

## **Documentation for SiteManager® LIMS Project Materials to Final Materials – 22**

### **1. SCOPE**

This chapter intends to provide the Region personnel guidance on materials documentation from the beginning of a project to the closure of the project files when using SiteManager® Materials and the Laboratory Information Management System (SMM/LIMS). The materials documentation on a project needs to be accurate, complete, and processed within the official established timeframe after the issuance of the project's Final Acceptance Letter per Section 105.21(b). The Department has stipulated that the Final Material Certification Checklist (Form 473 SMM) located on the CDOT Forms website, will be signed electronically by the Region Independent Assurance representative, Region Materials Engineer, Project Engineer, Project Tester, and the Resident Engineer within 30 calendar days of the project's acceptance to ensure that the quality of the project is maintained and to avoid legal and contractual conflicts.

### **2. GENERAL REQUIREMENTS**

The procedures referenced are to be followed as indicated for CDOT projects' electronic documentation. The materials documentation procedure begins at the Materials and Geotechnical Branch in the Documentation Unit with the creation of the Materials Documentation Records, CAR (CDOT Application for Reporting) Reports. These reports are as follows:

- CODE – Project Material Items Report
- Checklist – Owner Acceptance Sampling & Testing Checklist
- Checklist – Certification Checklist Report

The Region Materials Laboratory will review and edit the:  
Independent Assurance Sampling & Testing Checklist (Form 379)

Materials Documentation records are to be prepared and reviewed as found in this chapter. Details on documentation procedures for project items are contained in the applicable sections of this manual, and they cover most situations encountered, but exceptions may require special attention.

### **3. CDOT PROJECTS – RESPONSIBILITIES & PROCEDURES**

The Project Engineer, as the representative of the Chief Engineer, is responsible for the documentation of the material on a project. The Project Engineer shall take measures to ensure that the documentation procedures of the Department and the Region are followed. All referenced documentation activities within Sections 3.1, 3.2, and 3.3 of this chapter, are the responsibility of the Project Engineer or designee.

### 3.1 BEFORE CONSTRUCTION

**Existing users of SiteManager® Materials/LIMS.** The Finals Administrator can grant contract authority at any time. If the consultant is a New User to SiteManager® Materials/LIMS. Contract authority cannot be given until the consultant has been granted access from OIT to eVPN, SMM/LIMS, and the CDOT SAP NetWeaver Portal (CAR). Allow a minimum of 20 business days for access.

All testers are required to have completed SiteManager Materials training and pass the LIMS course "Materials Technician Certification before starting on a CDOT project.

#### Access to the CDOT Applications

#### Consultant Onboarding and Application access Process

#### Changes effective on May 3, 2021

CDOT has implemented a new process to follow for Onboarding and Application Access requests to streamline and facilitate Consultant access. The consultant options for the applications below will no longer be available through the service desk portal.

#### This is for consultants only

For the following applications:

- AASHTOWare Project SiteManager
- eConstruction Mobile Apps (IPR, CPIR)
- ESRI Geohub - Onboarding
- ProjectWise
- OnTrack

Use this link: [Consultant Access](#)

Step 1: Consultant shall fill out and sign eVPN/SOC & SM Access Agreement (if applicable).

Step 2: Send the signed forms to the project Resident Engineer for signatures on both forms.

Step 3: fill out the Google form and attach signed documents

1. Review the Project Plans, Project Special Provisions (PSP), and Standard Special Provisions (SSP) to become familiar with any modified materials and testing procedures.
2. Review the CAR report – **Project Materials Item Report**. An item that has a red code of **No Testing Assigned** is a flag for the project tester. The project tester shall investigate the item in the PSP, SSP, plans, and FMM, to determine what materials and tests will be required to complete the item. This information must be conveyed to the Central Lab Pavement Design Program or the Region Lab Manager. The materials codes, tests, and frequencies shall be added to meet the testing specifications.

3. Review the Owner Acceptance Sampling & Testing Checklist and Certification Checklist Reports to ensure the Pay Items, sampling frequencies, material codes, and tests represented by each item match the plans - Summary of Approximate Quantities, Project Special Provisions, and the Field Materials Manual, Chapter "OA Frequency Guide Schedule". Any deficiencies or errors must be documented and reported by e-mail to the Pavement Design Program at North Holly to have corrections made. Example #1: Item 411 Emulsion - the contractor is using SS-1H, the Certification Checklist under Item 411 has CSS-1H material code. The material code will need to be changed to reflect the correct product being used. Example #2: Item 304 ABC Class 6 Special, the Owner Acceptance checklist lists the material code (703.03.08.00) for aggregate ABC, the Project Special Provision (PSP) for this item states that recycled concrete, recycled asphalt, or a blend of recycled asphalt/aggregate can be used if it meets the gradation specification listed in the PSP. The contractor states they will be using 2 stockpiles of material. One is recycled concrete (703.03.10.00) and the other is RAP/aggregate blend (703.03.15.00). Both material codes for these stockpiles will need to be added under the item, and the aggregate ABC material code will need to be removed as that product will not be incorporated into the project. Tests required for each material shall reflect the requirements of the PSP. The Project Engineer shall be aware of the types of tests required and the frequencies of each test that the project Owner Acceptance tester will be performing
4. The Region Materials Engineer or designee will notify the Project Engineer that the Independent Assurance Sampling & Testing Checklist (Form 379) has been reviewed and is available in CAR. The Project Engineer shall be aware of the type of tests and frequencies of these tests that the Independent Assurance (IA) tester is required to perform. It is the Project Engineer's or designee's responsibility to notify the Region Material Engineer's Independent Assurance technician of upcoming materials that will require Independent Assurance sampling and testing.
5. Project Tester shall set up the Project Materials Electronic Folder in ProjectWise/Share (PWS) to store the documentation for the project. **See the example of PWS electronic folders for documentation on page 41 of this chapter (Addendum 3).** Follow the format in Organizational Guide for Project Material documentation in Section 8.0. **Binders and hard copy documents are not required.**
6. All materials documentation shall be uploaded and stored in ProjectWise Share (PWS). If the project materials documentation records are in PWS, the requirement of using the attachment icon function in SiteManager® is no longer needed for any sample records. Materials testers should have the authority of **CONTRIBUTOR** in PWS. This allows actions of reading/Write/Delete. When PWS is not being utilized for documentation retention, the use of attaching COC/CTR documentation of each sample record shall be uploaded into the attachment icon. This must be completed before the sample record is Authorized and Complete in the LIMS window – Review Sample. All documentation must have the Sample ID recorded on each form/worksheet. This includes all CDOT forms and worksheets either completed electronically or handwritten. Hard copies are not required to be retained. Do not use **ProjectWise** for materials documentation retention. **ProjectWise Share** is to be used for materials documentation retention. **CDOT Form 157s are not required to be completed for COC/CTRs documentation.**

7. Samples submitted to the Central Laboratory do not require a hard copy of the CDOT Forms 157, 82, 83, 84, 411, and 1304 to be submitted with the sample if an email is shown on the form for the lab unit receiving the sample. Email the completed form to the appropriate lab's email address.

In the e-mail Subject line enter: Contract ID, CDOT Form #, Field Sheet #, and Lot # if applicable  
Example: C12345 Form 411 # 4115 Lot #5).

Note: Sample IDs are required to be documented in each form.

8. CDOT forms and worksheets can be found on the CDOT website at this location:

<https://www.codot.gov/library/forms>

Forms and worksheets must be downloaded to your computer. It is recommended to download forms and worksheets before beginning a new project as these documents are updated throughout the year.

Note: Do not fill out the form directly from the website in your web browser. download and save to your computer

CDOT forms and worksheets are not all available as electronically fillable at this time. Non-fillable forms and worksheets must be downloaded from the CDOT website, printed, and completed manually. If the document is not uploaded into the attachment icon, it must be kept in the project files until the Materials Final Documentation Coordinator has accepted the Materials documentation as Final. All materials documentation shall be uploaded and stored in ProjectWise Share (PWS).

9. Review the Chapter in the Field Materials Manual - Special Notice to Contractors. Alert the contractor to the requirements of this chapter and the materials that will require the submittal of a Contractor's APL Verification (AV) Letter and the CDOT Form 595 representing the material. Ensure the contractor is aware of the items that will require submittals for Certificate of Compliance (COC) or Certified Test Report (CTR). Create an Excel spreadsheet to track the COC/CTR's required, received, and accepted or rejected. This spreadsheet can be used to notify the contractor and Project Engineer of the status of submittals. **See the example in this chapter (Addendum 3).**
10. Attend pre-construction, pre-pave, pre-pour, scheduling, and Owner Acceptance (OA)/Process Control (PC) meetings.
11. The contractor shall submit at the Preconstruction meeting a list of proposed materials and the manufacturer of each material. Project personnel must evaluate that the proposed materials are on CDOT's Approved Products List (APL) or Qualified Manufacturers List (QML) for applicable items, per CP 11. CDOT's Approved Products List can be found using the following link.

