to the specifications. The contractor QC procedures, inspections and tests shall be documented and shall be available for review by the PTC.

**Acceptance Program** - The Acceptance Program is a prescribed procedure of taking a sample and making measurements on the sample, for the purpose of determining that the quality of the materials and products on all construction projects including Federal Aid projects meet the contract specification requirements. The objective of acceptance sampling and testing is to determine a course of action (accept or reject). It is not an attempt to “control quality”. Acceptance sampling shall at a minimum define the following:

- Quantity of material considered for acceptance. (Lot size)
- Number of samples or measurements
- Sampling or measurement procedure
- Point(s) of sampling or measurement
- Method of acceptance
- Specification Limits

The acceptance sampling and testing frequency is less than that used by the contractor for QC purposes.

**Quality Assurance Program** - The Quality Assurance Program provides an unbiased independent evaluation of the acceptance procedures used in the Acceptance Program. The Quality Assurance Program is documented in the Quality Assurance Manual.

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DATED		DATE		
09-25-20		<b>01-08-24</b>		
SUBJECT		<b>QUALITY CONTROL PROGRAM</b>		

The Commission will require contractors and material suppliers that provide products and materials to all projects, including Federal-Aid construction projects, to implement and maintain a Quality Control System as specified in Section 106.03(a) and/or 106.03(b). This requirement is to assure all materials, products and completed construction being produced and submitted for acceptance, consistently conform to contract specifications.

## 1. Quality Control Plans

- (a) **Contractors:** The Contractor is responsible for the control and quality of the material and construction of the project. The Commission will require Contractors to submit their quality control plan at the start of construction and annually as required by contract specifications to the Inspector-In-Charge and Commission's Materials Management Supervisor for review. The quality control plan will be submitted prior to starting the operation and will include a detailed description of the QC staffing, materials handling, construction procedures, calibration and maintenance of equipment, product process control, and sampling and testing frequencies. The plan will include work of the Contractor and any Subcontractors used to complete the project. The Contractor will be required to perform quality control testing in accordance with the reviewed quality control plan. The Contractor has the responsibility to notify the Inspector prior to performing QC sampling and testing and report results to the Inspector.
- (b) **Material Suppliers:** The Commission will require each producer to annually submit a Quality Control Plan. Quality Control Plans for Asphalt Concrete, Portland Cement Concrete, and Aggregate suppliers will meet the minimum requirements as noted in Section B12-1, B12-4 and B12-7.
- (c) **Bulletin 15 Material Suppliers:** Material suppliers listed in Bulletin 15 are covered by the Pennsylvania Department of Transportation policy. The Commission will not provide additional requirements or oversight in this area.

## 2. Quality Control Plan Submittal and Review

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The Contractor shall prepare a plan of QC system to be used for all construction work requiring acceptance testing by the Commission. The QC Plan should include QC test frequencies and action points to initiate corrective measures. Section 106.03(a)2 provides a guideline for the minimum requirements of the QC Plan. Since it is not possible to determine from the content of the QC Plan whether quality construction will result, the submitted plan is not approved but accepted based on whether the plan clearly addresses all the elements that are required by contract. The accepted QC Plan will be uploaded into the Project Collaboration Documentation System (PCDS) and made available for review by all Inspectors.

### **3. Quality Control Coordination Meeting**

After acceptance of the Contractor's QC Plan and prior to the start of construction, the Inspector-In-Charge will conduct a Quality Control meeting to discuss the accepted plan. The meeting should include the Contractor, Contractor's quality control personnel, Commission's Materials Management Supervisor, Commission's Quality Assurance Supervisor and project Inspectors at a minimum. A similar meeting should be conducted after the submission and acceptance of QC Plans which are required to be submitted annually. In addition, the Contractor's QC plans are to be submitted for specific items of work as required by the Specifications. Refer to Section [C 100-2 Pre-Operation Meetings](#) for details regarding required meetings pertaining to specific construction operations. Meeting minutes of the meeting including participants will be documented and included in the PCDS.

### **4. Quality Control Program Inspection**

Commission personnel or representatives will be assigned to monitor the Contractor's construction activities. QC sampling and testing will be witnessed by these Inspectors and the results of the testing will be documented in the Inspector's Daily Report.

Commission personnel or representatives may be assigned to plants and producers to provide inspection of material production operations. Personnel assigned to plants and producers will assure that all materials and products are being produced consistently and meet contract specifications. Personnel will witness QC sampling and testing and monitor the producers' operations are performed in accordance with the approved quality control plan. Plant inspection documentation shall be in accordance with Section B12-2, B12-5 and B12-8.

For vertical construction project, specific Quality Control requirements may be addressed within the contract specifications. Follow the requirements specified in Division 01-General Requirements. Specific quality assurance and quality control requirements for individual construction activities may also be specified in the contract Sections that specify those activities.

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01-08-19		<b>01-08-24</b>		
SUBJECT		<b>ACCEPTANCE PROGRAM</b>		

The Commission will be responsible for the acceptance of the construction process and materials used. Commission personnel or their representatives will inspect the construction operations to determine whether the work being performed, or which has been completed, is in accordance with the plans, specifications, and contract. Acceptance samples will be selected in accordance with PTM 1 and tested to determine compliance to the material specifications.

(1) Sampling and Testing Frequency

The minimum frequency for sampling and testing of construction materials shall be in accordance with the Section B11-6. Sample locations will be selected on a random basis in accordance with PTM 1. Acceptance sampling and testing is usually sampled at the point of placement and tested on the project or in the vicinity of the project. The Commission's Materials Inspection Agreements may be used to supplement the project laboratory.

For vertical construction projects, follow the frequency for sampling and testing of construction materials per the requirements specified in each contract Section for the material supplied.

(2) Material Source Approval

Prior to using a material on the project, the Contractor must submit to the Commission for approval Form PTC- MSA, Material Source of Supply, listing the source of all materials to be used.

(3) Certification of Material

Materials must be properly certified in accordance with Section 106.03(b)3 *prior* to being incorporated into the project. For pre-qualified products or producers, the Commission will utilize the Pennsylvania Department of Transportation's policy and requirements as indicated in Section B11-2. The Inspector shall obtain an Acceptance sample, or the contractor/producer shall obtain a Quality Control sample at the same time one of the Quality Assurance sample increments is lifted. A comparison between the laboratory and the field tests shall be made. Quality assurance test results shall be plotted on Form TR-4254 Straight-Line Analysis chart.

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Most material used in vertical construction projects are not from Penn DOT pre-approved manufacturers or suppliers. For these materials a CS-4171 form will not be supplied. It will be the Inspector's responsibility to verify the products supplied and incorporated into the project match the approved shop drawings and/or catalog cut sheets.

(4) Quality Assurance Reviews at Prestressed/Precast Concrete Plants and Fabricated Structural Steel Plants

The Commission will utilize, as a guide, the Department's Quality Assurance programs as follows: for prestressed and precast concrete products including reinforced concrete pipe (Pub. 145 "Inspection of Prestressed/Precast Concrete Products and Reinforced Concrete Pipe and Pub. 280 "Manufacturing Specification for Reinforced Concrete Pipe"); for fabricated structural steel products (Pub.135 "Inspection of Fabricated Structural Steel).

(5) Acceptance of Small Quantities of Materials

Modified sampling procedures may be implemented with the approval of the Materials Management Supervisor for accepting relatively small quantities of materials for which standard procedures would be too costly. Material specifications are not to be waived, nor are materials of lower quality to be accepted. Section C700-3 shall be followed for those materials where small quantity acceptance procedures are permitted.

The Contractor shall be informed at the pre-construction conference of the circumstances under which this acceptance procedure will be used.

The small quantity procedure may only be used for materials supplied by approved sources of supply listed in PennDOT Bulletins 14, 41, or 42.



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01-07-20		<b>11-30-20</b>		
SUBJECT	<b>QUALITY ASSURANCE PROGRAM</b>			

The Quality Assurance (QA) Program is a management method intended to evaluate the quality of materials and construction procedures through an unbiased and independent inspection of the system of quality control and acceptance sampling and testing.

Quality Control relates to a production process in action and indicates when a process should be examined for correction or when a *process is best left alone*. Quality Control sampling, testing and inspection are primary responsibilities of the Contractor and/or Producer.

Acceptance sampling, testing, and inspection relate to the entire lot of product or construction and enable the Commission to decide on the basis of tests or observations whether to accept a given lot from a Contractor and/or Producer. Acceptance sampling, testing, and inspection are primary responsibilities of the Commission as further defined in the Acceptance Program (Section B11-3).

The Commission's management will be provided with continuous reporting of the effectiveness and proficiency of the entire quality process and material performance.

The goal of the entire QA Program is to achieve and maintain an acceptable quality level for highway construction. Quality level is defined as the desired standard as established in the specification limits of a measurable characteristic for a given material. This program is separate from and is not a substitute for the Acceptance Testing and Inspection, which is the heart of construction control.

The QA Program is planned to produce information on the preservation of the quality of materials and construction activities. Therefore, when practical, it contemplates the sampling of materials in place on the roadway and the observation of the construction, contract inspection, and administrative activities.

Provision is also made for obtaining samples of certain raw materials as they are being used, where it is not possible or practical to obtain samples from the completed work. Thus, assurance sampling will consist of both kinds of samples, as well as witnessing field tests and measurements when possible. Samples obtained by the QA teams will be designated as Quality Assurance (QA) samples. The results of this testing will also provide a comparison of laboratory and field measurements. Thus, the need for comparison samples to be sent from field to the laboratory on a routine basis is eliminated.

Field samples should only be submitted for confirmation of field results when deemed necessary

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by the Representative; when investigational samples are required by the Representative; or, when the necessary test cannot be made in the field.

The concept of control, acceptance, and assurance sampling is involved with the use of probability-based methodology. Careful study and application of these methods will indicate that they are mathematical applications of judgment which have been applied for some time.

### **Levels of Sampling Responsibility**

The concept of the Contractor-Commission relationship must be clearly understood with respect to construction specifications. It should be emphasized at the beginning that only the Contractor who does the work can control the quality during construction. An inspector observes the Contractor's employees, and in the end the Contractor's employees are the ones who do the work. This is why training is so important in developing not only the proper skills to attain the quality desired, but also the proper attitudes.

*Secondly, control of the quality during the construction phase is an activity that must come before the fact. It is unrealistic for an engineer to retest, after a job is done, to rationalize an improvement in the quality of the material; it is too late at this point. The quality desired is either there or is not, and if it is not, the material may have to be rejected.*

### **Factors in a Quality Control System**

#### ***Definition of sampling responsibilities***

There are three distinct phases which are required for the control of the quality of construction materials. These three phases are shown more clearly in Figure 1 where the responsibilities of sampling connected with each phase are highlighted. They are:

- 1) Process control and inspection sampling by the contractor and/or material supplier to assure that the product will meet the requirements specified.
- 2) Acceptance sampling portions of the construction by the Commission to guarantee that the Commission *is* getting what it has contracted.
- 3) Assurance sampling by Commission QA teams. Assurance sampling provides management with an overview of specification performance resulting from the monitoring of process quality control, as well as acceptance procedures. It is extremely important that these three *levels of* responsibility are thoroughly understood.

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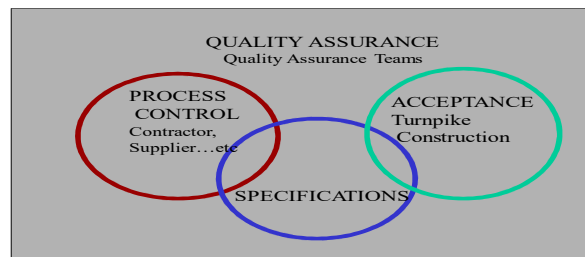


Figure 1. Responsibility for Sampling and Testing

### Contractor Process Control

The Contractor has control of purchasing materials, assigning equipment and personnel, the work being done. The Contractor is responsible for the results obtained.

The contractor must implement a Quality Control plan in accordance with Section 106.03(a) and/or 106.03(b) to control the process and assure that the product will be accepted. It is very important that the contractor establish a sampling, testing, and control program that will ensure the process can provide a product of acceptable quality.

This assessment can be based on the information developed at the beginning of the work, or on past data developed from similar work. Secondly, the assurance that inspection will occur on those items that cannot be sampled and tested (such as form strength and bracing, curing and protection of concrete, proper placing of reinforcement, steel erection, paint coverage, dimensions, etc.).

Without a formalized process control program properly implemented, the Contractor cannot determine the level of quality until the product is tested for acceptance, risking a great financial loss if the product is rejected. This scenario may also result in construction delays and cost overruns.

### Commission Acceptance Sampling

The Commission can either accept or reject work at various stages, either through sampling, testing, or inspection depending on the circumstances. The acceptance of various portions of the project by having random samples taken in that portion will be the responsibility of the Inspector-In-Charge. Job acceptance will be done in accordance with the established *Acceptance Program*.

There is a defined Acceptance Plan in each specification outlining the procedures that must be followed. An Acceptance Plan is defined as an agreed upon method of obtaining a sample, for the purpose of determining the acceptability of a LOT of material or construction. Briefly, the Acceptance Plan defines the following:

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1. LOT size
2. Number of samples or measurements
3. Sampling or measuring procedure
4. Point(s) of sampling or measurement
5. Method of evaluation
6. Numerical value of specification limits

### **Commission Quality Assurance Sampling**

The Quality Assurance Program is the third level of sampling and inspection. Broadly defined, Quality Assurance encompasses the actions and considerations included in both “Quality Control” and “Acceptance Sampling and Testing.” This program is employed as a management method to evaluate the quality of construction through an unbiased inspection of the system of quality control and acceptance sampling and testing. The Commission’s management will be provided with a continuous assurance of the effectiveness and proficiency of the quality control inspection and acceptance programs.

### **Quality Assurance Independent Laboratory**

The Commission will engage a Certified Independent Laboratory that participates in a National Reference Laboratory Inspection program for QA testing. The QA Independent Laboratory will be under the direction of the QA Supervisor. The QA Laboratory will be free of any quality control program and acceptance program testing on any projects involved in this program. The QA Independent Laboratory shall perform the function of the Department’s LTS.

### **Quality Assurance Implementation**

The Commission’s Quality Assurance Unit will have the primary responsibility of directing the Quality Assurance program. The principal objectives of the Quality Assurance Program may be outlined as follows:

1. Provide data for study and statistical analysis which can be used for the modification or revision of specifications, standards, methods and processes.
2. Improve materials and construction acceptance through evaluation of construction, inspection and engineering practices.

The Quality Assurance Technicians are responsible for taking assurance samples and for witnessing test procedures. QA samples will be tested at the Commission’s Independent Laboratory. The laboratory will test all aggregates, cement concrete, asphalt concrete and soil samples in accordance with PennDOT PTM. Pub. 19. At the same time as assurance samples are obtained, the construction personnel are to take acceptance samples or QC samples so that a close comparison with laboratory and field tests for sampling and testing validation is possible.

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A copy of results will be forwarded to the project for comparing with acceptance tests and to the Quality Assurance Supervisor. All test results including quality assurance and investigation tests shall be plotted.

## **QUALITY ASSURANCE OUTLINE OF OPERATIONS**

- ◆ The QA Supervisor assigns the QA Technician to perform project reviews based on the construction schedule and the Acceptance Program requirements for that project.
- ◆ The QA Technician will review the contract plans and specifications and complete the “Frequencies of Quality Assurance Operations Reviews Including Samples” worksheet. As project reviews are completed, the QA Technician will update the progress of reviews on the worksheet.
- ◆ QA Technician will notify the Inspector-In-Charge (IIC) upon arrival on site and the purpose of the visit.
- ◆ QA Technician will perform construction operation review and document the findings as per the required checklist in CDSQA.
- ◆ QA Technician will obtain any material samples as required.
  - For any samples that will be taken from the project immediately, (asphalt /aggregate/Bulletin 15) identify location, material specification requirements, package and complete the QA submission form, and deliver to the QA test lab within the time requirement.
  - For concrete samples to be left on project, notify the IIC of requirements. Delivery to the QA test lab will occur later.
- ◆ QA Technician will obtain all the necessary information (certs, slips, mix design, etc.) from the Project Collaboration and Documentation System (PCDS) and/or the field office as needed to complete the review. (A follow up the next day may be necessary).
- ◆ QA Technician will review findings of operation review with the IIC and thoroughly discuss any non-conforming items. Documentation of all items of discussion will be noted in the report.
- ◆ Initial frequency reviews will be conducted by the QA Technicians. If discrepancies are found the QA Technician will focus on projects with reoccurring issues and priority will be given to these projects.
- ◆ QA Technician generates the report and forwards to the IIC. The IIC reviews, addresses the corrective action to be taken and signs the report. The IIC then forwards the report to the QA Supervisor. The QA Supervisor upon receiving the report will review the response and discuss the proposed corrective action with the QA technician. The QA Supervisor forwards the report to the PTC Project Manager for review.
- ◆ The official QA report will be uploaded to PCDS within 5 working days of the review date from the QA Technician.
- ◆ Level 1 and 2 findings will have a follow-up review by the QA technician within 30 days to verify the corrective action taken.
- ◆ QA inspection of asphalt, portland cement, and pre-cast plants will require the QA technician to notify the PTC plant inspector upon arrival on site. A review of the documentation, including testing results and procedures will be made. The inspection of current operations will also be

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reviewed. The inspection of any finished products will be made, and the verification of any stored materials payments will be verified.

- ◆ Commission personnel / QA Technician will visit each (Concrete and Asphalt) material plant to review the production operations and plant inspection performance. Visits will be made at the frequencies listed in Sections B12-3 and B12-6. Commission personnel / QA Technicians under the supervision of the Quality Assurance Manager will assume the duties of the Materials Manager. Each visit will include a detailed check list review of the producers' quality control activities. All findings and corrective actions will be documented in the Plant Master Diary and a copy of the checklist will be filed with the plant records.
- ◆ Reference COM Part B, Section 12-1 Minimum Quality Control for Asphalt Concrete.
- ◆ Reference COM Part B, Section 12-6 Minimum PTC Quality Assurance Plan for Portland Cement Concrete Plants.
- ◆ No Plant samples to be taken by QA.
- ◆ All plant inspection reports are sent to the QA supervisor within the next day. Any discussion that is needed takes place and a copy of the final QA report uploaded to the PCDS within 5 working days.
- ◆ All test results for any sample taken from the field locations are forwarded to the Construction Engineering Manager. They are to be placed into the PCDS. Tests results that are not in conformance with Specifications are reviewed by the Quality Assurance Supervisor. Recommendations of corrective action (if any) are noted on the reports to the Construction Engineering Manager. A QA follow-up review will be performed by the QA Technician. The IIC or materials supervisor is notified of all corrective action that will be undertaken.
- ◆ Any QA discrepancies from field reports or sample material failures are discussed at the project monthly meetings as needed.
- ◆ The Quality Assurance Manager should be notified of any level 1 finding as soon as practical. The QA Manager will then advise the Project Manager, Construction Engineering Manager (CEM) and the Assistant Chief Engineer - Construction of these discrepancies as soon as practical.
- ◆ The QA Manager will keep a database of all level 1 and level 2 findings with follow up action and resolution information.

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FREQUENCIES OF QUALITY ASSURANCE OPERATION REVIEWS INCLUDING SAMPLES						
CONTRACT:		CONTRACTOR:		INSPECTOR-IN-CHARGE:		
TYPE OF CONSTRUCTION	MATERIAL (SUPPLIERS)	FREQUENCY	TESTS/SAMPLE'S	STRAIGHT LINE CHARTS	PLAN QUANTITY	REVIEW DATES S-SAMPLES)
EMBANKMENT	SOIL	1 REVIEW >100,000CY < 300,000 CY 2 REVIEWS >300,000CY < 700,000 CY 3 REVIEWS >700,000CY < 1,000,000 CY 1 ADD. REVIEW EACH 1,000,000 CY SEE NOTE: 1	COMPACTION, MOISTURE/DENSITY RELATIONSHIP, GRADATION	COMPACTION, GRADATION SEE NOTE: 1A		
PIPE BACKFILL (ALL PIPES 15" DIAMETER OR GRATER	AGGREGATE (FOR SUPPLIERS SEE NOTE: 9)	1 REVIEW >5,000 LF < 10,000 LF 1 REVIEW >10,000 LF < 30,000 LF 1 REVIEW >30,000 LF < 60,000 LF 1 ADD. REVIEW EACH 30,000 LF SEE NOTE: 2	COMPACTION, MOISTURE/DENSITY RELATIONSHIP, GRADATION	COMPACTION, GRADATION SEE NOTE: 2A		
MSE WALL	GRANULAR (FOR SUPPLIERS SEE NOTE: 9)	(1 REVIEW PER STRUCTURE)	GRADATION	GRADATION (MIN. OF 5 TESTS)		
STRUCTURE BACKFILL	AGGREGATE (FOR SUPPLIERS SEE NOTE: 9)	1 REVIEW >4,000 CY < 8,000 CY 1 ADD. REVIEW EACH 4,000 CY SEE NOTE: 3	COMPACTION, MOISTURE/DENSITY RELATIONSHIP, GRADATION	COMPACTION, GRADATION (MIN. OF 10 TESTS PER AASHTO NO.)		
SUBBASE	AGGREGATE (FOR SUPPLIERS SEE NOTE: 9)	1 REVIEW >50,000 SY < 100,000 SY 2 REVIEWS >100,000 SY < 200,000 SY 1 ADD. REVIEW EACH 200,000 SY SEE NOTE: 3	COMPACTION, MOISTURE/DENSITY RELATIONSHIP, GRADATION	COMPACTION, GRADATION (MIN. OF 25 TESTS EXIST)		
BASE COURSE (EXEPT LEAN CEMENT CONCRETE)	VARIOUS	SAMPLE FREQUENCIES AS SUBBASE SEE NOTE: 4	COMPACTION, MOISTURE/DENSITY RELATIONSHIP, GRADATION, BOX SAMPLES, TEMPRATURE AND DEPTH CHECKS	GRADATION		
LEAN CEMENT CONCRETE BASE COURSE		SAME AS PCCP&S SEE NOTE: 5	W/C RATIO, AIR, SLUMP, CYLINDERS, TEMPRATURE	W/C RATIO, SLUMP PLASTIC AIR, STRENGTH		
PORTLAND CEMENT CONCRETE BASE PAVEMENT (501 AND 506) AND SHOULDERS		1 REVIEW >20,000 SY < 50,000 SY 2 REVIEWS >50,000 SY < 100,000 SY 1 ADD. REVIEW EACH 100,000 SY SEE NOTE: 6	W/C RATIO, AIR, SLUMP, CYLINDERS, TEMPRATURE	W/C RATIO, SLUMP PLASTIC AIR, STRENGTH (MIN. OF 10 TESTS PER CLASS EXIST.)		

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FREQUENCIES OF QUALITY ASSURANCE OPERATION REVIEWS INCLUDING SAMPLES						
CONTRACT:		CONTRACTOR:		INSPECTOR-IN-CHARGE:		
TYPE OF CONSTRUCTION	MATERIAL (SUPPLIERS)	FREQUENCY	TESTS/SAMPLE'S	STRAIGHT LINE CHARTS	PLAN QUANTITY	REVIEW DATES S-SAMPLFS)
PORTLAND CEMENT CONCRETE STRUCTURES	CONCRETE	1 REVIEW <: 1,000 CY < 4,000 CY 1 ADD. REVIEW EACH 4,000 CY SEE NOTE: 7	(SAME AS PCCP& S)	(SAME AS PCCP&S)		
PORTLAND CEMENT CONCRETE PATCHING	CONCRETE	REVIEW <: 10,000SY <20,000SY 2 REVIEWS <: 20,000 SY < 50,000 SY 1 ADD. REVIEW EA.CH 50,000 SY SEE NOTE: 6	W/C RATIO, AIR, SLUMP, TEMPERATURE, CYLINDERS	W/C RATIO, SLUMP, PLASTIC AIR, STRENGTH (MIN. OF TEN TESTS/CLASS)		
ASPHALT CONCRETE PAVEMENT	ASPHALT	1 REVIEW <: 50,000 SY < 140,000 SY 1 ADD. REVIEW EACH 100,000 SY SEE NOTE: 8	BOX SAMPLES, DEPTH CHECKS, TEMPERATURE CHECKS	MIX TEMPERATURE		
AGGREGATE SUPPLIERS	(SEE NOTE 9)					
PORTLAND CEMENT SUPPLIERS			GRADATION AND WASH TEST			
ASPHALT CONCRETE SUPPLIERS	(SEE NOTE 10)		SEE NOTE 10			

NOTE: 1 ONE REVIEW INCLUDES WITNESSING OR PERFORMING 3 DENSITY TESTS (NUCLEAR TEST, SAND CONE OR NON-MOVEMENT VISUAL TEST

NOTE: 1A WHEN A MINIMUM OF 10 PER SOIL TYPE EXISTS

NOTE: 2 THREE DENSITY TESTS ARE DESIREBLE FOR EACH REVIEW

NOTE: 2A WHEN A MINIMUM OF 10 TESTS PER AASHTO NO. EXISTS

NOTE: 3 ONE REVIEW (PER SUPPLIER) INCLUDES WITNESSING OR PERFORMING 3 DENSITY TESTS

NOTE: 4 ONE REVIEW INCLUDES WITNESSING OR PERFORMING 3 DENSITY TESTS WHERE APPLICABLE  
NOTE: 5 ONE REVIEW INCLUDES MOLDING 4 CYLINDERS WITH SLUMP AND AIR TESTS RUN ON EACH SAMPLE CYLIDERS ARE MOLDED FROM

THE INSPECTOR AND QA WILL PERFORM STRENGTH TESTS ON 2 CYLINDERS EACH  
NOTE:6 ONE REVIEW INCLUDES MOLDING FIVE CYLINDERS WITH SLUMP AND AIR TESTS RUN ON EACH SAMPLE CYLINDES ARE MOLDED FROM.  
THE INSPECTOR WILL PERFORM STRENGTH TEST ON 2 CYLINDERS. THREE CYLINDERS WILL BE SUBMITTED TO THE QA LAB WITH 2 CYLINDERS FOR STRENGTH TESTS AND 1 CYLINDER WILL BE TESTED FOR AIR IN THE HARDEND CONCRETE

NOTE:7 PARAMETERS ARE THE SAMPLE AS PCCP&S. FOR STRUCTURAL ELEMENTS, THE FIELD ACCETANCE AND QA STRENGTHS ARE TO BE COMPLETED

NOTE:8 ONE REVIEW INCLUDES LIFTING 3 BOX SAMPLES FOR GRADATION MINUS 75  $\mu$ M (No.200 SIEVE) MATERIAL AND BITUMEN CONTENT

#### **SUPPLIERS:**

NOTE: 9 VERIFY DURING QUALITY ASSURANCE REVIEWS ALL RECEIVED MATERIALS ARE FROM AN APPROVED BULLETIN 14 SUPPLIER AND CS-4171 FORMS ARE SUBMITTED

NOTE: 10 A REVIEW INCLUDES LIFTING 3 BOXES OF THE COMPLETED MIXTURE AND 1 SAMPLE OF THE ASPHALT CEMENT. WITNESSING TESTING OF A COMPANION SAMPLE FOR ASPHALT CONTENT AND MINUS 75  $\mu$ M(No.200 SIEVE) MATERIAL FOLLOW REQUIREMENTS OF B12-3.



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FREQUENCIES OF QUALITY ASSURANCE OPERATIONS REVIEW			
Subject	CDS Audit List	Frequency	Review Dates
Certification and Acceptance of Materials	PTC COR 106	2	
Project Documentation Review	PTC COR 110	2	
Work Orders	PTC COR 110.03	3	
Embankment	PTC COR 206	6	
Subgrade	PTC COR 210	6	
Asphalt Concrete Base Course	PTC COR 305	6	
Asphalt Pavement Base Course	PTC COR 309/313	6	
Subbase	PTC COR 350	6	
Asphalt Pavement	PTC COR 409/413	6	
Asphalt Seal Coat	PTC COR 470	6	
Cement Concrete Pavement	PTC COR 501	6	
Bridge Approach Slabs	PTC COR 505	4	
Cement Concrete Pavement, RPS	PTC COR 506	6	
Cement Concrete Patching	PTC COR 516	6	
Concrete Pipe Culverts	PTC COR 601C	5	
Metal Pipe Culverts	PTC COR 601M	5	
Plastic Pipe Culverts	PTC COR 601P	5	
Guide Rail	PTC COR 620	5	
Concrete Median Barrier	PTC COR 623	5	
Gabions	PTC COR 626	5	
Cement Concrete Shoulders	PTC COR 658	6	
Maintenance and Protection of Traffic	PTC COR 901	7	
Prefabricated Retaining Walls	PTC COR 1000	4	
Cement Concrete Substructure	PTC COR 1001	4	
Cement Concrete Bridge Decks	PTC COR 1001.3-k-5	4	
Cement Concrete Parapets	PTC COR 1001.3-q	4	
Structural Backfill	PTC COR 1001.3-t	4	
Piles	PTC COR 1005	4	
Drilled Caissons	PTC COR 1006	4	
Latex Bridge Decks	PTC COR 1042	4	
Painting Structural Steel	PTC COR 1060	4	
Precast Box Culverts	PTC COR 1085	4	
Noise Barriers	PTC COR 1086	4	
Steel Bridge Superstructure	PTC COR 1105	4	
Concrete Beam Erection	PTC COR 1107	4	
Miscellaneous Construction	PTC COR MISC	5	
Erosion & Sediment Pollution Control	PTC COR E&SPC	1*	
NPDES Permit	PTC COR NPDES	1	
Project Safety	PTC QAS 107.08	2	
Project Labor Compliance	PTC QAS 107.22	2	

\* Or more frequently if directed

Note 1: Initially and every (2) months thereafter

Note 2: Initially within first 2 months and every 6 months there after

Note 3: Quarterly

Note 4: Minimum 1 review per Bridge/structure

Note 5: Minimum 1 review per project if applicable

Note 6: Follow sampling frequencies

Note 7: Initially and every (2) months there-after (Includes Holiday Shutdown Reviews)

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DATED		DATE		
12-31-20		<b>01-08-24</b>		
SUBJECT	<b>MATERIALS TESTED IN THE FIELD FOR PROJECT ACCEPTANCE</b>			

### **MATERIALS ACCEPTED BY PROJECT SAMPLING**

This section includes all of the materials accepted by project acceptance sampling. The samples, unless specified otherwise, are to be taken at the point of placement. The testing can be accomplished directly on the project, in the vicinity of the project or utilize a Commission Material Inspection Agreement laboratory.

Only projects equipped with a field laboratory, as indicated in Section 609.2(a)3, are required to follow Section 703.5(b)3, Table F. The requirements of Table F are applicable to aggregates used for subbase applications under the roadway and shoulders as specified in Section 350. Other aggregate types or applications may be sampled for project verification if the Representative determines that the material is visually suspect.

The following guidelines are a minimum for sampling frequencies and sample sizes for acceptance testing of construction materials. 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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<b><u>Material</u></b>	<b><u>Embankment or Fill</u></b>	<b><u>Subgrade</u></b>	<b><u>Pipe Backfill</u></b>
<b><u>Start-up Frequency</u></b>	As per section 206.3(a)2, Table A	As per section 206.3(a)2 Table A.	As per section 206.3(a)2, Table A
<b><u>Production Frequency</u></b>	As per section 206.3(a)2, Table A	As per section 206.3(a)2, Table A	As per section 206.3(a)2, Table A
<b><u>Size of Sample</u></b>	As per PTM 106	As per PTM 106	As per PTM 106
<b><u>Test Method</u></b>	Proctors run initially and when material changes. PTM No. 402*	Proctors run initially and when material changes. PTM No. 402*	Proctors run initially and when material changes. PTM No. 402*
<b><u>Small Quantity</u></b>	See COM Part C.700-3	N/A	See COM Part C.700-3.

\* Accepted by non-movement under compaction equipment if material meets the requirements of Section 206.2(a)1.c, 1.d, 1.e, or 1.f. Complete Form [PTC-478A](#).

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<u><b>Material</b></u>	<u><b>Structure Backfill</b></u>	<u><b>Subbase</b></u>	<u><b>Base Courses</b></u>
<u><b>Frequency</b></u>	Continuous*	703.5(b)3, Table F**	See appropriate specification for type of base.
<u><b>Size of Sample</b></u>	N/A	N/A	See appropriate specification for type of base.
<u><b>Test Method</b></u>	*	*	
<u><b>Small Quantity</b></u>	N/A	See COM Part C.700-3	See COM Part C.700-3

\* Accepted by non-movement under compaction equipment. Complete Form [PTC-478A](#).

\*\* If project equipped with a field laboratory

Part <b>B</b>	Section <b>11-6</b>	Page <b>4 of 11</b>	Date <b>01-08-24</b>
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<b><u>Material</u></b>	<b><u>Base Repair</u></b>
<b><u>Frequency</u></b>	See appropriate specification for the type of base
<b><u>Size of Sample</u></b>	See appropriate specification for the type of base
<b><u>Test Method</u></b>	
<b><u>Small Quantity</u></b>	See COM Part C.700-3

Part <b>B</b>	Section <b>11-6</b>	Page <b>5 of 11</b>	Date <b>01-08-24</b>
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<u><b>Coarse Aggregate</b></u>	<u><b>AASHTO No. 10</b></u>	<u><b>AASHTO No. 8</b></u>	<u><b>AASHTO No. 67 and 7</b></u>	<u><b>AASHTO No. 3</b></u>
<u><b>Size of Sample</b></u>	2 lb.	13 lb.	27 lb.	54 lb.
<u><b>Coarse Aggregate</b></u>	<u><b>AASHTO No. 1</b></u>	<u><b>PA No 2A and OGS</b></u>	AASHTO No. 57	AASHTO No. 5
<u><b>Size of Sample</b></u>	Section 850.2(a)1	45 lb.	30 lb.	32 lb.
<u><b>Frequency</b></u>	Section 703.5(b)3 Table F			
<u><b>Test Method</b></u>	Grading PTM 616			
<u><b>Small Quantity</b></u>				

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<u>Coarse Aggregate</u>	<u>AASHTO No. 8</u>	<u>AASHTO No. 7</u>	<u>AASHTO No.67</u>	<u>AASHTO No. 57</u>
<u>Size of Sample</u>	2 lb.	5 lb.	5 lb.	7.7 lb.
<u>Coarse Aggregate</u>	<u>AASHTO No. 5</u>	<u>AASHTO No. 3</u>	<u>PA No. 2A and OGS</u>	
<u>Size of Sample</u>	10 lb.	10lb.	8.8 lb.	
<u>Frequency</u>	Section 703.5(b)3 Table F			
<u>Test Method</u>	Loss by Wash PTM 100			
<u>Small Quantity</u>				

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<u><b>Coarse Aggregate</b></u>	<u><b>AASHTO No. 10</b></u>	<u><b>AASHTO No. 8</b></u>	<u><b>AASHTO No.7</b></u>	<u><b>AASHTO No. 67</b></u>
<u><b>Size of Sample</b></u>	3 lb.	5 lb.	5 lb.	7 lb.
<u><b>Coarse Aggregate</b></u>	<u><b>AASHTO No. 57</b></u>	<u><b>AASHTO No.5</b></u>	<u><b>AASHTO No.3</b></u>	<u><b>AASHTO No.1</b></u>
<u><b>Size of Sample</b></u>	10 lb.	10lb.	18 lb.	37 lb.
<u><b>Frequency</b></u>	Section 703.5(b)3 Table F			
<u><b>Test Method</b></u>	Moisture AASHTO T255			
<u><b>Small Quantity</b></u>				



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<u>Coarse Aggregate</u>	<u>AASHTO No. 8</u>	<u>AASHTO No. 7</u>	<u>AASHTO No.67</u>	<u>AASHTO No. 57</u>
<u>Size of Sample</u>	1 lb.	3 lb.	6.5 lb.	6.5 lb.
<u>Coarse Aggregate</u>	<u>AASHTO No. 5</u>	<u>AASHTO No.3</u>	<u>PA No 2A and OGS</u>	
<u>Size of Sample</u>	6.5 lb.	33 lb.	16.5 lb.	
<u>Frequency</u>	Section 703.5(b)3 Table F			
<u>Test Method</u>	Crush Count ASTM D5821			
<u>Small Quantity</u>				

<u>Fine Aggregate</u>	<u>Type A</u>	<u>Type B</u>	<u>Type C</u>
<u>Frequency</u>	Section 703.5(b)3 Table F		
<u>Size of Sample</u>	1 lb.		
<u>Test Method</u>	Grading PTM 616, Loss by Wash PTM 100, Moisture AASHTO T255, Fineness Modulus PTM 501 (Type A & C)		
<u>Small Quantity</u>			

NOTE: This section for fine aggregates refers to gradation testing.