<https://www.codot.gov/business/apl>

12. Materials supplied to the project that is not required to be selected from the CDOT's APL or QML – must meet the requirements for documentation of the CDOT Standards and Specifications, Section 106.12 and 106.13. The Project tester shall confirm that the Producer/Supplier (P/S) of the materials are in SiteManager® (SM) within the Producer/Supplier list. The material codes for the materials they produce must be associated with that P/S under Producer/Supplier Materials. For any P/S and associated material codes that are not in SM, use the form “Add Producer/Supplier/Material Code” found at the following link, under the tab “Hints, Guides, and Links”, and submit the completed form to the Region Materials Lab Manager or Training coordinator for the SiteManager® LIMS training course. Contact information can be found in “Contacts” at the link below. Open the link in Chrome or Edge. Do not use Internet Explorer. Download documents from this site to your computer. Open your Download folder and save the documents to your computer.

<https://sites.google.com/a/state.co.us/sitemanager-materials/>

13. Develop Random Sample Schedules as per CP 75 for each item requiring random sampling. Random sampling schedules are required for all materials. Excel spreadsheets can be used to generate random schedules. Schedules must be created for the entire item quantity before construction begins. Random Sampling Schedules can be accessed from the SMM site listed in #12, on the home page. The creation of daily random schedules is not acceptable. Do not share the random schedules with the contractor or PC tester.
14. Obtain from the contractor, any proposed concrete mix designs to be used on the project. Submit all required documentation electronically for mix design approval with a completed CDOT Form 1188 to the Concrete Unit at North Holly:

[dot\\_concretemixdesigns@state.co.us](mailto:dot_concretemixdesigns@state.co.us)

Obtain the most recent CDOT Form 1188 at:

<https://www.codot.gov/library/forms>.

**A concrete mix shall not be allowed to be placed on the project until the Concrete Unit has reviewed and approved the mix for the project and the CDOT Form 1373 has been issued.** The project-specific CDOT Form 1373 is available in CAR - Concrete Mix Design Report for mixes approved for use on CDOT projects. The project-specific CDOT Form 1373 shall be given to the contractor/supplier for the concrete batch tickets to reflect the correct CDOT concrete mix ID.

15. Determine the requirement of aggregate samples to be submitted for Asphalt Job Mix Formula approval per CP 52. Contact the Region Materials Engineer to determine if sampling is necessary or if the materials have been recently tested for another project. It is recommended that enough samples be taken for Central Lab and any labs that will be performing correction or correlation testing for asphalt content. This includes the PC testing firm. Samples shall be combined and split to minimize variations. For information to submit aggregate samples per CP 52, see the instructions CP 52 Submittal Guide. (In the Hints, Guide, and Links tab.) This document can be found at <https://sites.google.com/a/state.co.us/sitemanager-materials/>

16. Coordinate with the Project Engineer, contractor, and PC technician to schedule a pre-testing meeting. Follow CP 16, Pre-Testing Meeting Agenda (CDOT Form 1322) if applicable.
17. Check the CDOT Forms website to download the most recent revision of any forms to be used on the project. Forms previously serialized can be found on the CDOT Forms website. Access to the previously serialized forms is under the menu "CDOT Resources" – Forms Serialized. These forms will require the project to establish field sheet numbers unique to the project. The process will be a 10 digit field that starts with the five digits of the contract ID, not using the "C", followed by a "dash" followed by a 4 digit sequential number. The project materials personnel shall develop a list of 4 digit sequential numbers. Careful documentation must be done to strikeout numbers that have been used. Groups of numbers may be established for each item estimating the needed amount based on quantities. Numbers 0001 to 0099 are **NOT** to be used by the field testers. These are reserved for the Region Labs. Instructions for the serialized form protocol are available in the chapter Materials Forms - Instructions & Examples.

### 3.2 DURING CONSTRUCTION

1. Ensure all Form 43 Job Mix Formula reports are available in CAR, under Asphalt Job Mix Formula – Form 43 Report. Each Form 43 must be signed for HMA and SMA by the contractor, Project Engineer, and Region Materials Engineer for all mixes on the project. Send the Region Materials Engineer the completed signed Form 43s.
2. Ensure that for each class of concrete listed on the Owner Acceptance Sampling and Testing Report, the CDOT Form 1373 is available in CAR – Concrete Mix Design Report. Send the approved project-specific Concrete Mix design report (Form 1373) to the contractor and the **supplier** to ensure the CDOT mix number is on the concrete tickets for concrete supplied to the project. **All SiteManager®** sample records for concrete require the approved CDOT mix design number shown on the CDOT Form 1373 to be completed on the Additional Sample Data tab. Use Design Type – PCC and Mix ID will be the 1373 CDOT mix number
3. Samples obtained for preliminary testing, approval for use, and meeting the requirements of 1 per project / 1 per source ARE NOT to be counted toward meeting the sampling and testing requirements for OA tests for Gradation, Atterberg Limits, and Soil Classification.
4. Sample and Test according to the Random Sample Schedule (CP 75) for each applicable item. Be aware of the frequencies of tests on the Owner Acceptance Sampling & Testing Checklist Report.
5. Communicate daily with Project Engineers and inspectors about placed quantities, activities, planned production, and material deliveries to ensure inspection and testing frequencies are met. Participate in weekly material testing and scheduling meetings to be up to date on project materials incorporation and deliveries.

6. Project Engineer shall communicate with all project personnel the field-adjusted quantities from Contract Modification Order (CMO), Minor Contract Revisions (MCR), and over-runs and under-runs report not associated with CMO or MCRs, no later than the written authorization to the Contractor to proceed with the work. Early notification of field-adjusted quantities and/or new items is needed for the tester to begin the documentation of the corresponding items and testing for items that require testing. Testers must be aware of adjusted quantities for items that are non-testable such as APL for COC/CTRs.
7. When a CMO or MCR is approved by the Resident Engineer in SiteManager®, the CAR reports will automatically reflect the changes in adjusted existing or new items corresponding to the change order. Verify the materials, material codes, tests and testing frequencies for these added items are correct. Notify the Region Lab Manager of any concerns.
8. Alert the Region Material Engineer's IA technician of CMO or MCR's that include changes for revised quantities and/or added materials to assist them in verifying the changes appear on the CAR Report - Independent Assurance Sampling & Testing Checklist (Form 379).
9. Complete documentation daily in SiteManager® Materials for sample record entries.
10. In LIMS, enter test results as soon as they become available.
11. Test results entered into LIMS **must** be **reviewed thoroughly** in the LIMS windows – **Review Test** and **Review Sample**. It is unacceptable for test results to be passed through these windows without a detailed review. The project tester will complete the review in these windows to verify data entry and accuracy of results.
12. Field Testers shall **not** authorize, Complete or Void any sample records that are not in the Statewide Field when in the LIMS window "Review Samples". To eliminate this issue, field testers shall set their filter to "Lab Unit" and "FieldLab". **FieldLab** must be input exactly as shown, click the "Apply" button. It is the responsibility of all the other lab managers to review and authorize samples in their labs. This setting will allow the field tester access to samples that are in the statewide field lab and no other samples. This filter will not change after logging in and out.
13. For all Item 403 Paving, Review the CAR Report (AQL) for accuracy of acceptance Method, Total Cost per ton, HMA Cost per ton, (AC Cost per ton for binder paid separately), Mix ID, test results, quantities, and processes. These reports must be sent to the Project Engineer and Contractor daily.

14. For all Item 412 paving, review the CAR Report – Concrete Quality Level Report (CQL) for accuracy of Acceptance Method, Bid Item Unit Price, Mix ID, thickness, test results, quantities, and processes are correct. **A minimum of 3 tests is required for each mix design and each process for both OA and PC testing for Item 412, concrete paving when acceptance method is Flexural Strength.** These reports must be sent to the Project Engineer and contractor daily.