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<b><u>Cement Concrete</u></b>	<b><u>Structure</u> * (RPS) **</b>	<b><u>Pavement</u> * (RPS) **</b>	<b><u>Lean Cement Concrete Base</u> * **</b>
<b><u>Frequency</u></b>	See section 704.1(d)5 Table B	See section 704.1(d)5 Table B	Air and Slump 1 per truck until control is established, then, every 200 C.Y. thereafter.  Cylinders A set of 4 cylinders molded at the same time from the same load for each 100 C.Y. or fraction thereof daily.
<b><u>Size of Sample</u></b>	PTM 601	PTM 601	PTM 601
<b><u>Test Method</u></b>	Air AASHTO T 196 or AASHTO T 152  Temperature ASTM C1064  Slump AASHTO T 119  Molding PTM 611  Compression PTM 604	Air AASHTO T 196 or AASHTO T 152  Temperature ASTM C1064  Slump AASHTO T 119  Molding PTM 611  Compression PTM 604  Surface Tolerance PTM 424  Core Thickness PTM 614	Air AASHTO T 196 AASHTO T 121 & C 136 AASHTO T 152  Slump AASHTO T119  Molding PTM 611  Compression PTM 604
<b><u>Small Quantity</u></b>	N/A	N/A	N/A

\* **NOTE** - Form PTC 458-A (CS-458A for federally funded projects) must be completed in order to document Commission inspection of cylinder breaks. This form must be in the project records within 3 days of the breaks. Also, see POM page B.6.10-1.

Part <b>B</b>	Section <b>11-6</b>	Page <b>10 of 11</b>	Date <b>01-08-24</b>
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\*\* NOTE – Document the results of air meter calibrations on Form PTC 375 Inspector’s Daily Report – Concrete Placement QC.

<b><u>Cement Concrete (Standard)</u></b>	<b><u>Structural</u>   * **</b>	<b><u>Pavement</u>   * **</b>	<b><u>Pavement Patching Concrete</u> * **</b>	<b><u>Incidental Work</u>   * **</b>
<b><u>Frequency</u></b>	See section 704.1(d)5 Table B Cylinders A set of 4 cylinders molded at the same time from the same load for each 100 C.Y. or fraction thereof daily.	See section 704.1(d)5 Table B Cylinders A set of 4 cylinders molded at the same time from the same load for each 500 C.Y. or fraction thereof daily.	See section 704.1(d)5 Table B Cylinders A set of 4 cylinders molded at the same time from the same load for each 200 C.Y. or fraction thereof daily.	See section 704.1(d)5 Table B Cylinders A set of 4 cylinders molded at the same time from the same load for each 100 C.Y. or fraction thereof daily.
<b><u>Size of Sample</u></b>	PTM 601	PTM 601	PTM 601	PTM 601
<b><u>Test Method</u></b>	Air AASHTO T 196 or AASHTO T152  Temperature ASTM C 1064  Slump AASHTO T 119  Molding PTM 611  Compression PTM 604	Air AASHTO T 196 or AASHTO T152  Temperature ASTM C 1064  Slump AASHTO T 119  Molding PTM 611  Compression PTM 604	Air AASHTO T 196 or AASHTO T152  Temperature ASTM C 1064  Slump AASHTO T 119  Molding PTM 611  Compression PTM 604	Air AASHTO T 196 or AASHTO T152  Temperature ASTM C 1064  Slump AASHTO T 119  Molding PTM 611  Compression PTM 604
<b><u>Small Quantity</u></b>	N/A	N/A	N/A	For each class of concrete/project for non-critical incidental items. See COM Part C.700-3

\* NOTE - Form PTC 458-A (CS-458A for federally funded projects) must be completed in order to document Commission inspection of cylinder breaks. This form must be in the project records within 3 days of the breaks. Also, see POM page B.6.10-1.

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<u><b>Material</b></u>	<u><b>Asphalt Concrete</b></u> (Standard)	<u><b>Asphalt Concrete</b></u> (RPS)	<u><b>Stone Matrix</b></u> <u><b>Asphalt</b></u>
<u><b>Frequency</b></u>	Per Specification	Per Specification	Per Specification
<u><b>Size of Sample</b></u>	Per Specification	Per Specification	Per Specification
<u><b>Test Method</b></u>	Per Specification	Per Specification	Per Specification
<u><b>Small Quantity</b></u>	Per Specification	N/A	N/A

\*\* NOTE – Document the results of air meter calibrations on Form PTC 375 Inspector’s Daily Report – Concrete Placement QC.

REPLACES Part B 11-7 Pages 1 to 6	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART  <b>B</b>	SECTION  <b>11-7</b>	PAGE  <b>1 of 6</b>
DATED 09-25-20		DATE  <b>01-08-24</b>		
SUBJECT  <b>MATERIALS TESTED IN THE QUALITY ASSURANCE INDEPENDENT LABORATORY FOR PROJECT ACCEPTANCE</b>				

### MATERIALS ACCEPTED BY PROJECT SAMPLING

This section includes materials accepted by project acceptance sampling and tested in the Quality Assurance Independent Laboratory.

The following guidelines are a minimum for sampling frequencies and sample sizes for acceptance testing of construction materials. Frequencies may need to be increased as required by the level of construction.

For vertical construction projects, follow the requirements for sampling frequency and sample size for construction materials which may be required to be tested in the Quality Assurance Independent Laboratory for project acceptance. These requirements, as applicable, will be specified in each contract Section for the material supplied.

### MATERIALS TESTED IN THE QUALITY ASSURANCE INDEPENDENT LABORATORY

<b>Material</b>	<u>Admixtures</u>		
<b><i>Frequency</i></b>	Each Lot		
<b>Size of Sample</b>	1 liter (quart)		
<b>Shipping Container</b>	Plastic bottle		

<b>Material</b>	<u>Anchor Bolts</u>	<u>Bearing Pads-Neoprene</u>	<u>Asphalt Concrete</u>
<b><i>Frequency</i></b>	Each Shipment	Each 20	Core
<b>Size of Sample</b>	3 each size	1 complete	150 min (6 inches)
<b>Shipping Container</b>	Bind or Label	Label	Box, plastic concrete cylinder molds, or PVC pipe.

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<b>Material</b>	<u>Asphalt Materials</u> <u>PG Binders and</u> <u>Cutback Asphalt</u>	<u>Asphalt Materials</u> <u>Emulsified Asphalts</u>	<u>Block, Concrete</u>
<b>Frequency</b>	For Verification	For Verification	Each Lot
<b>Size of Sample</b>	1 liter (quart)	1 liter (quart)	2
<b>Shipping Container</b>	Metal Can	Plastic Container	Box

<b>Material</b>	<u>Brick</u>	<u>Burlap</u>	<u>Cement</u>
<b>Frequency</b>	Each Lot	Each Lot	For Verification and after Winter Storage
<b>Size of Sample</b>	5	1 meter (yard) length	4 liters (1 gallon)
<b>Shipping Container</b>	Box	Label	Plastic Bucket

<b>Material</b>	<u>Calcium &amp; Sodium</u> <u>Chloride</u>	<u>Caulking Mastic</u>	<u>Curing Compound</u>
<b>Frequency</b>	For Verification Each Lot	Each Lot	Each Lot
<b>Size of Sample</b>	1 liter (quart)	1 liter (quart)	1 liter (quarter)
<b>Shipping Container</b>	Plastic Jar	Can	Jar or Can

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<b>Material</b>	<u>Curing – Protective Covers</u>	<u>Epoxy Resin Material</u>	<u>Gabions</u>
<b><i>Frequency</i></b>	Each Shipment	Each Lot	Each Lot
<b>Size of Sample</b>	1 meter (yard)	1 can each component	1 meter (3 feet) square
<b>Shipping Container</b>	Label	Can	Label

<b>Material</b>	<u>Graphite Lubricant</u>	<u>Geotextiles</u>	<u>Glass Beads</u>
<b><i>Frequency</i></b>	Each Lot	Each Lot	Each Lot for Verification
<b>Size of Sample</b>	1 liters (quart)	1 meter (4 feet) by full width	1.5 kg (3 pounds)
<b>Shipping Container</b>	Can or Jar	Label	Can

<b>Material</b>	<u>Grout: Mortar</u>	<u>Guide Rail</u>	<u>Joint Sealant</u>
<b><i>Frequency</i></b>	Each Lot	Each Lot	Each Lot
<b>Size of Sample</b>	4 liters (1 gallon)	Rail & Post – 1 meter (2 feet) Hardware – 3 each	1 liters (1 gallon)
<b>Shipping Container</b>	Plastic Container	Label	Plastic Container

Part <b>B</b>	Section <b>11-7</b>	Page <b>4 of 6</b>	Date <b>01-08-24</b>
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<b>Material</b>	<u>Latex Emulsion</u>	<u>Neoprene Comp. Seal</u>	<u>Lubricant</u>
<i><b>Frequency</b></i>	Each Lot	Each Lot	Each Lot
<i><b>Size of Sample</b></i>	1 liter (quart)	1.5 meters (5 feet) length	1 liter (quart)
<i><b>Shipping Container</b></i>	Plastic Jar	Label	Can or Jar

<b>Material</b>	<u>Pre-molded Joint</u>	<u>Joint Backup – Etha Foam Plank</u>	<u>Etha Foam Filler 12.7mm (1/2 inch)</u>
<i><b>Frequency</b></i>	Each Lot	One per project	One per project
<i><b>Size of Sample</b></i>	1 liter (quart)	1 meter (3 feet) of plank	1 meter (3 feet)
<i><b>Shipping Container</b></i>	Plastic Jar	Label	Label

<b>Material</b>	<u>Paper Rope</u>	<u>Paint</u>	<u>Pipe, Plastic</u>
<i><b>Frequency</b></i>	One per project	For Verification – Each Lot	For Verification – Each Lot
<i><b>Size of Sample</b></i>	1 meter (3 feet)	1 liter (quart)	3 pieces 1.2 meters (4 feet)
<i><b>Shipping Container</b></i>	Envelope	Can	Label



Part <b>B</b>	Section <b>11-7</b>	Page <b>5 of 6</b>	Date <b>01-08-24</b>
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<b>Material</b>	<u>Pozzolan</u>	<u>Protective Coating</u>	<u>Re-Bar</u>
<i>Frequency</i>	Each Shipment	Each Lot	For Verification - Each Lot
<b>Size of Sample</b>	4 liters (1 gallon)	1 liter(quant)	3 bars 1.2 meters (4 feet)
<b>Shipping Container</b>	Plastic Bucket	Can or Jar	Label

<b>Material</b>	<u>Re-Bar, Wire Mesh</u>	<u>Right of Way Fence</u> <u>Fabric</u>	<u>End Posts, Corner and</u> <u>Pull posts, Line Posts,</u> <u>Offset Brackets, Splice</u> <u>and Base Plates,</u> <u>Backing Plates, Etc.</u>
<i>Frequency</i>	For Verification - Each Lot	Each 150 Rolls or Fraction thereof	First 500 Lengths or Fraction thereof and One per each additional 2500 lengths.
<b>Size of Sample</b>	1 meter (3 feet) square	One each 1 meter (3 feet) full depth	One each – 1 meter (3 feet) section.
<b>Shipping Container</b>	Label	Label	Label

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<b>Material</b>	<u>Fasteners, Nuts, Bolts, etc.</u>	<u>Stay – in – place Form</u>	<u>Waterproof Fabric</u>
<b><i>Frequency</i></b>	Once if same type and material for entire project	1 per each 200 Sections or less	Each Lot
<b>Size of Sample</b>	3 each of all fittings and hardware, etc.	0.6 meter (2 feet) square section. Accessories – 0.6 meter (2 feet) lengths.	1 square meter (1.2 square yards)
<b>Shipping Container</b>	Label	Label	Label

<b>Material</b>	<u>Water Stop, Copper Flashing</u>	<u>Water Stop, PVC</u>	
<b><i>Frequency</i></b>	Each Shipment	Each Shipment	
<b>Size of Sample</b>	300 mm (12 inches) square	1.2 meter (4 feet) length	
<b>Shipping Container</b>	Label	Label	

Section 12  
Materials Control – Off Project

REPLACES Part B 12-1 Pages 1-2	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART  <b>B</b>	SECTION  <b>12-1</b>	PAGE  <b>1 of 2</b>
DATED 01-03-14		DATE  <b>09-25-20</b>		
SUBJECT  <b>MINIMUM QUALITY CONTROL FOR ASPHALT CONCRETE</b>				

Each asphalt concrete producer must prepare and submit a Quality Control (QC) Plan as specified in Section 106 and conform to the additional QC requirements of section 409.2(e) for contracts utilizing 408/2016-7 or earlier and section 413.2(e) for contracts utilizing 408/2020 or later. Submit the QC Plan to the PTC Materials Management Supervisor for review annually at least four 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 specifications.

The following subjects should be addressed in the Quality Control Plan as the minimum plan designed to meet these requirements:

A. QC Organization Chart

B. Testing Plan with Action Points:

1. List of all tests to be performed.
2. Frequency of testing.
3. List action points to initiate corrective procedures.
4. Recording method to document corrective procedures.
5. Procedures for conducting Job Mix Formula (JMF) verification testing.

C. Materials Storage and Handling

1. Aggregate/RAP/RAM/RAS stockpiles
2. Cold feed systems for aggregates/RAP/RAM/RAS
3. Additives or modifiers for mixture.
4. Modified asphalt/liquid additive storage tanks.

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5. Surge/storage silos for mixture.
6. All measuring and conveying devices, including calibration procedures.
7. Haul vehicle loading procedures.
8. Identify the product and manufacturer for release agent that will be used for the truck beds.
9. Include the maximum asphalt storage time and date of testing Asphalt silos approved by the Department following Bulletin 27 Appendix G Specifications.

**D. Plant Documentation**

1. Documentation software and version.
2. Back up frequency and method.

REPLACES	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART	SECTION	PAGE
Part B 12-2 Pages 1-3		B	12-2	1 of 2
DATED		DATE		
09-25-20		01-08-24		
SUBJECT	ASPHALT PLANT RECORDS AND DOCUMENTATION			

Both the plant inspector and producer must update all documentation on a daily basis. All documentation must be maintained on an annual basis at the plant. The producer is responsible for source documentation and production control in accordance with the reviewed Quality Control Plan. Testing procedures are found in Publication 19, Field Test Manual; ASTM Test Standards and the AASHTO Standard Specifications.

### **Plant Inspector's Documentation**

On a daily basis, keep Form PTC 2011/PTC 2019 Inspectors Daily Report (or its equivalent), as a Plant Master Diary. Record all entries in black ink. Include the following information:

1. Date, Weather, Temperature Range
2. PTC Contract Number, Producer and Plant Location
3. Inspector's Name, Title, Hours Worked
4. Visitors
5. Material Tests Performed and /or witnessed.
6. Material Deviations
7. Unusual Occurrences, Comments concerning Plant Operation, Conditions, Record Keeping
8. Inspector's Signature

### **Producer's Documentation**

The producer is responsible to maintain one set of production and acceptance test records as documentation for all projects supplied from that plant. These records are to be documented in the PTC supplied Data Entry Log (Bit-DEL) software using the most recent version available at the beginning of the production season. The producer is responsible to document Bin pull changes and all HMA plant adjustments, the HMA production washed gradations, AC content, volumetric data, T-209 data, roadway density core values, production tonnage quantities and weekly RAP/RAS stockpile verification data. Also, document all lab results from Loose Sample Box Testing. Test results should be made available to the PTC Representative within two (2) hours of completing each test and documented in the Bit-DEL program by the completion of each shift. In addition to the Bit-DEL documentation, the producer will maintain on file at the Plant:

Project Summary  
Scale Check  
Plant Summary

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Hot-Bin Gradations  
Equipment Calibration Record  
Plant Approval Form TR-498  
Approved Master Designs  
Certifications

Details of the documentation procedures must be included in the plant Quality Control Plan submitted for review annually.

All technicians must carry a valid NECEPT certification card during mixture production.

### **Production Acceptance**

The producer's delivery ticket (electronic/paper) must accompany material released from a plant for acceptance on a project. The ticket shall contain the following information:

1. Complete PTC Contract Number, or Purchase Order
2. Asphalt Concrete Plant Supplier Code and location
3. Material Type and JMF Number
4. Date and Time of load out
5. Weight: gross, tare, and net – unit of measure
6. Truck Number (unique ID number)
7. Paving foreman's name
8. Class/PG grade of asphalt
9. License number and name of licensed public weighmaster

The last ticket shall show the total number of tickets issued and cumulative tonnage of the JMF shipped for the shift.

These requirements also apply when asphalt material is shipped from a storage bin or silo. A weighmaster shall be provided by the producer. The weighmaster's electronic signature on each delivery ticket is required to certify the weight of the material as determined by the recording truck scale.

When tonnage placed for a shift is equal to or less than 300 tons, form CS-4171 must be sent to the Project Inspector-in-Charge within one working day to certify the AC% and Percent passing the No. 200 sieve meets the single sample tolerance in accordance with Pub 408 section 413.2(e). Certification will be in accordance with section 413.2(i) 2. Also list the theoretical maximum specific gravity value for that day's production.

REPLACES	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART	SECTION	PAGE
Part B 12-3 Pages 1-2		<b>B</b>	<b>12-3</b>	<b>1 of 2</b>
DATED		DATE		
05-05-21		<b>01-08-24</b>		
SUBJECT				
<b>MINIMUM PTC QUALITY ASSURANCE PLAN FOR ASPHALT CONCRETE PLANTS</b>				

The purpose of the PTC'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.

At least once every 3-5 years the PTC Quality Assurance Manager (QAM) or a staff member will visit each Asphalt Concrete Plant that is currently producing material for an active Turnpike project. The visit will take place near the start of production.

A visit will include a detailed review of the Producer's quality control activities utilizing the Quality Assurance Review Checklist Asphalt Concrete Plant and witnessing the plant technician run a sample. The next day (or at another future time near the start of production) QA staff will witness the PTC/PTC Representative run the loose box sample/cores at the plant. Findings and corrective actions regarding the Quality Assurance Review Checklist Asphalt Concrete Plant and witnessing the plant technician run a sample will be documented in the Plant Master Diary and a copy of the checklist will be filed with the plant records and in the PCDS in accordance with the PTC Kahua Construction Project Documentation Guide.

At a minimum an asphalt concrete plant visit will include the following activities:

- 1) A detailed review of the producer's quality control activities utilizing the Quality Assurance Review Checklist Asphalt Concrete Plant.
  - a) Plant facilities will be reviewed for compliance with PennDOT Bulletin 27 and PTC specifications.
  - b) Any deviations noted in the review will be discussed and a determination will be made if immediate corrective action is necessary.
  - c) If immediate corrective action is necessary, the PTC Materials Management Supervisor (MMS) will be notified and copied on the report.
- 2) Witnessing the plant technician run a sample.
- 3) The next day (or at another future time near the start of production) witnessing the job performance of the PTC Materials Department representative at the plant when the loose box samples/cores are tested.

The PTC QAM will notify the PTC MMS of any nonconforming sampling and testing procedures, general problems, or other issues noted during the QA review. Following the review and discussion between the PTC QAM and PTC MMS regarding any nonconforming sampling and testing procedures, general problems, or other issues, the PTC QAM/PTC MMS may decide to proceed with additional action.



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Following full vetting, QA reports regarding the Quality Assurance Review Checklist Asphalt Concrete Plant and witnessing the plant technician run a sample will be forwarded by the PTC QAM or a staff member to the producer's Quality Control Manager. Do not send any QA reports containing nonconforming sampling and testing procedures, problems, or other issues to the producer until after the PTC QAM and PTC MMS have discussed. The PTC QA staff will store copies of all QA reports in the PCDS, in accordance with the PTC Kahua Construction Project Documentation Guide.

REPLACES	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART	SECTION	PAGE
Part B 12-4 Pages 1-4		<b>B</b>	<b>12-4</b>	<b>1 of 4</b>
DATED		DATE		
01-11-16		<b>01-08-19</b>		
SUBJECT				
<b>MINIMUM QUALITY CONTROL PLAN FOR PORTLAND CEMENT CONCRETE PLANTS</b>				

These are the minimum process control requirements and may be added to, or frequency increased, by the producer at any time to assure compliance.

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 in accordance with ACI 211. For AAAP mix designs, determine the aggregate gradation for the mix design according to PTM No. 528. Each design must meet all Department/PTC requirements.

A copy of each completed mix design must be submitted to the PTC Materials Management Supervisor for review prior to its use on a PTC project. The PTC reserves the right to review any design through plant production prior to using the design for PTC work.

Each producer of Portland Cement Concrete is required to submit a Quality Control Plan to the PTC Materials Management Supervisor at the projects 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 specifications.

The following Quality Control Plan is a minimum plan designed to meet these standards. The Quality Control Plan is to also state that the frequency of sampling and testing will be increased whenever borderline material is encountered:

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## RAW AGGREGATE TESTING

## MINIMUM TESTING FREQUENCY

### A. Fine Aggregate

- |                                       |                                                                                            |
|---------------------------------------|--------------------------------------------------------------------------------------------|
| 1. Gradation and Fines Modulus        | Daily when restocking bins - PTM 616                                                       |
| 2. Minus 75 $\mu$ m (No.200) material | Every five dry gradations or once weekly - PTM 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 616                                         |
| 2. Minus 75 $\mu$ m (No.200) material | Every 5 gradations or once weekly - PTM 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                          |
| 5. % of solids                        | Beginning of season or as necessary due to extreme aggregate changes         |

## II. BATCH SCALE CHECKS

## MINIMUM TESTING FREQUENCY

- |                    |                                         |
|--------------------|-----------------------------------------|
| A. Aggregate scale | In accordance with PTM 410, Bi-weekly * |
| B. Cement scale    | In accordance with PTM 410, Bi-weekly * |
| C. Water scale     | In accordance with PTM 410, Bi-weekly * |
- \*Complete scale check at start of season

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### III. CALIBRATION OF EQUIPMENT

### MINIMUM TESTING FREQUENCY

A.	Volumetric Mixing Plants	Start of season and change of materials
B.	Transit mix trucks	Start of season and as necessary, Form CS-4337
C.	Water meters (Batch, Slump, Adjust and Wash Down)	Start of season and as necessary
D.	Plant admixture dispensers	Start of season and as necessary
E.	Cubic meter (cubic feet) buckets	Start of season and as necessary
F.	Air meter	Start of season and minimum bi-weekly
G.	Cylinder Compression machine	Once per year by private calibration service
H.	Moisture Meter	Once per month
I.	22.6 kg (50 lbs.) weights	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 on site in the Plant Book.

### IV. TEMPERATURE CHECKS

- A. Aggregate
  - 1. Hot weather
  - 2. Cool and cold weather
- B. Cement
- C. Water
- D. Cement mixture

### V. CONCRETE MIXTURE

- A. Slump Tests
- B. Air Content Tests
- C. Yield Tests
- D. Molding Cylinders (Optional)

Part <b>B</b>	Section <b>12-4</b>	Page <b>4 of 4</b>	Date <b>01-08-19</b>
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## VI. DOCUMENTATION

### A. Concrete Plant Book / PTC Con-DEL program

Maintain per Section B 12-5

### B. Straight-line Analysis Charts

1. Fine Aggregate
2. Coarse Aggregate

**NOTE:** *Action points will be established on critical test values*

3. Plotting QA and DQA results for comparison with QC companion sample in PTC Con-DEL Program.

### C. Certifications

1. Admixtures
2. Cement
3. Flyash
4. Ground Granulated Blast-Furnace Slag
5. Certification of Small Quantities
6. Silica Fume
7. Aggregate Certification Yearly for Quality Requirements as required by Publication 408, Section 703.6 on Form CS-4171

REPLACES <b>Part B 12-5 Pages 1-3</b>	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART <b>B</b>	SECTION <b>12-5</b>	PAGE <b>1 of 3</b>
DATED <b>01-11-16</b>		DATE <b>01-08-24</b>		
SUBJECT <b>CONCRETE PLANT RECORDS AND DOCUMENTATION</b>				

The producer will maintain an electronic concrete plant book containing one set of test records as documentation for all projects supplied.

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 Test Manual or appropriate AASHTO test methods.

### **Plant Inspector's Documentation**

Keep, on a daily basis, Form PTC 2011/PTC 2019, Inspectors Daily Report, as a Plant Master Diary and include the following information:

1. Date, Weather, Temperature Range
2. PTC Contract Number, Producer and Plant Location
3. Inspector's Name, Title, Hours Worked
4. Visitors
5. Material Tests Performed and/or Witnessed
6. Material Deviations
7. Unusual Occurrences, Comments concerning Plant Operation, Conditions, Record Keeping
8. Inspector's Signature

### **Producer's Documentation**

The producer is responsible for completion of the following forms which will comprise the Concrete Plant Book. These forms are included in the PTC supplied Concrete Data Entry Log (ConDEL) software. Use the most recent version available at the beginning of the production season. Use separate copies for coarse and fine aggregate gradations.

Project Summary Record

Scale Check

Plant Summary

Compression Test Record

Part <b>B</b>	Section <b>12-5</b>	Page <b>2 of 3</b>	Date <b>01-08-24</b>
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Aggregate No. 57

Aggregate No. 8

Aggregate No. 10

Fine Aggregate

Aggregate No. 67

Moisture Test Results

Material Temperature Record

Daily Orders and Releases Record

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 document Quality Assurance samples when the results are received from the PTC's Quality Assurance Representative.

Plant Approval, Form TR-4109, Technicians Evaluation, Current Approved Master Designs, Properly Completed Certifications, and the Quality Control Plan are to be on file at the plant.

### **Production Acceptance**

The producer's original (electronic or paper) 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. Complete PTC contract number, or purchase order number
2. The concrete plant supplier code and location
3. The Batching/Delivery Date and Ticket Number
4. Class of concrete, JMF number, JMF year, and trial mix number (i.e., trial #1, 2 etc.)
5. Load Number, Number of cubic yards per load, and Cumulative cubic yards for the day.
6. Time of completion of mixing
7. Truck Number (Unique ID Number)
8. Number of mixing revolutions, if applicable

Part <b>B</b>	Section <b>12-5</b>	Page <b>3 of 3</b>	Date <b>01-08-24</b>
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9. Total amount of batch water used in each truck in pounds

10. The total weight in pounds of the total cementitious materials

11. The types of additives and amount used in each truck (i.e., water reducer, AEA, retarder, etc.)

Submit the plant (electronic or paper) delivery slip and batcher-mixer slip (as specified in AASHTO M 157) to the Inspector-in-Charge.



REPLACES  B 12-6 Pages 1 - 2	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART  <b>B</b>	SECTION  <b>12-6</b>	PAGE  <b>1 of 2</b>
DATED  05-05-21		DATE  <b>01-08-24</b>		
SUBJECT  <b>MINIMUM PTC QUALITY ASSURANCE PLAN FOR PORTLAND CEMENT CONCRETE PLANTS</b>				

The purpose of the PTC'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.

At least every 3-5 years the PTC Quality Assurance Manager (QAM) or a staff member will visit each Portland Cement Concrete Plant that is or will be producing material for an active Turnpike project/PennDOT project producing like material. The visit will take place when like specified material (either material for a Turnpike project or like specified material for a PennDOT project) is being produced.

A visit will include a detailed review of the producer's quality control activities utilizing the Quality Assurance Review Checklist Portland Cement Concrete Plants and witnessing the plant technician test concrete air, slump, and temperature. Findings and corrective actions regarding the Quality Assurance Review Checklist Portland Cement Concrete Plants and witnessing the plant technician test concrete air, slump, and temperature will be documented in the Plant Master Diary and a copy of the checklist will be filed with the plant records and filed in the PCDS in accordance with the PTC Kahua Construction Project Documentation Guide.

At a minimum a Portland Cement Concrete plant visit will include the following activities:

- 1) Review of the producer's quality control activities utilizing the Quality Assurance Review Checklist Portland Cement Concrete Plants.
  - a) Plant facilities will be reviewed for compliance with AASHTO M157.
  - b) Any deviations noted in the review will be discussed and a determination will be made if immediate corrective action is necessary.
  - c) If immediate corrective action is necessary, the PTC Materials Management Supervisor (MMS) will be notified and copied on the report.
- 2) Witnessing the plant technician test concrete air, slump, and temperature.
- 3) At another future time when 28-day concrete cylinder compressive strength testing is being performed at the plant on PTC production material, witnessing the compressive strength testing and witnessing the job performance of the PTC Materials Department representative at the plant.

The PTC QAM will notify the PTC MMS of any nonconforming sampling and testing procedures, general problems, or other issues noted during the QA review. Following the review and discussion between the PTC QAM and PTC MMS regarding any nonconforming sampling and testing procedures, general problems, or other issues, the PTC QAM/PTC MMS may decide to proceed with additional action.

Part <b>B</b>	Section <b>12-6</b>	Page <b>2 of 2</b>	Date <b>01-08-24</b>
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Following full vetting, QA reports regarding the Quality Assurance Review Checklist Portland Cement Concrete Plants and witnessing the plant technician test concrete air, slump, and temperature will be forwarded by the PTC QAM or a staff member to the producer's Quality Control Manager. Do not send any QA reports containing nonconforming sampling and testing procedures, problems, or other issues to the producer until after the PTC QAM and PTC MMS have discussed. The PTC QA staff will file copies of all QA reports in the PCDS in accordance with the PTC Kahua Construction Project Documentation Guide.

REPLACES	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART	SECTION	PAGE
DATED		<b>B</b>	<b>12-7</b>	<b>1 of 2</b>
		DATE <b>01-03-14</b>		
SUBJECT <b>MINIMUM QUALITY CONTROL PLAN FOR AGGREGATE SUPPLIERS</b>				

The producer must submit a Quality Control Plan to the PennDOT District Materials Engineer/Manager and PTC Materials Management Supervisor annually. The purpose of this requirement is to insure that the producer will consistently produce a uniform and high quality product within Department/PTC 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 616
2. Wash Test PTM 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. 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 District Materials Engineer/Manager or the PTC Materials Management Supervisor.

B. Department/PTC Stockpiles:

Establish and positively identify aggregate stockpiles intended for Department/PTC use. At a minimum, the respective grading (AASHTO or PennDOT) and specific use (if appropriate) will be provided.

Part <b>B</b>	Section <b>12-7</b>	Page <b>2 of 2</b>	Date <b>01-03-14</b>
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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, in accordance with Section 106.03(b)3.

E. Calibration of Mechanical Sieve Shaker

Calibrate mechanical sieve shaker in accordance with PTM No. 608 at the start of the season and when directed.

REPLACES	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART	SECTION	PAGE
Part B 12-8 Pages 1-3		B	12-8	1 of 2
DATED		DATE		
01-11-16		01-08-24		
SUBJECT				
AGGREGATE PLANT RECORDS AND DOCUMENTATION				

The producer will maintain an electronic aggregate plant book containing one set of test records as documentation for all projects supplied.

The producer is responsible for source documentation and production control in accordance with the approved Quality Control Plan. Pennsylvania Test Methods (PTM) are found in Publication 19, Field Test Manual.

### **Plant Inspector's Documentation**

The plant inspector should keep, on a daily basis, Form PTC 2011/PTC 2019, Inspectors Daily Report, as a Plant Master Diary and shall include the following information:

1. Date, Weather, Temperature Range
2. PTC Contract Number, Producer and Plant Location
3. Inspector's Name, Title, Hours Worked
4. Visitors
5. Material Tests Performed
6. Material Deviations
7. Unusual Occurrences, Comments concerning Plant Operation, Conditions, Record Keeping
8. Inspector's Signature

### **Producer's Documentation**

The producer is responsible for completing the following forms which constitute the Material Plant Book. These forms are included in the PTC supplied Aggregate Data Entry Log (Agg-DEL) software.

Material Test Result Records

*Separate copies must be used for each aggregate size.*

Project Summary Record

*Separate sheet for each aggregate type.*

Truck Weight Monitoring

Plant Summary

Aggregate No. 57

Part <b>B</b>	Section <b>12-8</b>	Page <b>2 of 2</b>	Date <b>01-08-24</b>
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Aggregate No.8

Fine Aggregate

Aggregate No. OGS

Aggregate No. 67

Aggregate No. 2A

Daily Orders and Releases Record

Equipment Calibration Record (Including PTM 608)

Anti-Skid Summary & Moisture Record

The Plant Technician will also establish straight line diagrams or statistical quality control charts for each aggregate size which will also include action points for critical test values.

Plot all Quality Assurance samples results along with all the companion sample results conducted by the Plant Technician. Comments will be made and documented on all MTD and QA Independent Laboratory test results compared to companion sample results as to uniformity between laboratories.

Form TR-430A - Aggregate Source Evaluation Report, Technicians Evaluation and the Quality Control Plan shall be on file at the Plant.

### **Production Acceptance**

The producer's (electronic or paper) delivery ticket (or a copy of the recordation ticket) must accompany material released from a plant or accepted on a project.

The ticket must contain the following information:

1. Complete PTC Contract Number or Purchase Order Number
2. Aggregate Producer Supplier Code and Location
3. Type of Material/Aggregate/Class
4. Date, Time Weighed, and Ticket Number
5. Truck Number (Unique ID Number)
6. Weight, Gross, Tare, Net Weight: Gross, Tare, and Net - Unit of Measure
7. Lot Number (if applicable)
8. License number and name of Licensed Public Weighmaster

REPLACES B 12-9 Pages 1 - 6	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART <b>B</b>	SECTION <b>12-9</b>	PAGE <b>1 of 1</b>
DATED 04-05-16		DATE <b>01-07-20</b>		
SUBJECT <b>MINIMUM PTC QUALITY ASSURANCE PLAN FOR AGGREGATE SOURCES</b>				

All aggregate sources will only be from producers that are currently listed in PennDOT Publication 34, Bulletin 14, Aggregate Producers. Verify during Quality Assurance Reviews that all received materials are from an approved Bulletin 14 supplier and CS-4171 forms are submitted.

## Part C

# Construction Inspection



## Section 100

### General

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DATED		DATE		
07-01-22		<b>01-08-24</b>		
SUBJECT				
<b>CREATION AND SUBMISSION OF EMERGENCY CONTACT LIST</b>				

The purpose of this section is to create and distribute a construction project 24-hour emergency contact list that would be used to contact the Contractor and/or Commission Representatives in case of an emergency during or after working hours.

The Commission shall distribute a blank copy of the [Emergency Contact List](#) at the Pre-construction conference.

The Contractor shall complete the project notification form with all of their applicable information. The appropriate staff person from the Consultant and/or Commission should be added to the form in the appropriate space provided. The Construction Engineering Manager or designee will add the information pertaining to PTC staff and supervision. Designate on the form two Lane Pattern Administrators (LPAs) who are responsible for entering notification of lane closures into the Advanced Traffic Management System (ATMS) per Section [B 10-4 Procedures for Notification of Roadway Restrictions](#).

Once the form is completed, a final version should be sent or emailed to the Assistant Chief Engineer-Construction or designee and maintained in the Project Collaboration and Documentation System (PCDS), in accordance with the PTC Kahua Construction Project Documentation Guide.

If a change of personnel or modification of any of the information is necessary, the form must be corrected and redistributed following the procedures listed above within one (1) week of the change.

The form is to be reviewed monthly and updated if necessary.

REPLACES	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART	SECTION	PAGE
Part C 100-2 Pages 1-4		C	100-2	1 of 4
DATED  09-25-20		DATE  01-08-24		
SUBJECT  PRE-OPERATION MEETINGS				

## A. PURPOSE

The purpose of Pre-Operation Meetings is to discuss with the contractors/subcontractors all essential and specific matters pertaining to particular construction operations. The Pennsylvania Department of Transportation (PennDOT) District Turnpike Coordinator will be invited to a particular pre-operation meeting if coordination is required, as defined in COM Section B1-3. The Construction Engineering Manager (CEM), PTC Project Manager (PTC PM) and/or Inspector-In-Charge will be responsible for the administration of Pre-operation meetings, as deemed appropriate by the CEM.

## B. PROCESS

- 1. Schedule Pre-Operation Meeting** – The CEM or designee will coordinate with the contractor and select a date, time, and location for each pre-operation meeting. The contractor should be instructed to notify all relevant subcontractors and/or suppliers of the scheduled meeting time and place.
- 2. Announce Pre-Operation Meeting** - Send out a meeting notice within the Project Collaboration and Documentation System (PCDS) confirming the date, time and location of the meeting and stating certain requirements for the contractor. Notify other concerned parties (i.e., PTC Total Reconstruction Unit (Assistant Total Reconstruction Program Manager), PTC Environmental Unit, PTC Utilities Unit, PTC Right of Way Unit, PTC Roadway Unit, PTC Roadway Site Design Unit, PTC Bridge Unit, PTC Traffic Engineering and Operations, PTC Maintenance Supervisor, PA State Police, Assistant District Manager- Fare Collection, PennDOT, Railroad Officials, Utility Companies, and local Conservation District as applicable) outside of the Project Collaboration and Documentation System.

Prior to the meeting, the contractor should submit through the PCDS, all relevant items such as:

- QA/QC Plans
- Schedule of operations
- Source of Materials
- Mix designs
- Shop drawings
- Catalog Cuts
- Listing of all subcontractors and items of work.

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- 3. Review Plans, Specifications and Addenda** - The CEM or PTC PM will review the plans, specifications, and addenda to compile a list of pertinent items to discuss at the meeting (e.g. unique special provisions items, items that PTC wishes to stress, items on the plan presentation).
- 4. Create Meeting Documentation** - The CEM or PTC PM or designee shall prepare a meeting agenda and attendance sheets within the Project Collaboration and Documentation System (PCDS).

As a minimum, the following agenda outline is to be discussed at the conference:

- a. Meeting Introduction – General remarks
- b. Participant Introduction
- c. Operation Schedule
  - a. Contractor’s overview
  - b. Anticipated start of work and intended shifts
  - c. State Police notification
- d. Safety
  - a. Contractor’s safety program
  - b. Emergency 24-hour contact information
  - c. Required Personal Protective Equipment
- e. Utilities overview – if applicable
- f. Transit Agency involvement, if applicable (RR, SEPTA, etc.)
- g. Maintenance and Protection of Traffic
  - a. Transportation Management Plan (TMP) if applicable
  - b. Traffic Control Plan
  - c. Traffic restrictions
  - d. Work restrictions
- h. Submittals – All submittals to be uploaded to the PCDS
  - a. Shop Drawings/Catalog Cuts, Submission and Review Procedures
  - b. Project correspondence, RFI’s, certifications, etc.
- i. Quality Control
  - a. Contractor’s QC Program
  - b. Inspection/Testing Procedures
- j. Special Provisions
- k. General discussion

The following attendees, at a minimum, are to be invited to the pre-operation meeting as appropriate:

- PTC CEM
- PTC Project Manager
- PTC Materials Manager or designee
- PTC QA Manager or designee
- Contractor – the prime contractor is to invite his subcontractors and suppliers

Part <b>C</b>	Section <b>100-2</b>	Page <b>3 of 4</b>	Date <b>01-08-24</b>
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- Consultant CM/CI, if applicable
- General Consulting Engineer, if applicable
- PTC Total Reconstruction Unit (Assistant Total Reconstruction Program Manager), if applicable
- PTC Environmental Unit, if applicable
- PTC Utilities Unit, if applicable
- PTC Right of Way Unit, if applicable
- PTC Roadway Unit, if applicable
- PTC Roadway Site Design Unit, if applicable
- PTC Bridge Unit, if applicable
- PTC Geotechnical Unit, if applicable
- PTC Traffic Engineering & Operations, if applicable
- PTC Maintenance Unit, if applicable
- Pennsylvania State Police, if applicable

**5. Conduct Pre-Operation Meeting** - Conduct the meeting referring to the agenda. Entertain comments from all meeting participants.

**6. Prepare Meeting Minutes** - The CEM, PTC PM or designee shall prepare pre-operation meeting minutes to be uploaded to the Project Collaboration and Documentation System (PCDS) in accordance with the PTC - Project Documentation/Deliverable User Guide. Also, a memo for action (follow-up) items gathered from the meeting will be necessary, as well as the person responsible and the due date.

**7. Operations requiring a Pre-Operation Meeting** – Refer to specifications and/or plans for requirements. Supplemental agenda items and additional documentation requirements are included in the appendix, as applicable.

- E&S – Pre-construction conference as required by the permit or approved E&S plans
- Superpave Asphalt Mixture Design, Standard Construction, Base Course
- Superpave Mixture Design, Standard Construction of Plant-Mixed Courses
  - See [COM Section C400-4](#) for additional details
- Stone Matrix Asphalt Mixture Design, Standard Construction of Plant-Mixed Wearing Courses
- Milling of Asphalt Pavement Surface
  - See [COM Section C400-3](#) for additional details
- Sonic Nap Alert Pattern (SNAP) and Shoulder Rumble Strips
  - See [COM Section C600-2](#) for additional details
- Maintenance and Protection of Traffic During Construction
  - See [COM Section C900-4](#) for additional details
- Permanent Preformed Patterned Reflective Pavement Markings

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- See [COM Section C900-6](#) for additional details
- Highly ReflectORIZED Polyurea Pavement Markings
  - See [COM Section C900-5](#) for additional details
- Cement Concrete Pavement
- Cement Concrete Structures
  - See [COM Section C1000-8](#) for additional details
- Removal of Existing Bridges or Culverts
- Precast Reinforced Concrete Box Culvert
- Crane Operation – On site Pre-Construction Meeting as required per section 108.05(c)6
- Guide Rail
  - See COM Section C600-5 for additional details

REPLACES	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART	SECTION	PAGE
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DATED		DATE		
05-20-20		<b>01-08-24</b>		
SUBJECT				
<b>BUILDING PERMITS AND COMMISSIONING SERVICES</b>				

The purpose of this section is to provide guidance for the Construction Management/Construction Inspection (CM/CI) of facility type projects (vertical construction). Generally, the procedures and processes identified in the COM will be followed. This section will address exceptions or additions to those sections of the COM which may not be applicable or differ from highway (horizontal) construction processes.

Vertical construction projects may be constructed utilizing single or multiple prime contractors.

### **Building Permits**

Prior to the start of construction, ensure the original building permit is received in the field. The permit will be issued by the Pennsylvania Department of Labor & Industry (L&I) for PTC facilities.

In addition to the Building Permit, obtain the Inspection Log (UCC-7), Inspection Procedures (UCC-9) and if applicable, Special Inspections and Observation Statement (UCC-6) if not included with the contract documents. There may be occasions when the PTC or their representative may not know who will be performing the special inspections at time of permit application. If the designated inspections are not completed at the time of application, the PTC or their representative must provide two copies of the UCC-6, with all applicable sections filled out to the L&I Inspector **at the time of the first required inspection performed by the L&I Inspector**. If these copies are not provided at that time, the first inspection will not occur and work may not continue until the completed copies of the special inspections form are available at the job site.

Provide copies of all special inspection reports to the design professional as the inspections are completed. The Final Report section of UCC-6 must be signed by the design professional and submitted to the L&I Inspector at the time the final inspection is performed and before a certificate of occupancy is issued.

If the project is constructed with multiple prime contractors, provide a copy of the Building Permit and Inspection Log to each contractor if not included with the contract documents. Each contractor has the responsibility to contact the L&I Inspector for inspection of their installation.

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If the Inspection Log indicates D (Deferred) for an inspection requirement, discuss with the L&I Inspector what additional information is required to be submitted for L&I approval. Plans for any deferred systems must be submitted to the Department of Labor & Industry as a plan revision at least two (2) weeks before the proposed installation.

### **Commissioning Services**

Vertical construction projects may have a contract provision for Commissioning Services. This process, if required, will be identified in Division 1 – General Requirements of the contract. If Commissioning Services is required, the Commissioning Agent will require access to the Project Collaboration Documentation System (PCDS) for all applicable contract(s).

At the start of the contract, schedule a meeting with the Commission Agent and applicable contractor(s) to discuss the Commissioning process. The Commissioning Agent will be responsible for reviewing the approved submittals and preparing the necessary documentation forms and operational test procedures for the systems identified in the Commissioning specification. The Commissioning Agent will prepare these forms and procedures and upload to the PCDS in accordance with the PTC – Project Documentation/Deliverable User Guide.

Approximately one (1) month prior to the start of equipment installation, establish a second meeting between the Commissioning Agent, contractor(s) and field inspection staff to further discuss the expectations and responsibilities of each member and the anticipated schedule for equipment installation, start-up, demonstration and training. Contract required O&M manuals should be prepared and submitted for review prior to scheduling the training sessions.



# Section 200

## Earthwork

REPLACES	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART	SECTION	PAGE
C 200-1 Page 1 of 1		C	200-1	1 of 1
DATED		DATE		
01-08-19		01-08-24		
SUBJECT				
EMBANKMENT AND SUBGRADE CHECKLIST				

The purpose of this section is to ensure proper documentation and quality control for embankment placement and subgrade preparation in accordance with Section 206 and Section 210. Any additional contract requirements or contract special provisions are in addition to and shall supersede this checklist.

The following checklists are to be used daily, or as applicable.

- The [Final Grading Checklist – Embankment and Subgrade](#) is to be used to review and verify that the contractor is properly preparing the subgrade. The checklist will verify that the proper planning, stakeout, and equipment are being used. This checklist is to be used when final grading preparation and operations are being conducted.
- The [Embankment Checklist – Embankment and Subgrade](#) is to be used to review and verify that the contractor is complying with Section 206 and 210 while constructing the embankment. The checklist will ensure that the embankment is properly cleared, foundation areas are properly prepared, and material is properly placed, compacted, and tested. This checklist is to be used when embankment is being placed on the project.

Section 300  
Base Courses

Section 400

Flexible Pavements

REPLACES	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART	SECTION	PAGE
C 400-1 Page 1 of 1		<b>C</b>	<b>400-1</b>	<b>1 of 1</b>
DATED 09-25-20		DATE <b>01-08-24</b>		
SUBJECT  <b>ASPHALT CONCRETE PAVEMENT</b>				

The purpose of this section is to provide proper inspection for the placement of asphalt concrete pavements. The asphalt concrete pavement quality control checklists are to be used on asphalt paving operations. Any contract special provisions or specifications supersede these checklists.

The following checklists are to be used daily, or as applicable.

- The [Pre-Paving Checklist – Asphalt Concrete Pavement](#) is to be used immediately before placing asphalt paving to ensure the material is placed within the proper weather limitations and on a properly prepared surface.
- The [Paving Inspection Checklist – Asphalt Concrete Pavement](#) is to be used when asphalt materials are being placed for asphalt concrete paving. This checklist ensures the material is being placed properly.
- The [Compaction Inspection Checklist – Asphalt Concrete Pavement](#) is to be used to ensure the asphalt material is compacted properly.
- The [Joint Inspection Checklist – Asphalt Concrete Pavement](#) is to be used to inspect asphalt concrete paving joints. This checklist ensures the asphalt joints are properly located, painted and overlapped.
- The [Testing Inspection Checklist – Asphalt Concrete Pavement](#) is to be used when asphalt material is being tested for asphalt concrete paving. This checklist ensures the testing of material is being completed by the proper personnel, equipment, with the proper documentation, and sampling frequency.

REPLACES C 400-2 page 1 of 1	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART  <b>C</b>	SECTION  <b>400-2</b>	PAGE  <b>1 of 1</b>
DATED 01-11-16		DATE  <b>01-08-24</b>		
SUBJECT  <b>PAVEMENT CROSS SLOPE VERIFICATION</b>				

The purpose of this section is to provide guidance for verifying the pavement cross slope has been constructed in reasonably close conformity to the design cross slope in accordance with the Special Provision.

Verify the cross slope of the Binder and Wearing pavement structure course.

If out of tolerance is suspected of other pavement structure courses, (Subbase, Asphalt Treated Permeable Base Course, or Base Course), verify the tolerances prior to the next pavement course placement. Corrective Actions should be made for any out of specification tolerances prior to placing the subsequent course.

At a minimum, measure the cross slope at the following locations:

- At 100' intervals
- Begin and End of Superelevation transitions
- Level Point
- Begin and End of Full Superelevation
- PC's and PT's
- Begin and End of Structures

Use a smart level with a minimum length of 4 feet attached to a 10 foot straight-edge for all measurements. The smart level should be calibrated a minimum of every two weeks during paving operations following the manufacturers' recommended procedures for calibration. The smart level should be recalibrated if the ambient temperature changes 20 degrees or more since the last calibration. Document the calibration on an IDR for entry into CDS.

After the pavement course has been compacted and sufficiently cooled, measure the cross slope of each pavement structure course by placing a smart level perpendicular to the roadway centerline or baseline. Measure the cross slope in the middle of each lane, shoulder or median course being measured. Record the cross slope to the nearest 0.1% on the approved [PTC Cross Slope Measurement Data Form](#).

When the difference between the designed cross slope and the measured cross slope exceeds the acceptable tolerance, measure the cross slope at 50 foot and then 25foot intervals to isolate the station range that exceeds the acceptable tolerance.

Notify the Contractor in writing immediately of all areas where the cross slopes exceed the tolerance set forth in the special provision. Inform that corrective action is required prior to placing the subsequent course.

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Part C 400-3 Pages 1-2		C	400-3	1 of 2
DATED 01-08-19		DATE 09-25-20		
SUBJECT  MILLING OF ASPHALT PAVEMENT SURFACE				

In addition to the agenda items included in COM Section [C100-2](#) for the pre-operation meeting, the following information should be discussed, verified or documented in the project records.

#### **AGENDA TOPICS:**

- Identify and discuss the proper traffic control set up per the project traffic control plans or Maintenance and Protection of Traffic – Standard Drawings.
- Identify and discuss the proposed methodology for removing the existing Snowplowable Raised Pavement Markers by a method that will cause the least damage to the pavement. Removal of the Snowplowable Raised Pavement Markers should occur prior to the start of the milling operation.
- Verify that the milling machine is capable of milling the existing pavement to meet the contract plans and specifications.
  - The milling machine is equipped with automatic grade and slope control system that extends the full length of the milling machine or to a minimum length of 30 feet.
  - Milling machine is equipped with a device to leave 30° edge to the adjacent lane when milling depths exceed 2 inches and two or more lanes are to be opened to traffic.
  - The contractor has laid out the project according to contract documents.
  - The rate of milling does not tear the mat.
- If the milled surface begins to ravel, repair affected areas as soon as the condition appears.
- Traffic is not permitted to run on milled surface during specified Holiday periods in accordance with the contract documents.
- Milling does not damage utility covers. If damage occurs to any utility covers, the contractor replaces them at no expense to the Commission.
- The finished surface should be free of gouges, grooves, and ridges and meet the plan requirements.
- Milling is conducted to straight lines with no weaving.
- Identify location of disposal for milled material. Do not sweep milled material or debris into the median or off the back of the shoulders.
- For cleaning after milling, use equipment which prevents debris from going onto the passing traffic. (I.e. use of vacuum trucks, etc.).
- Use proper methods to control dust.

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**DOCUMENT THE FOLLOWING ON THE IDR (COM Section B2-4):**

- Document the MPT set up.
- Manpower and equipment used in operation
- Whether milling is constant, variable depth or profile milling
- Station to station length, what lane, and where the work was performed
- That the milling equipment used by the contractor produces a surface tolerance that meets the requirements of specifications.
- That the cross slope was checked by Inspector and the milled surface met the plan requirements. For mill and pave projects, document that the milled cross slope matches existing conditions.
- The milling operation follows the requirements of specifications.
- Identify the location where the milled material will be wasted or recycled.
  - If the material is being recycled at the plant, notify plant inspector as to whether the milled material is wearing only or that the milled material incorporates various layers. (The plant will need to know for the purpose of RAP stockpiles).



REPLACES	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART	SECTION	PAGE
Part C 400-4 Pages 1-3		C	400-4	1 of 3
DATED 09-25-20		DATE 01-08-24		
SUBJECT  PRE- ASPHALT PAVING MEETING				

In addition to the agenda items included in COM Section C100-2 for the pre-operation meeting, the following information should be discussed, verified or documented in the project records. Schedule the Pre-Asphalt Paving Meeting for at least 2 weeks prior to placing asphalt paving mixtures. Ensure all required personnel are present including representatives from the PTC, Contractors, Subcontractors (if applicable), Suppliers, PennDOT District Turnpike Coordinator (if applicable) and any other appropriate parties.

### **AGENDA TOPICS:**

#### **Review Plans and Specifications**

- Verify which version of the Specifications are applicable for the project
- For projects that include evaluation of Asphalt Pavement Ride Quality, discuss the following:
  - Operator Certification
  - Light Weight Profiler (LWP) Certification
  - Submittals, per PTM No. 428
- Discuss any applicable Special Provisions

#### **Review Approved Quality Control Plan for Field Asphalt Paving Operation**

- Contractor's Personnel
  - Review Contractor's personnel and responsibilities including the Company Representative, Superintendent, Paving Foreman, Nuclear Gauge Operator and Field Technician.
  - Verify required certifications are current
  - Share contact information
  - Review problem resolution procedures
- Asphalt Concrete Mix Designs
  - Verify mix designs are listed for all work items
  - Verify all mix designs are approved
- Equipment List
  - Verify all equipment required by specification is listed
  - Discuss Material Transfer Vehicle (MTV) requirements
  - Designate equipment storage area
- Testing Plan
  - Review testing requirements and appropriate Specification sections that are referenced for various testing items and discuss any special provisions.
    - Compaction Control
    - Temperature control

Part <b>C</b>	Section <b>400-4</b>	Page <b>2 of 3</b>	Date <b>01-08-24</b>
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- Segregation
  - Tests for depth
  - Density cores
  - Mixture acceptance
- Verify that all areas to be paved are listed and appropriate type of Mixture and Density acceptance is referenced
- Discuss sampling procedures including frequency, responsibility, delivery, identification and care and custody of asphalt samples
- Mix Delivery
  - Verify the release agent to be used
  - Trucks to utilize tarps, heated bodies and or insulation per specifications
  - Verify adequate number of trucks will be utilized for paving continuity
  - Discuss material release details
  - Designate truck cleanout location(s)
  - Trucks loaded, unloaded, and handled using practices and procedures that will help prevent segregation
  - Discuss the use of Electronic Ticketing for asphalt deliveries
- Surface Preparation
  - Discuss surface preparation contract requirements
  - Surface cleaning methods
  - Apply tack coat and vertical surface treatments according to contract requirements
  - Asphalt material certifications
  - Tack coat application requirements
  - Tack coat curing requirements
  - Paving notches (if applicable)
- Mix Placement
  - Paving hours and schedule
  - Paving sequencing
  - Communication methods between the plant and the field
  - Plan for paving interruptions due to weather or equipment failure
  - Specifications for paver requirements and operation requirements
  - Automatic screed controls in accordance with the Specifications
  - MTV used for surface course for all mainline paving
- Compaction
  - Sufficient quantity and type of rollers and compaction equipment in accordance with the Specifications
- Joint Construction and Compaction
  - Plan for offsetting joints 6" from previously placed layer
  - Surface course longitudinal joints will be placed at the approximate centerline of the roadway for 2 lane roadways and within 12" of lane lines for roadways with more than 2 lanes

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- Avoid joint locations at planned pavement marking applications
- When specified or otherwise used, notch wedge joints will be constructed according to RC-28M of the standard drawings
- All transverse joints will be constructed perpendicular to the centerline of the roadway
- All joints must meet the required surface tolerances
- The entire area of all joint faces will be painted with a thin coating of the appropriate asphalt material
- Discuss joint compaction methods
- All completed wearing surface longitudinal and transverse joints are to be sealed with rubberized joint sealing material per the Specifications
- Pavement Cross Slope Verification
  - If specified, plan to verify pavement cross slopes as per the Special Provisions and COM Section C400-2
- Special Paving Conditions
  - Discuss the method of placement and traffic control for intersections and other incidental work
- Protection of the Courses
  - Traffic will not be placed on fresh material until the course uniformly cools to a temperature is 140 °F or lower, as by determined by surface thermometers.
- Amendments
  - If at any time during the course of the project a change to the quality control plan is agreed to be necessary by the IIC and the Contractor representative, strike out the changed items, replace with revisions and initial and date the changes. The IIC should record changes and reasoning in the IDR. Upload the revised QC plan to the PCDS.

### **Traffic Control**

- Identify and discuss the proper traffic control set up per the appropriate project traffic control plans or Maintenance and Protection of Traffic Standards.

### **Prepare Pre-Asphalt Paving Meeting Minutes**

- Prepare meeting minutes documenting discussions and any agreements
- Distribute meeting minutes to all attendees
- Upload meeting minutes to the PCDS

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DATED		DATE		
09-25-20		01-08-24		
SUBJECT				
TRACKLESS TACK COAT GUIDELINES				

The purpose of this section is to provide guidance for inspection and documentation of trackless tack coat applications.

### **GENERAL INFORMATION**

- Producer and suppliers are required to maintain a QC system that provides reasonable assurance that materials, products and completed construction conform to contract requirements.
- The Contractor is responsible for the control and quality of the material and construction and as such is required to prepare a QC Plan as specified in Section 106.03(a).2.
- Contractors are required to maintain storage tanks, tankers and distributor trucks free of contamination and provide a vendor's bill of lading indicating the supplied tack is free of contamination. If the supplied material is in question of possible contamination a letter documenting who cleaned the tankers and the dates they were cleaned should be requested.
- The Contractor is required to provide a distributor truck designed, equipped, calibrated, maintained and operated with proper tack coat nozzles to uniformly distribute the material on surfaces according to Section 460.
- As part of the Paving Operation QC plan, request verification and documentation of the distributor truck's calibration prior to the start of each paving season.
- Discuss the Trackless Tack Coat QC Plan at the Asphalt Pre-Operation Meeting. Discussion should include: surface preparation, manufacture of trackless tack to be used, manufacture's recommendation for placement and expected application rates to obtain specified residual rates.
- Verify a certificate of compliance is submitted that lists the type of material, tank number, and company lot number for cross-referencing to the bill of lading per Section 702.1(b)1.
- Vendor's bill of lading received for each shipment to the project or asphalt producer, contains information as per Section 702.1(c).
- Material stored more than 30 days must be retested for Bulletin 25 conformance.

### **INSPECTORS KEY INSPECTION ELEMENTS**

- Use only Class NTT/CNTT tack coat in accordance with Section 460.2.
- Identify the Application Rates (AR) and Residual Rates (RR) from the Paving Operation QC Plan.
- Required residual rates are listed by surface type in Section 460.3(b) - Table B.
- The Asphalt supplier has provided a bill of lading and the material is certified.
- Asphalt Residue Content (ARC) is provided on the Bill of Lading.
- Review manufacturer's recommendations for the material.

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- Gauges on the distributor truck are checked and the temperature of the asphalt material in tank is properly documented and recorded in IDR.
- Material temperatures are within 140°F and 180°F the limits specified in Section 460.2(a).
- Proper size spray nozzles are installed (Application rate .05 - .20 Gal/SY)
- Proper nozzle alignment angle (15-30°)
- The height of the spray bar above the pavement surface shall be adjusted to assure a uniform application of the asphalt material without causing any streaking. This height is generally 12" above the surface to provide triple lap coverage.
- Observe that spray nozzles are clear and provide uniform spray pattern.
- Air temperature for application is 40°F and rising and the surface is clean and dry.
- Calculate the application rate (AR) to obtain the proper residual rate (RR) for the asphalt residue content (ARC) listed on the bill of lading.  $AR = (RR/ARC)$
- Have a 4' level, tank dipstick and manufacturer's certificate of calibration for the tank available to compute the placement application rate.
- Verify with the distributor truck operator the proposed distributor settings which will be used to achieve the specified Residual Rate. Document these settings in the IDR.
- Perform field verification test of distributor application rate according to PTM 747. The test strip should have uniform distribution of tack coat over the entire surface and provide the specified Residual Rate for the surface type according to Section 460, Table B.
- PTM 747 should be performed initially when a distributor truck is used on the project and at any time the application rate appears improper.
- Visually inspect the application rate and adequacy of tack coat coverage on a 100-linear foot minimum test section per Section 460.3(b) prior to asphalt placement.
- Correct all uncoated, lightly coated, or excessively coated areas.
- If emulsified asphalt is used, all water has evaporated after its application and prior to paving.
- Treated surfaces are protected against damage until succeeding construction.

## **CONTRIBUTING FACTORS**

Distortion or streaking tack applications:

- Clogged spray nozzles
- Low pump pressure
- Misaligned spray nozzles
- Incorrect spray bar height

Factors affecting tack break and set times (Normal break time 10-20 min., Normal set times 30 min.-2 hours):

- Ambient air temperature
- Temperature of tack material
- Temperature of substrate
- Relative humidity
- Wind speed
- Application rate

# Section 500

## Rigid Pavements

REPLACES	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART	SECTION	PAGE
<b>C 500-1 Pages 1-2</b>		<b>C</b>	<b>500-1</b>	<b>1 of 1</b>
DATED		DATE		
<b>01-08-19</b>		<b>01-08-24</b>		
SUBJECT				
<b>CEMENT CONCRETE PAVEMENT</b>				

The purpose of this section is to provide proper inspection for the placement of cement concrete pavement. The cement concrete pavement quality control checklists are to be used on cement concrete paving operations. Any contract special provisions or specifications supersede this checklist.

The following checklists are to be used daily, or as applicable.

- The [Pre-Placement Checklist – Cement Concrete Pavement](#) is to be used immediately before placing concrete paving. This checklist will ensure the material is being placed within the proper ambient temperatures, on properly prepared subbase, with the proper grade and alignment, formwork, reinforcement, and with the proper equipment.
- The [Testing Inspection Checklist – Cement Concrete Pavement](#) is to be used when concrete is being tested for cement concrete paving. This checklist ensures the testing of material is being completed by the proper personnel, equipment, with the proper documentation, and sampling frequency.
- The [Paving Inspection Checklist – Cement Concrete Pavement](#) is to be used when concrete is being placed for cement concrete paving. This checklist ensures the material is being placed, consolidated, finished, textured, and cured properly.
- The [Joint Inspection – Cement Concrete Pavement](#) is to be used to inspect cement concrete paving joints. This checklist ensures the concrete joints are properly located, cleaned and sealed.
- The [Performance Inspection Checklist – Cement Concrete Pavement](#) is to be used after the concrete pavement has been placed. This checklist ensures that the surface tolerance, depth, and hardened air content meet the specification requirements.

Section 600  
Incidental Construction



REPLACES	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART	SECTION	PAGE
C 600-1 Page 1 of 1		C	600-1	1 of 1
DATED		DATE		
01-08-19		01-08-24		
SUBJECT				
PIPE INSTALLATION CHECKLIST				

The purpose of this section is to provide proper documentation for the inspection of pipe installation and testing. The pipe installation quality control checklists are to be available in all projects field offices for reference. Any contract special provisions or specifications supersede these checklists.

The following checklists are to be used daily, or as applicable.

- The [Excavation and Bedding Checklist – Pipe Installation](#) is to be used when excavating for pipe trenches and placing the pipe bedding material.
- The [Pipe Placement Checklist – Pipe Installation](#) is to be used when the pipe is being placed to ensure the pipe is properly fabricated, placed, and aligned properly.
- The [Pipe Backfill Checklist – Pipe Installation](#) is to be used when the pipe is being backfilled to ensure the proper materials are being used and obtaining the proper compaction.
- The [Pipe Installation Testing Checklist – Pipe Installation](#) is to be used to ensure that the proper materials were used, tested, compacted and inspected.

REPLACES	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART	SECTION	PAGE
DATED		C	600-2	1 of 1
		DATE 01-11-16		
SUBJECT  SONIC NAP ALERT PATTERN (SNAP)				

In addition to the agenda items included in COM Section C100-2 for the pre-operation meeting, the following information should be discussed, verified or documented in the project records.

**AGENDA TOPICS:**

- If required, discuss what traffic control measures will be used
- Milling machine meets the requirements outlined in Section 660
- Use a 16-inch wide planer with a maximum diameter of 24 inch cutting tip
- Location of test section that will be performed in areas agreed to by the Representative before performing any work. Additional test sections may be required, as directed.
- A guide is used on the milling machine to control alignment
- Do not construct SNAPS within 6 inches of the transverse shoulder joints
- Location of SNAPS shall be as shown on PTS-112 and PTS-192
- Do not install SNAPS on bridges with a concrete surface or water table width less than 6 feet
- Damage to the shoulder to be appropriately repaired
- Debris left from milling is cleaned up and removed from the shoulder. Water slurry from diamond grinding may be disposed of behind the guide rail, on grassy areas, or on cut slopes. Do not discharge water slurry within 50 feet of a stream or local road crossing and where streams are adjacent to the toe of an embankment

**DOCUMENT THE FOLLOWING ON THE IDR (COM Section B2-4):**

- Equipment and manpower
- That the contractor milled the rumble strips to the requirements of the PTS-112 and PTS-192
- The station to station, location, and shoulder milled
- That the milling debris was removed from the shoulder
- Computations and Payment

REPLACES	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART	SECTION	PAGE
C 600-3 Pages 1-2		C	600-3	1 of 2
DATED		DATE		
07-08-16		09-09-19		
SUBJECT				
GUIDE RAIL END TREATMENT INSPECTIONS				

The purpose of this section is to provide guidance for the inspection and documentation of Guide Rail End Treatments. All newly installed, leading end, permanent guide rail end treatments (Vehicle Attenuating Terminal End Treatments, V.A.T.E.T.) must be inspected according to this section, including end treatments installed on state or local routes (off Turnpike system). Approved guide rail end treatments are listed in Bulletin 15 Section 619.

The IIC or a designee shall verify the end treatment is installed in accordance with the manufacturer's installation instructions and perform inspections of the installed V.A.T.E.T. in accordance with the manufacturer's recommendations and the [\*Guide Rail End Treatment Inspection Checklist\*](#). The manufacturer's installation instructions and/or manuals can be downloaded using the hyperlinks provided in Section 619 of Bulletin 15 at the following web address:

[http://www.dot.state.pa.us/Public/pdf/BOCM\\_MTD\\_LAB/PUBLICATIONS/PUB\\_35/ImpactAttenuatingDevices/TerminalCrashCushionIndex.pdf](http://www.dot.state.pa.us/Public/pdf/BOCM_MTD_LAB/PUBLICATIONS/PUB_35/ImpactAttenuatingDevices/TerminalCrashCushionIndex.pdf)

Upload a copy of the completed inspection checklists with photos to the CI-PM – Photos and Video folder.

- The Attenuator Number required on the Guide Rail End Treatment Inspection Checklist can be found on the contract plans. Each end treatment is given a unique identifying number. A tag with the ID number will be permanently attached by the contractor to each end treatment located on the Turnpike system as indicated in Section 620.

The Roadway Engineering Manager is responsible to provide the Attenuator Number on the contract plans for end treatments on the Turnpike system. The Roadway Engineering Manager will follow the following rules when assigning Attenuator Numbers:

- In an area with concrete median barrier - A56.23NB (Northeast Extension MP A56.23 Northbound);
- In an area with a grass median - B16.75EBRT (Beaver Valley Expressway MP 16.75 Eastbound on the Right); and,
- At an interchange - IC247RMPA-1 (Harrisburg East Interchange, Ramp A, Attenuator 1).

For any off-Turnpike system end treatments, the IIC or a designee is responsible to assign Attenuator Numbers that are unique for the construction contract. The IIC or a designee is responsible to indicate the Attenuator Numbers for any off-Turnpike system end treatments on the as-built drawings.

- Photographs are to be taken of each end treatment after installation and acceptance. A minimum of 4 photos should be taken from the front, back and sides of the end treatment to show details of the end treatment and adjacent roadway features.

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- For guide rail end treatments installed and used during staged construction, this inspection process must be completed upon initial installation and also at project completion.
  - In the event an end treatment is damaged after the initial inspection, an interim inspection including the checklist and photos is required after repair or replacement of the end treatment.
  - Indicate in the Additional Notes/Details portion of the Guide Rail End Treatment Inspection Checklist whether the inspection is for the initial installation, interim, or completed project. For initial and interim inspections, indicate as such by adding “Initial” or “Interim” to the end of the file names for the Checklist and the photos.
- The completed manufacturer’s inspection checklist (if applicable) and the Guide Rail End Treatment Inspection Checklist with photos for Turnpike system end treatments are to be forwarded to the Roadway Engineering Manager and the Maintenance Department Roadway Programs Specialist for inventory immediately following the inspection. The checklists and photos for all end treatments must also be uploaded to the CI-PM – Photos and Video folder for all inspections.
- Use the following file naming structures for the checklists and photos:

#### Checklists

- Attenuator Number: B16.75EBRT
- Example: B16.75EBRT.PDF

#### Photos

- Attenuator Number: IC247RMPA-1\_View
- Example: IC247RMPA-1\_FRONT.jpeg  
 IC247RMPA-1\_BACK.jpeg  
 IC247RMPA-1\_SIDE1.jpeg  
 IC247RMPA-1\_SIDE2.jpeg

REPLACES	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART	SECTION	PAGE
Replace pg 1 of 1		C	600-4	1 of 2
DATED 12-14-21		DATE  01-08-24		
SUBJECT  PROTECTION OF PTC UTILITIES, FIBER NETWORK INFRASTRUCTURE, AND INTELLIGENT TRANSPORTATION SYSTEMS				

The purpose of this section is to highlight the coordination that must take place for all projects with potential impacts to PTC utilities, fiber network infrastructure, and ITS.