NOTE: Asphalt 03, Voids 03, and Concrete 03 are no longer acceptable programs. **The CAR - Asphalt Quality Level Report is required to be used for all projects advertised on or after January 1, 2018. The CAR - Concrete Quality Level report is required to be used for all projects advertised on or after January 1, 2020.**

15. For HMA and SMA, it is advisable to **NOT** Authorize and Complete in LIMS –Review Sample window, the first 3-5 samples for each element until it is established that the Form 43 will not have any changes. This allows the mix design to be edited on the SM records if the change is retroactive to the first 3-5 samples of each element. It is advisable to **NOT** Authorize and Complete the last 2-3 samples for each mix design for each element and **all** longitudinal joint cores so that edits to the quantiles can be made to bring the AQL into compliance with the final paid quantity on the estimate.
16. For Item 412 Concrete Pavement, it is advisable to **NOT** Authorize and Complete in LIMS – Review Sample window, the last 2-3 samples for each mix design and process for both PC and OA elements so that edits to the quantiles can be made to bring the Concrete Quality Level report into compliance with the final paid quantity on the estimate.
17. Test results for Item 403 - HMA/SMA and Item 412 will populate to the respective CAR reports (AQL or CQL) after the results have been completed in LIMS – Enter Test Results window and the Save Icon is clicked. The “Test Complete” box does not have to be checked for the results of the test to appear on the AQL or CQL.
18. For Item 403 and Item 412, the records shall be reviewed thoroughly for correct test result entries in the Review Test window. Leaving the sample records in the Review Sample window allows the tester to access the records to edit the quantities to reflect the final quantities paid on the estimate.
19. Complete and file in the appropriate folder/subfolders all daily worksheets or CDOT Forms in the Project Materials Electronic Folder in PWS. Document Sample ID’s on each worksheet and/or CDOT Forms to identify the record. CDOT Forms 411 and 1304 are required to be completed and submitted for all binder and HMA samples.

**Note: Summary forms such as CDOT Form 6, 58, 69, 156, 212, 323 are not required.**



20. Complete CDOT Form 626 daily for each item's test results and obtain the contractor's electronic signature verifying that the contractor has been notified of all test results. Complete the form and sign it electronically, email it to the contractor for their electronic signature and have the contractor return it. Send a completed/signed copy to the Project Engineer and place the signed form in the Project Materials electronic folder (PWS) in the corresponding item tab. CAR reports, Asphalt Quality Level and Concrete Quality Level reports can be substituted for Form 626 for the elements on these reports. Any test results for HMA/SMA, for example, CP 33 (% Moisture in the aggregate cold feed) and Concrete Paving that are not part of the Quality Level reports shall utilize the CDOT Form 626 to notify the contractor of test results. Examples of these types of tests for Item 412 concrete paving are temperature, % air entrainment, slump, water/cement ratio, and yield. For any concrete item other than Item 412, the compressive strengths must be reported on the CDOT Form 626 with the corresponding CAR report – Concrete Compressive Strength Report. This report shall be attached to Form 626. See Standard Specifications for Road and Bridge Construction -Section 601.17 (c). The CAR reports for HMA and SMA (AQL) and Concrete Paving (CQL) should be sent to the Project Engineer and contractor daily. These emailed reports may serve as notification to the contractor of test results. All other test results must utilize the CDOT Form 626 to notify the contractor of ALL test results.

21. For materials submitted to Central Lab at North Holly, and all-Region Labs for testing, Sample IDs are required on forms and/or CDOT sample tag 633 or sample label 634. Tags and labels are available at Central Lab, North Holly location. Contact the CDOT North Holly Pavement Design Program, to schedule an appointment to obtain the tags and labels contact:

[edward.trujillo@state.co.us](mailto:edward.trujillo@state.co.us)

All other forms are available on the CDOT website as electronically fillable. Some CDOT forms have an email address listed for the different programs within Central Lab. Use these emails to submit completed forms to these Units, do not submit a hard copy with the sample unless special instructions are needed for the sample. In the subject line state the Contract ID, Fieldsheet number, and type of material.

See the lab emails below.

22. The Central Laboratory E-mails:

[cdot\\_bit.lab@state.co.us](mailto:cdot_bit.lab@state.co.us)

[cdot\\_chem.lab@state.co.us](mailto:cdot_chem.lab@state.co.us)

[cdot\\_conc.lab@state.co.us](mailto:cdot_conc.lab@state.co.us)

[cdot\\_euro.lab@state.co.us](mailto:cdot_euro.lab@state.co.us)

[cdot\\_flex.lab@state.co.us](mailto:cdot_flex.lab@state.co.us)

[cdot\\_phpr.lab@state.co.us](mailto:cdot_phpr.lab@state.co.us)

[cdot\\_soils.lab@state.co.us](mailto:cdot_soils.lab@state.co.us)

22a. The Pavement Design Unit E-mail:

[cdot\\_pavement.design@state.co.us](mailto:cdot_pavement.design@state.co.us)

22b. The Concrete Mix Design Submittal E-Mail:

[dot\\_concretemixdesigns@state.co.us](mailto:dot_concretemixdesigns@state.co.us)

23. Verify COC/CTR documents submitted by the contractor meet requirements of section 106.12 and 106.13. Place these documents in the electronic folder (PWS- COC/CTR) for materials on the CAR Certification Checklist Report. Create sample records in SiteManager® for COC/CTRs received immediately upon receiving them from the contractor. These documents are required before installation or payment for the materials is completed. The following statement is no longer required to be completed if using PWS for materials documentation retention. Electronic copies of COC/CTRs must be uploaded to each sample record using the attachment icon. Copies of the electronic COC/CTR's shall be stored within the COC/CTR folder in PWS. Hard copies of the COC/CTR's are not required for documentation if using PWS for documentation retention. Any COC/CTR's and Contractor's APL- Verification (AV letter & Form 595) documents submitted electronically or hard copy by the contractor must have the required stamps and signatures according to CDOT Standards and Specifications, Section 106.12 and 106.13.

**CDOT Form 157s are not required to be completed for COC/CTRs documentation.**

24. Monitor the Owner Acceptance Sampling & Testing Checklist Report to ensure the testing frequencies are being met as the material placement progresses.
25. Monitor the CAR Report Summary of Samples – COC and CTR report to track material quantities paid are matching quantities of documentation received from the contractor. In the SM sample record – Basic Sample Data window, the quantity cell shall be updated to reflect the amount of material shown on the COC/CTR's. The quantity field under the tab – Contract, is no longer used for any record. The following statement is no longer required to be completed if using PWS for materials documentation retention. Upload recently received COC/CTR's in the sample record Attachment Icon.
26. Inform the Region Materials Engineer's IA representative of upcoming materials to be sampled and tested per the CAR Independent Assurance Sampling & Testing Checklist (Form 379) at least three days before material placement.
27. Compare the OA and Certification Checklists with the monthly estimate for discrepancies in items or quantities appearing on the CAR reports. Access the project estimate here: <https://www.codot.gov/content/payestimates/> Use Control key & "F" to use the "Find" feature, type in the contract ID without the "C". Locate the latest estimate to complete the review. A hard copy of the estimate is not needed for this check. If discrepancies are noted, contact the Region Lab Manager or Pavement Design Program at Central Lab for assistance.
28. Perform price adjustment calculations monthly before the cutoff date for the estimate per CDOT Standards and Specifications, Sections 105.03 thru 105.06. Verify price adjustments are reflected in the contract estimate. Access the **Price Reduction Calculator** at the link below, under Hints, Guides, and Links. <https://sites.google.com/a/state.co.us/sitemanager-materials/>
29. As exceptions to the Specifications occur, document each occurrence to facilitate the completion of CDOT Form 474 Explanation of Exceptions at the closure of the project

30. Review the CAR reports, Asphalt Quality Report & Concrete Quality Report daily to ensure the reports accurately reflect the sample records created in SMM and that the results input into LIMS appears on the report. For instructions to complete the sample records correctly, utilize Addendum 1 (ASPHALT QUALITY LEVEL REPORT) and Addendum 2 (CONCRETE QUALITY LEVEL REPORT) (**See examples in this section**). These CAR reports replace Asphalt03 and Voids03, and Concrete03 programs. The 03 programs are no longer to be used on projects.
31. Review PC data and tests result daily for compliance. Use CP12A, CP12B, and CP12C as applicable.
32. Review data entries to ensure accuracy of test results, and sample review as soon as possible to keep the Owner Acceptance Sampling & Testing Checklist Report up to date.
33. Use CAR Reports - Summary of Samples – COC and Summary of Samples – CTR to track COC and CTR samples created, quantities of materials delivered, attachments, and sample status. These reports will update when data is changed and saved in SiteManager®. COC and CTR records can be left in the LIMS windows of Review Tests or Review Sample allowing the record to be available to update the quantities of more documents of shipments that are delivered to the project. Keep the quantity cell updated in SiteManager® Materials – Basic Sample Data tab with the total quantities verified on the received COC/CTR's.
34. Use CAR reports, Summary of Samples - To track incomplete samples.
35. Resident and Project Engineers can use the CAR Reports – Summary of Samples – COC and CTR to verify quantities and documentation that have been received for materials that will be paid on the monthly estimate.

### 3.3 AFTER CONSTRUCTION

**Note: Project Owner Acceptance personnel are to review the documentation of the material 100% by completing each of the following steps, 3.3 - 3.3.2**

1. In each PWS electronic item tab, arrange the completed and signed CDOT Form 626s first (if applicable), sort and arrange all documents within the item sequentially by date (beginning with the first test number, ending with the last test number). Naming forms correctly can facilitate the order. Use the CDOT Field Sheet number and/or test number or lot number for identification of each form contained in the folder.