**Utilities** The PTC construction project manager or their designee must submit a request using the PTC Utility Management Application (UMA) two (2) weeks prior to the start of construction operations to verify the presence of any Commission-owned utilities.”

The [\*UMA User Manual\*](#) is available in the PCDS - PTC Reference Library/CI-PM-DM/ENG Construction/User Guides and Manuals.

### **PTC Fiber Network Infrastructure**

PTC fiber network infrastructure is a critical asset that supports turnpike-wide operations. The Network is required to always remain in service. The PTC fiber network consists of backbone, distribution, and commercial cabling, as well as lateral cabling that connects to various PTC facilities and ITS devices.

Coordinate closely with PTC IT and the PTC’s Fiber Operations, Maintenance, and Commercialization vendor as indicated in Section A1-1, Section A1-2, and Section D1-1 to ensure protection of existing PTC fiber network infrastructure during construction and handover of fiber network infrastructure installed as part of the project. Following final inspection and acceptance of the project, provide the Fiber Operations, Maintenance, and Commercialization vendor with as-builts and relevant supporting deliverables to ensure a smooth transition and transfer of knowledge. Responsibility for fiber will be transitioned to the Fiber Operations, Maintenance, and Commercialization Vendor for ongoing O&M after receipt of all required deliverables and final acceptance of the project.

### **Intelligent Transportation Systems**

In addition to coordination with PTC IT and the PTC’s Fiber Operations, Maintenance, and Commercialization vendor, also coordinate closely with the PTC’s ITS, Communications, and Technology Operations & Maintenance (O&M) vendor to ensure protection of existing ITS assets within the project bounds, as well as handover of any ITS device installed as part of the project. ITS devices requiring coordination include the following:

- Open Road Tolling Equipment
- Access Gates
- Dynamic Message Signs, including Tunnel Arrow Boards
- Closed-Circuit Television Cameras
- Road Weather Information Systems
- Truck Rollover Warning Systems

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Following final inspection and acceptance of the project, provide the ITS, Communications, and Technology O&M vendor with as-builts and relevant supporting deliverables to ensure a smooth transition and transfer of knowledge. Refer to Section B2-3 Records Management and Retention for Submission Requirements. Responsibility for ITS equipment operations and maintenance will be transitioned to the ITS, Communications, and Technology O&M vendor after receipt of all required deliverables and final acceptance of the project.

REPLACES	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART	SECTION	PAGE
C 600-5 page 1 to 5		C	600-5	1 of 5
DATED 10-01-22		DATE 01-08-24		
SUBJECT  PRE-GUIDE RAIL INSTALLATION MEETING				

In addition to the agenda items included in COM Section C100-2 for pre-operation meeting, the following information should be discussed, verified, or documented in the PCDS records. Schedule a guide rail installation meeting at least two weeks prior to any installation of guide rail in accordance with Section 620 - Guide Rail.

The following guidance has been developed to help identify important elements of guide rail installation that need to be reviewed during installation and verified at the time of final review and acceptance of an installation. This list is not all-inclusive and does not negate the Specifications or Standards requirements; it simply places emphasis on key areas where problems have been experienced in the past.

#### **A. MATERIAL**

- Certifications in accordance with Section 106.03(b)3.
- Certifications properly completed on CS-4171 for guide rail, guide rail components and rebar, along with Bills of Lading and Invoices.
- Certifications for other materials on CS-4171.
- Material Identification and Quantity, Lot Number, ASTM & AASHTO Specifications Reference, Buy America Certification, and the signature and title of a legally responsible person in the manufacturing firm are included on the certification form CS-4171.
- Approved Source of Supply for materials received from an approved Bulletin 15 supplier or approved testing source.

#### **B. STAFFING**

- Project should be adequately staffed. Inspectors and contractor supervisory personnel are knowledgeable of specifications and requirements.

#### **C. SAFETY**

- Operation conducted in a safe manner.

#### **D. POST AND RAIL INSTALLATION**

- Guide rail post and rail elements properly installed as per the applicable Standard Drawing for type of guide rail indicated.
- Do not cut, batter, burr, or separate galvanizing from steel.

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- Guide rail layout adequate for existing conditions.
- Posts set plumb and at the correct spacing. Fill voids to grade.
- Posts mechanically driven to full required depth without damage or distortion to the posts or the galvanizing.
- Suitable holes drilled or excavated to the required depth where bedrock or random boulders are encountered to set the posts to the ground line.
- Posts and offset blocks of proper size and type.
- Rail elements spliced properly with splice in the direction of traffic.
- Provide full contact between the rail elements in the overlap, between the center and both edges of the element, and between the bracket and post.
- Suitable shop-formed guide rail or rubbing rail is used on curves having a radius of less than 150 feet.
- Bolts extend at least 1/4" beyond nuts and properly tightened.
- Guide rail placed at the proper height and alignment.
- New and existing guide rail connected as indicated or directed. Existing post realigned and plumb fill voids.
- Trained installer onsite during installation. The trained installer must provide an unexpired Training Certificate to the Representative before starting physical work.

#### **E. POST AND RAIL INSTALLATION AT OBSTRUCTIONS – RC-54**

- Required clearances maintained for type of guide rail installed.
- Guide rail properly installed at obstructions as indicated in Table 1 of RC-54 for the conditions.

#### **F. EQUIPMENT STORAGE BEHIND GUIDE RAIL**

- 4' minimum for strong post rail
- 9' minimum for weak post rail

#### **G. END TREATMENTS/ANCHORAGES**

- Items installed as per the applicable Standard Drawing for type indicated.
- Indicated type installed at proper location.
- Alignment proper and hardware installed correctly as per the applicable Standard Drawing.

#### **H. OVER UNDERGROUND STRUCTURES**

- Items installed as per the applicable Standard Drawings where indicated.
- Proper class of concrete placed.
- Reinforcement bars and anchor bolts are of the proper type and properly installed.
- All hardware properly installed.



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#### **I. F-SHAPE BARRIER TRANSITION**

- Items installed as per the applicable Standard Drawing for type indicated.

#### **J. THRIE-BEAM TO PA TYPE 10M TRANSITION**

- Items installed as per the applicable Standard Drawing for type indicated.

#### **K. THRIE-BEAM TO VERTICAL WALL TRANSITION**

- Items installed as per the applicable Standard Drawing for type indicated.

#### **L. THRIE-BEAM TO PA BRIDGE TRANSITION**

- Items installed as per the applicable Standard Drawing for type indicated.

#### **M. RESET GUIDE RAIL REMOVAL**

- Guide rail to be reinstalled, carefully removed without damage.
- Material damaged during this operation repaired or replaced.
- Existing guide rail removed and reset as shown on the standard drawings.
- Existing steel offset brackets and backing plates replaced with routed wood, plastic, or composite ones.
- Steel offset brackets and backing plates properly disposed.

#### **N. MATERIAL STORAGE**

- New and/or removed guide rail elements stored properly and in a safe location.
- Guide rail (Contractors Property) removed as indicated and disposed outside the right of way.
- Guide rail (PTC Property) removed as indicated, individual elements properly bundled and delivered to designated location as indicated in contract special provision.

#### **O. STRUCTURE MOUNTED GUIDE RAIL**

- Items installed as per the applicable Standard Drawing for type indicated.
- Anchor bolts placed as indicated and at the proper spacing.
- Installed at the proper height and alignment.
- All hardware properly installed.

#### **P. CONCRETE END ANCHORS**

- Concrete end anchors properly removed, disposed, and backfilled.
- Anchor areas properly backfilled with suitable material.

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## **Q. EQUIPMENT**

- Equipment being utilized capable of providing acceptable installation.
- Equipment operating properly.
- Mechanical post driver used to drive post to proper height and alignment.
- Proper size drilling or excavating equipment used to drill or excavate to the required depth where bedrock or boulders are encountered.

## **R. GALVANIZATION**

- Damaged galvanization properly repaired.
- Galvanization paint in accordance with Section 1109, 1105.02(s) and AASHTO M 111.
- Damaged galvanizing painted with two coats of galvanizing paint, in accordance with Section 1105.02(s)2.

## **S. MASH**

- Follow PTS-130 for guide rail height TYPE 31-S 31 7/8”.

## **T. V.A.T.E.T.**

- Discuss if applicable to the Project per Section 620.3(5) and Manufacturers Installation Guidelines.

## **U. TRAINING – Discuss training requirement in accordance with Section 620.3(h)**

### **1. Generic Systems.**

**1.a** Verify at least one trained guide rail installer present at each location within the project to be an active participant during the installation, replacement, and repair of guide rail system or elements of a guide rail system. The trained installer must be a foreman or crew chief overseeing the installation by field crew.

**1.b** Verify that the trained installer(s) attended the Department’s Guide Rail Installation, Replacement, and Maintenance Course and received a Training Certificate by passing the final examination. Alternatively, installers can attend the American Traffic Safety Services Association (ATSSA) Guide Rail Installation Training course and acquire a training certificate with a valid expiration date.

**1.c** Verify the trained installer provided an unexpired Training Certificate to the Representative before starting physical work.

### **2. Proprietary Systems.**

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- 2.a** Verify at least one trained installer present at each location within the project to be an active participant during the installation, replacement, and repair of a proprietary roadside safety hardware system. The trained installer must be a foreman or crew chief overseeing the installation by field crew.
- 2.b** Verify that the trained installer(s) attended the Department's Proprietary Traffic Barrier & End Treatment Course, or any respective manufacturer's training course, and received a Training Certificate from the manufacturer for the installation, replacement, and repair of the proprietary product(s) by completing the manufacturer's requirements. Certificate must identify the specific device for which it is issued and the expiration date.
- 2.c** Verify the trained installer(s) provided an unexpired proprietary product(s) Training Certificate to the Representative before starting physical work. A certificate issued for one product will not be accepted for the installation, replacement, or repair of another product. Training Certificates must be current during the installation, replacement, and repair of guide rail system or elements of a guide rail system.

## **V. UTILITY –**

The PTC construction project manager or their designee must submit a request using the PTC Utility Management Application (UMA) two weeks prior to installation of guide rail to verify the presence of any Commission-owned utilities include the PTC Fiber Optic Network.

# Section 700

## Material

REPLACES	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART  <b>C</b>	SECTION  <b>700-1</b>	PAGE  <b>1 of 1</b>
DATED 01-18-13		DATE  <b>01-08-24</b>		
SUBJECT  <b>MATERIALS CONTROL</b>				

The purpose of this section is to provide guidance for controlling the fabrication, sampling, and testing of materials to ensure that the materials to be used in construction activities are suitable to sufficiently produce the desired product at a certain level of quality.

The Commission shall witness the Acceptance Testing provided by the Contractor's and Producers, in accordance with the contract Specification and approved Quality Control Plans.

The Commission's [Material Action Plan](#) will be implemented through the Commission's Quality Assurance Group.

Shop inspection for the following prefabricated materials shall follow the Inspection Guidelines - PennDOT Publication 145.

- Prestressed Concrete Bridge Members
- Precast Concrete Products
- Concrete Pipe

Field sampling of construction materials shall follow the Commission's [Stratified Random Sampling Approach](#).

REPLACES	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART	SECTION	PAGE
Part C 700-2 Pages 1-2		<b>C</b>	<b>700-2</b>	<b>1 of 2</b>
DATED		DATE		
01-08-19		<b>01-08-24</b>		
SUBJECT	<b>MATERIALS – CERTIFICATION AND ACCEPTANCE</b>			

The purpose of this section is to provide guidance on the approval, certification, and acceptance of materials used on construction projects.

All materials incorporated into the work on a project must be accepted by one of the following methods:

#### PRELIMINARY ACCEPTANCE AND APPROVAL

Ensure an approved material source of supply list is on file before material is incorporated into the work from a source listed in Bulletin 14, 15, 41, or 42.

If the source of material is not pre-approved, the contractor must submit the following:

- Source
- Description
- Specified Use
- Quality Control Plan
- Catalog Cut Sheets
- Samples of the kind and quality specified to a laboratory designated by the Commission with a copy to the Representative.

The contractor may not deliver material from the unapproved source to the project until written acceptance is provided by the Commission.

Inspect material being used, or intended to be used, at any time before, during, or after material preparation, while being used during the progress of the work, or after the work has been completed.

Inspection and testing performed by the Commission will not relieve the Contractor's responsibility for Quality Control.

Whenever a material is defined by describing a proprietary product or by using a trade name or the name of a manufacturer or vendor, the term "or approved equal", if not inserted is implied and assumed in all cases. The reference to a particular product has been made solely for the purpose of more clearly indicating the minimum standard of quality desired and any other product substantially similar may be approved as equal and satisfactory.

Ensure the required mix designs are current, approved, and on file prior to incorporating the material. Mix designs are to be signed by a Commission Representative.

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## CERTIFICATION ACCEPTANCE

- Approved material listed in Bulletins 14 or 15 or material produced at an approved producer listed in Bulletins 41 or 42. Materials from approved manufacturers or producers can be accepted on certification unless otherwise specified.
- Section 106.03(b) requires the manufacturer or producer of the material to certify on Form CS-4171 that the material meets or exceeds the specification requirements.
- All CS-4171 forms received on the project will be uploaded into the Project Collaboration and Documentation System (PCDS).

## ON-SITE ACCEPTANCE

- Material approved by Commission Representatives at the point of production of the manufacturer or producer.
- Materials specified to be accepted by acceptance sampling and testing. Acceptance sampling and testing frequencies are indicated in the Specifications. See also COM Section [B 11-6 Materials Tested in the Field for Project Acceptance](#).
- Materials not listed in Bulletins 14 or 15 or materials not produced from approved 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 in accordance with Section 106.02(a)2.
- Quality Control sampling and testing performed under the observation of the Representative are the responsibility of the Contractor.

Materials delivered to the project suspected of non-compliance with the specification requirements should be sampled and tested to determine if the quality of the materials meet the specifications.

Commission Representatives are required to monitor and maintain ‘custody’ of any material samples collected on behalf of the Commission from point of sampling through delivery.

## MATERIAL STORAGE

Material is to be stored to ensure preservation of the specified quality. Stored material, even though accepted before storage, may again be inspected prior to use in the work.

Locate material to facilitate inspection and control.

The contractor must store reinforcement steel above ground, in a clean and dry condition on a platform in accordance with Section 1002.

The contractor must also adhere to the specifications regarding the storage of construction materials with known physical hazards (explosive, flammable, or combustible) or storage of any motorized equipment under structures.

REPLACES	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART	SECTION	PAGE
C 700-3 Pages 1-3		C	700-3	1 of 3
DATED 09-25-20		DATE 01-08-24		
SUBJECT  MATERIALS – ACCEPTANCE OF SMALL QUANTITIES				

This document provides guidance for the acceptance of small quantities of materials as indicated in [Section B11-3](#).

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 Commission at the pre-construction conference of the circumstances under which reduced inspection and acceptance procedures will be used.

### **PLANT-MIXED ASPHALT CONCRETE COURSES**

Reduced inspection and acceptance procedures for asphalt material are permitted when the production samples and tests meet the following Quality Control Lot size criteria for daily production for each Job Mix Formula (JMF):

- 50 tons or less – the material is verified by visual inspection and mixture production temperature checks. No additional testing is required.
- Greater than 50 tons – test results for asphalt content, gradation, theoretical maximum specific gravity, volumetric analysis of compacted specimens is to be provided at least once each shift.

The field inspector is to obtain a copy of [TR-4276B](#) (Nuclear Method Compaction Density Report) and document in the Inspector Daily Report (IDR) that the compaction testing was performed in accordance with PTM 402 or PTM 403 for each day material density was accepted by the optimum rolling pattern procedure. For density acceptance based on non-movement, the inspector must document the visual non-movement of the material under the compaction equipment using form [PTC-478A](#) (Report on Compaction Density Non-Movement).

The Contractor will furnish Form [CS-4171](#) (Certification of Compliance) to the Commission on a daily basis certifying that the material was produced in accordance with the approved job mix formula and specifications.

### **PORTLAND CEMENT CONCRETE**

Reduced inspection and acceptance procedures permitted only when less than 25 cubic yards per day per class of concrete per project for non-critical incidental items.



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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
- Guide Rail Anchors
- Sign Bases (Except Overhead Structure Foundations)

The requirement for molding cylinders may be waived when small quantities acceptance is utilized.

The Contractor will furnish Form [CS-4171](#) (Certificate of Compliance) from the material producer to the Commission on a daily basis certifying that the material was produced in accordance with the approved mix design and specifications.

## **EMBANKMENT**

Reduced inspection and acceptance procedures are permitted only for less than 1000 cubic yards 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 specified in Specification Section 206.3. Field inspectors will document their findings on Form [PTC-478A](#) (Report on Compaction Density Non-Movement).

## **PIPE BACKFILL**

No nuclear testing is required for pipe extensions less than 20 feet. A maximum of 400 lineal feet of pipe may be placed per project using the reduced inspection and acceptance procedures.

One nuclear test will be required 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 inspector will document all subsequent runs utilizing this pattern on Form [PTC-478A](#) (Report on Compaction Density Non-Movement).

No nuclear testing will be required for Combination Storm Sewer and Underdrain backfill. Place material in appropriate loose lift thickness for the type of material specified and compact to non-

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movement using specified compaction equipment. Field inspectors will document their findings on Form [PTC-478A](#) (Report on Compaction Density Non-Movement).

### **SUBBASE**

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 specified in Specification Section 350.3. The field inspector will document pertinent findings on Form [PTC-478A](#) (Report on Compaction Density Non-Movement).

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C 700-4 Pages 1 to 2		C	700-4	1 of 2
DATED		DATE		
07-02-18		01-08-24		
SUBJECT	ACCEPTANCE OF CONSTRUCTION AGGREGATES			

The purpose of this section is to provide guidance on the acceptance of aggregates used for construction.

## **CERTIFICATION ACCEPTANCE**

Construction aggregates are accepted 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 stockpile verification samples tested by the plant inspector in accordance with Section 703.5(b).

## **PROJECT VERIFICATION SAMPLES**

Aggregates placed on the project are subject to additional testing. These additional tests are project verification samples that are taken at the point of placement and tested by the Representative. Aggregates used for subbase applications under the roadway and shoulders as specified in Section 350 shall be sampled if quantities exceed minimum threshold amounts in accordance with Table F, Section 703.5(b)3. Only projects equipped with a field laboratory, as indicated in Section 609.2(a)3, are required to follow Table F requirements. Other aggregate types or applications may be sampled for project verification if the Representative determines that the material is visually suspect.

- Each sample consists of three increments (bags), n=3.
- Table F is based on the 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 accumulates.
- Sampling points should be established in the initial stages of the project and posted so the inspectors are aware of their responsibility to capture project verification increments at the proper time and tonnage.
- A running total of aggregate tonnage will also need to be maintained so the inspector will be able to anticipate when a sampling point is reached.
- Aggregates are to be sampled in accordance with PTM 639 or AASHTO T2.

The increments that compose a sample **must** be randomly selected, using PTM 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.

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## **SAMPLING PROCEDURE**

The Contractor will furnish the Representative with estimated aggregate quantities for subbase applications under the roadway and shoulders at the beginning of the project. If the project is to use 1000 or more tons of aggregate for subbase applications under the roadway and shoulders, and the project is equipped with a field laboratory, the inspector should anticipate obtaining project verification samples in accordance with Table F, Section 703.5(b)3. The inspector will then determine how many total numbers of samples will be required over the life of the project. Refer to PennDOT's Project Office Manual Section B.7.13 for examples for calculating lots and sublots. Refer to Section 106.03(a)3. for guidance on Percent Within Limits (PWL).

## **GENERAL REQUIREMENTS**

All verification testing is to be performed by the inspector. All increments of each sample are to be tested. Increments may be tested immediately upon lifting the sample, if a lab is convenient. The inspector does not have to wait for the other increments to be lifted before testing the sample.

As a minimum, tests are to include PTM 616 and PTM 100. ASTM D5821 "Standard Test Method for Determining the Percentage of Fractured Particles in Coarse Aggregate" would have to be included in the case of gravel aggregate.

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 Commission is not obligated to accept material that is deficient just because of certification acceptance.

If project quantities change to the extent that a final increment would not be reached to provide at least three increments for the "lot", adjust the "lot" quantity and recompute the sampling point so three increments are tested and statistically evaluated. Justify through documentation the reason for adjusting sampling points.

## **FAILURES**

Anytime that a project verification sample has a Percent Within Limits (PWL) of less than 90, obtain an acceptance sample (n=3) at the point of placement (loose aggregate sample on grade before trimming and compaction) for each 7,500 tons of material placed. The lot size of 7,500 tons will be divided into three equal sublots. The Contractor may not use that size aggregate until the Representative determines new lot sample locations according to PTM No. 1 and authorizes operations to continue. See Section 703.5(b)3 for further details.

Section 800

Roadside Development

REPLACES <b>C 800-1 Pages 1-3</b>	PENNSYLVANIA TURNPIKE COMMISSION	PART <b>C</b>	SECTION <b>800-1</b>	PAGE <b>1 of 3</b>
DATED <b>01-18-13</b>	<b>CONSTRUCTION OPERATIONS MANUAL</b>	DATE <b>01-03-14</b>		
SUBJECT		<b>TREE CLEARING MANAGEMENT GUIDELINES</b>		

The purpose of these guidelines is for establishing tree removal and pruning practices along the Pennsylvania Turnpike Commission (PTC) system of operation in accordance with Section 810. Coordinate tree clearing with the PTC Landscaping Unit and provide a two week advanced notice prior to any clearing.

These guidelines are only for areas between the Right-of-Way line and the roadway and do not include surplus parcels of PTC property.

Cut Slopes: (Slopes with grades 3:1 or steeper)

1. Remove all trees growing on cut slopes up to 100', including benches or up to the first bench for high residential areas, as measured from the edge of the shoulder. Shrub plants that are 15' or less can remain on the slopes. The tree stumps should be cut as indicated in the Section 810. Residential areas will be determined during the field view of the areas outlined for tree removal or pruning.
2. Spray tree stumps as indicated in the Section 810.
3. The Maintenance Department will need to establish an herbicide spraying plan to prevent the regrowth of trees on the slope.

Top of Cut Slopes to the R.O.W. Line

1. Remove all diseased, dead, or dying trees in these areas as established by a certified arborist.
2. Areas 10' or less from the ROW fence to the top of the cut, remove all trees unless a residential area is present.
3. For areas greater than 10' from the top of the cut slope to the ROW fence, remove all diseased, dead, or dying trees. All other trees could remain.

Fill Slopes: (Areas behind guide rail)

1. Remove all diseased, dead, or dying trees in these areas as established by a certified arborist.
2. Remove all trees leaning towards the roadway.

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3. Prune branches of healthy trees hanging over the roadway. Pruning of these trees should be done in accordance with Section 810. However, if pruning the tree(s) to remove the unwanted branches/limbs results in a tree that is now one sided and unsafe, remove the entire tree.
4. Remove tree stumps or trees in accordance with Section 810 unless authorized by the Representative. The Representative may waive the requirement and permit the stumps to remain up to a height of 12" from the ground line.
5. The Maintenance Department will need to establish an herbicide spraying plan to prevent the regrowth of trees on the slope.
6. The Maintenance Department will need to establish a pruning plan to prevent trees from growing back out into the roadway.

Traversable Roadside Areas: (Areas 3:1 or less)

1. All trees should be cleared within AASHTO's Roadside Design Guidelines for minimum clear zone standards (approximately 30' from edge of shoulder).
2. Areas between 3:1 and 4:1 which are traversable, but non-recoverable and are being considered as part of the clear zone per AASHTO shall be cleared.
3. Section 810 Specification establishes the stump height when removing trees as level to the ground line or to a height of not more than 50mm (2 inches). Stumps in this area should be cut flush or mechanically eliminate the stump to ground level. This requirement will prevent any safety issues and provide better transition of these areas into turf for future mowing practices if warranted.
4. The Maintenance Department will need to establish an herbicide spraying plan to prevent the regrowth of trees on the slope.
5. The Maintenance Department will need to establish a pruning plan to prevent trees from growing back out into the roadway.

Traversable Roadside Areas outside the Clear Zone to the ROW Line

1. Completely clearing these areas will be decided on a case by case basis based on height of trees, adjacent land use, residential density, and other such factors.
2. Remove all diseased, dead, or dying trees in these areas as established by a certified arborist. These trees will be marked by the certified arborist before a tree removal/pruning project begins.
3. Remove all trees that are leaning towards the roadway.

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### Behind Sound Walls

1. Remove all diseased, dead, or dying trees in these areas as established by a c ertified arborist.
2. Prune branches of healthy trees hanging over the roadway. Pruning of these trees should be done in accordance with Section 810. However, if pruning the tree(s) to remove the unwanted branches/limbs results in a tree that is now one sided and unsafe, remove the entire tree.

### Trees Leaning over Right-of-Way Fence

1. Prune the portion of the tree leaning over the Right-of-Way line.
2. Do not cut any portion of a tree outside the ROW line without prior written approval from the property owner.



## Section 900

# Traffic Accommodation and Control

REPLACES	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART	SECTION	PAGE
C 900-1 Pages 1-4		C	900-1	1 of 2
DATED		DATE		
01-09-18		01-08-24		
SUBJECT		TRAFFIC ACCOMMODATION AND CONTROL		

The purpose of this section is to provide guidance on the Traffic Control Plan requirements, work zone installation, and traffic compliance checks and inspections in accordance with Section 901.

## **TRAFFIC CONTROL PLAN (TCP)**

The Commission Representative is required to:

- a. Review and become knowledgeable of the approved work zone traffic control requirements and TCP for the project.
- b. Assure that normal traffic patterns are not affected or altered by work performed within the project limits until traffic control is provided in accordance with the approved TCP, Standard Drawings, Specifications, and Publication 212. In the case of a discrepancy among the publications listed above and the TCP, the following order of precedence will apply:
  1. Special Provisions
  2. Approved TCP
  3. Standard Specifications
  4. Applicable Standard Drawings
  5. PTC Standard Drawing and Publication 212
- c. Provide proper maintenance and protection of traffic so the traveling public can proceed through work zones without incident.
- d. Monitor the performance of traffic control devices to ensure compliance with the approved TCP, Standard Drawings, Specifications, and Publication 212 – or the contractor’s revised TCP approved by the Representative.

## **INITIAL SETUP AND CHANGES**

The initial setup of work zone traffic control and each change from the initial setup must be inspected in detail by the Representative, and if the work involves daily setups of short-term work zone traffic control, the setup must be inspected each day to ensure that:

- a. The traffic control has been installed in accordance with the approved TCP, Standard Drawings, Specifications, and Publication 212.

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- b. Place PCMS in accordance with contract requirements. Multiple PCMS must be spaced at least 1000 feet apart. If there is a permanent DMS within 2+/- miles upstream from the beginning of the traffic control devices for the project, the Representative must coordinate with the TOC operator to determine the appropriate message to be displayed on the sign. Refer to MUTCD Section 6F.60 and the Appendix for additional guidelines on PCMS placement.
- c. PCMS shall be turned three degrees toward the travel lanes from the perpendicular edge of the travel lanes to reduce glare. PCMS shall be raised a minimum of seven feet above the roadway.
- d. Signs and devices shall be placed within the legal right-of-way, or proper right-of-way releases have been obtained if the signs and/or devices must be placed outside the legal right-of-way (i.e. PennDOT or local road right-of-way).
- e. Messages in the PCMS are as identified in the Standard Drawings, PCMS Standard Message Library, and/or as approved by the Representative. Approved messages must be loaded into the signs prior to the start of work activity.
- f. Brightness setting for PCMS should be in auto mode. Run pixel test on PCMS, in accordance with contract requirements.
- g. All traffic control devices are functioning properly and are correctly positioned, clean, legible, operative and in a good state of repair. Traffic Control devices must meet the acceptable or marginal criteria described in the Pennsylvania Quality Guidelines for Temporary Traffic Control Devices.
- h. All conflicting, inappropriate, or non-applicable traffic control devices are removed, and in the case of signs, covered entirely [Section 901.3(a)] so that they are not readable by drivers. We normally do not have folded signs.
- i. Check the installation of the devices and observe the flow of traffic as it is affected by the traffic control.
- j. Verify that emergency pull off (EPO) locations are properly sized and use is in accordance with the contract documents.

Refer to Section B 10-3 for information regarding planning traffic stoppages and paces.

## **REMOVAL OR COVERING OF WARNING AND WORK ZONE SIGNS**

Review the project TCP to determine when signs should be covered or removed. Traffic control warning signs are to be covered entirely [Section 901.3(a)] or removed when they are not needed.

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C 900-2 Pages 1-3		C	900-2	1 of 3
DATED		DATE		
03-29-19		01-08-24		
SUBJECT				
MAINTENANCE AND PROTECTION OF TRAFFIC CERTIFICATION AND DOCUMENTATION				

The purpose of this section is to provide guidance on the certification and documentation requirements for Traffic Control items in accordance with Section 901.

## **CERTIFICATION REQUIREMENTS FOR TRAFFIC CONTROL ITEMS**

Suppliers of permanent traffic control items to Commission projects must submit the necessary Certificate of Compliance, CS-4171, if the material or product is incorporated and/or retained as part of the project.

Temporary work area traffic control items do not require a CS-4171, unless otherwise specified in the Specifications. Temporary traffic control items that will be permanently incorporated and/or retained as part of the project will require a CS-4171.

All Traffic control items, permanent and temporary, shall be from an approved manufacturer listed in Bulletin 15, listed on an approved Source of Supply submission, and in accordance with the contract requirements.

## **DOCUMENTATION OF WORK ZONE TRAFFIC CONTROL COMPLIANCE INSPECTIONS**

Inspections must be made of the work zone traffic control to ensure that all traffic control devices required by Special Provisions, the approved TCP, Standard Drawings, Specifications, and Publication 212 are functioning properly, correctly positioned, clean, legible, operative and in a good state of repair, and effectively warning approaching motorists of the construction project and any required action.

An Inspector's Daily Report (IDR) Form [PTC- 371](#) or [PTC-371L](#) entry shall be made noting that the work zone traffic control devices were checked, and the IDR is to refer to the Work Zone Traffic Control - Daily Project Review form(s) for specifics on the inspections, unless otherwise noted below. These forms are in the PTC Reference Library in PCDS. **Verify that forms used are current and correspond to the applicable revision of the Maintenance and Protection of Traffic – Standard Drawings for each particular project and traffic pattern being inspected.** The form titled "Project-Specific Traffic Control Plan" can be used for listing the signs and devices that are applicable to project-specific traffic control plans, such as Road Closed and Detour traffic control plans. All findings of Work Zone Traffic Control Compliance must be adequately documented as follows:

- a. Long Term Traffic Control Compliance Inspections:

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- Where traffic is maintained through the construction zone, all temporary traffic control devices shall be inspected at least twice per shift – at the beginning and end of each shift.
- Run pixel test on PCMS, in accordance with the contract requirements.
- Representative shall use Work Zone Traffic Control - Daily Project Review forms to document **all** long-term work zone traffic control compliance inspections. The inspection shall be noted in the IDR [PTC-371](#) or [PTC-371L](#) as having been inspected and reference the Work Zone Traffic Control - Daily Project Review form(s).

b. Road Closed and Detour Traffic Control Compliance Inspections:

- Where the road is closed and traffic is detoured, all temporary traffic control devices, excluding the detour signs, shall be inspected at least once per shift to ensure that the road closing devices are in place and functioning properly. The remainder of the work traffic control, namely the detour signing, is to be inspected at least twice a week.
- Run pixel test on PCMS, in accordance with contract requirements.
- The Inspector shall use the Work Zone Traffic Control - Daily Project Review form to document long term road closed traffic control inspections. The inspection shall be noted in the IDR PTC-371 or PTC-371L as having been inspected and reference the Work Zone Traffic Control - Daily Project Review form.

c. NightTime Traffic Control Compliance Inspections:

- If the work zone traffic control is to remain in place during hours of darkness, a night inspection of the initial setup and each change (phase/stage changes) from the initial setup must be conducted by the Inspector.
- The Inspector shall use Work Zone Traffic Control - Daily Project Review forms to document **all** long-term work zone traffic control compliance inspections. The inspection shall be noted in the IDR PTC-371 or PTC-371L as having been inspected and reference the Work Zone Traffic Control - Daily Project Review form(s).

d. Phase/Stage Change Traffic Control Compliance Inspection

- After any construction phase/stage change, a Traffic Control Compliance Inspection shall be performed.
- Run pixel test on PCMS, in accordance with contract requirements.
- Inspector shall use Work Zone Traffic Control - Daily Project Review forms to document all long-term work zone traffic control compliance inspections. The inspection shall be noted in the IDR PTC-371 or PTC-371L as having been

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inspected and reference the Work Zone Traffic Control - Daily Project Review form(s).

e. Short Term Traffic Control Compliance Inspections:

- Where traffic is being maintained through a short-term construction operation, all temporary traffic control devices shall be inspected during the initial setup and periodically throughout the short-term operation.
- The Lane Pattern Administrator (LPA) is to ensure the Operation's Center is notified of short term MPT resulting in traffic restrictions. Refer to [Section B 10-4](#) for details.
- In situations where, short term work zone traffic control measures are correct and in compliance with the approved TCP, Specifications, Publication 212, and Standard Drawings, the Inspector shall include a statement in their IDR Form PTC-371 or PTC-371L for the operation they are inspecting and reference form [PTC-376](#) stating that short term traffic control devices were set up in accordance with contract requirements.
- The Inspector is required to use the Work Zone Traffic Control - Daily Project Review forms to document and notify short term work zone traffic control issues and conditions in situations where the contractor neglects or refuses to correct identified deficiencies. **Work Zone Traffic Control - Daily Project Review form documentation is required for short term operations in the event assessment of liquidated damages is appropriate or becomes necessary.**

## CONTRACTOR NOTIFICATION OF LIQUIDATED DAMAGES

In accordance with Section 901.3(t) the contractor is to be notified in writing of all deficiencies related to work zone traffic control compliance in the event of non-compliance with the Maintenance and Protection of Traffic requirements, the Inspector shall notify the Construction Manager and Project Manager and send them the Work Zone Traffic Control – Daily Project Review form. The Construction Manager and Inspector are to conduct follow-up inspections to determine when corrective action has been taken. If the contractor neglects or refuses to take corrective action, the Project Manager is to notify the Construction Engineering Manager and Assistant Chief Engineer – Construction. The Assistant Chief Engineer – Construction may also coordinate with PTC Maintenance to correct any outstanding deficiencies. The Project Manager shall assess the necessary liquidated damages via the PCDS.

In accordance with the project's special provisions, the contractor is to be notified in writing of any violations of the allowable lane closure periods. In the event of violations of the allowable lane closure hours, the Inspector shall notify the Construction Manager and Project Manager and send them the Work Zone Traffic Control – Daily Project Review form. After conferring with the Construction Engineering Manager, the Project Manager shall assess liquidated damages via PCDS.

REPLACES	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART	SECTION	PAGE
C 900-3 Pages 1-2		<b>C</b>	<b>900-3</b>	<b>1 of 3</b>
DATED  06-09-19		DATE  <b>01-08-24</b>		
SUBJECT  <b>MAINTENANCE AND PROTECTION OF TRAFFIC INSPECTION GUIDELINES</b>				

The purpose of this section is to provide guidance for the inspection of traffic control items used on construction projects in accordance with Section 901.

## **CONSIDERATIONS IN THE INSPECTION OF WORK ZONE TRAFFIC CONTROL**

### 1. Channelizers

Sufficient number, proper positioning, with the correct spacing of channelizers, barricades, and barricade warning lights throughout the lane closure. Transition length correct with the required number of devices, spacing, and lights in accordance with the Maintenance and Protection of Traffic – Standard Drawings.

- a) Improperly striped or reflectorized channelizers or barricades.
- b) Panel board stripes placed in correct direction.

### 2. Arrow Panels and PCMS

- a) Arrow Panels and PCMS positioned properly. Check that lights dim at night. PCMS has the proper message in accordance with the Standard Drawings.
- b) PCMS can display a three-line message with either 8 or 12 characters per line with 18” character height, in accordance with contract requirements.
- c) Removal or securing of PCMS during high wind events in accordance with contract requirements.
- d) Delineate trailer-mounted equipment with approved channelizing devices as indicated in the Specification and PTC Maintenance and Protection of Traffic Standards.

### 3. Signage

- a) Signs legible, clean, of the correct size and shape and proper class of reflectivity material.
- b) Signs placed at the correct height.
- c) Sufficient sandbag sign ballast used to prevent overturning.
- d) All sign lights working and placed correctly.

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- Check that 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 Commission are used. The approved lights are listed in Bulletin 15.
  - When it is desirable to delineate a travel path by installing barricade warning lights, Type C (Steady Burn) lights shall be used in lieu of either Type A or Type B (Flashing) lights, since an array of randomly flashing lights is very confusing to motorists.
  - When barricade warning lights are operated by a 120V, 60 cycle power supply extreme care must be exercised to provide safety. In these cases, the 120V A.C. power source should be located so that an accident could not readily cause a motorist or his vehicle to be into contact with the power source.
- e) Contact information included on the back of each sign, PCMS and Speed Display Sign.
- f) Signs include the proper covers.
- g) The exposure of signs which should be completely covered.
- h) Conflicting messages from traffic signs are properly covered.
- i) Uneven pavement signs placed on milled surface.
4. Temporary Pavement Markings
- a) Improper eradication of conflicting pavement markings.
- b) Temporary roadway markings acceptable with the proper retro-reflectivity.
- c) Temporary reflective markers installed properly at the correct spacing.
5. Temporary Barrier
- a) Temporary concrete barrier installed and properly delineated. All barriers the same height with no blunt ends.
- b) Impact attenuator installed correctly and of the proper type.
- c) Emergency Pull-offs correctly placed and identified.
- d) Shoulder closures identified properly.
6. Equipment
- a) Shadow vehicles used when required, properly positioned, and equipped. Shadow vehicles shall be equipped with a truck mounted attenuator (TMA).



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- b) Backup alarms and lights on all construction vehicles.
- c) Access gates secured or watchmen provided.
- d) Contractor's equipment and material stored a minimum of 40 feet from the edge of the nearest open travel lane to prevent conflicts with traffic through work zones in accordance with the Standard Drawings.

## 7. Flagging

- a) Flaggers wearing a hard hat and high-visibility safety apparel with retroreflective material, in accordance with the Specifications, and Standard Drawings (e.g., fluorescent yellow-green or fluorescent orange attire).
- b) Flagger using proper flagging methods and properly positioned in accordance with Publication 234 (Flagging Handbook).
- c) Verify that flaggers are successfully completed a flagger training course and carry valid wallet-sized training card as specified in the specifications.

REPLACES	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART	SECTION	PAGE
C 900-4 Pages 1-2		C	900-4	1 of 2
DATED		DATE		
03-12-21		01-08-24		
SUBJECT				
PRE-MPT SET-UP MEETING				

In addition to the agenda items included in COM Section C100-2 for the pre-operation meeting, the following information should be discussed, verified or documented in the project records.

### **AGENDA TOPICS:**

#### **GENERAL – Contract Special Provisions, Section 901 and Maintenance and Protection of Traffic Standard Drawings**

- Contractor is responsible to install and maintain MPT signs and devices and follow proper PTS standard for intended set-up.
- Contractor to assign an MPT Supervisor. This person should be knowledgeable with set up and removal of MPT signs and devices and monitor pattern throughout shift to ensure pattern is properly maintained.
- The arrow board location for implementing MPT may need to be adjusted based upon horizontal and vertical alignment in the field. This may lead to a longer single lane pattern than shown on the standards.
- Contractor responsible for providing the designated Lane Pattern Administrators (LPAs) proper notification prior to setting patterns so the LPAs may make timely notifications to the Operations Center.
- The designated LPAs must coordinate with the Contractor to receive the information required for Operations Center notifications to be entered into the Advanced Traffic Management System (ATMS). See [Section B 10-4](#) for further details.
- The Representative shall use the Work Zone Traffic Control - Daily Project Review forms (located in the PTC Reference Library in the PCDS) to document long term traffic control inspections. See [Section C 900-2](#) for further details. These forms should be used each inspection to check for any deficiencies. Any deficiencies needs to be brought to the attention of the contractor. If deficiencies occur provide copies of these forms to the contractor.
- At the end of the shift, make sure that all debris and/or construction material has been removed from the roadway and verify that the contractor's equipment is stored in a proper location and not an obstruction to traffic.

#### **TRAFFIC CONTROL ZONES**

- Make sure terminology is consistent with standard drawings.

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- The traffic control zone is the work area between the first advance warning sign and the point beyond where traffic is no longer affected. Traffic control zones are divided into the following areas:
  - Advance Warning Area
  - Transition Area (for lane or shoulder closures)
  - Buffer Space
  - Work Area
  - Transition area

1. **ADVANCE WARNING AREA** – The advance warning signs are located before the transition area to provide ample opportunity for motorists to accomplish a desired maneuver. Use signs on both sides of two/three lane highways and multilane roadways.
  - PCMS signing must relate to all three action words. The first sign to appear in the advanced warning area tells motorists they are approaching a work zone. (e.g., ROAD WORK AHEAD). The next sign display provides more detailed information about the situation ahead (e.g., RIGHT/LEFT LANE CLOSED AHEAD). And the third sign states what action to take.
2. **TRANSITION AREA** - This is the zone where the lane and/or shoulder is closed by channelizing devices. The rate of taper is in accordance with the Maintenance and Protection of Traffic Standard Drawings. If restricted sight distance is a problem (e.g., sharp vertical or horizontal curve), begin the lane closure well in advance of the view obstruction. Do not hide the beginning of lane closures behind curves.
3. **BUFFER SPACE** - This is the unoccupied space between the transition and work areas. It is there to provide a margin of safety for both traffic and workers. With moving operations, buffer space is the space between the attenuator/crash truck and the work vehicle.
4. **WORK AREA** - Where equipment and workers perform roadway functions.
5. **TRANSITION AREA** - Allows traffic to resume normal driving immediately after leaving the work area.

## **TRAFFIC CONTROL DEVICES**

1. Signs and Supports
2. Regulatory Signs – KEEP RIGHT, DO NOT PASS
3. Reduced Speed limits
4. Warning Signs – Give motorists notice. PCMS – Use them to supplement or enhance work zone safety and not replace with other signs. Make messages clear and brief.
5. Channelizing devices – Are used to direct traffic away from or around work area.
6. Temporary Pavement Markings – These markings delineate lanes and tapers on long term projects. Remove existing markings that may confuse motorists.
7. Temporary Barrier – Use where identified on contract plans/specifications.
8. Warning Lights – Type A, B, C, or strobe mounted on channelizing devices or Type 3 signs secure lights per standard drawings.

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Part C 900-5 Pages 1 to 3		C	900-5	1 of 3
DATED		DATE		
09-19-16		01-08-19		
SUBJECT				
PRE-PAINT MEETING - HIGHLY REFLECTORIZED POLYUREA PAVEMENT MARKINGS				

The purpose of this section is to provide additional topics to be discussed while conducting a pre-operations (Pre-Paint Meeting) for the Highly ReflectORIZED Polyurea Pavement Markings. Refer to Specification Section 964 for full details of the installation of Highly ReflectORIZED Polyurea Pavement Markings.

Schedule the Pre-Paint Meeting for at least 30 days prior to starting the installation of any pavement markings. Ensure all required personnel are present including representatives from the PTC, Contractors, Subcontractors (if applicable), PennDOT District Turnpike Coordinator (if applicable) and any other appropriate parties.

In addition to the agenda items included in COM Section C100-2 for the pre-operation meeting, the following information should be discussed, verified and documented in the project records.

### **AGENDA TOPICS:**

#### **Review Plans and Specifications**

- Verify applicable version of the Specifications for the project.
- Discuss any applicable Special Provisions.
- Refer to PTS-980 for line marking configurations.
- Refer to project pavement marking plans for project specific details.

#### **Traffic Control**

- Identify and discuss the proper traffic control set up per the appropriate project traffic control plans or Maintenance and Protection of Traffic Standard Drawings.

#### **Schedule**

- Provide protection to allow adequate time for the pavement markings to dry and be track-free from vehicular traffic.

#### **Review Contractor's Submittals**

- Source of Supply
  - Polyurea material.
  - All retroreflective optics.
- Manufacturer's written instructions
  - Material mixing ratios.
  - Application temperatures (for the polyurea material and the pavement surface).
  - Any other manufacturer's information provided.

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- Test plates of the exact pavement markings to be installed.
  - 3 test plates of each color.
  - Minimum 6-inch wide by 24-inch long sample of the marking on a flat and rigid substrate for each test plate.
  - Dry and wet retroreflectivity levels of each sample in accordance with the Specifications.
  - At least one test plate of each color without beads or reflective optics.
  
- Procedures for cutting the grooves with diamond saw blades.
  - Establish marking line points at 40' intervals for approval by the Representative.
  - Free-floating cutting or grinding head with diamond saw blades.
  - Provide a final pavement surface that is flat and free of ridges.
  - Recessed area depth of 100 to 120 mils and 1 inch wider than the pavement marking.
  - Skip lines are 15 feet in length with maximum tolerance of +6 " on either end.
  - On cement concrete roadways cut the recessed area 25' in length, line dimensions are 15' for white and 10' for black.
  - For dry saw blade operation, clean and remove debris and dust from the entire roadway surface by self-contained vacuuming immediately after grinding.
  - For wet saw blade operation (concrete surfaces) flush the groove with clean high-pressure water immediately following the cut to avoid build-up and hardening of the slurry in the groove. The concrete surface must be clean and dry before the application of the highly reflectorized pavement markings.
  - Properly dispose of waste outside of Turnpike right-of-way.
  
- Procedures for installing the highly reflectorized pavement marking in the saw cut groove.
  - Verify the polyurea application equipment meets all of the requirements as listed in the Specifications.
  - Verify access to the polyurea application equipment for inspection by the Representative.
  - Apply pavement markings in the direction of traffic.
  - Temporary shadow lines within the recessed area is prohibited.
  - Install polyurea on dry pavement only if the road surface and ambient temperatures are 32°F or higher unless otherwise approved by the Representative and acceptable to the manufacturer.
  - The grooved pavement surface is cleaned to remove dirt and residues.
  - The polyurea resin, mixed and heated in accordance with the manufacturer's recommendations, is uniformly hot-sprayed into the groove at a wet thickness of 20 to 25 mils.
  - Retroreflective optics are dropped onto the liquid polyurea marking so that they are uniformly distributed. Drop the retroreflective optics according to the requirements of Section 964. Discuss the option chosen for the project:
    - OPTION A – Triple Drop
    - OPTION B – Double Drop

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### **Testing**

- Provide test reports in accordance with Section 964.3 to the Representative within 5 days after the measurements are taken for the following:
  - Dry retroreflectivity
  - Wet retroreflectivity
  - Adhesion

### **Observation Period**

- Discuss the Observation Period of 90 days for responsibility for defects in materials and workmanship.
- Discuss required testing for adhesion, color and reflectivity to be performed during the observation period but at least 30 days after installation, as per the Specifications.
- Identify and obtain approval of the third party that will be performing the testing for adhesion and reflectivity. Provide results to the Representative within 5 days.

### **Defective Markings**

- Defective pavement markings are to be removed and replaced within 30 days of written notice from the Representative at no additional cost.
- Repair defective markings as per the Specifications.

### **Emergency Repair**

- If the Commission determines that emergency repairs are necessary, perform the repairs within 24 hours of notification. If the Contractor fails to respond within the 24 hour period, the Commission reserves the right to perform the repairs and will charge the Contractor for all costs. The Commission's determination of costs incurred is final and conclusive.

### **Prepare Pre-Paint Meeting Minutes**

- Prepare meeting minutes documenting discussions and any agreements.
- Distribute meeting minutes to all attendees.
- Upload meeting minutes to the PCDS.

REPLACES	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART  <b>C</b>	SECTION  <b>900-6</b>	PAGE  <b>1 of 3</b>
DATED		DATE  <b>09-25-20</b>		
SUBJECT <b>PRE-APPLICATION MEETING - PERMANENT PREFORMED PATTERNED REFLECTIVE PAVEMENT MARKINGS</b>				

The purpose of this section is to provide additional topics to be discussed while conducting a pre-operations (Pre-Application) Meeting for the Permanent Preformed Patterned Reflective Pavement Markings (PPPRP Markings) in accordance with the specifications section 961.

Schedule the Pre-Application Meeting at least 30 days prior to starting the installation of any pavement markings. Ensure all required personnel are present including representatives from the PTC, Contractors, Subcontractors (if applicable), and any other appropriate parties.

In addition to the agenda items included in COM Section C100-2 for the pre-operation meeting, the following information should be discussed, verified, and documented in the project records.

### **AGENDA TOPICS:**

#### **Review Plans and Specifications**

- Verify applicable version of the specifications for the project.
- Discuss any applicable Special Provisions.
- Refer to PTS-980 for line marking configurations.
- Refer to project pavement marking plans for project specific details.

#### **Traffic Control**

- Identify and discuss the proper traffic control set up per the appropriate project traffic control plans or Maintenance and Protection of Traffic Standard Drawings.

#### **Review Contractor's Submittals**

- Source of Supply
  - PPPRP Marking.
  - Surface Preparation Adhesive.
- Manufacturer's written instructions
  - Provide copy of manufacturer certification.
  - Review application atmospheric conditions and pavement surface temperatures.
  - Any other manufacturer's information provided.
- Procedures for cutting the grooves with gang-stacked diamond saw blades.
  - Discuss that guide markings are to be established at 40 feet intervals and approved by the Representative.
  - Discuss the grooved pavement surface cleaning method to be used that will not damage the pavement and keep the groove free of ridges.
  - Discuss that the recessed area depth is to be 160 mils and 1 inch wider than the pavement marking.

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- Discuss the recess for skip line. On asphalt pavement the recess is 15 feet in length with maximum tolerance of +6 inch on either end. On cement concrete pavement the recess is 25 feet in length, with line dimensions 15 feet for white and 10 feet for black markings.
- Discuss dry saw blade and wet saw blade operations if applicable to be used in accordance with the specifications.
- Discuss disposal of any waste outside of Turnpike right-of-way.
- Procedures for installing PPPRP marking in the saw cut groove.
  - Discuss that the application equipment meets all the requirements as listed in the specifications.
  - Verify access to the application equipment for inspection by the Representative.
  - Discuss that the application of surface preparation adhesive is to be in accordance with manufactures recommendations. The adhesive is required on all installations throughout the year regardless of installation date.
  - Discuss that pavement markings are to be applied in the direction of traffic.
  - Discuss that marking line points are at a 40 feet interval throughout the length of the pavement.
  - Discuss that the installation is to be on dry pavement. No precipitation for 24 hours prior to installation is required. The pavement surface and ambient temperatures are to be as specified in the manufacturer's written instructions and approved by the Representative.
  - Discuss that tamping is in accordance with the specifications and manufacturer's recommendations.
  - Discuss that the PPPRP markings are to be cut 1 inch away from any transverse joints.

### **Testing**

- Test retro-reflectivity in accordance with Section 961.3(h) for dry and wet conditions.
- Test the adhesion of the PPPRP markings in accordance with section 961.3(i).

### **Observation Period**

- Discuss the observation period of 90 days for responsibility of defects in materials and workmanship.
- Discuss required testing for adhesion, color, and reflectivity to be performed during the observation period but at least 30 days after installation, as per the specifications.
- Identify and obtain approval of the third party that will be performing the testing for adhesion and reflectivity. Provide results to the Representative within 5 days.

### **Defective Markings**

- Defective pavement markings are to be removed and replaced within 30 days of written notice from the Representative at no additional cost.
- Repair defective markings as per the Specifications.

### **Warranty**

- Discuss the written eight-year warranty requirements as per section 961.3(l).



Part <b>C</b>	Section <b>900-6</b>	Page <b>3 of 3</b>	Date <b>09-25-20</b>
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- Warranty begins at the conclusion of the installation.

#### **Emergency Repair**

- If the Commission determines that emergency repairs are necessary, perform the repairs within 24 hours of notification. If the Contractor fails to respond within the 24-hour period, the Commission reserves the right to perform the repairs and will charge the Contractor for all costs. The Commission's determination of costs incurred is final and conclusive.

#### **Prepare Pre-Application Meeting Minutes**

- Prepare meeting minutes documenting discussions and any agreements.
- Distribute meeting minutes to all attendees.
- Upload meeting minutes to the PCDS.

# Section 1000

## Structures

REPLACES	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART	SECTION	PAGE
C 1000-1 Pages 1-2		<b>C</b>	<b>1000-1</b>	<b>1 of 2</b>
DATED		DATE		
01-08-19		<b>01-08-24</b>		
SUBJECT				
<b>LEAD PAINT REMOVAL CHECKLIST</b>				

The purpose of this section is to ensure proper documentation for all hazardous waste management, containment, and worker protection in accordance with Section 1070 and all applicable regulations. Any regulations, additional contract requirements, or contract special provisions are in addition and shall supersede this checklist.

The following checklists are to be used daily, or as applicable.

- The [Waste Management Plan Checklist – Lead Paint Removal](#) is to be used to review and verify that the contractor is complying with the approved procedures for handling paint waste and meeting the minimum requirements of Section 1070. The checklist requires review of the waste management plan, transporter information, testing laboratory qualifications, and recycling and disposal information prior to waste being generated, transported or tested. This checklist is to be used prior to any waste being generated on the project. For projects longer than one season, this checklist should be completed each season and/or when the plan is revised.
- The [Worker Protection Plan Checklist – Lead Paint Removal](#) is to be used to review and verify that the contractor is complying with the approved Lead (Toxic Metal) Health and Safety Compliance Program and meeting the minimum requirements of Section 1070 and applicable regulations. The checklist also verifies that the personal protective equipment and medical surveillance is properly supplied and monitored to ensure worker health and safety. This checklist is to be used prior to any worker being exposed to hazardous wastes on the project. For projects longer than one season, this checklist should be completed each season and/or when the plan is revised.
- The [Containment Plan Checklist – Lead Paint Removal](#) is to be used to review and verify that the contractor's containment system is installed according to the approved plan and meets the minimum requirements of Section 1070. This checklist is to be used after the containment is erected on the project. For projects longer than one season, this checklist should be completed each season and/or when the plan is revised.
- The [Waste Handling, Storage, Testing Plan Checklist – Lead Paint Removal](#) is to be used to ensure that the on-site handling, packaging, storage, sampling, testing, classification and reporting of waste generated by the project meets the requirements of Section 1070. This checklist is to be used within 30 days of waste being generated on the project.

Part <b>C</b>	Section <b>1000-1</b>	Page <b>2 of 2</b>	Date <b>01-08-24</b>
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- The [Daily Checklist – Lead Paint Removal](#) is to be used to review and verify that the contractor is complying with the various approved plans and procedures, Section 1070, and any applicable regulations. The checklist requires the daily review of basic health and safety items to ensure a safe work environment.

REPLACES	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART	SECTION	PAGE
C 1000-2 Pages 1-1		<b>C</b>	<b>1000-2</b>	<b>1 of 1</b>
DATED		DATE		
01-08-19		<b>01-08-24</b>		
SUBJECT  <b>PAINTING STRUCTURAL STEEL</b>				

The purpose of this section is to provide proper inspection for the painting of structural steel. The painting structural steel quality control checklists to be available in all project field offices for reference. Any contract special provisions or specifications supersede these checklists.

The following checklists are to be used daily, or as applicable.

- The [Surface Preparation Checklist – Painting Structural Steel](#) is to be used to ensure the existing structural steel is properly prepared and ready for painting.
- The [Conditions and Materials Checklist – Painting Structural Steel](#) is to be used to ensure the paint is applied only to clean and dry surfaces, and only during periods of favorable weather. This checklist is also to be used to ensure the approved paint system is used and properly mixed prior to application.
- The [Paint Application Checklist – Painting Structural Steel](#) is to be used to ensure the placing of prime, intermediate, and finish coats of paint are completed properly.
- The [General Paint Inspection Checklist – Painting Structural Steel](#) is to be used after the painting operations to ensure that the hazardous materials and unsatisfactory areas are properly addressed.

REPLACES	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART	SECTION	PAGE
Part C 1000-3 Page 1		<b>C</b>	<b>1000-3</b>	<b>1 of 1</b>
DATED		DATE		
01-08-19		<b>01-08-24</b>		
SUBJECT				
<b>CONCRETE BEAM ERECTION</b>				

The purpose of this section is to provide proper inspection for the placement of cement concrete bridge beams. The concrete beam erection quality control checklist to be available in all project field offices for reference. Any contract special provisions or specifications supersede this checklist.

The following checklist is to be used daily, or as applicable.

- The [Checklist – Concrete Beam Erection](#) is to be used to ensure that the concrete beams were erected without damage, placed in the proper location, on a properly prepared bearing area, and that all certifications and documentation is on file.

REPLACES	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART	SECTION	PAGE
C 1000-4 Page 1-1		C	1000-4	1 of 1
DATED		DATE		
01-08-19		01-08-24		
SUBJECT  BRIDGE DECK INSPECTION				

The purpose of this section is to provide proper inspection for the placement of a cement concrete bridge deck. The bridge deck quality control checklists to be available in all project field offices for reference. Any contract special provisions or specifications supersede these checklists.

The following checklists are to be used as applicable.

- The [Formwork Inspection Checklist – Bridge Deck Placement](#) is to be used before placing the concrete deck to ensure the formwork is sufficient and properly installed.
- The [Reinforcement Inspection Checklist – Bridge Deck Placement](#) is to be used before placing the concrete deck to ensure the formwork has been stored, placed, and properly supported.
- The [Concrete Testing Checklist – Bridge Deck Placement](#) is to be used when concrete is being tested for the placement of the bridge deck. This checklist ensures the testing of material is being completed by the proper personnel and equipment, with the proper documentation, and sampling frequency.
- The [Concrete Placement Checklist – Bridge Deck Placement](#) is to be used when concrete is being placed for cement concrete bridge deck. This checklist ensures the material is being placed, consolidated, finished, textured, and cured properly.
- The [Opening Bridge Deck to Traffic Checklist – Bridge Deck Placement](#) is to be used after the concrete has been placed. This checklist ensures that the bridge deck has been properly cured and has attained minimum strength requirements prior to loads being placed on the deck.

REPLACES	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART	SECTION	PAGE
Part C 1000-5 Page 1		C	1000-5	1 of 1
DATED		DATE		
01-08-19		01-08-24		
SUBJECT				
LATEX BRIDGE DECK INSPECTION				

The purpose of this section is to provide proper inspection for the placement of a latex bridge deck. The latex quality control checklists to be available in all project field offices for reference. Any contract special provisions or specifications supersede these checklists.

The following checklists are to be used as applicable.

- The [Surface Preparation Checklist – Latex Bridge Deck](#) is to be used before placing the latex deck to ensure the existing deck surface is properly prepared.
- The [Latex Testing Checklist – Latex Bridge Deck](#) is to be used when latex is being tested for the placement of the bridge deck. This checklist ensures the testing of material is being completed with the proper equipment, with the proper documentation, and sampling frequency and testing methods.
- The [Latex Placement Checklist – Latex Bridge Deck](#) is to be used when latex is being placed on the bridge deck. This checklist ensures the material is being placed, consolidated, finished, textured, and cured properly.



REPLACES	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART	SECTION	PAGE
Part C 1000-6 Page 1		<b>C</b>	<b>1000-6</b>	<b>1 of 1</b>
DATED		DATE	<b>01-08-24</b>	
01-08-19				
SUBJECT	<b>SUBSTRUCTURE INSPECTION</b>			

The purpose of this section is to provide proper inspection for the placement of a cement concrete substructure. The cement concrete substructure quality control checklists to be available in all project field offices for reference Any contract special provisions or specifications supersede these checklists.

The following checklists are to be used as applicable.

- The [Excavation Inspection Checklist – Substructure Placement](#) is to be used to ensure the substructure excavation and foundation approval is conducted in a safe manner and according to the contract documents.
- The [Formwork Inspection Checklist – Substructure Placement](#) is to be used before placing the concrete to ensure the formwork is sufficient and properly installed.
- The [Reinforcement Inspection Checklist – Substructure Placement](#) is to be used before placing the concrete to ensure the reinforcement has been stored, placed, and properly supported.
- The [Concrete Placement Checklist – Substructure Placement](#) is to be used when concrete is being placed for a cement concrete substructure. This checklist ensures the material is being placed, consolidated, finished, and cured properly.
- The [Concrete Testing Checklist – Substructure Placement](#) is to be used when concrete is being tested for the placement of the bridge substructure. This checklist ensures the testing of material is being completed by the proper personnel and equipment, with the proper documentation, and sampling frequency.
- The [External Loading Checklist – Substructure Placement](#) is to be used to ensure that the minimum time and strength requirements are met prior to applying external loads.
- The [Micropile Inspection Checklist](#) is to be used to when micropile foundations are placed to ensure that the planning, drilling, installation, grouting, and testing requirements for this foundation type are followed.

REPLACES	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART	SECTION	PAGE
Part C 100-7 Page 1		<b>C</b>	<b>1000-7</b>	<b>1 of 1</b>
DATED		DATE		
01-08-19		<b>01-08-24</b>		
SUBJECT  <b>STRUCTURE BACKFILL</b>				

The purpose of this section is to provide proper inspection for the placement of structure backfill material. The structure backfill quality control checklists to be available in all project field offices for. Any contract special provisions or specifications supersede these checklists.

The following checklists are to be used as applicable.

- The [Excavation & Drainage Checklist – Structure Backfill](#) is to be used to ensure the required excavation, geotextile, and drainage is completed according to the contract documents.
- The [Backfilling and Testing Checklist – Structure Backfill](#) is to be used to ensure the proper time and strength requirements are met prior to placing backfill material, to ensure the proper material is used and placed according to the contract documents, and to ensure the proper density and testing is performed and properly documented.

REPLACES	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART	SECTION	PAGE
<b>C-1000-8 page 1 to 4</b>		<b>C</b>	<b>1000-8</b>	<b>1 of 4</b>
DATED		DATE		
01-09-18		<b>01-08-24</b>		
SUBJECT				
<b>PRE-DECK PLACEMENT MEETING</b>				

In addition to the agenda items included in COM Section C100-2 for the pre-operation meeting, the following information should be discussed, verified or documented in the project records.

### **AGENDA TOPICS:**

#### **Deck Placement Operations**

1. General Description of Placement Procedure.
  - Contractor/Subcontractor performing deck placement.
  - Name of person responsible for placement operations.
  - Anticipated placement date(s).
  - Pour sequence and length and width of anticipated concrete pours.  
(Verify that this in accordance with approved drawings)
  - Bridge skew (how will it be accounted for?)
  - Orientation of finishing machine (perpendicular or set parallel to skew?)
  - Electronic Ticketing for mix deliveries
2. Manpower.
  - Bridge crew (number of crews, size of crews).
  - Make up of crews (supervisor, finishers, laborers, etc.)
3. Equipment Types.
  - Type and model of finishing machine.
  - Type and model of concrete pump.
  - Type and model of conveyor.
  - Number of work bridges.
  - Number and size of cranes and concrete buckets.
  - Straightedges (number and sizes).
  - Mechanical vibrators (number and type, size and impulses per min.).
  - Evaporation meter.
4. Material.
  - Type of mix (superplasticizer, AAA, AA, #8's). Include JMF.
  - Haul time from plant to site.
  - Number and type of material delivery trucks.
  - Truck spacing.
  - Quantity of concrete per placements.
  - Concrete placement rate. (Minimum rate of 20 lf per hour).

Part <b>C</b>	Section <b>1000-8</b>	Page <b>2 of 4</b>	Date <b>01-08-24</b>
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- Anticipated start times of pours.
5. Reaction plans
    - Plant breakdown.
    - Field equipment breakdown
    - Foul weather
  6. Pre-placement Operations.
    - Material/Method of sealing holes around deck pans and forms (will a pressure washer be used to remove any concrete from steel girders during pour?)
    - Is the final coat of paint currently on or do finish coats need applied?
    - Who will be responsible for cleaning any concrete slurry?
    - Dry run:
      - Method used to check finishing machine grades, depths and reinforcement clearances.
      - Frequency of checks.
      - Tolerances.
      - Expansion dam clearances.
      - Advancement rate.
    - Location and available reach (concrete pumps, cranes, conveyors).
    - Will traffic or workers be under bridge during placement? What precautions will be taken?
    - Do not discharge concrete in a manner that causes excessive concentrated loads.
    - Place concrete on bridge in direction of SIP pan installation.
    - Apply vibrator to the concrete at intervals not exceeding 3 ft.
    - Keep sufficient vibration equipment onsite for breakdown.
  7. Bulkheads.
    - Type of Procedure
    - Are bulkheads located as shown on drawings?
    - Will material be available in case an emergency bulkhead is needed?
  8. Deck Cure.
    - Source of water supply? Tested?
    - Method of cure.
    - Burlap sufficiently wetted/soaked?
    - Cool/Cold weather provisions
      - Blankets
      - Heaters (type, number, placement location).
      - Enclosures (type, size, method of construction, material)
    - When is pour schedule to start and finish?
    - If bridge is susceptible to wind, cover quickly to prevent tearing of deck surface.
    - Apply an intermediate monomolecular film curing agent immediately after finishing and texturing operations are completed (provide material source and certification).
    - Review application rates.

Part <b>C</b>	Section <b>1000-8</b>	Page <b>3 of 4</b>	Date <b>01-08-24</b>
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- After application of monomolecular film, water cure bridge deck. Saturate covers prior to use and keep saturated for a minimum of 14 days and until minimum strengths are obtained.

9. Texturing:

- When will texturing take place and who will perform operation.
- What is the tolerance for tine depth? (1/8" to 3/16")
- Gutters do not need to be textured (light broom finish?)
- Method (type of equipment).

### **Concrete Testing:**

1. General Description of Testing Operations.

- Where will testing take place?
- Manpower.
  - How many technicians.
  - Who has the authority to make changes to the mix based on field testing results?
  - Who has the authority to reject material and/or suspend operations?
- Who will document QC results for the contractor?
- Where will cylinders be tested for compressive strengths (plant or site?)

2. Equipment:

- Number and types of all testing equipment (air meters, thermometers etc).
- Communication equipment.

3. Frequency of Tests.

- First three trucks to establish control (within action points).
- How often will QC and Acceptance cylinders be molded?
- How many cylinders will be molded?
- Follow the current PTM 611 identifying cylinders.
- Type of curing for cylinders (cure box, heat, ice, burlap, hi-lo temps.)
- Where will cylinders be molded and placed (after initial curing?)

4. Concrete Acceptability

- Action points and target values (review specific slump, air, temps.)  
 Slump: \_\_\_\_\_ action points? \_\_\_\_\_  
 Air: \_\_\_\_\_ action points? \_\_\_\_\_  
 Concrete placement temperatures 50-80 F action points? \_\_\_\_\_
- What is procedure when action points are reached?

5. Miscellaneous.

- Use ties or hardware that leaves no metal in concrete within 1 1/2" of exposed surface.

Part <b>C</b>	Section <b>1000-8</b>	Page <b>4 of 4</b>	Date <b>01-08-24</b>
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- Ensure chamfer strips are installed at corners and drip edges as required.
- Adjust deck openings at expansion joints and at expansion dams at time concrete is placed to provide opening indicated at 68F under full dead load.

6. Inspection Staff.

- Review who will inspect which operation.
- Who will be in charge during deck placement?
- Who will inspect and witness dry run?
- Who will be responsible for straight edge check/texturing/curing?
- Who will witness and record testing results?
- Document compressive test results on PTC 458-A form (CS-458A for federally funded projects).

REPLACES	PENNSYLVANIA TURNPIKE COMMISSION	PART <b>C</b>	SECTION <b>1000-9</b>	PAGE <b>1 of 2</b>
DATED 03-27-19	<b>CONSTRUCTION OPERATIONS MANUAL</b>	DATE <b>01-08-24</b>		
SUBJECT		<b>TEMPORARY SHORING SUPPORT OF EXCAVATION (SOE)</b>		

This section is to provide guidance for the construction of all Temporary Shoring Support of Excavation (SOE) on construction projects. In addition, guidance is provided for the submission and review of all Temporary Shoring SOE submittals.

## **REVIEW OF TEMPORARY SHORING SUPPORT OF EXCAVATION SUBMITTALS**

The Pennsylvania Turnpike Commission (PTC) has developed guidelines for use when reviewing Contractor design-build Support of Excavation (SOE) submittals for conformance to the PTC's Temporary Shoring Special Provision.

The Reviewer is to follow the "Guidelines for Review of Temporary Shoring Support of Excavation Submittals" when reviewing the Contractor's SOE submittal. These Guidelines are in the Appendix of the PTC Design Operations Manual (DOM). The DOM is stored in the Project Collaboration and Documentation System (PCDS), PTC Reference Library/ENG Design/Design Operations Manual. Prior to work commencing on the construction of the SOE, the Construction Manager is to confirm with the Reviewer that the Reviewer has followed the "Guidelines for Review of Temporary Shoring Support of Excavation Submittals", and the Reviewer has approved the SOE submittal for construction.

## **CONSTRUCTION OF THE SUPPORT OF EXCAVATION**

Once the SOE submittal has been reviewed and accepted, the SOE construction can begin. The Construction Manager is to confirm that the SOE is being constructed in accordance with the accepted drawings. Any deviations from plan are to be classified as either a Tolerance Deviation (field adjustment) or a Material Deviation (material alterations to the SOE design).