2. Verify with the Project Engineer that the last progress estimate has been completed and authorized for payment. This ensures the quantities shown on the Owner Acceptance Sampling & Testing Checklist Report are accurate. Obtain the CDOT Form 105 from the Project Engineer documenting the pay items that will be deleted/not used for the project. Use the document to request that these deleted items be removed from the CAR reports – OA Sampling and Testing report and the Certification Checklist report. Send the request to: [cdot\\_pavement.design@state.co.us](mailto:cdot_pavement.design@state.co.us)

Project estimates can be accessed at this link. (Use Control – F, input the Contract ID without the “C”, in the find box. This will highlight the project, look for the latest estimate. Open the estimate, use Control – F, and input the item number in the "Find" box to search by item.)  
<https://www.codot.gov/content/payestimates/>

3. Verify on the Owner Acceptance Sampling & Testing Checklist Report, that there are no incomplete tests by ensuring that the Sampled Tests to Date column is equal to the Completed Tests to the Date column. Discrepancies must be reconciled by either completing the sample record or voiding it.
4. Verify that the minimum sampling and testing requirements have been met by checking the **Completed Total Tests to Date** column is equal to or greater than the **Required Total Tests to the Date** column. Use the CAR report – Summary of Samples – ALL to find sample records that are not complete. After reconciling the columns, the Owner Acceptance Sampling & Testing Checklist Report shall be placed in the electronic documentation folder - Final Documentation. Deficiencies are required to be explained on the CDOT Form 474 Final Materials Certification - Explanation of Exceptions.
5. Review the CAR Reports – Asphalt Quality Level (AQL) (Final), and the Concrete Quality Level (CQL) (Final). A Final report showing errors shall not be accepted and errors must be corrected.
6. Review the AQL and CQL reports to verify the number of tests shown on the report equals the Completed Tests to Date for each test method shown on the Owner Acceptance Sampling & Testing Checklist Report. Asphalt content element may be the total tests completed for CP 85 and CP-L 5120 to meet the requirements. Mat Density element may be the total tests completed for CP 82, CP 44, and CP 81 to meet the requirements.
7. Verify the quantity of each Mix Design and each element on the AQL or CQL reports match the quantity for the item on the Owner Acceptance Sampling & Testing Checklist Report and the final quantity on the estimate. The Final quantity for HMA on the estimate is the quantity for mainline paving plus all paved bridge decks. The quantities for each element under a Mix Design must be equal or the report will state an error on the first page of the report.

8. Verify with the Project Engineer the dollar amount shown on the AQL and/or CQL report is correct on the estimate.

Notify Staff Materials Pavement Design OA/PC Manager at the email address below that the final AQL and/or CQL reports are complete. Please request an email confirmation reply that they have received the data. Include the Region Materials Engineer as a cc on the email. Record the Contract ID and Final AQL/CQL in the subject line. Export the Final reports and attach them to the email.

[cdot\\_pavement.design@state.co.us](mailto:cdot_pavement.design@state.co.us)

9. Place the Final AQL and/or CQL and the email verification of receipt from OA/PC Manager to the project electronic files (PWS) - Final Documentation folder. This is a requirement for the Final Documentation Materials Coordinator to verify the OA/PC manager has received the information that the project Quality Level reports are complete. **(See the example in this Section, Addendum 3, starting on Page 43).**
10. Verify COCs and CTRs have been received by ensuring the Certs Received to Date column on the CAR Certification Checklist, has a 1 or greater value, for any item showing a quantity paid. Verify Summary of Sample – COC and CTR records have the required attachment noted by showing an asterisk for each sample record.

Note: The requirement of the attachment for COC/CTRs is no longer required if documentation is using PWS.

Verify the quantity shown on the Summary of Samples - COC and CTR reports equal or exceeds the quantity paid, if not an explanation of missing COC/CTR's shall be in the Explanation of Exceptions. Items with a zero quantity, no explanation required. Items deleted by CDOT Form 105 completed by the Project Engineer can be deleted from the project CAR Reports. Send the completed Form 105 to the Central to request the items to be removed. Record in the subject line the **Contract ID: Items to Remove from CAR Reports by Form 105.**

E-mail requests to: [cdot\\_pavement.design@state.co.us](mailto:cdot_pavement.design@state.co.us)

11. Review CAR reports –Summary of Samples – (ALL) to verify all samples created for the project have a status of "COMP" It is a requirement that all sample records created for a project are in the "Complete" (COMP) status before the documentation of the material is accepted. Sample status of LOGD, RECV, TEST, PREA, must be either completed or voided.
12. Sample records created in SMM that may have been started, but have not had tests assigned will be in the Pending status. These samples may have been forgotten about or made by mistake. The samples must be VOIDED. These types of samples in the Pending status will not be on the Summary of Samples reports. The Sample Backlog report must be reviewed to ensure no samples are in SM incomplete. Projects cannot be closed until all samples are either in the Complete or Void status. (See instructions on the SMM website under Hints, Guides, and Links, look for Sample Backlog Instructions.)

<https://sites.google.com/a/state.co.us/sitemanager-materials/>

13. Export and save the CAR Report - Summary of Samples – COC, CTR, QA, and ALL to the project electronic materials folder in PWS – Summary of Samples subfolder for availability to the checker for the final documentation review.
14. Pre-inspected items shall have CDOT Form 193, if applicable. This document shall be in the attachment icon on the SMM record for the item. Place Form 193 in the appropriate PWS folder.
15. Check all Price Reductions and the supporting documents.
16. Ensure the contractor's PC documentation has been received electronically for HMA, SMA, PCCP, and Excavation & Embankment per the requirements of CP12A, CP12B, CP12C, respectively. Save the PC documentation into the Project Electronic Folder – Final Documentation (PWS).

**3.3.1 CDOT FORM 474, - Final Materials Certification - Explanation of Exception for CAR report: Owner Acceptance Sampling & Testing Checklist Report.**

1. Document on the CDOT Form 474, the date the project was accepted, and the date the final documentation is complete. This date shall be the same date that appears on the final copy of the Owner Acceptance Sampling & Testing Checklist. **(See an example of the checklist in this Section)**. Obtain the Project Acceptance letter from the Project Engineer for verification of the date of project acceptance.
2. Reference type of tests not used on the Owner Acceptance Sampling & Testing Checklist due to alternative methods completed.
3. Verify and document all shortages of required tests as indicated on the Owner Acceptance Sampling & Testing Checklist Report.
4. Explain quantities and dollars applied per the Quality Level reports. Explain process changes, compaction test sections, and any unusual change in the Quality Level reports. **(See the example in this Section ADDENDUM 1)**.
5. For items that show a Zero Total Quantity Installed, no explanation is required as this indicates no material was installed on the project.
6. Explain and attach supporting documents for material with Percent of reduction in contract price (P) less than 3. **(Instructions for Attaching Documents to the CDOT Form 474 are in the Adobe Sign 473/474 Instructions chapter)**.
7. Explain and attach supporting documents for material with a price reduction (P) greater than or equal to 3.
8. Explain and document all material repaired or replaced for (P) greater than 25.

**Note: Reference to (P) values are addressed in Standard Specifications, Section 105.03.**

**3.3.2 CDOT FORM 474 Final Materials Certification - Explanation of Exception for CAR report: Certification Checklist Report.**

1. Verify and document all missing COCs and CTRs as indicated on the Certification Checklist and deficiencies in quantities that are shown on the CAR report Summary of Samples – COC and CTR report. COC/CTRs documentation that was not received from the contractor, do NOT make sample records. Document these deficiencies on the CDOT Form 474.
2. Verify the required stamps are applied to the COC/CTRs and/or Contractor's APL- Verification (See FMM chapter - Special Notice to Contractors, AV Letter, and Form 595 example) and that the required information is complete on each stamp.
3. For COC/CTRs received, sample records in SiteManager® must have the documents uploaded through the attachment icon. Verify the attachment by checking the Summary of Sample – COC or CTR Report. An asterisk will be shown under the column "Attachment" for each sample record with an attachment. **When Material Documentation is utilizing ProjectWise Share (PWS), the requirement for uploading attachments for COC/CTRs is no longer required. The COC/CTR documents can be found in the Folder COC/CTRs in PWS.**

**4. INDEPENDENT ASSURANCE Sampling & Testing Checklist and CDOT Form 473 – Final Materials Certification Checklist**

1. The Region's Independent Assurance (IA) representative shall initiate the Final Materials Certification Checklist - Form 473, by completing the top portion, electronically signing the form, and obtaining the Region Materials Engineer's electronic signature.
2. The Region's IA representative is responsible for documenting any deficiencies shown on the CAR Independent Assurance Sampling & Testing Checklist Report on Form 474, Explanation of Exceptions.
3. The Region's IA representative shall ensure that differences between Independent Assurance tests results and Owner Acceptance test results if any, are explained.
4. The Region's IA representative will send the completed documents for Independent Assurance testing to the project personnel. The Independent Assurance Sampling & Testing Checklist, IAT Comparison Report, and supporting documentation shall be part of the final documentation submittal and placed in the PWS Final Documentation Folder by the project tester.
5. The Project Engineer shall verify the project tester has completed and attached the required documents and electronically sign the required section on Form 473.