If deviations are observed, the Construction Manager is to contact the Contractor.

- For Tolerance Deviations (field adjustments) a statement of confirmation by the SOE designer should be requested and provided by the Contractor.
- If the deviation is deemed Material, then an addendum to the SOE design submittal is required.

The primary consideration in classifying a deviation as a Tolerance Deviation is to determine if the construction can be inspected and confirmed by the SOE drawings in the case of minor field adjustments or if additional information is required to be submitted by the Contractor in the case of Material deviations to ensure that the SOE is being constructed per plan.

### **Deviations from Plan during Construction of SOE (Tolerance vs. Material Change)**

**Tolerance Deviation (Field Adjustments)** – Deviations from plan that do not alter the performance and stability of the SOE system. If construction of the SOE is materially consistent with the design submission but has field adjustments, the construction manager is to request a statement from the Contractor which is issued by a Professional Engineer registered in the State of Pennsylvania confirming that the deviation is within acceptable design tolerances of the design submission, and the SOE will perform as designed.

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Examples of field adjustments include:

- Increase in pile spacing for a beam and lagging wall
- Decreases in lengths of anchors
- Variations in inclination of anchor installation
- Reduction or increase in lagging height
- Reductions in socket length of drilled shafts or pile embedment

**Material Deviations (Material Changes to SOE Design)** – Deviations from plan drawings with elements of design that are different from the SOE Design Submission such that it is not possible to inspect construction. The Contractor is to submit an addendum that is signed and sealed by the Professional Engineer that provides enough information for the Construction Managers and Construction Inspectors to affirm that the SOE is constructed per plan.

Examples of Material Deviations (material changes to SOE Design) that require an addendum submittal include:

- Change to anchor type (i.e. pressure grouted vs gravity grouted, helical anchor vs drilled anchor, strands vs bars, anchor inclination, grouted anchor diameter)
- Change to wall type (i.e. sheet pile wall vs soldier pile wall)



## Part D

# Project Finalization and Closeout

# Section 1

## Final Inspection

REPLACES	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART	SECTION	PAGE
Part D 1-1 Pages 1 to 3		D	1-1	1 of 3
DATED  04-04-22		DATE  01-08-24		
SUBJECT  CONDUCT SEMI-FINAL/FINAL INSPECTION				

The purpose of this procedure is to inspect all items of work and determine whether they were constructed in accordance with the contract plans and specifications.

### **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 contract time charges or contractor responsibility.

1. Conduct semi-final inspection.
  - a. The Contractor may request a semi-final inspection when the project or a designated section of the project is substantially complete and ready for the development of a punch list of items requiring completion or revision to be accepted by the Commission.
  - b. The semi-final inspection shall be attended by representatives of the following:
    - 1) Contractor
    - 2) Commission
    - 3) General Consulting Engineer, if applicable
    - 4) PTC Environmental, if applicable
    - 5) PTC IT, if applicable
    - 6) PTC Fiber Operations, Maintenance, and Commercialization Vendor, if applicable
    - 7) Pennsylvania Department of Transportation (PennDOT), if applicable
    - 8) Other state, county, or local agencies, if applicable
    - 9) For vertical construction projects, include the Director of FEMO or designee on the notification of the Semi-Final Inspection.
  - c. The Project Manager shall prepare a letter of notification to all applicable representatives noting the date, time, and location of the semi-final inspection.
2. Prepare punch list.
  - b. During the semi-final inspection, the Inspector-In-Charge shall compile a list of notes (punch list) from the attendees specifying in detail all work or conditions requiring correction or completion.
  - c. Prepare the punch list utilizing the required punch list Forms [PTC-4136-A](#) and [PTC-4136-B](#).
3. Notify Contractor of punch list
  - a. The Commission shall provide a copy of the punch list to the contractor immediately following the final inspection by formal written correspondence regarding the findings of the field inspection.

### **FINAL INSPECTION**

Part <b>D</b>	Section <b>1-1</b>	Page <b>2 of 3</b>	Date <b>01-08-24</b>
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1. Conduct final inspection.

The Commission shall schedule a final inspection in accordance with Section 110.08.

a. The final inspection shall be attended by representatives of the following:

- 1) Contractor
- 2) Commission
- 3) General Consulting Engineer, if applicable
- 4) PTC Environmental, if applicable
- 5) PTC IT, if applicable
- 6) PTC's Fiber Operations, Maintenance, and Commercialization Vendor, if applicable
- 7) Pennsylvania Department of Transportation (PennDOT), if applicable
- 8) Other state, county, or local agencies, if applicable
- 9) For vertical construction projects, include the Director of FEMO or designee on the notification of the Final Inspection.
- 10) For projects with a National Pollutant Discharge Elimination System (NPDES) Permit, the Commission will ensure that a representative from the PTC Environmental Unit and the County Conservation District participates in the final inspection.

b. The Project Manager shall prepare a letter of notification to all applicable representatives noting the date, time, and location of the final inspection.

2. Prepare punch list

- a. Prior to the final inspection, the Inspector-In-Charge shall prepare a list of notes (punch list) specifying in detail all work or conditions requiring correction or completion.
- b. Prepare the punch list utilizing the required punch list Forms [PTC 4136-A](#) and [PTC 4136-B](#).
- c. Prepare sufficient copies for distribution to attendees of the final inspection.
- d. Obtain signatures of attendees utilizing Form [PTC 4137](#).
- e. During the final inspection, the Inspector-In-Charge shall compile a list of notes generated from the attendees and incorporate these items onto the Forms [PTC 4136-A](#) and [PTC 4136-B](#) requiring correction or completion.
- f. For projects with an NPDES permit, note any deficiencies that would prohibit receiving Notice of Termination, i.e., 70% growth, incomplete or malfunctioning PCSMs, etc.
- g. Include a note stating, "All Commission property is to be returned".

3. Notify Contractor of punch list

- a. The Commission shall provide a copy of the compiled punch list to the Contractor immediately following the final inspection by formal written correspondence.
- b. The Inspector-In-Charge will be responsible for monitoring the completion of the punch list items and provide updates to the punch list through completion. Refer to *Construction Operations Manual* section D2-4 *Finalizing Construction Contracts* for additional information.

4. Prepare final inspection form, [PTC 4137](#)

- a. Prepare a final inspection form, PTC 4137, upon physical completion of work items that are noted on the punch list. Submit Form [PTC 4137](#) to the Construction Engineering Manager for further processing.
- b. Begin closeout of all permits for the project. Refer to *Construction Operations Manual* section D2-4 *Finalizing Construction Contracts* for additional information.

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- c. **DO NOT RELEASE THE CONTRACTOR FROM THE PROJECT** until all Notices of Termination (NOT) are received from the respective permitting agencies. Coordinate with the Environmental Unit prior to releasing the contractor from any environmental permits.
- d. For vertical construction projects, Copy the Director of FEMO when submitting Form PTC 4137 to the Construction Engineering Manager.

5. Release contractor

- a. When, in the Commission's judgment, all physical work has been satisfactorily completed as indicated on Form [PTC 4137](#), the Commission shall, in writing, relieve the contractor of responsibility for further physical work, maintenance, and third-party liability for satisfactorily completed work items on the project. Process applicable permit(s) release forms with assistance of the PTC Environmental Unit.

6. Federal aid projects, if applicable

- a. The Federal Highway Administration Area Engineer shall be invited to attend the final inspection.
- b. Provide a copy of the completed [PTC 4137](#) to PennDOT.

## Section 2

### Final Acceptance

REPLACES	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART	SECTION	PAGE
D 2-1 Page 1 of 2		D	2-1	1 of 3
DATED		DATE		
10-01-22		01-08-24		
SUBJECT  POST-CONSTRUCTION DESIGN MEETING				

The purpose of the Post-Construction Design Meeting is to share the lessons learned on the project. The Construction Management team will share their knowledge of the constructability of the design; any issues encountered and change orders to the Commission's Design Unit and/or the Consultant Design Team.

The Construction Project Manager will schedule and conduct this meeting on the day of the final inspection, if possible, or within two weeks of the final inspection date. At a minimum, the following are to be in attendance:

- Design Project Manager
- Construction Project Manager
- Inspector-In-Charge
- Consultant Construction Manager
- Engineer Project Manager - Contract Management (Quality Improvement Website)
- General Consulting Engineer (Quality Improvement Website)

Based on the agenda of concerns/issues to be discussed, other participants may include:

- Consultant Designer
- Total Reconstruction Unit (Assistant Total Reconstruction Program Manager)
- Traffic Engineering & Operations
- Right-of-way and/or utilities coordination staff
- Environmental Unit
- Roadway Unit
- Roadway Site Design Unit
- Bridge Unit
- Geotechnical Unit
- Maintenance Unit
- Materials Unit

The Construction Project Manager will develop the agenda based on the project activities and issues. Agenda items may include:

- Project Safety
- Traffic Control
- Transportation Management Plan (TMP) if applicable
- Stormwater Management Facilities if applicable
- Erosion and Sediment Pollution Control

Part <b>D</b>	Section <b>2-1</b>	Page <b>2 of 3</b>	Date <b>01-08-24</b>
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- Constructability issues
- Performance assessments of new products or procedures
- Contract plan changes
- Significant over-budget or under-budget items
- Other significant issues or concerns that were encountered.
- Maintenance Issues
- Quality control of construction
- Quality assurance issues

The Construction Project Manager will conduct the meeting, prepare minutes of the items discussed, and upload the agenda, attendance sign-in sheet, and meeting minutes into the project's Final Records folder of the Project Collaboration and Documentation System (PCDS) in accordance with the PTC - Project Documentation/Deliverable User Guide. Do not file documentation for this meeting in the PCDS Meetings App.

The Construction Project Manager will also upload the final Post Construction Design Meeting Minutes into the Project PTC Post-Construction Design Meeting Minutes in the PCDS. Once they have been uploaded, the Construction Project Manager will then send the Post Construction Design Meeting Minutes to the prepopulated group which includes list of distribution below for this project within the PCDS. Do not file documentation for this meeting in the PTC Reference Library of the PCDS.

The Construction Project Manager will distribute the minutes to the following personnel:

- Assistant Chief Engineer – Construction
- Assistant Chief Engineer – Design
- Director of Facility Operations (for vertical projects)
- Construction Engineering Manager – West, Central and East
- Geotechnical Engineering Manager
- Total Reconstruction Program Manager
- Interchange/Special Project Manager
- Roadway Engineering Manager
- Roadway Site Manager
- Bridge Engineering Manager
- Planning & Environmental Manager
- Facilities/Special Projects Manager
- Construction Engineering Manager – Construction Management & Quality Control
- All Engineer Project Managers - Construction
- Materials Management Supervisor
- Quality Assurance Manager
- Contract Management Services Manager
- Engineer Project Manager - Contract Management (Quality Improvement Website)



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- All Engineer Project Managers - Design
- General Consulting Engineer (Quality Improvement Website)
- All attendees

REPLACES	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART	SECTION	PAGE
D2-2 Pages 1 of 2		<b>D</b>	<b>2-2</b>	<b>1 of 2</b>
DATED 01-07-20		DATE <b>01-08-24</b>		
SUBJECT  <b>PREPARATION OF CONTRACTOR’S PAST PERFORMANCE REPORTS</b>				

## A. PURPOSE

The following is to provide guidance for the preparation and processing of Contractor's Past Performance Reports for work under contracts awarded by the Pennsylvania Turnpike Commission.

## B. Requirement

Since the Commission does not recognize Subcontractors unless the project is partially or totally financed with federal funds, the Contractor's Past Performance Report will be completed for the Contractor only. On federally funded projects the Contractor's Past Performance Report needs completed for each Subcontractor.

## C. Instructions to Complete the Contractor's Past Performance Report

### 1. Final Evaluation

- Form [PTC-4307](#), Contractor's Past Performance Report - Final Evaluation, is to be completed for all PTC Construction Contractors. PTC Project Managers should coordinate this effort with the respective Inspector-In-Charge.
- The final evaluation form PTC-4307 should be completed and submitted to the ACE – Construction.
- It is not required that the final evaluation be reviewed and signed by the Contractor.
- It is required that the evaluator complete the PTC-4307 form in its entirety (i.e. complete all the supporting documentation, not just the cover page).
- The Contractor ID Number or Prequalification Number can be obtained by contacting the Central Administration Building (CAB) Construction Unit.

### 2. Interim/Mid-term Evaluation

- Completion of an interim evaluation form PTC-4307 is at the discretion of the PTC Project Manager and/or Inspector-In-Charge.
- Should an interim evaluation be completed, it is recommended that the evaluation be reviewed with the Contractor. This effort should be made in the cooperative spirit of partnering and used as a method to apprise the Contractor of their performance.

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### *3. Re-distribution of Points*

- The PTC Project Manager and/or Inspector-In-Charge and the Contractor's representative meet at the Pre-construction Conference and jointly distribute the points within the three sections of the first page of the Contractor's Past Performance Report. Initial and date the form to indicate agreement on the distribution of possible points.
- The Contractor's initials are only indicated to show acceptance of the point distribution, not for acceptance or agreement of the evaluation.
- Generally, on PTC mainline projects, subcontractors are not recognized and the prime contractor is responsible for all facets of the contract regardless of the work force used to perform the work. Therefore, no re-distribution of points is warranted. This does not preclude a re-distribution of the points if deemed appropriate.

### *4. Submittal*

All completed PTC-4307 forms should be reviewed and signed by the Evaluator and the Construction Engineering Manager, documented on the Construction Contract Finalization and Closeout Checklist and submitted to the ACE – Construction.

## **D. Completing the Contractor's Past Performance Report**

Form (PTC-4307) is used to document performance of prime contractors and subcontractors. It is used for Interim, Mid-Term, or Final Evaluations

Instructions for completing the evaluation are found on Form PTC-4307.

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Part D 2-3 Page 1 of 1		<b>D</b>	<b>2-3</b>	<b>1 of 1</b>
DATED		DATE		
01-09-18		<b>01-08-24</b>		
SUBJECT		<b>COMPLETION CERTIFICATE</b>		

The purpose of preparing the completion certificate is to certify that all physical work has been completed. The Commission shall use the Completion Certificate, Form PTC-03-16 for this certification.

### **Certify Project Completion**

The Inspector-In-Charge (IIC) will generate the Completion Certificate (PTC-03-16) from CDSme and enter appropriate date, data, and signature to certify to the Commission that all physical work on the project has been satisfactorily completed in accordance with the requirements of the contract.

- The completion date is when all work on the contract is satisfactorily completed. This is the same date as final completion acceptance from the final completion acceptance letter. (See COM Part D, Section 2-4, Finalizing Construction Contracts, Accept Projects).
- The contract execution date is obtained from the signed executed 'Form of Agreement' contained in the conformed copy of the contract.

### **Distribute Completion Certificate**

The IIC shall distribute the Completion Certificate to the Construction Engineering Manager for obtaining the required signatures.

The Completion Certificate shall become part of the Final Package and uploaded to PCDS.

The Construction Engineering Manager shall forward the signed and dated Completion Certificate along with the Final Package to the Construction Documentation Specialist in the CAB for approval processing.

The Commission shall certify to the Pennsylvania Department of Transportation (PennDOT) that all physical work on the project has been satisfactorily completed in accordance with the requirements of the contract and forward the signed and dated Completion Certificate with the Final Package to PennDOT for approval.

- Upon approval by the Commission, the Construction Documentation Specialist shall scan with the Final Package and upload to PCDS.

REPLACES	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART	SECTION	PAGE
Part D 2-4 Pages 1 to 4		<b>D</b>	<b>2-4</b>	<b>1 of 4</b>
DATED		DATE		
04-04-22		<b>01-08-24</b>		
SUBJECT		<b>FINALIZING CONSTRUCTION CONTRACTS</b>		

The purpose of this procedure is to provide guidance on the required final construction contract closeout requirements and documents.

### **Construction Contract Finalization and Closeout Checklist**

A [\*Construction Contract Finalization & Closeout Checklist\*](#) must be completed for all construction contracts. The checklist includes all required information and documentation required to finalize and close out the project.

All forms referenced and required by the checklist are included in the COM forms folder. For further guidance of specific items see the appropriate noted COM section(s).

Project Manager and Inspector-In-Charge (IIC) are to ensure the following:

- The checklist is initiated at contract substantial completion.
- The checklist is maintained and updated throughout the contract finalization process.
- The completed checklist must be submitted with the contract final package to CAB Construction. The final package will not be processed until the completed checklist is received and reviewed.
- The checklist is maintained in the Project Collaboration and Documentation Software (PCDS).

The checklist contains predefined items and standard contract completion forms that are required to finalize and closeout a contract. It is vital that all items are monitored closely to ensure a timely completion.

The Project Manager and Inspector-In-Charge can add contract specific items (user defined) to the checklist in order to meet the unique needs of their contract.

Indicate the date that an item was completed or anticipated completion along with any pertinent notations. The checklist may need to be repeatedly updated until the items are complete.

Do not leave item status blank; indicate 'Not Applicable' for any items that do not pertain to your contract.

Identify the party that is responsible for ensuring that each checklist item is completed. Project Managers may delegate checklist items responsibilities to appropriate field staff. Suggested responsible staff members have been included on the checklist but can be modified.

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Issues requiring the Project Manager and/or IIC's attention should be documented in the CDSme Deficiency Log (IDR Module). The Deficiency Log will maintain issue history and actions on the project Punch List through resolution.

### **Accept Project**

After final inspection, the Construction Engineering Manager (CEM) will send a letter to the Assistant Chief Engineer - Construction, listing all attendees at the final inspection, the date of the final inspection, and the date recommending acceptance of the project (Note: The date recommending acceptance of the project is the date all physical work on the project has been satisfactorily completed in accordance with the requirements of the contract. This is the same date as the Completion Certificate (PTC-03-16). See COM Part D, Section 2-3, Completion Certificate). Reasons for a recommended time extension, if necessary, and any liquidated damages, will be indicated in the letter. This letter may be written by the Construction Manager however, it must include the CEM concurrence on the letter. A copy of the letter to the Contractor including the punch list notes shall be attached to this letter.

Upon completion of all notes made at the final inspection, and receipt of all permit NOTs, the Inspector-In-Charge will notify the Construction Engineering Manager, by letter that all notes have been satisfactorily corrected.

### **Closeout Permits, Insurance, and Agreements**

The Project Managers or IIC's are responsible for conducting a final inspection with the Department of Environmental Protection (DEP) and/or the County Conservation District (CCD) regarding the project's Erosion and Sedimentation or Mine Permits.

- Upon permanent stabilization of earth disturbance activities and the installation of BMPs in accordance with the E&S Plan and PCSM Plan where applicable, The PM is to complete the Notice of Termination (NOT) form included in the project NPDES Permit and forward to the Commission's Environmental Group for execution. Verify that the form included in the NPDES permit is the most current form on DEP's website at <http://www.depgreenport.state.pa.us/elibrary/GetFolder?FolderID=3668>. Additional guidance for completing the NOT can be found in the PTC Reference Library\Eng. Construction\Environmental Reference folder. Submit As-Built Post Construction Stormwater Management Plans (see COM, Part B, Section 2-7, Preparation of "As-Built" Documentation) with the NOT. Coordinate with the Commission's Environmental Unit to obtain NOT prior to processing the contractor's Co-Permittee Liability Release Form for Permits Associated with 25 PA Code Chapter 102 form and releasing from contract responsibilities.
- Complete the Water Obstruction and Encroachment Permit (Chapter 105) Permit Completion Report and USACE Self-Certification Form (404 Permit) and forward to the Commission for execution. Coordinate with the Commission's Environmental Unit prior to releasing the contractor from the contract.

Copy the following individuals on all Notice of Termination (NOT) related correspondence:

- Assistant Chief Engineer – Construction
- Assistant Chief Engineer – Design

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- Construction Engineering Manager – Regional
- Construction Engineering Manager - Construction Management & Quality Control
- Design Engineering Project Manager
- Roadway Site Manager, Environmental -MS4/Stormwater
- Environmental Project Manager.

Obtain the release from the contractor for the Waste and Borrow agreements from the respective property owners.

If applicable, obtain letters from the PTC/Insurance Broker providing the date of termination for the Wrap-up Insurance and send letter to the Contractor and Subcontractor indicating the termination and future insurance requirements. Verify that all Insurance deductibles are paid.

Ensure that the Highway Occupancy Permit closeout process is completed, if applicable.

### **Final Acceptance**

Generate and send a preliminary Final Contract Comparison and Summary Analysis (summary sheet) to the Contractor to reconcile final item quantities.

This summary sheet will list each item of work, including the original plan quantities and costs, all approved contract change order quantities and costs, current contract quantities and costs, and final contract quantities and costs. Each item of work shall be verified for accuracy by the Contractor and each Subcontractor. Any discrepancies or disputed quantities shall be noted on the summary sheet and returned to the IIC.

Upon resolution of all contract, additional, or extra work quantities, generate a final change order and Final Contract Comparison and Summary Analysis report in CDS. The IIC and Contractor shall review these documents and note the review and acceptance of the final quantities with their signature in the appropriate locations.

Upon acceptance of the summary sheet and final change order, field approval of the final change order can be arranged to permit processing of the final estimate.

It is not necessary to hold back any final change order items intentionally to include them in the final package. The final change order should be processed in advance of the Final Package whenever possible.

Prepare Form [PTC-4238-A](#), Commission's Letter of Project Materials Certification.

- The IIC shall generate the materials certification from CDSme in accordance with the Commission's Quality Control Plan.
- The Project Manager shall complete the materials certification form by obtaining the required signatures for verification and approval.
- The IIC shall submit the completed Materials Certification form along with the final documents for the project.

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### **Assemble Final Package**

The Project Manager and IIC will assemble a final package consisting of the documents shown on the Closeout Checklist. The final package will be reviewed and approved by the Construction Engineering Manager and submitted to CAB Construction Unit for Commission approval.

### **Federal Aid Projects**

For projects that contain Federal Aid, the following items are to be completed.

- FHWA-1446A – Construction Inspection Report. This form will be completed by the Federal Highway Administration (FHWA) when the project is complete and generally acceptable.
- [FHWA-1446B](#) – Final Acceptance Report. This form is to be prepared by the Commission and submitted to the Pennsylvania Department of Transportation for signature and approval. The Department will forward to the FHWA along with the Completion Certificate (PTC-03-16) and the Materials Certification (PTC 4238-A) for signature and approval.
- Certify in writing to the Department of Transportation (Department) that all physical work on the project has been satisfactorily completed in accordance with the requirements of the project.
- Certify in writing that the Commission's records review substantiates final quantities and amount due. Obtain the Department's written concurrence of the final quantities.
- Submit the final amount due for reimbursable costs, along with related documents, to the Department. The Department shall facilitate billing to the FHWA.



# Appendix

# Appendix A

## List of Changes

**COM 2025**  
**List of Changes - January 2025**

<b>Part</b>	<b>Section</b>	<b>Title</b>	<b>Pages</b>	<b>Revisions</b>	<b>Status</b>
Preface	Part i	Introduction and Definition of Terms	6	Revised in paragraph two "adequate" to "satisfactory"	Revised
B	2-3	Records Management and Retention	3	Revised the process for disposal of non-electronic project documentation. Improved the section with verbiage revisions throughout.	Revised
B	2-4	Records and Documentation	7	Clarified the responsibility of Inspectors and CDS operators in an event with no measureble precipitation.Improved the section with verbiage revisions throughout.	Revised
B	5-1	Preparation of Change Orders on Construction Contracts	16	Revised to remove one of the Change Order questions "Is this a result of a Design Error/Omission?".Improved the section with verbiage revisions throughout.	Revised
B	9-3	Erosion and Sediment Pollution Control	12	Clarified the PTC construction project manager's responsibility regarding DIRT training and access to the DIRT application.	Revised
	Appendix	Change Order Presentation Guidelines	5	Revised to remove one of the Change Order questions "Is this a result of a Design Error/Omission?".Improved the section with verbiage revisions throughout.	Revised

# Appendix B

## Forms & Checklists

PENNSYLVANIA TURNPIKE COMMISSION  
CONSTRUCTION OPERATIONS MANUAL  
FORMS AND CHECKLISTS

01-08-24

PTC Forms and Checklists are available in the PCDS - PTC Reference Library/CI-PM-DM/ENG Construction/Construction Operations Manual.

Additional project team related forms are also available in PCDS - PTC Reference Library/Team

Non-PTC forms are included in the Form Index with links to the site of the original sources of forms.

## Appendix C

### Work Processes and Procedures

REPLACES Change Order Presentation Guidelines	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART  <b>Appendix</b>	SECTION <b>Processes and Procedures</b>	PAGE  <b>1 of 5</b>
DATED  01-08-24		DATE  <b>01-06-25</b>		
SUBJECT  <b>CHANGE ORDER PRESENTATION GUIDELINES</b>				

The purpose of these guidelines is to provide additional guidance for standardizing the presentation of a Change Order package submitted for approval. These guidelines are to be used as a supplement to [Part B Section 5-1 Preparation of Change Orders on Construction Contracts](#).

The Change Order matrix shown on page 2 of these guidelines indicates the supporting documentation required to be submitted with the Change Order. Assemble the Change Order with the PTC-1060 form first followed by all questions and respective explanations, followed with the corresponding attachments arranged by change type.

### **General Notes:**

Guidelines for Change Orders uploaded to the Project Collaboration and Documentation System (PCDS).

1. The final, complete record copy of the Change Order is to be stored in the PCDS in accordance with the PTC Kahua Construction Project Documentation Guide.
2. After approval, the Change Order with CAB signatures is to be uploaded to the PCDS as one complete package by the Construction Documentation Specialist.
3. Any preliminary copies must be stored in the PCDS, in accordance with the PTC Kahua Construction Project Documentation Guide, as the Change Order is being assembled.
4. Examples of File naming structure for the Final Approved Change Orders uploaded to the PCDS:
  - a. CAB FINAL APPROVED C.O. 1
  - b. CAB FINAL APPROVED C.O. 2
  - c. CAB FINAL APPROVED C.O. 9
5. **Cost Justification back up information to substantiate the costs on the CS4347 series forms are to be uploaded to the PCDS by the field staff. This backup information is not submitted with the Change Order. One complete set of cost justification information for the entire Change Order is to be stored in the PCDS, in accordance with the PTC Kahua Construction Project Documentation Guide.** This cost justification file should be uploaded as soon as the PTC-1060 is submitted for signatures.
6. This backup is contained in a single file for each individual applicable Change Order. Examples of file naming structure for the final Cost Justification backup information uploaded to PCDS:
  - a. Change Order 01 – Cost Justification Backup
  - b. Change Order 02 – Cost Justification Backup
  - c. Change Order 09 – Cost Justification Backup
7. If the Final Change Order for each project is included with the CAB Approved Final Package, the Change Order will be uploaded into the PCDS with the Final Package, in accordance with the PTC Kahua Construction Project Documentation Guide. Cost justification backup for this Change Order is uploaded into the PCDS using the file naming structure listed in #6 above.

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Change Order Documentation Matrix																	
	Change Type																
	Time Extension or Reduction	A	B	C	D	E	F	G	H	J	K	LD	M	N	O	P	PA
Documents (To be included in the Change Order in the following order)		Normal Quantity Adjustment	Unforeseen Condition	Construction Changes	Design Requested Changes	Facilities Requested Changes	Fare Collection Requested Changes	Maintenance Requested Changes	Other PTC Department Requested Changes	Property Damage Claims - Reimbursable	Property Damage Claims - Non-Reimbursable	Liquidated Damage	Other	Design Errors	Design Omissions	Open-End Repair Contract	Price Adjustment
PTC 1060 Change Order - CDS Generated (No Exceptions)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Divider Page Before Any CO Questions/Answers - Insert a Divider Page Labeled 'CO Questions'																	
Change Order Questions - CDS Generated (Per Item or Item Group)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Any Corresponding Attachments Shall Follow - As Referenced (And Listed in Order) - Divider Page Between The CO Questions and Attachments – Labeled By Change Type																	
EITHER -																	
PTC-373 Authorization for Contract Work (Note 1)		X	X	X	X	X	X	X	X	X	X		X	X	X		
OR																	
PTC's Letter (Or Mtg Minutes, etc.) requesting a price / directing the work / indicating LDs. (Notes 1, 2)			X	X	X	X	X	X	X	X	X	X	X	X	X		
Submitted Cost Justifications, If Applicable (Agreed Price CS-4347CJ; Include for each Subcontractor, if any)			X	X	X	X	X	X	X	X	X		X	X	X		
Submitted Cost Justifications, If Applicable (Force Account, CS-4347AA signed; Include CS-4347AS signed for each Subcontractor, if any)			X	X	X	X	X	X	X	X	X		X	X	X		
Contractor's Letter agreeing to price (Notes 1, 2)			X	X	X	X	X	X	X	X	X		X	X	X		
PTC's Letter agreeing to price (Notes 1, 2)			X	X	X	X	X	X	X	X	X		X	X	X		
SPECIAL SCENARIO - TIME EXTENSIONS																	
If The Time Request Change Order Also Contains Unrelated Items of Work - Insert a Divider Page to Segregate																	
Contractor's Letter requesting time extension indicating reasons why additional time is warranted.	X																
Documentation showing the schedule was analyzed and supports the time request. (Note 3)	X																
PTC's Letter accepting the time extension request and stating the time extension time frame (date).	X																
SPECIAL SCENARIO - FEDERAL AID CONTRACTS																	
Current Federal Guidelines Shall Be Consulted To Determine The Proper Type Of Documentation To Include																	
FHWA-1365 Record of Authorization to Proceed with Major Contract Revision, if applicable, for Federal Aid Projects. (Note 2 if required)	X		X	X	X	X	X	X	X	X	X	X	X	X	X		X
SPECIAL SCENARIO - COURT DECISIONS																	
Divider Page																	
Payment of Claims or Court Decision - Attach a Copy of the decision to the Change Order. (Notes 2, 4)	X												X				
Notes:																	
1. If an Authorization for Contract Work has been issued and signed by both the PTC and Contractor representative, the contractor's and PTC's letter agreeing to the price is not needed. If no Authorization for Contract Work (PTC-373) was generated, letters by both the Contractor and PTC are required. Federal funding may still require the use of Form FHWA-1365 in addition to letters or the PTC-373.																	
2. Any correspondence deemed necessary to substantiate or direct the change. This may be PCS generated communications, RFI responses, meeting minutes, emails, etc. Include a sketch or a drawing if necessary.																	
3. Schedule analysis documentation is not required for Change Type 'P'.																	
4. A letter from the PTC Legal Department directing a negative or positive payment may be substituted for the actual court decision.																	



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## **SAMPLE**

### **Change Order Package Outline for Submission**

Assemble the documents in the Change Order Package in the following order, as applicable.

- 1. CHANGE ORDER REVIEW CHECKLIST**
- 2. FORM PTC 1060**
- 3. DIVIDER PAGE labeled “ Change Order Questions”**
- 4. CHANGE ORDER QUESTIONS for all items included on the Change Order**
- 5. DIVIDER PAGE(s) WITH ATTACHMENT(s)**

**DIVIDER PAGE labeled “Time Extension” or “Time Reduction”** - If applicable, this should be before any other Change Types.

Time Extension/Reduction (If such a request is made, *otherwise* proceed to the next bold face ‘Divider Page’ topic below.)

Includes any attachments that were required. Assemble and list in chronological order by date.

**DIVIDER PAGE labeled “Change Type Code A – Normal Quantity Adjustment.”**

Change Type A – Normal Quantity Adjustment.

Includes any attachments that were required. Assemble and list in chronological order by date.

**DIVIDER PAGE labeled “Change Type Code B – Unforeseen Condition.”**

Change Type B – Unforeseen Condition.

Includes any attachments that were required. Assemble and list in chronological order by date.

**DIVIDER PAGE labeled “Change Type Code C – Construction Changes” and so on...**

Change Type C – Construction Changes.

Includes any attachments that were required. Assemble and list in chronological order by date.

**DIVIDER PAGES AS REQUIRED for each Change Type Code that follows.**

Also including any attachments that were required.

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Example Divider Page- listing the Item Groups / Item Numbers / Control Numbers contained within the Change Type:

Change Type – ‘C’ – Construction Changes  
Attachment Summary

Group:	Item Number	Control Number
C1 =	9604-0201	= CTRL-0003
C2 =	9811-0202	= CTRL-0007
C3 =	9845-0203	= CTRL-0008
C4 =	9046-0204	= CTRL-0017

**Examples of attachments to submit with the Change Order include the following:**

1. A properly executed “Authorization for Contract Work”
  - a. Form PTC-373, or letters directing work, or e-mails directing work, or meeting minutes directing work, or RFI responses, etc.
2. Any ‘Extra Work’ shall have at a minimum, the following:

Agreed Price-

- a. A document from #1a above.
- b. Include form CS-4347CJ by the Prime. Include form CS-4347CJ for any work to be subcontracted and any corresponding CS-4347CJ by the Prime. All indicated as to having been checked/accepted.
- c. Include contractor’s letter agreeing to price, if applicable.
- d. Include PTC’s letter agreeing to price, if applicable.
- e. Include historical cost analysis if using this type of cost justification.

OR:

Force Account-

- f. A document from #1a above.
- g. Include form CS-4347AA by the Prime. Include form CS-4347AS for any work that was subcontracted and any corresponding CS-4347AA by the Prime. All signed and indicated as to having been checked/accepted.
- h. Include contractor’s letter agreeing to price, if applicable.
- i. Include PTC’s letter agreeing to price, if applicable.

3. A Time Extension/Reduction should include:
  - a. Contractor’s letter requesting time extension.
  - b. Documentation showing schedule analysis that supports time request.
  - c. PTC letter accepting the time extension request and stating the time extension time frame (date).
4. A Claims settlement or Court Decision:
  - a. Include a copy of the decision, letter, or e-mail from PTC legal directing payment or reduction.

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**Attachment designations shall be indicated on each document page and are as follows:**

**XY-Z** Whereas 'X' = Change Order Change Type

'Y' = The Change Type consecutively numbered, per each set of questions with attachments, as it occurs on the CO.

'Z' = The consecutive numbering of the attachments listed for 'Y'.

Example: **A1-1** 'A' Is representing Change Type 'Normal Quantity Adjustment'

'1' Is representing the first set of questions in the CO with attachments under Change Type A.

'-1' Is representing the first attachment listed for group A1

Example: **C1-1** 'C' Is representing Change Type 'Construction Changes'

'1' Is representing the first set of questions in the CO with attachments under Change Type C.

'-1' Is representing the first attachment listed for group C1

**C1-2** '-2' Is representing the second attachment listed for group C1

**C1-3** '-3' Is representing the third attachment listed for group C1

Example: **C2-1** 'C' Is representing Change Type 'Construction Changes'

'2' Is representing the second set of questions in the CO with attachments under Change Type C.

'-1' Is representing the first attachment listed for group C2

**C2-2** '-2' Is representing the second attachment listed for group C2

**For ANY attachment, the corresponding Item(s)/Control Number(s) shall be indicated as near to the upper right corner of the face page (when viewing) as is feasible, with page numbers, for each page.**

“A” would be for Normal Quantity Adjustments, which, backup for these changes would not be very common unless over 25% of the item planned quantity and greater than \$10,000. “B” would be for Unforeseen Conditions, “C” would be for Construction Changes, and so on.