6. Project personnel and the Resident Engineer's signature are required on the CDOT Form 473. The completed form must be part of the final documentation with the CDOT Form 474 Final Materials Certification – **Explanation of Exceptions** for the project in the PWS Final Documentation folder.
7. For projects tested by a consultant firm, the CDOT Form 1324 must be completed by the CDOT Representative responsible for the oversight of project materials for evaluating the performance of the consultant firm. The completed/signed Form 1324 shall be in the PWS Final Documentation Folder.
8. The Region Final Materials Documentation Coordinator or the Finals Administrator is responsible to transfer the required documents from the PWS Final Documents Folder to ProjectWise Final Documentation/Form 325 Packet.

**5. INDEPENDENT REVIEW Requirements for Final Materials Documentation Completion**

The Resident Engineer or his designee will notify the Region Finals Administrator or the Region Final Materials Documentation Coordinator when the materials files are completed and place onto ProjectWise/Share (PWS) and are ready for review. This review provides a greater degree of independence and critical evaluation. The Finals Administrator or their designee will check the following items.

1. Verify on the Owner Acceptance Sampling & Testing Checklist that the number of tests shown under the Required Total Tests to Date column has been met or exceeded in Completed Total Tests to Date.
2. Verify Sampled Total Test to Date column and Completed Total Test to Date column, match on the entire document. If any discrepancies are found between these two columns, the tester must be notified to reconcile the columns and the final should not be considered complete until the issue is resolved. Verify that all sample records created for the project have a status of Complete by reviewing the CAR report Summary of Samples – **All** report.
3. Verify that all required Certificates of Compliance (COCs) or Certified Test Reports (CTRs) have been received by reviewing the Certification Checklist Report. Certs Received to Date column must show a minimum of one for any item that has an amount shown in Total Installed Quantity for the item. Deficiencies must be explained on the CDOT Form 474 Final Materials Certification - Explanation of Exceptions.
4. Verify that all the COC/CTRs shown as completed on the Certification Checklist are in the PWS folder under COC/CTRs. Review each document to verify compliance for signatures, stamp, quantity, pay item and document meets all requirements for the item.
5. Verify on the Independent Assurance Sampling Checklist - Completed Tests to Date column, the required number of tests are completed. Ensure any deficiencies of tests are documented on the CDOT Form 474.
6. Differences between the IA and OA test results must be explained on CDOT Form 474 if applicable.



7. Verify the CDOT Form 473, - Final Materials Certification Checklist has been completed and all required signatures are present.
8. Verify pre-inspected items have a CDOT Form 193, when applicable.
9. Check explanations and calculations for material accepted at full price, the material with price reductions, and material removed and replaced.

Note: Reference to P is addressed in the CDOT Standard Specifications, Section 105.03.

10. Verify the CAR Reports – Quality Level for applicable items (Asphalt or Concrete Paving) have no errors in the Final Report. Final reports showing errors are not acceptable. The first page of the Final Report will show any errors the program has found.
11. Verify the number of each test type completed on the Owner Acceptance Sampling & Testing Checklist, Completed Test to Date column, matches the number of tests shown on the CAR Report Quality Level for asphalt and concrete paving items, if applicable.
12. Verify the quantity for each element in the CAR Quality Level report matches the quantity for the item on the Owner Acceptance Sampling & Testing Checklist Report and the estimate. Check all items that apply to the element for the total quantity paid. This includes asphalt and concrete paving items.
13. Verify the Quality Level payment is correct on the last progress estimate.
14. Verify that the documents for Quality Level reports have been submitted to the Region Materials Engineer and Staff Materials Pavement Design Program OA/PC Manager by e-mail receipt on file.
15. CDOT Form 1324 (if applicable) must be completed and distributed to the Region Materials Engineer for review and signature and placed in ProjectWise/Share (PWS) folder – Final Materials Documentation. (Form 325 packet).
16. As part of the final Progress Estimate, the Project Engineer has included all the documentary evidence needed to show that the contractor has complied with the requirements of the Contract Plans and Specifications for all materials used per the CDOT Field Materials Manual - Quality Assurance Procedures for Construction and Materials Sampling and Testing chapter (Owner Acceptance Frequency Guide Schedule for Minimum Materials Sampling, Testing, and Inspection). The Region Finals Administrator is responsible for the development and signature of CDOT Form 325, Final Estimate Data, pages 1 and 2, and the distribution per Table 1, and shall be included in this process.

If the existence of discrepancies or unresolved differences remains, a meeting will be scheduled with the Finals Administrator or Finals Documentation Coordinator, Resident Engineer, and Project Engineer to resolve the issues.

The completion of Form 473 - Final Materials Certification Checklist and Form 474 Final Materials Certification - Explanation of Exceptions is required within 30 calendar days after the final acceptance of the project to achieve a timely closure. All signatures must be completed electronically on Form 473 and Form 474. If after the project task order is ended, anyone who

receives missing documentation and completes SMM/LIMS entries shall complete another Form 474 to update the changes made as missing item documentation is completed. CDOT Form 473 and Form 474 is a requirement for the closure of each project.

17. Forms 473/474 Adobe Sign Document Guidelines; The Materials Advisory Committee has approved the use of the Adobe Sign Form 473/474 starting July 1, 2021. Follow the Form 473/474 Adobe Sign document instructions in the 473/474 Adobe Sign Chapter in this Field Materials Manual.

## **6.0 CDOT FORM 211-Completion Instructions (Materials Documentation Request)**

The Final Materials Documentation Project Closeout and the Final Materials Documentation Review or Audit activities will discover that occasionally required documents will be missing. Individuals performing the closeout, review, or audit should use this form or comparable e-mails to allow for a document trail in the effort to obtain the missing documents. The original project personnel may have misplaced or lost a field materials worksheet or report. The contractor may have not forwarded the required COCs and CTRs. Time is critical, indicate a due date and follow through immediately if that date has passed. If e-mail queries are being used, write in the "Subject", CDOT Materials Documentation Request, or CDOT Form 211. Attach the resolution Form 211 to the Adobe Sign CDOT Form 474 using the Form 211 Attachment button.

**7.0 DISTRIBUTION OF MATERIALS DOCUMENTATION**

**Table 1. Documentation Distribution  
CDOT SiteManager® Project Final Materials Documentation Packet**

Documentation Order	Form / Report	Distribution				
		#1	#2	#3	#4	#5
Final Materials Certification Checklist with required documents	Form 473	Orig.	Notify	Notify	Notify	
Final Materials Certification - Explanation of Exceptions with supporting documentation (letters, CMOs, MCRs, etc.)	Form 474	Orig.	Notify	Notify	Notify	
CAR Report - Owner Acceptance Sampling & Testing Checklist	Form 250	Orig.	Notify		Notify	
CAR Report - Certification Checklist	-	Orig.	Notify		Notify	
CAR Report - Independent Assurance Sampling & Testing Checklist with supporting documentation	Form 379	Orig.	Notify	Notify	Notify	
Random Sampling Schedules	-	Orig.				
Price Reduction Documentation	-	Orig.				
CAR Quality Level Reports - Incentive/Disincentive documents	CAR Report QLR	Orig.	Notify			Notify
Buy America Certification letters and Monthly Summary reports		Orig.				
PC Data results in digital records		Orig.				
Evaluation of Materials Testing (Consultant tested)	Form 1324 (CP 16)	Orig.	Notify.		Notify	
<p><b>Note:</b> Orig. = original with signature (if applicable) and placed into ProjectWise Share Final Materials Documentation Folder.</p> <p>The Project Engineer will notify the Region Finals personnel when the documentation is available in ProjectWise Share.</p> <p>Notify = shall email a link to the Units under the Distribution list that all documents are available in ProjectWise as Final. The link referred to is the exact location within ProjectWise for the Project's files.</p>						

### **Distribution**

1. Resident/Project Engineer Electronic Files placed into ProjectWise/Share (PWS).
2. Region Materials Engineer/Region Finals administrator is responsible for verifying the documentation is complete and acceptable by placing all files into ProjectWise under the path Contract ID/Construction/Finals Documentation/Form 325 and email a link to notify #3, #4, and #5 that the final documents are available.
3. FHWA (Oversite Projects)
4. Staff Materials Pavement Design Program (Documentation Unit)
5. Staff Materials Pavement Design Unit OA/PC Manager

Email address for item 4 and item 5 is: [cdot\\_pavement.design@state.co.us](mailto:cdot_pavement.design@state.co.us)

For Final Documentation, in subject line record Contract ID - Final Materials Documents in ProjectWise/Share (PWS). The Region Final Materials Documentation Coordinator or the Region Finals Administrator is responsible for the items in Table 1 and is uploaded into the following ProjectWise path: Contract ID/Construction/Finals/Form 325 Packet.

## **8.0 ORGANIZATIONAL GUIDE FOR PROJECT MATERIALS Electronic Folder**

### **SCOPE**

The Field Materials Manual includes the “OA Frequency Guide Schedule for Minimum Sampling, Testing, and Inspection”. This is the essential document to use when determining which CDOT Forms, worksheets, COCs, CTRs, and miscellaneous documents are required.

Utilize this Organizational Guide for Project Materials Electronic Folder to initially develop the folder and subfolders in ProjectWise Share (PWS) per the sections for the Owner Acceptance Sampling & Testing Checklist Report. Follow the Item numbering sequential order on the report to develop the order of each sub-folder. See page 45 of this chapter. For the Certification Checklist Report, create one folder to house all the COC/CTR submittals, naming each document according to pay item number, date received, and/or shipment number. Contact the Region Materials Finals Coordinator for instructions for file folder structure creation.

The Project Materials Electronic Folder (PWS) shall contain 1 root folder example - C12345 Materials Documentation, with sub-folders representing each pay item. Each Pay Item folder shall contain sub-folders to house CDOT forms, tests results, etc. main folders that represent Item Numbers, with sub-folders representing materials within the item. Documents shall be arranged in order of test numbers or documents, oldest to newest (1, 2, 3, 4, etc.) or dates.

Summary of Samples – Reports for “ALL”, “COC”, “CTR”, and “QA” shall be placed in PWS within the folder Final Documentation – CAR reports - Summary of Samples.

**Final Materials Electronic Folder:**

- CDOT Form 473 - Final Materials Certification Checklist
- CDOT Form 474 – Final Materials Certification – Explanation of Exceptions with any supporting documentation
- CAR Report – Owner Acceptance Sampling & Testing Checklist
- CAR Report - Certification Checklist
- CAR Report - Independent Assurance Sampling & Testing Checklist and supporting documentation
- CAR Report - Summary of Samples- ALL, COC, CTR, IAT, and QA reports
- Random Sampling Schedules (copy - original to remain in item number folder)
- Price Reductions - if applicable
- Quality Control Notebooks (digital) for all required elements
- CAR Final Quality Level reports (copy - original to remain in item number folder)
- CDOT Form 1324, Evaluation of Materials Testing (CP 16) if applicable

**CAR Owner Acceptance Sampling & Testing Checklist**

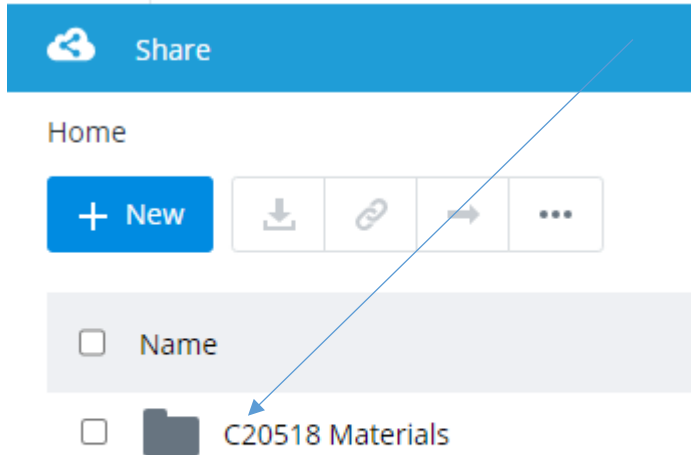
Create the Owner Sampling & Testing subfolders in the order the items appear on the Owner Sampling & Testing Checklist.

Within each folder, place field worksheets in numerical order starting with test #1. Place CDOT Forms about the item, Mix Designs, QPM's, Price Reductions, Random Schedules, and supporting documentation as necessary to complete the item.

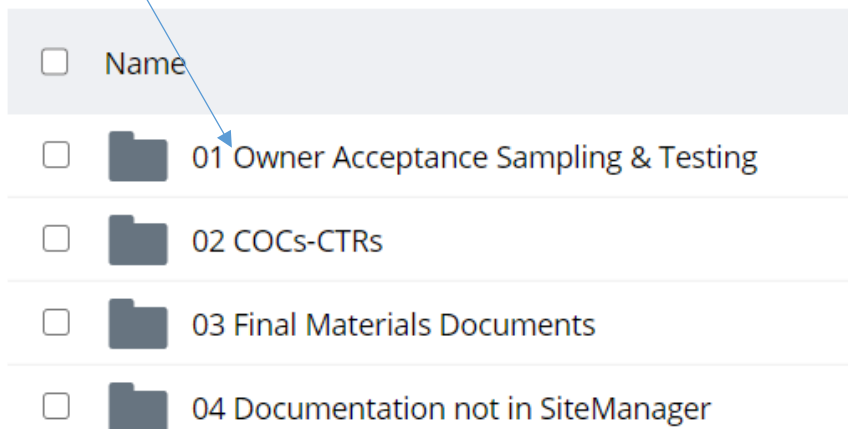
**CAR Certification Checklist Folder**

Create the Certification Checklist subfolders in the order the Pay Items appear on the Certification Checklist.








Open the core folder C20518 Materials to see the following sub-folders.



Open the folder 01 Owner Acceptance Sampling and Testing, to see the following sub-folders.



Open the folder 403-34751 HMA to see the following sub-folders.

<input type="checkbox"/>	Name
<input type="checkbox"/>	 203-00060 Embankment (Complete In Place)
<input type="checkbox"/>	 304-06007 ABC Class 6
<input type="checkbox"/>	 403-34751 HMA (SX)(75)(64-28)
<input type="checkbox"/>	 506-00224 24inch riprap
<input type="checkbox"/>	 507-00400 Bituminous Slope and Ditch
<input type="checkbox"/>	 602-00000 Reinforcing Steel
<input type="checkbox"/>	 609-60011 Curb Type 6 (Section M)

403-34751 HMA (SX)(75)(645-28) Sub-Folder

Share

01 Owner Acceptance Sampling & Testing > 403-34751 HMA (SX)(75)(64-28)

+ New

- Name
- 01 -Mix Design (Form 43)
- 02 Check Testing & Mix Verifications
- 03 Compaction Test Sections
- 04 Form 1304s
- 05 -HMA 10K Results
- 06 Mat Densities
- 07 Form 1290 Joint Densities
- 08 Micro-Deval
- 09 Hydrated Lime
- 10 Binder (PG64-28)



Open to View the COCs-CTRs

- Name
- 01 Owner Acceptance Sampling & Testing
- 02 COCs-CTRs
- 03 Final Materials Documents
- 04 Documentation not in SiteManager

C20518 Materials > 02 COCs-CTRs

[+ New](#) [Download](#) [Link](#) [Share](#) [More](#)

- Name
- 208-00002 Erosion Logs
- 208-00035 Aggregate Bags
- 208-00075 PreFab Vehicle Tracking Pad
- 210-00011 Reset Mailbox (Type 1)
- 210-00012 Reset Mailbox (Type 2)
- 210-00530 Rebuild Portions of Structure
- 212-00006 Seeding (Native)
- 212-00032 Soil Conditioning
- 213-00003 Mulching (Weed Free)
- 213-00061 Mulch Tackifier
- 408-01100 Joint Sealant

## 8.0 ORGANIZATIONAL GUIDE FOR PROJECT MATERIALS Electronic Folder (Continued)

CDOT Form 157's **are not** required to be completed for COC/CTR documentation. The documentation received from the contractor must meet the requirements of Section 106.12 and 106.13 of the Standard Specifications for Road and Bridge Construction. Determine required documentation from the Field Materials Manual, OA Frequency Guide Schedule for Minimum Materials Sampling, Testing and Inspection, and the "Special Notice to Contractors" chapters. Each COC or CTR received must be uploaded into the attachment icon on each sample record in SiteManager® for the quantity and material the COC/CTR covers. Multiple COC/CTR's can be added to one sample record. As more attachments are added to the record, keep the quantity cell updated to reflect the total quantity cover by the attachments. Name and describe each attachment to identify it.

Note: For projects using ProjectWise Share for Materials documentation retention, adding the COC/CTR documents to the attachment icon in SiteManager® is no longer required.

For materials from the APL or the QML that the contractor is electing to use on the project, it is recommended that the SiteManager® record be developed as soon as possible, due to the fact materials may expire from the APL or QML at any time. Creating the record when the documentation is received ensures the record reflects the material that appears on the corresponding lists at the time of approval.