It is recommended to list in this order, the Authorization document, then RFIs/Correspondence, and then the CJ (Agreed Price) or Force Account pricing.

**NOTE: All other documents not listed in the above attachment examples that pertain to the Change Order become the ‘Change Order XX – Cost Justification Backup’ file.**

When compiling this backup file, include any of the CS-4347CJ, CS-4347AA, and the CS-4347AS forms even though they are already included with the submitted Change Order.

Examples of contents of the ‘Change Order XX – Cost Justification Backup’ file include Equipment Watch sheets, copies of Certified Payrolls, Force Account Daily Sign-off sheets, contractor daily sign-off sheets, material invoices, material CS-4171 series forms, Service by Others invoices, hauling permit costs, all associated CS-4347 series forms, drawings, and any necessary documents to substantiate the costs of the work. This is not an all-inclusive list.

REPLACES <b>Property Damage Claims Repair Process</b>	PENNSYLVANIA TURNPIKE COMMISSION  <b>CONSTRUCTION OPERATIONS MANUAL</b>	PART  <b>Appendix</b>	SECTION Processes and Procedures	PAGE  <b>1 of 12</b>
DATED <b>01-11-16</b>		DATE  <b>03-29-19</b>		
SUBJECT  <b>PROPERTY DAMAGE CLAIMS – SAP PROCEDURE FOR PMs</b>				

The purpose of this procedure is to provide additional information related to COM Section B8-4 for Project Managers to process and pay for property damage claims.

## 1. Property Damage Claim Repairs

Construction Unit completes the property damage claim repairs, as follows:

### 1.1 Damage Repair Utilizing a Current Active Contractor Under an Existing Construction Contract

#### PM Obtains Repair Estimate

- 1.1.1 Project Manager (PM) receives repair request from Maintenance or from Design.
- 1.1.2 PM determines which currently active contractor can best and most efficiently perform the work.
- 1.1.3 PM determines if contractor will perform property damage repair work by force account or by a negotiated cost. PM solicits an estimate and anticipated schedule for performing repairs from Contractor.
- 1.1.4 PM obtains PDC number from PDCCLAIMS (Risk Management Unit). PM must ALWAYS contact PDCLAIMS and request to verify the PDC number.
- 1.1.5 PM compiles the proposed cost, scope and schedule for the PDC repair work, along with PDC number and uploads information into the Project Collaboration Documentation Software.
- 1.1.6 Notifies PTC inspection staff and CM/CI consultant to aggregate costs of PDC repair separately.

#### Construction Documentation System (CDS) Technician sets up Change Authorization in CDS

- 1.1.7 CDS Technician creates a Control Number (CTRL#) for the PDC number. CDS CTRL# can be created within the CDS IDR and Change Authorization Modules. Do NOT place the CTRL# on a Change Order.
- 1.1.8 Obtains Change Authorization Form (PTC-373) generated in CDS and submits it to Inspector-In-Charge (IIC).

Part <b>Appendix</b>	Section <b>Processes and Procedures</b>	Page <b>2 of 12</b>	Date <b>03-29-19</b>
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- 1.1.9 IIC submits the Change Authorization Form (PTC-373) to Contractor.
- 1.1.10 CDS Technician enters repair information regarding property damage in Construction Documentation System, as follows:

Log into the PDC Submittal Log Module (*Construction Management Module Navigation Toolbar>Submittals and Damage Toolbar*). CDS Technician enters information for the following: *Submittal Status, Date Received, Format, File Reference, and Description* (of damage). CDS Technician does not enter a Change Order approval date, since a project Change Order will not be developed for the damage repairs.

If necessary, issues related to the PDC number can be tracked in the CDS Deficiency Log and on the Punch List Report.

- 1.1.11 On Open End contracts, CDS Technician creates the damage claim request as CTRL# and not as a breakdown to the lump sum item.

#### PM Issues Notice to Proceed

- 1.1.12 Contractor signs Change Authorization Form (PTC-373) and submits it to IIC.
- 1.1.13 IIC signs Change Authorization Form (PTC-373) and forwards it to PM.
- 1.1.14 PM approves cost, schedule and estimate and signs Change Authorization Form (PTC-373)
- 1.1.15 PM issues Notice to Proceed to Contractor for performing PDC repair work.
- 1.1.16 PM communicates cost estimate and schedule information to PDCLAIMS, by e-mail, at from PDCCLAIMS (Risk Management Unit). **Also, as repairs progress, PM provides status updates to PDCLAIMS, as appropriate. Please note that this must occur, periodically, and as frequently, as possible.**

#### Contractor Performs PDC Repair Work

- 1.1.17 Contractor performs PDC repair work and assigns all costs to the PDC Control Number.
- 1.1.18 Inspector documents repair work using PTC Control Number in Inspector's Daily Report (IDR) – General Construction (Form PTC-371 or PTC-371L-Long Form) and any other IDRs, as necessary. Inspector submits IDRs to CDS Technician.
- 1.1.19 CDS Technician documents inspection information from IDR's in CDS.

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### PM Request Purchase Order (PO) in SAP

- 1.1.20 PM creates a *Network* and *Activity* for the PDC Work Breakdown Structure (WBS) number with an estimated value and **Does Not Release**. Includes the PDC (WBS) Number in the *Description* of the network and activity.
- 1.1.21 PM receives final cost information for the PDC repair work from Contractor.
- 1.1.22 PM releases network and activity requesting a purchase order with actual costs of repair. PM receives an SRM Purchase Order Number from the CON Group Manager.

### CDS Technician Routes Invoice

- 1.1.23 CDS Technician generates an External Invoice Report, for the PDC Control Number. Generate “pdf” invoice file with supporting documentation (include CTRL# and SRM PO# on the invoice).
- 1.1.24 CDS Technician routes External Invoice Report for digital signatures through Project Collaboration and Documentation System (PCDS).
- 1.1.25 Contractor, IIC and PM approve PDC Control Number Invoice.
- 1.1.26 CDS Technician receives field approved PDC Control Number Invoice.
- 1.1.27 CDS Technician submits field approved invoice (pdf format) file to Central Administrative Building, through PCDS.

### Process Payment

- 1.1.28 Construction completes SRM confirmation on PDC Purchase Order.
- 1.1.29 Transmits PDC invoice package to Accounting, by e-mail.
- 1.1.30 Accounting generates payment to Contractor for Invoice.
- 1.1.31 Contractor receives payment for damage repairs.

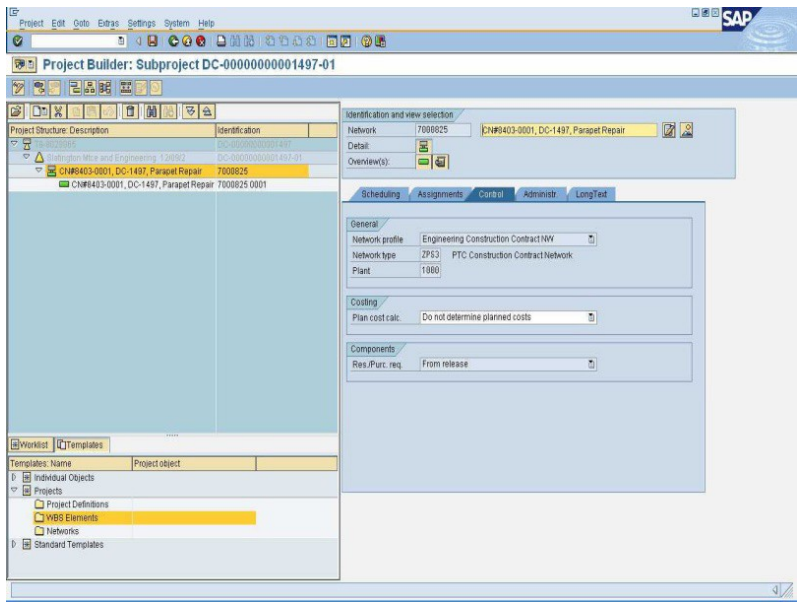
## **2. Construction Management / Construction Inspection (CM/CI) Cost Reimbursement**

Project Manager reimburses cost of inspection, as follows:

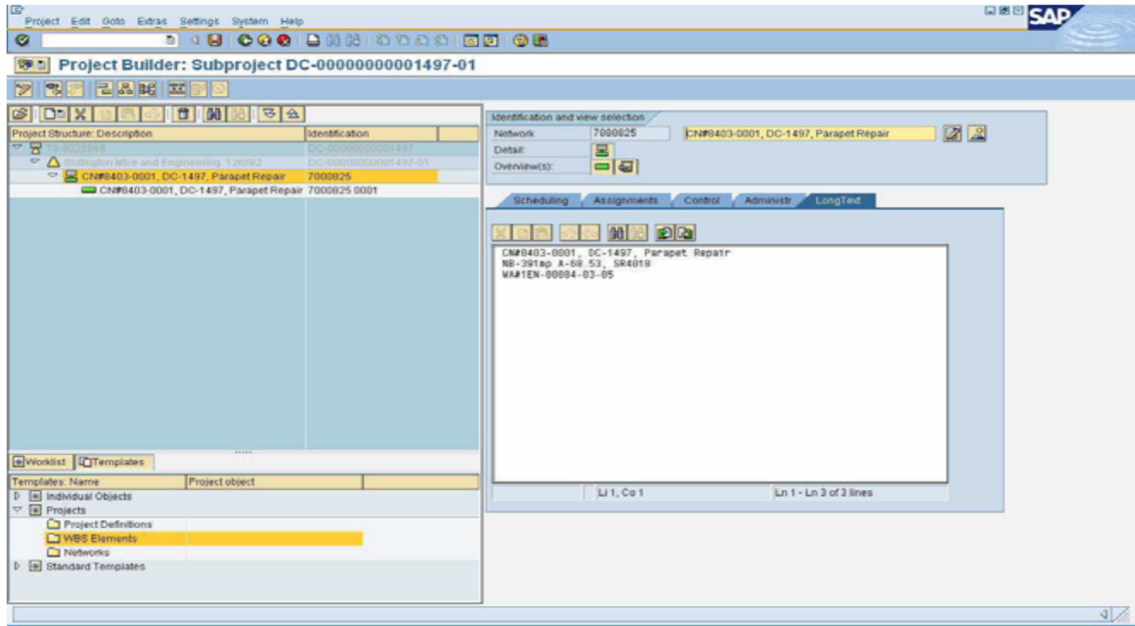
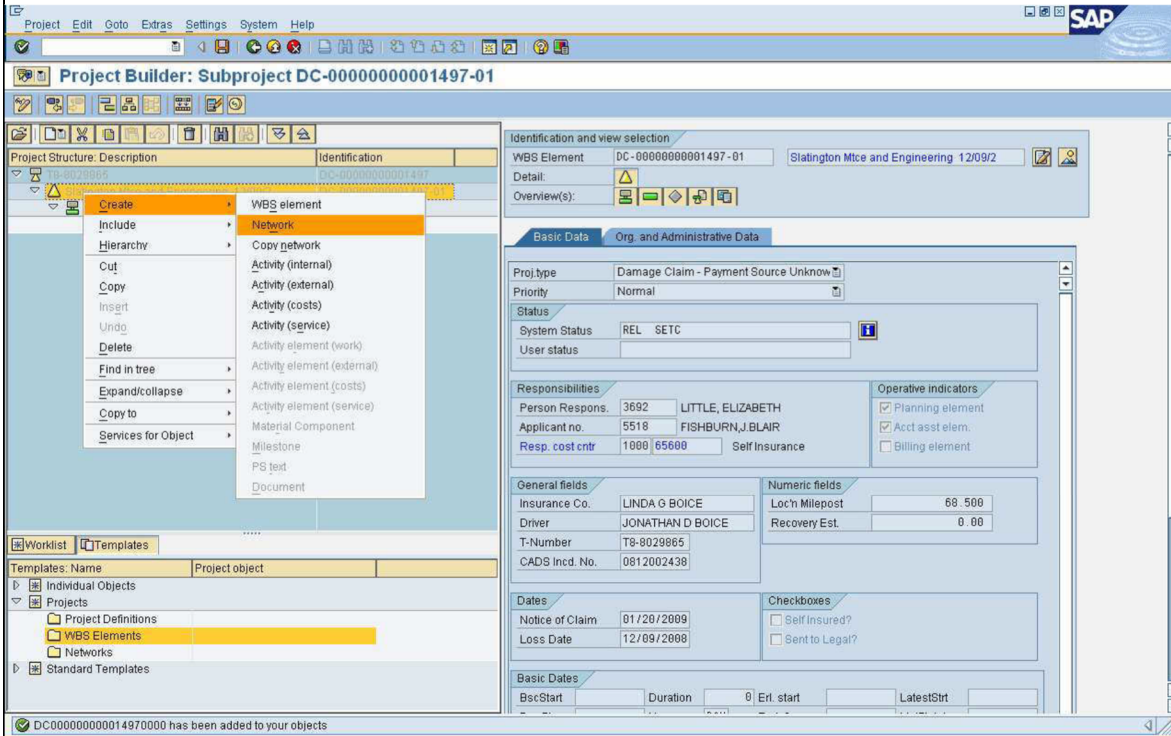
- 2.1 Project Manager notifies CM/CI Consultant and PTC employees to document charges related to inspection of property damage claims separately.
- 2.2 CM/CI Consultant and PTC employee perform field inspection and management and charge labor time and expenses to PDC number.
- 2.3 PM receives a separate invoice for the costs associated with the PDC CM/CI work.

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- 2.4 PM creates a *network* and *activity* for the PDC number. PM completes steps 1.1.20 through 1.1.22 for CM/CI payment.

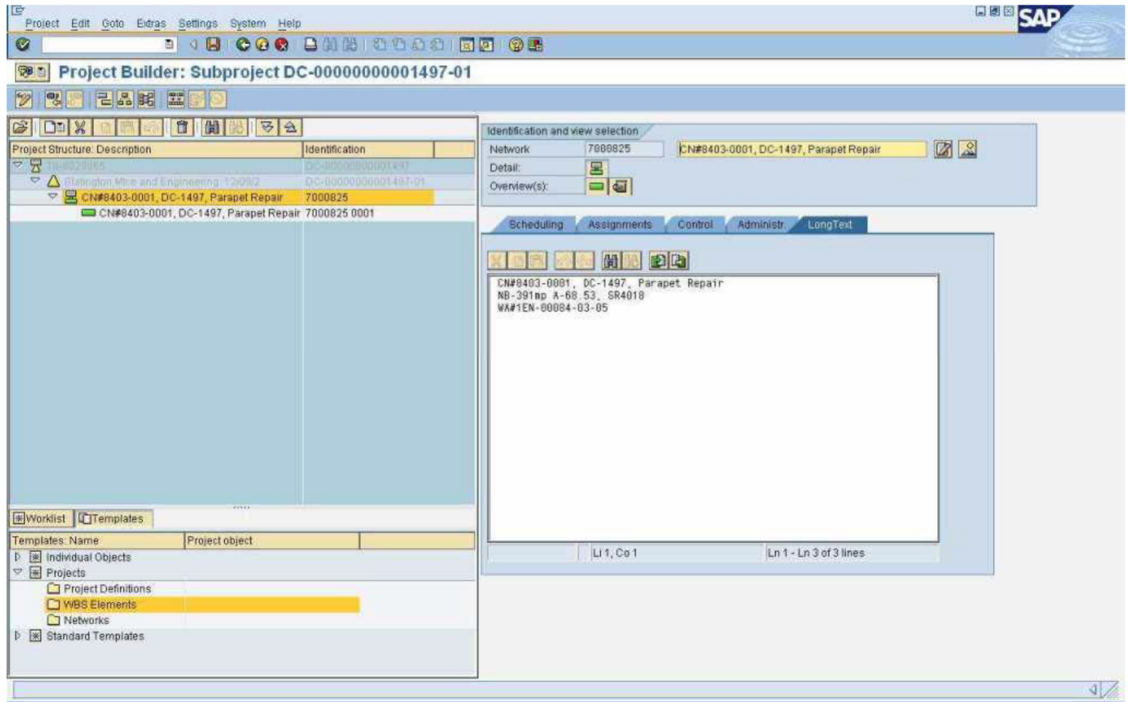
Step	Action	Result
<b>I. Create Network</b>		
1.	<ul style="list-style-type: none"> <li>➤ Log in to SAP.</li> <li>➤ The <i>SAP Login</i> screen appears.</li> </ul>	
2.	<ul style="list-style-type: none"> <li>➤ Select EP1.</li> <li>➤ This opens up SAP Easy Access</li> </ul>	
3.	<ul style="list-style-type: none"> <li>➤ Select <i>Project Builder</i> (Transaction CJ20N).</li> <li>➤ Open the Damage Claim project, DC#</li> </ul>	
4.	<ul style="list-style-type: none"> <li>➤ Verify Damage Claim number.</li> <li>➤ If not available, contact Property Damage Claims (Risk Management) to obtain Damage Claim number.</li> </ul>	

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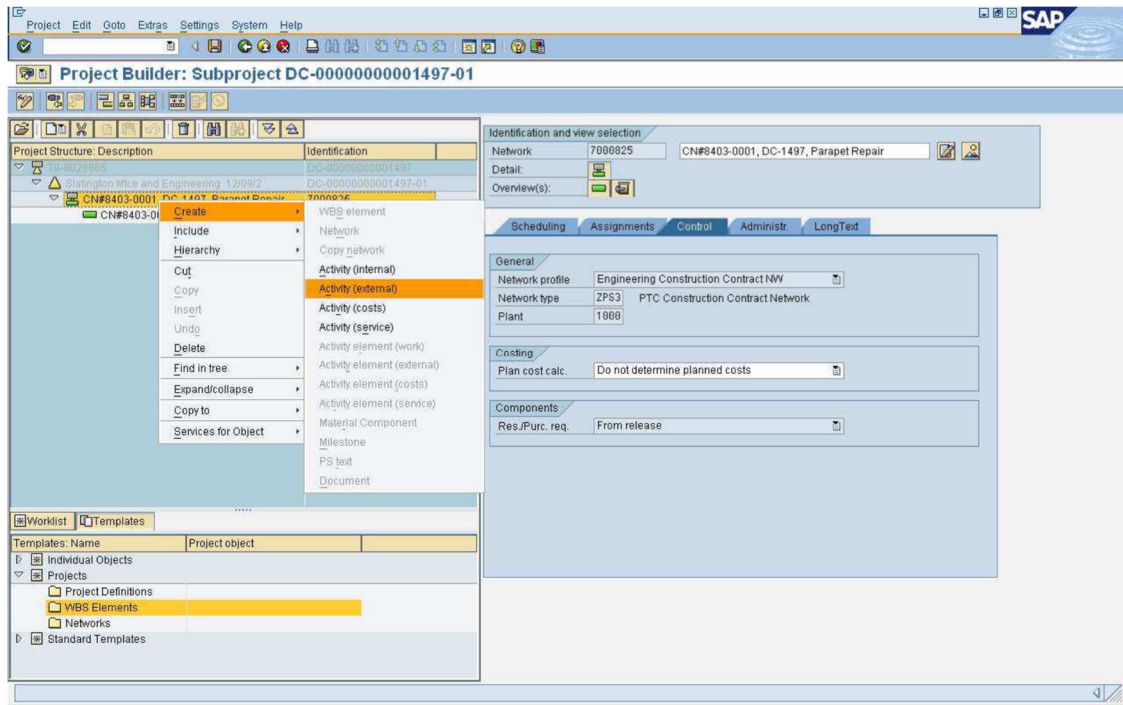
Step	Action	Result
5.	➤ Highlight DC number.	 <p>The screenshot shows the SAP Project Builder interface for 'Subproject DC-0000000001497-01'. The 'Project Structure: Description' pane on the left shows a hierarchy where 'DC-0000000001497-01' is highlighted. The 'Identification and view selection' pane on the right shows the 'Network' field with the value 'CNF0403-0001, DC-1497, Parapet Repair'.</p>
6.	➤ Right click and select <i>Create &gt; Network</i> .	 <p>The screenshot shows the SAP Project Builder interface with the 'Create &gt; Network' context menu open. The menu options include 'WBS element', 'Network', 'Copy network', 'Activity (internal)', 'Activity (external)', 'Activity (costs)', 'Activity (service)', 'Activity element (work)', 'Activity element (external)', 'Activity element (costs)', 'Activity element (service)', 'Material Component', 'Milestone', 'PS test', and 'Document'. The 'Basic Data' pane on the right shows details for the project, including 'Proj type', 'Priority', 'Status', 'Responsibilities', 'General fields', 'Dates', and 'Checkboxes'.</p>



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Step	Action	Result
7.	<p>➤ Include in the description, in the <i>Identification and view selection</i> area (next to <i>Network</i> field): Reference Damage Claim number, CDS Control number, repair description such as location information and others.</p>	 <p>The screenshot displays the SAP Project Builder interface for Subproject DC-0000000001497-01. The 'Identification and view selection' area is visible, showing the 'Network' field with value '7000825' and the 'Detail' field with value 'CN#8403-0001, DC-1497, Parapet Repair'. The 'Overview(s)' tab is active, displaying a list of project objects. The first object is 'CN#8403-0001, DC-1497, Parapet Repair' with network '7000825' and detail '0001'. The interface also shows a 'Worklist' and 'Templates' section on the left, and a 'Scheduling' section on the right.</p>

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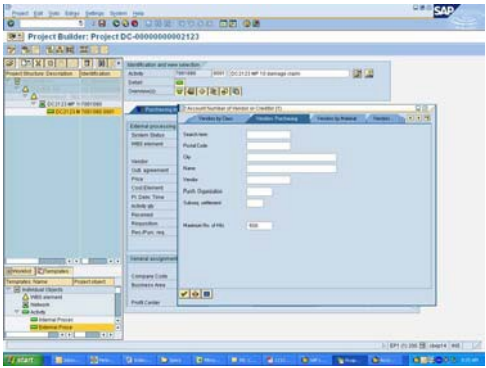
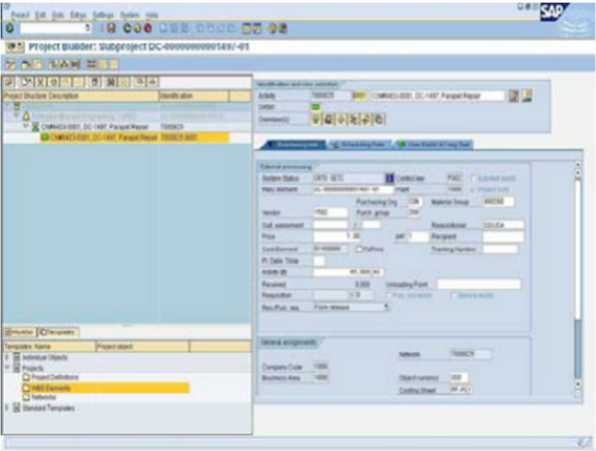
Step	Action	Result
8.	<p>➤ In the <i>Control</i> Tab, enter the following:</p> <ul style="list-style-type: none"> <li>• Network profile—<i>Engineering Construction Contract NW</i></li> <li>• Network type—<i>ZPS3</i></li> </ul> <p>➤ IMPORTANT NOTE: Ensure that <i>Construction Contract</i> and <i>ZPS3</i> are included accurately on the <i>Control</i> tab, prior to proceeding to next tab. If this is not done properly, then must start from Step 1 again.</p> <p>➤ Enter the following in:</p> <ul style="list-style-type: none"> <li>• <i>Scheduling</i> tab- dates. (Note: State the finish date as one month after the anticipated completion date).</li> <li>• <i>Assignments</i> tab-responsible cost center (68120).</li> </ul> <p>➤ Append the <i>Long Text</i> tab, as necessary to enter additional description information.</p> <p>➤ Click on <i>save</i>. (Note: cannot create an activity until the network is saved.)</p>	 <p>The screenshot displays the SAP Project Builder interface for Subproject DC-00000000001497-01. The 'Control' tab is active, showing configuration for a network. The 'General' section includes 'Network profile' set to 'Engineering Construction Contract NW' and 'Network type' set to 'ZPS3'. The 'Costing' section shows 'Plan cost calc.' set to 'Do not determine planned costs'. The 'Components' section shows 'Res./Purc. req.' set to 'From release'. A context menu is open over the 'WBS Elements' in the 'Project Structure' tree, with 'Activity (external)' selected. The 'Templates' pane at the bottom shows a hierarchy of 'Project Definitions', 'WBS Elements', and 'Networks'.</p>

Step	Action	Result
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<b>II. Create Activity with Estimated Cost</b>		
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<p>9.</p>	<div> <ul style="list-style-type: none"> <li>➤ Return to Project Builder-DC #.</li> <li>➤ Highlight the network.</li> <li>➤ Right click on the network and select <i>Create &gt; Activity (external)</i>.</li> </ul> </div> <div> <p>The screenshot displays the SAP Project Builder interface for Subproject DC-0000000001497-01. A right-click context menu is open over a network element in the project structure tree. The menu options include 'Create', 'Include', 'Hierarchy', 'Cut', 'Copy', 'Insert', 'Undo', 'Delete', 'Find in tree', 'Expand/collapse', 'Copy to', and 'Services for Object'. The 'Create' option is expanded, showing a list of activity types: 'WBS element', 'Network', 'Copy network', 'Activity (internal)', 'Activity (external)' (which is highlighted), 'Activity (costs)', 'Activity (service)', 'Activity element (work)', 'Activity element (external)', 'Activity element (costs)', 'Activity element (service)', 'Material Component', 'Milestone', 'PS text', and 'Document'. The main window shows the 'Identification and view selection' tab with fields for Network (7808825), Detail, and Overview(s). Other tabs like 'Scheduling', 'Assignments', 'Control', 'Administr', and 'LongText' are visible. The 'General' tab shows 'Network profile' as 'Engineering Construction Contract NW', 'Network type' as 'ZPS3 PTC Construction Contract Network', and 'Plant' as '1000'. The 'Costing' tab shows 'Plan cost calc.' as 'Do not determine planned costs'. The 'Components' tab shows 'Res./Purc. req.' as 'From release'.</p> </div>
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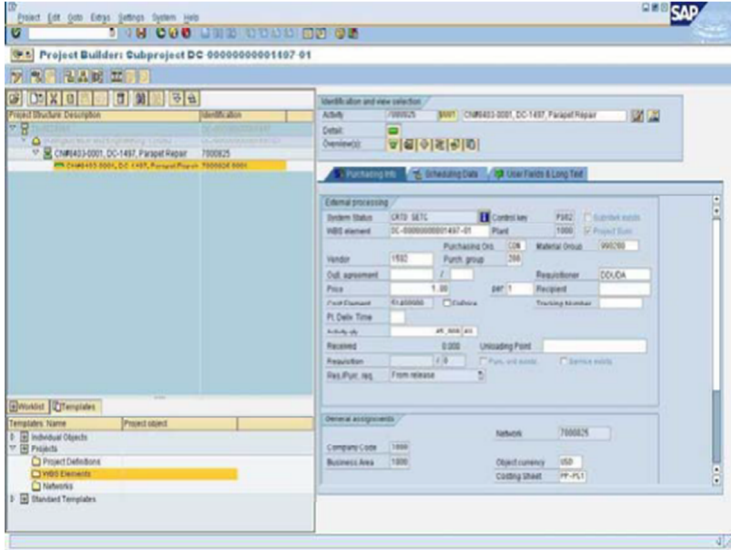
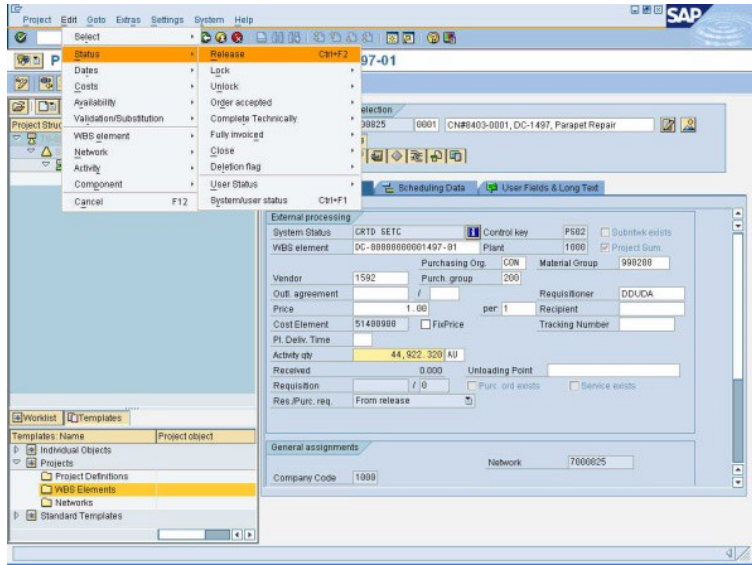
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Step	Action	Result
10.	<p>➤ Include in the description, in the <i>Identification and view selection</i> area (next to <i>Activity</i> field): Reference Damage Claim number, CDS Control number, repair description such as location information and others.</p> <p>➤ In the <i>Purchasing Info.</i> tab, enter the following:</p> <ul style="list-style-type: none"> <li>Purchasing organization: <i>CON</i></li> <li>Vendor: select <i>lowest number</i> (Note: Do not use vendor numbers beginning with #2 as they are non-PO vendors). When searching for the vendor, use the correct tab (Vendors: Purchasing), then the vendor numbers beginning with 2 will not be an option.</li> </ul>  <ul style="list-style-type: none"> <li>Purchasing group: <i>200</i> (Construction)</li> <li>Material group: <i>990200</i> (always use-General Highway Repair)</li> <li>Price: <i>\$1.00</i> (always)</li> <li>Activity quantity: enter the estimated cost.</li> <li>Requisitioner: type your name.</li> </ul> <p>➤ In <i>User Fields &amp; Long Text</i> tab, include any additional text information.</p> 	

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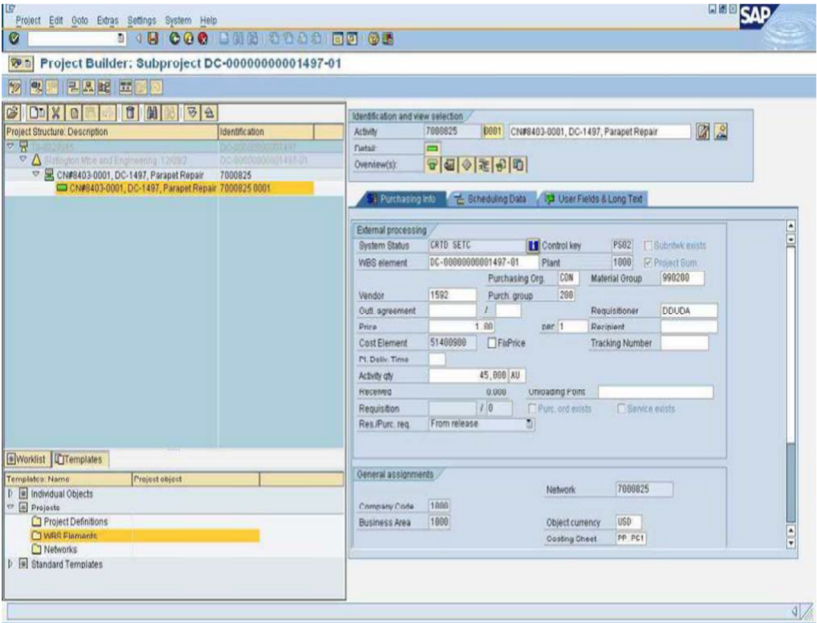
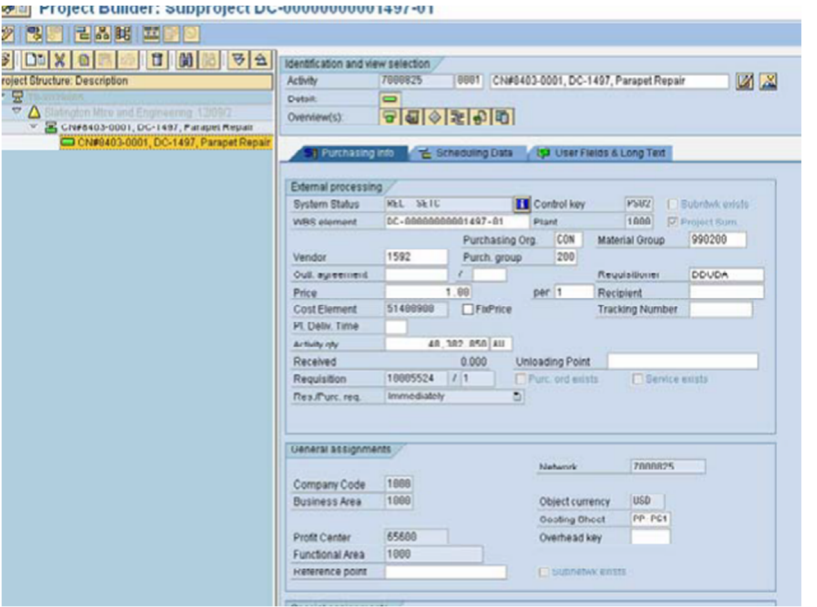
Step	Action	Result
11.	<p>➤ Enter in <i>scheduling data</i> tab:</p> <ul style="list-style-type: none"> <li>• Input dates: start/finish dates. Note: State the finish date as one month after the anticipated completion date.</li> </ul> <p>➤ Click on <i>save</i>. (Note: After saving, Project Builder closes and then must re-open DC#.)</p>	

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Step	Action	Result
<b>III. Update activity with final cost (at a later date)</b>		
12.	<ul style="list-style-type: none"> <li>➤ Return to Project Builder-DC # &gt; expand <i>Network</i> &gt; highlight <i>Activity</i>.</li> <li>➤ Verify that the end date is not earlier than the current date.</li> <li>➤ In <i>Purchasing Info.</i> tab, under <i>Activity Qty</i> field, update final cost, now you can release the network &amp; activity to request a purchase order.</li> </ul>	
13.	<ul style="list-style-type: none"> <li>➤ Release network and activity by clicking on <i>Edit &gt; Status &gt; Release</i>.</li> <li>➤ Click on <i>save</i>.</li> </ul>	



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Step	Action	Result
<b>IV. Verify Requisition Number</b>		
14.	<p>➤ Return to Project Builder-DC # &gt; expand <i>Network</i> &gt; highlight <i>Activity</i>.</p> 	
15.	<p>➤ In the <i>Purchasing Info.</i> tab; review <i>Requisition Number</i> to verify that a request for the Purchase Order was sent for approval. (Refresh screen to see the Requisition Number.) (Note: If a Requisition Number is not shown, then an error has occurred and must perform the release process again).</p> 	

# Appendix D

## Field Computation Guides



## **FIELD COMPUTATION GUIDES**


The following field computation guides are provided to assist project personnel in computing various pay quantities.

A diagram of an inverted triangle with dashed lines. The top horizontal side is labeled 42. The two slanted sides are labeled 28.