Note 1: "Special Notice to Contractors" chapter shall be used to determine the requirements of the Contractor's APL – Verification (AV & CDOT Form 595) document to notify the project personnel of materials to be used on the project from the CDOT Approved Products Lists (APL) or verify that the manufacturer is listed on the CDOT Qualified Manufacturers List (QML).

**9.0 Suspension to CDOT's SiteManager®:** It is not necessarily tied to a review process and may occur at any time for cause. The process for suspension starts with a written complaint to the Materials and Geotechnical Branch Manager (MGBM) or his designee. This document must, at a minimum contain the name of the technician involved, name of the technician's company, date of the incident, detailed accounting of the incident, name, and contact information of individuals submitting the request. The Department may start an investigation based on other information, such as:

- Failure to timely supply required information.
- Repeated failure of a tester to meet CDOT requirements.
- Failure to take immediate corrective action relative to deficiencies in the performance of the Quality Control Program.
- Certifying materials that are not produced under an approved Quality Control Program for use on Department projects. (This would include any situation where falsification of records was determined.)

Upon receipt of the complaint, the MGBM will contact the Region Materials Engineer (RME) and Resident Engineer (RE) associated with the technician involved in the written complaint. The MGBM, RME, and RE will review the complaint to determine its credibility.

If the complaint is deemed credible the Department will contact the individual(s) submitting the information. The MGBM will determine if the individual is willing to discuss the reported incident. Documentation submitted to the MGBM for review is otherwise confidential. The MGBM will review the documentation/information within 30 days to determine whether further investigation is required. If further investigation is required, the Department will assign the appropriate Regional Materials Engineer to perform the investigation. The MGBM will review the information obtained through the investigation and may conduct additional interviews. The technician, their supervisor, and/or consulting firm involved will be notified of the Department's findings.

The technician shall have 15 working days to respond, in writing. At any point in the process, the MGBM may determine, due to insufficient evidence, to discontinue the process. The MGBM will then determine whether the violation(s) fall under the definition of Negligence or Abuse.

**Negligence** is defined as unintentional deviations from approved procedures or the unintentional failure to follow the requirements of the CDOT Field Materials Manual.

**Abuse** is defined as intentional deviations from approved procedures or the intentional failure to follow the requirements of the CDOT Field Materials Manual.

The appropriate process will be followed upon the determination of the category of the violation. If the process results in a period of suspension or revocation, the tester is prohibited from participating in all CDOT projects during that period.

**Process for Negligence:**

Negligence should be resolved in a positive fashion that promotes learning and increased understanding. The complaint process tracks technicians who have repeated incidents of negligence. This process will also allow a means of tracking common problems and issues.

A single incident of negligence may be resolved through intervention by the Tester's Supervisor. After assurances in writing to the Department by the supervisor that the problem(s) are fully corrected, a thorough review of the Tester's materials documentation by the Region Independent Assurance Tester (IAT) and the supervisor will be made to ensure that a full correction of the problem(s) has occurred. Documentation of each incident shall be sent to the MGBM. The Department will maintain records of each incident. If only one report, of a minor nature, is received in one year, no further action may be taken. However, if it is determined that the negligence is significant the requirements under "second incident" will be followed.

If the second incidence of negligence is reported within one year, the Department will require that the technician and his/her employer develop a corrective action plan. The MGBM will notify all the Regional IATs. This notification is intended to make the IATs aware of the problems being encountered.

If a third incident of negligence is reported within two years, the technician and his/her employer will receive a notice and a minimum one-year suspension will apply. The technician and his/her employer will be responsible for providing a plan to correct the deficiencies to ensure no further incidents occur.

Any further incidents of negligence will result in a permanent revocation. The Department can at any point re-classify repeated instances of negligence, as abuse. If this occurs, the issue would be dealt with through the process of abuse.

Regional Materials Engineers reserve the right to work with the tester and their supervisor to correct any aforementioned problems listed in the negligence section in place of a tester's suspension.

If a tester is suspended they shall complete an internal training program within their company that is an outside certification and provide documentation showing such training has occurred. The documentation should include a specific description of the training performed, dates, location, procedures, who supervised the training, etc. The documentation will be submitted to the RME who will decide if the training is sufficient to reinstate the suspended tester.

**Letters of Suspension and Revoking:**

A letter stating a tester is being suspended and the reasoning behind the suspension will be sent to the tester, the tester's company, and the RME. The RME will maintain the letter in their records for future reference. If a tester is being revoked, the letter will be sent to the tester, the tester's company, the RME, and the Pavement Design and Documentation Manager. The RME and the Pavement Design and Documentation Manager will keep the letter on file for future reference.

**Process for Abuse:**

The Department will determine the severity of the abuse. The first finding of abuse will result in a minimum one-year suspension and may extend to the permanent revocation of an individual to test on any CDOT project. Any subsequent finding of abuse shall result in permanent revocation of the tester to work on any CDOT project.

Notice of suspensions or revocations will be emailed to the individual and his/her employer along with the individual's right to appeal. A proposed revocation or suspension is effective upon receipt by the technician and will be affirmed, modified, or vacated following any appeal.

The Department should also be aware that both State and Federal laws may govern construction projects, including Title 18, United States Code, Section 1020, that in brief states that anyone making falsifications on Federal-aid projects: "Shall be fined not more than \$10,000 or imprisoned not more than five years, or both."

**Notification of Revocation to Other Agencies**

The Department may notify the other state agencies or certifying agencies of anyone having been revoked for testing on a CDOT project through CDOT's SiteManager® program.

**ATTENTION!**

**Referenced CDOT Materials Forms, except those indicated as "computer output", have been revised in 2017. All of these forms state: *Previous editions are obsolete and may not be used.* The use of Materials Forms older than what is indicated in the chapter of the FMM Materials Forms – Instructions & Examples are not authorized.**

## Explanation of Exceptions

The following is an example of what goes into the Explanation of Exceptions CDOT Form 474 Final Materials Certification (A6) block.

### **CAR Report Owner Acceptance Sampling & Testing Checklist:**

**Item 203-00060: Embankment Material (Complete in Place):** The contractor placed 4,115.00 CY of Embankment Material 2 inches thick. Material too thin to perform CP80aa Den/Moist Content of soil by nuclear gauge. Project specials required a PI of 5-15, a test result of 13. The project Engineer accepted the material.

The embankment, Rock not encountered on the project.

### **Item 304-06007 Aggregate Base Course (Class 6)**

CP23aa not needed to be based on T180D performed which includes the plus 4 material.

CP25- Not performed due to a small quantity and no change in material observed.

Based on the quantity of 2,113 CY (2 -T89 and T90's) should have been completed. The second test would have covered the fraction of the 113 CY. Based on the results of test #1 -T89 (No Value) and the T90 (Non-Plastic), the 2<sup>nd</sup> test was not completed to cover the 113 CY.

### **Item 403-34741: Hot Mix Asphalt (Grading SX) (75) (PG 64-22)**

#### **Mix ID: 42017B1\_20856\_**

Both Phase 1 and Phase 2 of the US 24 El Paso- Elbert county line projects were completed by Jones Contractors utilizing the same mix designs, the PC tester and the mobile voids trailer personnel were the same. For this reason, check testing and CPL5120C were not performed on phase 2 but were completed on phase 1.

The project was Voids Acceptance, 7,028 tons were placed on a thin lift leveling course (1.5 inches), Project Specials specified the leveling course to be a Pay Factor of 1 for the mat density and longitudinal joints, (CP 44, 15 tests completed). Joint cores were not taken, the SMM sample (SMITHJP178G082717) was used to document 7,028 tons for CP44L, Pay Factor of 1. The flood plain area required 947 tons to be placed. 2- The CP-44 test was completed in this area. 1,244 tons were placed with a 2-inch mat over a milled surface, 2- CP44's were taken due to the small area of placement. A total of 9,219 tons were placed and tested using CP44.

A total of 15,078 tons were placed and tested using CP81 and CP82.

The Asphalt Quality Level report for (42017B1\_20856\_) Mat Density, 1 compaction test section (CP82) representing 500 tons, 3 processes representing 23797 tons.

- Process 1: representing 947 tons, placed in the flood plain.
- Process 2: representing 15,822 tons placed, 2-inch middle mat.
- Process 3: Pay Factor of 1 representing 7,028 tons placed, 1-1/2 inch leveling course.

HMA (Grading SX) (75) (PG 64-22) total tons placed 24,297.

Asphalt content tested using CPL5120. CP85 and CP85C were not used.

CPL5120C was completed on phase 1.

**Item 403-34751 Hot Mix Asphalt (Grading SX) (75) (PG 64-28)****Mix ID: 42017T1\_20856\_**

The project was Voids Acceptance, 18,478 tons was placed for a 2 inch top mat. CP44, CP85, CP85C were not used due to alternative test methods used. CP81- 36 tests, CP82- 1 test, for a total of 37 tests completed.