Triangle No. 1 =  $\frac{2}{3}$  (42 x 1.8)  
=  $\frac{2}{3}$  (75.6)  
= 50.4

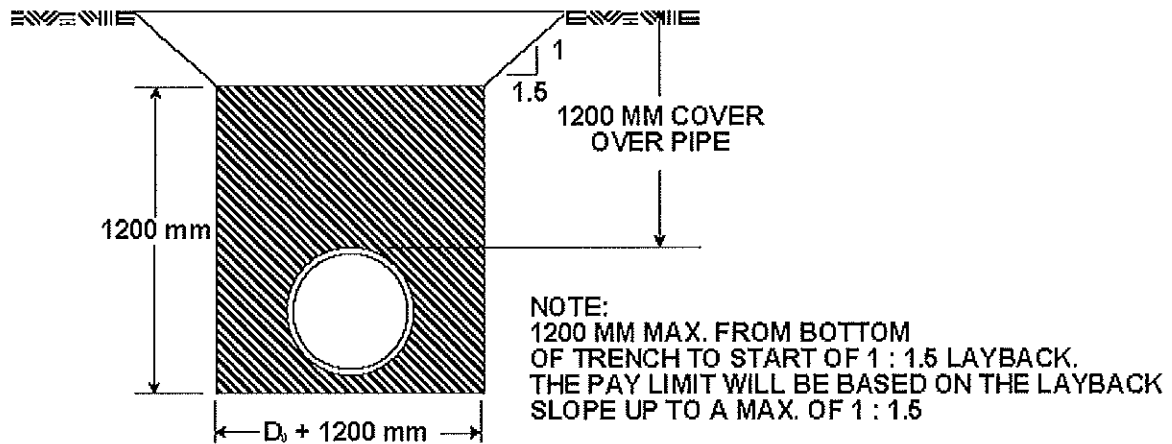
Triangle No. 1 =  $\frac{2}{3}$  (28 x 3.6)  
=  $\frac{2}{3}$  (100.8)  
= 67.2

Triangle No. 2 =  $\frac{2}{3}$  (20 x 3)  
=  $\frac{2}{3}$  (60)  
= 40.0



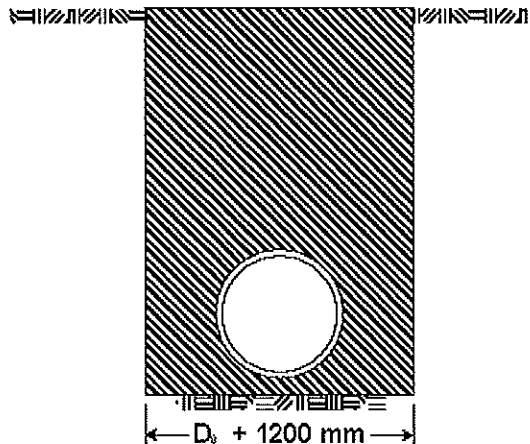
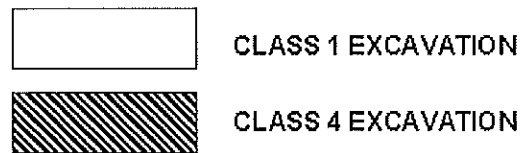
A rectangle with a length of 18 and a width of 12.

Deductions	
Tri No. 1	= 50.4
Tri No. 1	= 67.2
Tri No. 2	= 40.0
Total	= 157.6



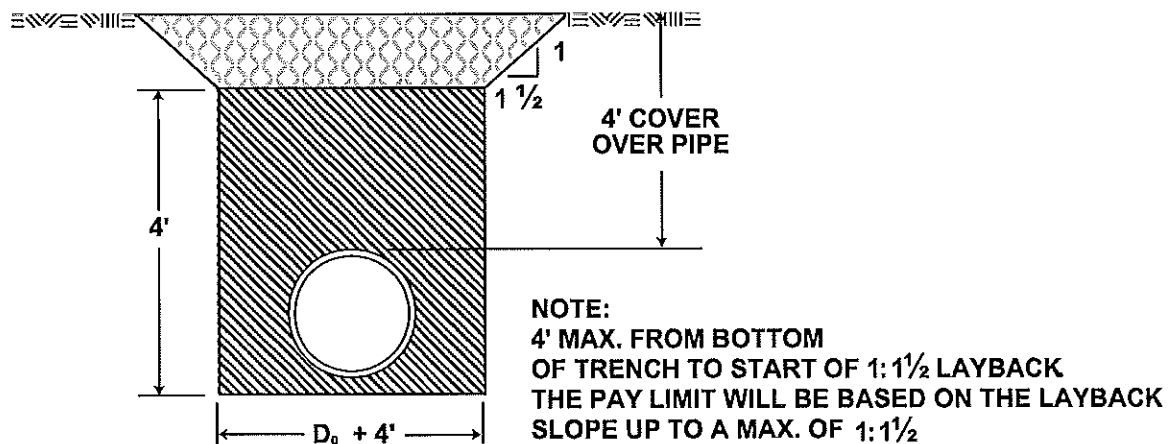
ABOVE DRAWING SHOWS EXCAVATION FOR PIPE IN CUT OR FILL WHERE SUBGRADE IS 1200 MM OR MORE ABOVE THE BOTTOM OF THIS TRENCH.

#### LEGEND



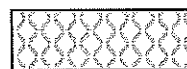
ABOVE DRAWING SHOWS EXCAVATION FOR PIPE IN CUT OR FILL WHERE SHORING OR A TRENCH BOX IS USED.

#### PAY LIMITS FOR PIPE EXCAVATION



ABOVE DRAWING SHOWS EXCAVATION FOR PIPE IN  
CUT OR FILL WHERE SUBGRADE IS 4' OR MORE  
ABOVE THE BOTTOM OF THIS TRENCH.

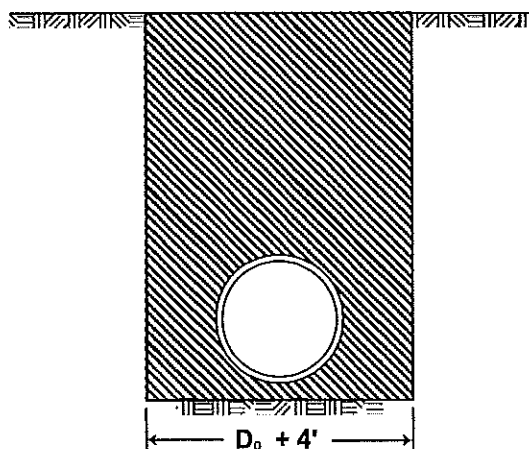
#### LEGEND



CLASS 1 EXCAVATION

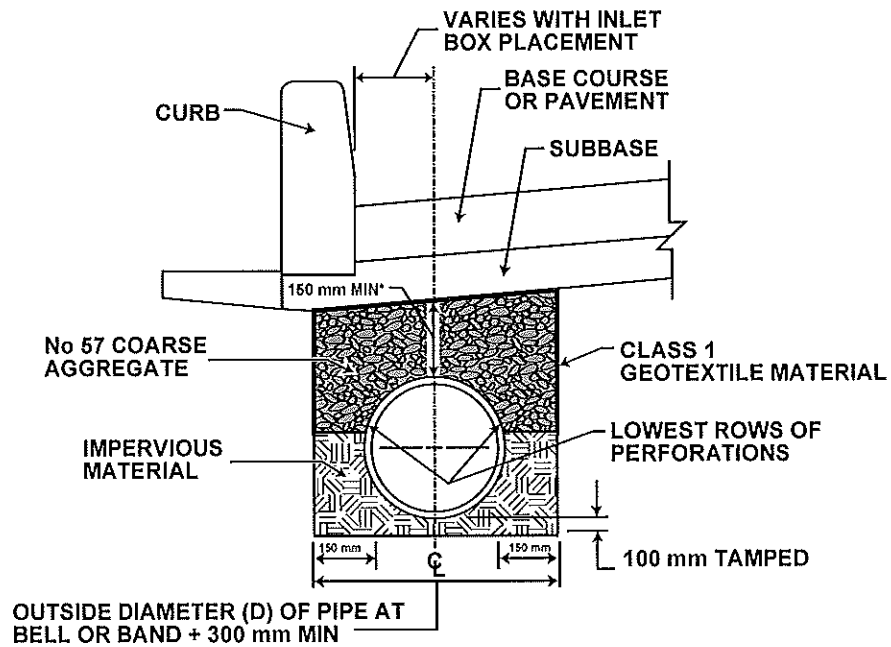


CLASS 4 EXCAVATION



ABOVE DRAWING SHOWS EXCAVATION FOR PIPE IN  
CUT OR FILL WHERE SHORING OR A TRENCH BOX IS USED.

#### PAY LIMITS FOR PIPE EXCAVATION



### COMBINATION STORM SEWER AND UNDERDRAIN

#### FORMULA:

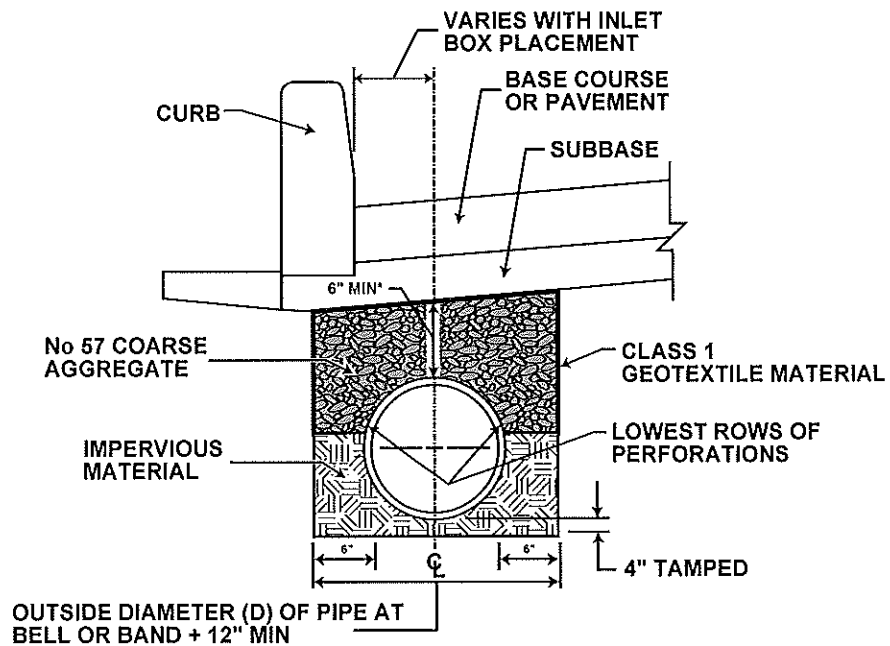
$$\text{END AREA} = \frac{0.1073D^2 + 288D + 45000}{10^6}$$

\* If greater than 150 mm by X mm add:

$$\frac{300X + DX}{10^6} \quad \text{to the end area}$$

To obtain payment quantity (cubic meters),  
multiply end area by length of pipe placed (meters)

PIPE SIZE (mm)	END AREA (m <sup>2</sup> )
300	.14
375	.17
450	.20
525	.23
600	.26
675	.29
750	.32
825	.36
900	.39
1050	.47
1200	.55
1350	.63
1500	.72



### 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:

$$\frac{12X + DX}{1296} \quad \text{to the end area}$$

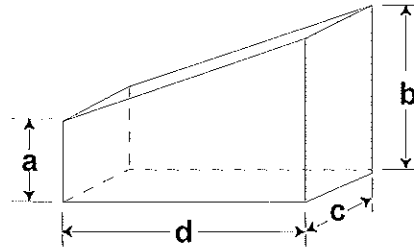
To obtain payment quantity (cubic yards), multiply end area by length of pipe placed (feet) then divide by 3.

PIPE SIZE (in.)	END AREA (yd <sup>2</sup> )
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

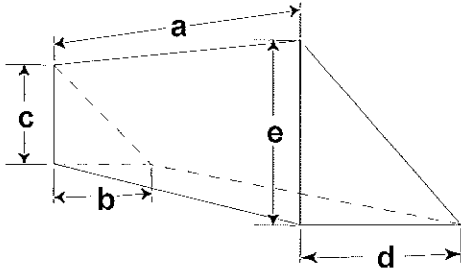
<p style="text-align: center;"><b>CONCRETE REINFORCING</b></p> <p style="text-align: center;"><b>STANDARD REINFORCING BARS</b></p>							
METRIC BARS				ENGLISH BARS			
BAR SIZE	Nominal Dimensions			BAR SIZE	Nominal Dimensions		
	Mass kg/m	Diameter mm	Area mm <sup>2</sup>		Weight lb/ft	Diameter inches	Area in <sup>2</sup>
10	0.560	9.5	71	3	0.376	0.375	0.11
13	0.994	12.7	129	4	0.668	0.500	0.20
16	1.552	15.9	199	5	1.043	0.625	0.31
19	2.235	19.1	284	6	1.502	0.750	0.44
22	3.042	22.2	387	7	2.044	0.875	0.60
25	3.973	25.4	510	8	2.670	1.000	0.79
29	5.060	28.7	645	9	3.400	1.128	1.00
32	6.404	32.3	819	10	4.303	1.270	1.27
36	7.907	35.8	1006	11	5.313	1.410	1.56
43	11.38	43.0	1452	14	7.650	1.693	2.25
57	20.24	57.3	2581	18	13.600	2.257	4.00



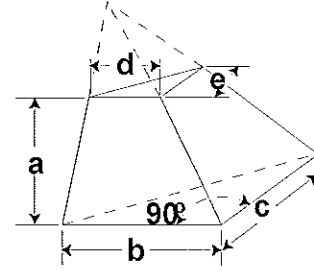
$$\text{Vol.} = a \times b \times c$$



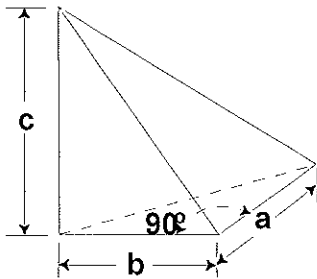
$$\text{Vol.} = \frac{a+b}{2} \times c \times d$$



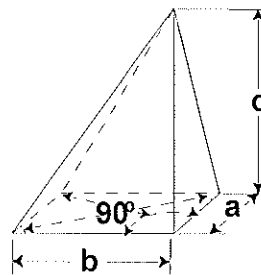
$$\text{Vol.} = \frac{a}{6} \left[ \frac{b \times c}{2} + \frac{d \times e}{2} + 2 \left( \frac{b+d}{2} \times \frac{c+e}{2} \right) \right]$$



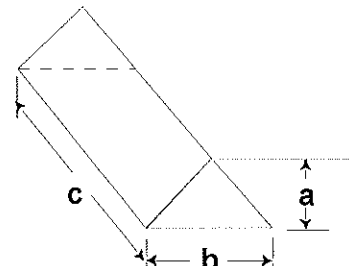
$$\text{Vol.} = \frac{a}{3} \left[ \frac{b \times c}{2} + \frac{d \times e}{2} + \sqrt{\frac{b \times c}{2} \times \frac{d \times e}{2}} \right]$$



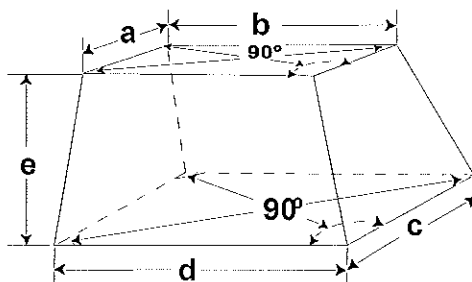
$$\text{Vol.} = \frac{a \times b}{2} \times \frac{c}{3}$$



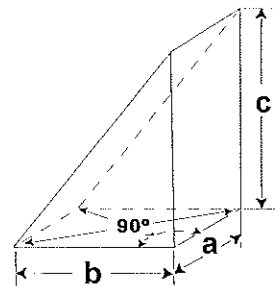
$$\text{Vol.} = a \times b \times \frac{c}{3}$$



$$\text{Vol.} = \frac{a \times b}{2} \times c$$



$$\text{Vol.} = \frac{(a \times b) + (c \times d)}{2} \times e$$



$$\text{Vol.} = a \times b \times \frac{c}{2}$$

### Volume Formulae for Geometrical Solids



# Appendix E

## Stratified Random Sampling Approach

# Stratified Random Sampling Approach

# **PENNSYLVANIA TURNPIKE COMMISSION**

## **STRATIFIED RANDOM SAMPLING APPROACH**



### **SCOPE**

This method outlines the procedures for selecting sampling sites in accordance with accepted random sampling techniques. Random sampling is the selection of a sample in such a manner that every portion of the material or construction to be sampled has an equal chance of being selected as the sample. Random sampling ensures that samples are selected in an unbiased manner, based entirely on chance.

### **SECURING SAMPLES**

Samples shall be taken as directed by the PTC Project Engineer.

Sample location and sampling procedure are as important as testing. It is essential that the sample location be chosen in an unbiased manner.

### **RANDOM NUMBER TABLE**

For test results or measurements to be meaningful, it is necessary that the sublots to be sampled or measured be selected at random, which means using a table of random numbers. The following table of random numbers has been devised for this purpose. To use the table in selecting sample locations, proceed as follows.

Determine the lot size and stratify the lot into a number of sublots per lot for the material being sampled.

For each lot, use consecutive two-digit random numbers from Table II-1. For example, if the specification specifies five sublots per lot and the number 15 is randomly selected as the starting point from column X (or column Y) for the first lot, numbers 15 to 19 are the five consecutive two-digit random numbers. For the second lot, another random starting point, number 91 for example, is selected and the numbers 91 to 95 are used for the five consecutive two-digit random numbers. The same procedure is used for additional lots.

For samples taken from the roadway, use the decimal values in column X and column Y to determine the coordinates of the sample locations.

In situations where coordinate locations do not apply (i.e., plant samples, stockpile samples, etc.), use those decimal values from column X *or* column Y.

### **DEFINITION OF TERMS**

*lot*: An isolated quantity of a specified material from a single source or a measured amount of specified construction assumed to be produced by the same process.

*sublot*: A portion of a lot, the actual location from which a sample is taken. The size of the sublot and the number of sublots per lot for acceptance purposes are specified in the specifications.

### **THE RANDOM SAMPLE**

A random table is a collection of random digits. The random numbers that are presented in this annex are shown in a two-place decimal format. Note that there are two columns, labeled X and Y. the numbers in either column can be used to locate a random sample when only a single dimension is required to locate the sample (e.g., time, tonnage, and units). When two dimensions are required to locate the sample, the number in the X column is used to calculate the longitudinal location, and the number in the Y column is used to calculate the transverse location. In the Y column, each number is preceded by L or R, designating that the sample increment is to be located transversely from the left or right edge of the pavement. Figure II-1 illustrates the procedure.

The following examples demonstrate the use of the random sampling technique under various conditions.

### **EXAMPLE 1: SAMPLING BY TIME SEQUENCE**

Assume that HMA for use in paving is to be sampled to determine the percent asphalt. It will be sampled at the place of manufacture. The task is to select a random sampling plan to distribute the sampling over the half day or the full day, whichever is more applicable. Assume that the lot size is a day's production and that five samples are required from each lot. The plant is assumed to operate continuously for 9 h (beginning at 7:00 am and continuing until 4:00 pm) with no break for lunch.

1. *Lot size*. The lot size is a day's production. The plant starts at 7:00 am and stops at 4:00 pm. Hence, the lot size is 9 h of production.
2. *Sublot size*. Stratify the lot into five equal sublots, because five samples are required. To accomplish this, select five equal time intervals during the 9 h that the plant is operating.

TABLE II-1 Random positions in decimal fractions (two places)

Sequence No.	X	Y	Sequence No.	X	Y
1.	0.29	R 0.66	51.	0.87	L 0.36
2.	0.74	R 0.49	52.	0.34	L 0.19
3.	0.89	L 0.79	53.	0.37	R 0.33
4.	0.60	R 0.39	54.	0.97	L 0.79
5.	0.88	R 0.31	55.	0.13	R 0.56
6.	0.72	L 0.54	56.	0.85	R 0.64
7.	0.12	R 0.08	57.	0.14	L 0.04
8.	0.09	L 0.94	58.	0.99	R 0.74
9.	0.62	L 0.11	59.	0.40	L 0.76
10.	0.71	R 0.59	60.	0.37	L 0.09
11.	0.36	L 0.38	61.	0.90	R 0.74
12.	0.57	R 0.49	62.	0.09	L 0.70
13.	0.35	R 0.90	63.	0.66	L 0.97
14.	0.69	L 0.63	64.	0.89	L 0.55
15.	0.59	R 0.68	65.	0.67	L 0.44
16.	0.06	L 0.03	66.	0.02	R 0.65
17.	0.08	L 0.70	67.	0.93	R 0.17
18.	0.67	L 0.68	68.	0.40	R 0.50
19.	0.83	R 0.97	69.	0.44	R 0.15
20.	0.54	R 0.58	70.	0.03	L 0.60
21.	0.82	R 0.50	71.	0.19	L 0.37
22.	0.66	R 0.73	72.	0.92	L 0.45
23.	0.06	L 0.27	73.	0.20	L 0.85
24.	0.03	L 0.13	74.	0.05	R 0.56
25.	0.55	L 0.29	75.	0.46	R 0.58
26.	0.64	L 0.77	76.	0.43	R 0.91
27.	0.30	R 0.57	77.	0.97	L 0.55
28.	0.51	R 0.67	78.	0.06	R 0.51
29.	0.29	R 0.09	79.	0.72	L 0.78
30.	0.63	R 0.82	80.	0.95	L 0.36
31.	0.53	L 0.86	81.	0.16	L 0.61
32.	0.99	R 0.22	82.	0.29	R 0.47
33.	0.02	R 0.89	83.	0.48	R 0.15
34.	0.61	L 0.87	84.	0.73	R 0.64
35.	0.76	R 0.16	85.	0.05	L 0.94
36.	0.87	L 0.77	86.	0.43	L 0.05
37.	0.41	L 0.10	87.	0.87	R 0.98
38.	0.28	R 0.23	88.	0.37	L 0.71
39.	0.22	L 0.18	89.	0.94	L 0.26
40.	0.21	L 0.94	90.	0.57	L 0.63
41.	0.27	L 0.52	91.	0.26	R 0.80
42.	0.39	R 0.91	92.	0.01	L 0.79
43.	0.57	L 0.10	93.	0.83	R 0.59
44.	0.82	L 0.12	94.	0.71	L 0.21
45.	0.14	L 0.94	95.	0.65	L 0.63
46.	0.50	R 0.58	96.	0.65	L 0.87
47.	0.93	L 0.03	97.	0.72	R 0.92
48.	0.43	L 0.29	98.	0.85	L 0.78
49.	0.99	L 0.36	99.	0.04	L 0.46
50.	0.61	R 0.25	100.	0.29	L 0.95

X = Decimal fraction of total length measured along the road from starting point.  
Y = Decimal fraction measured across the road from either outside edge towards center line of the paved lane.

$$\begin{aligned}\text{Sublot time interval} &= 9 \frac{(9 \text{ h/lot})(60 \text{ min/h})}{5 \text{ sublots/lot}} \text{ blots} \\ &= 108 \text{ min/sublot}\end{aligned}$$

3. *Sublot samples.* Next, choose five random numbers from the random number table. The first block randomly selected is reproduced below.

<i>Sequence Number</i>	<i>X</i>	<i>Y</i>
12	0.57	R 0.46
13	0.35	R 0.60
14	0.69	L 0.63
15	0.59	R 0.68
16	0.06	L 0.03

The selected random numbers taken from the X column are 0.57, 0.35, 0.66, 0.56, and 0.06. To randomize the sampling times within each subplot, the time interval (180 min) computed in Step 2 is used. This time interval is multiplied by each of the five random numbers previously selected:

Sublot 1:  $0.57 \times 108 = 62 \text{ min}$   
 Sublot 2:  $0.35 \times 108 = 38 \text{ min}$   
 Sublot 3:  $0.69 \times 108 = 75 \text{ min}$   
 Sublot 4:  $0.59 \times 108 = 64 \text{ min}$   
 Sublot 5:  $0.06 \times 108 = 6 \text{ min}$

These times are added to the starting times for each subplot. This results in the randomized time at which the sample is to be obtained. The sampling sequence is as follows:

<i>Sublot Number</i>		<i>Sampling Time</i>
1	7:00 am + 62 min =	8:02 am
2	8:48 am + 38 min =	9:26 am
3	10:36 am + 75 min =	11:51 am
4	12:24 pm + 64 min =	1:28 pm
5	2:12 pm + 6 min =	2:18 pm

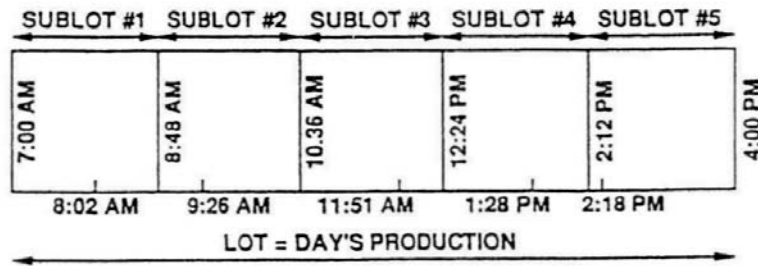


Figure II-2. Sublot sample times based on time sequence.

The random sampling times are shown in Figure II-2. If production is not available at the indicated time, a sample should be obtained at the first opportunity after the indicated time.

Sampling on a time basis is practical only when the process is continuous. Intermittent processes obviously present many difficulties.

## EXAMPLE 2: SAMPLING BY MATERIAL TONNAGE

HMA for use in paving must be sampled to determine the asphalt content. The specifications define the lot size as 5,000 tons and state the five samples must be obtained from the lot. The sampling is to be done from the hauling units at the manufacturing source. The total tonnage for the project is 20,000 tons.

This solution follows the same basic pattern as the solution given for the previous example. First, identify the lot size and then determine the number of lots, subplot size, and, finally, the point at which samples will be obtained.

1. *Lot size and number of lots.* The lot size is 5,000 tons. Because there are 20,000 tons of Asphalt mix required for the project, the total number of lots is

$$\text{Number of lots} = \frac{20,000 \text{ tons}}{5,000 \text{ tons/lot}} = 4 \text{ lots}$$

2. *Sublot size.* Stratify each lot into five equal sublots. The subplot size is

$$\text{Sublot size} = \frac{20,000 \text{ tons/lot}}{5 \text{ sublots/lot}} = 1,000 \text{ tons/sublot}$$

The relationship between lot and subplot size is shown in Figure II-3.

3. *Sublot samples.* The number of samples per lot is five, one per subplot. Five random numbers are therefor selected from the table of random numbers. Again, the first block of numbers from the random number table is reproduced below. This time, a different set of numbers is selected

<i>Sequence Number</i>	<i>X</i>	<i>Y</i>
67	0.93	R 0.17
68	0.40	R 0.50
69	0.44	R 0.15
70	0.03	L 0.60
71	0.19	L 0.37

The selected random numbers this time are from the Y column (disregard the L or R): 0.17, 0.50, 0.15, 0.60, and 0.37. These numbers are then multiplied by each of the five sublots as follows:



<i>Sublot Number</i>	<i>Sublot random number</i>	<i>Size (tons)</i>	<i>Ton to be sampled</i>
1	0.17	1,000	170
2	0.50	1,000	500
3	0.15	1,000	150
4	0.60	1,000	600
5	0.37	1,000	370

The technician must obtain the first sample at approximately the 170<sup>th</sup> ton of the first subplot. The technician must then wait until the first subplot is completed (1,000 tons) before selecting the second sample at the 500<sup>th</sup> ton of the second subplot. The same sequence is followed for obtaining the remaining three samples.

The sampling sequence for the lot (5,000 tons) should be

Sublot 1: 170<sup>th</sup> ton  
 Sublot 2: 1,000 + 500 = 1,500<sup>th</sup> ton  
 Sublot 3: 2,000 + 150 = 2,150<sup>th</sup> ton  
 Sublot 4: 3,000 + 600 = 3,600<sup>th</sup> ton  
 Sublot 5: 4,000 + 370 = 4,370<sup>th</sup> ton

Different random numbers are selected for the other four lots.

Sampling by production unit is a simple means of obtaining a random sample. Interruptions in the process do not affect randomization, and the relationship between the number of samples and the lot remains unchanged (Figure II-4).

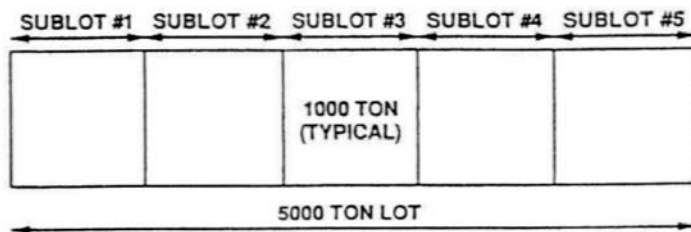


Figure II-3. Relationship between lot and sublots based on tonnage.

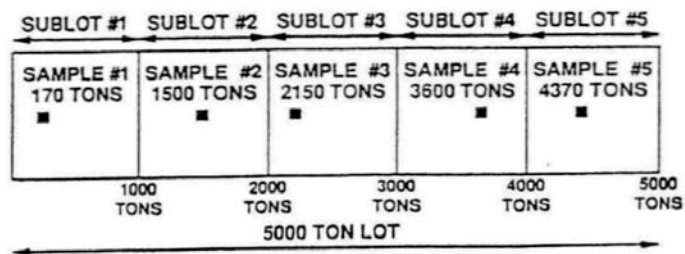


Figure II-4. Sublot sample based on tonnage.

### EXAMPLE 3: SAMPLING AN AREA

Suppose that HMA from the roadway is to be sampled to determine the density for QC or acceptance purposes. The specifications state that the lot size is 5,000 linear ft, and five samples per lot are required. In addition, assume that the paving width is 12 ft and that the project begins at Station 100+00 and ends at Station 300+00.

1. *Lot size and number of lots.* The specifications require a lot size of 5,000 linear ft. The distance from Station 100+00 to Station 300+00 is 20,000 ft. The number of lots is

$$\text{Number of lots} = \frac{20,000 \text{ ft}}{5,000 \text{ ft/lot}} = 4 \text{ lots}$$

2. *Sublot size.* The beginning station for the first lot is 100+00. This lot ends at Station 150+00 as shown in Figure II-5. This is equal to 5,000 ft. The 5,000 ft of paving must be stratified into five equal sublots, because five samples per lot are required.

$$\text{Sublot size} = \frac{5,000 \text{ ft/lot}}{5 \text{ sublots/lot}} = 1,000 \text{ ft/sublot}$$

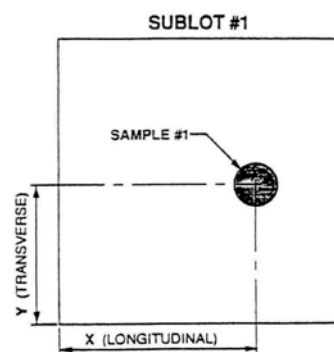


Figure II-1. Determination of sample location using random numbers.

Figure II-5 shows how this lot is divided.

3. *Sublot samples.* The location at which each sample will be obtained must be randomized in the longitudinal as well as the transverse direction. This was illustrated in Figure II-1. The random number selection procedure is the same as used for the previous examples except that two sets (columns, rows, etc.) of random numbers are selected: one for the transverse position, the other for the longitudinal position. A set of five random numbers for the longitudinal (X) and transverse (Y) position of the sample is chosen by using the first and second blocks of random numbers from the random number table. These are reproduced as follows:

Sequence Number	X	Y
37	0.41	L 0.10
38	0.28	R 0.23
39	0.22	L 0.18
40	0.21	L 0.94
41	0.27	L 0.52

The numbers are selected from both X and Y columns. Include the L or R in the Y column:

Longitudinal (X):	0.41	0.28	0.22	0.21	0.27
Transverse (Y):	L 0.10	R 0.23	L 0.18	L 0.94	L 0.52

These X and & random numbers are multiplied by the subplot length and paving width respectively, as shown below:

Sublot 1 (starting State 100+00)

Coordinate X =  $0.41 \times 1,000 \text{ ft} = 410 \text{ ft}$

Coordinate Y =  $0.10 \times 12 \text{ ft} = 1.2 \text{ ft}$

Sublot 2 (starting Station 110+00)  
 Coordinate X =  $0.28 \times 1,000 \text{ ft} = 280 \text{ ft}$   
 Coordinate Y =  $0.23 \times 12 \text{ ft} = 2.8 \text{ ft}$   
 Sublot 3 (starting Station 120+00)  
 Coordinate X =  $0.22 \times 1,000 \text{ ft} = 220 \text{ ft}$   
 Coordinate Y =  $0.18 \times 12 \text{ ft} = 2.2 \text{ ft}$   
 Sublot 4 (starting Station 130+00)  
 Coordinate X =  $0.21 \times 1,000 \text{ ft} = 210 \text{ ft}$   
 Coordinate Y =  $0.94 \times 12 \text{ ft} = 11.3 \text{ ft}$   
 Sublot 5 (starting Station 140+00)  
 Coordinate X =  $0.27 \times 1,000 \text{ ft} = 270 \text{ ft}$   
 Coordinate Y =  $0.52 \times 12 \text{ ft} = 6.2 \text{ ft}$

The longitudinal distance (X) is added to the beginning station of the subplot and the companion transverse distance (Y) is measured from the selected edge of paving. The L values of Y will be measured from the left edge of paving (looking ahead) and the R values of Y will be measured from the right edge of paving.

*Sample no.*

- 1 Station 100+00 + 410 ft = 104+10 @ 1.2 ft from left edge
- 2 Station 110+00 + 280 ft = 112+80 @ 2.8 ft from right edge
- 3 Station 120+00 + 220 ft = 122+20 @ 2.2 ft from left edge
- 4 Station 130+00 + 210 ft = 132+10 @ 11.3 ft from left edge
- 5 Station 140+00 + 270 ft = 142+70 @ 6.2 ft from left edge

Figure II-6 illustrates the sampling locations based on these calculations.

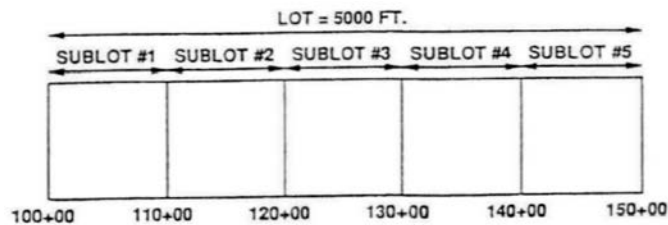


Figure II-5. Relationship between lot and sublots based on area.

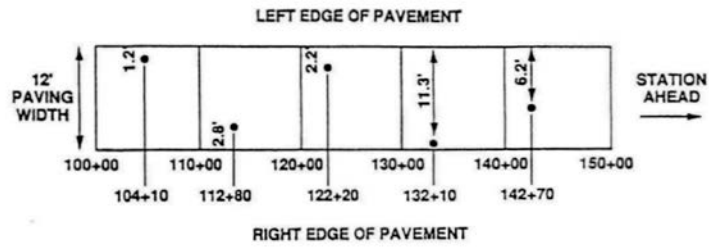


Figure II-6. Sublot sample location based on area.