Total tons placed 18,478 on top mat.

Total tons placed on project 42,775, with an incentive of \$134,599.11.

**CP58-** Contractor followed best paving practices. There was not any indication of temperature segregation seen in the mat densities. The mean mat density for the bottom mat was 93.3%. Top mat mean mat density was a 93.6%

**Item 601-01000 Concrete Class B:** Visual inspection due to a small quantity (1.3 CY), material placed in the headwall of pipe.

**Item 603-10120 12 Inch Corrugated Steel pipe.**

Pipe placed under sidewalk with a small amount of structure backfill mostly for bedding of pipe. Testing could not be performed due to the small area of placement. The compaction effort was performed by the contractor and the Project Engineer accepted it visually. See attached picture.

**Item 608 00010 Concrete Curb Ramp.**

Visual inspection does to small quantities, 37 SY, material placed in curb ramp for the sidewalk.

**CAR Report Certification Checklist:****Item 216-00101 Soil Retention Blanket**

After numerous requests to the contractor, no documentation was received. Material delivered was inspected and the label on the product was found to be on the CDOT APL, Western Excelsior-Excel C5-3 All Natural. Based on the material being an APL product, the Project Engineer accepted the material. Sample record created in SiteManager® to document the product, no attachment on sample record.

**Item 601-01000 & 608-00010- Concrete**

Cure

The small quantity used on both of these items, material visually accepted by the Project Engineer.

**Item 627-00008 and 627-30405 Pavement Marking Materials**

Two records were completed on each item to reflect white and yellow material.

<b>COLORADO DEPARTMENT OF TRANSPORTATION</b>		Contract No.   STA0243-087	Region 4	Contract ID	C20856
Owner Acceptance Sampling & Testing Checklist		Contract Location	US 24 B Paso-Elbert CL Paving		
		Contractor	SIMON CONTRACTORS	Awd Date	02/23/2017
				Field Materials Manual Year	2017

SM Report 250 Revision Date 10/06/2017 Production Date Printed 5/7/2018  
 \*\* Refer to Frequency Guide Schedule for further instructions.

Project	Item Code	Item Description	Material Unit	Conversion Factor	Item Unit	Quantity Reported to Date	Quantity Authorized to Date	Total Installed Quantity
Matl Code	Material Description	Test Description	Sample Type	Rate / Frequency	Line Item No.	Required To Date	Estimated To Date	Completed To Date
				Plan + COQT		Required To Date	Estimated To Date	Completed To Date
				Total Plan + CO Quantity		Required To Date	Estimated To Date	Completed To Date
20856-BID	US24 ELPASO-ELBERT CLEAST PA							
20856-BID	203-00060	Embankment Material (Complete in Place)	CY	1.0000		4,115.00	4,115.00	4,115.00
	203.03.01.01	Embankment, Soil	CY					
	T89	T89 Liquid Limit of Soils	QA %	2,992.00	0035	1	0	1
	T90	T90 Plastic Limit and Plasticity Index of Soils	QA %	2,992.00	0035	1	0	1
	203.03.01.02	Embankment, Rock	CY	1.0000		1	0	1
	CP21	CP21 Mechanical Analysis of Soils	QA %	2,992.00	0035	1	0	1
	CPL2103	CPL2103 S04 Ion Content in H2O & Water Soluble of Soil	QA %	2,992.00	0035	1	0	1
	CPL2104	CPL2104 Det. Water-Soluble Chloride Ion Content in Soil	QA %	2,992.00	0035	1	0	1
	CPL3104	CPL3104 Durability of Shales for Use as Embankments	QA %	2,992.00	0035	1	0	1

<b>COLORADO DEPARTMENT OF TRANSPORTATION</b>		Contract No. STA0243-087	Region 4	Contract ID C20856
<b>Certification Checklist</b>		Contract Location US 24 B Paso-Elbert CL Paving	Award Date 04/05/2017	Field Materials Manual Year 2017
		Contractor SIMON CONTRACTORS	Ad Date 02/23/2017	

SM Report CERT Revision Date: 02/13/2017  
 \*% Refer to Frequency Guide Schedule for further instructions.  
 20856-BID US24 EL PASO-ELBERT CL EAST PA

Page 1 of 4  
 Date Printed 5/8/2018

Project	Item Code	Item Description	Material Unit	Conversion Factor	Total Plan + CO Quantity	Special Instructions	Quantity Reported to Date	Total Installed Quantity
	Test Method	Test Description	Sample Type	Rate/Frequency	Line Item No.	Producer/Supplier Name	Req'd Number of Certs	Certs Received to Date
20856-BID	208-00002	Erosion Log Type 1 (12 Inch)	LF	1.0000	500.00		546.00	546.00
	208.02.10.00	Erosion Control, Erosion Log	LF	1.0000				
	CERT	CERT Material Certification	COC	%	0036		1	1
20856-BID	212-00006	Seeding (Native)	ACRE	1.0000	0.15		0.25	0.25
	212.06.01.00	Seed, Native	ACRE	1.0000				
	CERT	CERT Material Certification	COC	%	0070		1	1
20856-BID	212-00032	Soil Conditioning	ACRE	1.0000	0.15		0.25	0.25
	212.02.02.00	Soil Conditioning	ACRE	1.0000				
	CERT	CERT Material Certification	COC	%	0075		1	1
20856-BID	216-00101	Soil Retention Blanket (Straw-Coconut) (Photo-degradable)	S Y	1.0000	730.00		1799.00	1799.00
	216.02.02.00	Soil Retention Covering, Blanket	S Y	1.0000				
	CERT	CERT Material Certification	COC	%	0080		1	1
20856-BID	403-34741	Hot Mix Asphalt (Grading S.X) (75) (PG 64-22)	TON	1.0000	23662.00		24297.43	24297.43
	702.01.01.03	Asphalt Cement, Binder, PG64-22	TON	1.0000				
	CERT	CERT Material Certification	COC	%	0095		1	1
	712.03.01.00	Hydrated Lime	TON	1.0000				
	CERT	CERT Material Certification	CTR	%	0095		1	1





## Addendum 1

### 1.0 ASPHALT QUALITY LEVEL REPORT

*Introduction:*

The Asphalt Quality Level Report is used to document the project incentive/disincentive for asphalt paving. The report will generate by choosing the contract and project in CAR. It will be possible to run versions of the report in three ways:

- Item Code – shows the quality level, incentive or disincentive, for each asphalt item on the project.
- Interim – shows a preliminary report without checking for element totals to ensure the tons for each element match.
- Final – shows the final report and will check the element totals to ensure they match.

Like other CAR reports the data is pulled from SiteManager once the report title is clicked in the Trns\*port folder. Error checking is included in the report to help show what data is missing. This may include not having a Control Type, Control Number, or having incomplete data in a test template, etc.

*Maintain Sample Information Window:*

The report pulls data for all Quality Acceptance Testing samples on a project that have a 403.02.xx.xx material code. The following are also critical fields used by the report that must be correctly populated in SiteManager®

**Sample Date:** This field will default to the date the sample was created; however, it can be changed to any time before the sample creation date. **All samples should be created in the order they were obtained and tested.**

**Smpl Type:** The Quality Level Report picks up samples with a sample type of Quality Acceptance Testing and an Acceptable Method of Sample and Test.

**Repr Qty:** This field is used to calculate the quantity represented by the sample being entered. When populated to the report these quantities will be used for each process/mix design to obtain a total quantity for the element.

**Control Type:** Use this field to record what type of paving is being performed. Whether it be a normal Process, a Process Test Section (CTS or DCS), or a Pay Factor of 1 for, mat, or joint density. A process is a number of like samples that are grouped, a detailed definition can be found in section 105.05 of the CDOT Standard Specification for Road and Bridge Construction. There are three types of processes that the report uses:

- **Process Test Section:** Using the CP82 template from SiteManager which can use either 3 tests (Demonstration Control Strip) or 7 tests (Compaction Test Section). The percent compaction will be obtained from the Core % Compaction fields on the template. Nuclear density tests are not required for this type of process.
- **Pay Factor of 1:** This process is used when the pay factor for the element should be set to one. This option should be chosen with paving a leveling course, a bond breaker, roller pass study, or for the Furnish Asphalt item.
- **Process:** This process will be used for day-to-day paving operations.

**Cntrl Number:** This field will identify the number of the process. There may be several different processes on a project which will require different combinations of processes and control numbers. For example, you may have Process Type: Process with "Cntrl Number": 1 for a 4" bottom lift and a Process Type: Process with a "Cntrl Number": 2 for a 2" top lift. There may be several test sections on a project and each should have a unique "Cntrl Number".

**Design Type:** This field will be SUPERPAVE for asphalt paving.

**Mix ID:** This field is populated with the mix design that represents the material being tested. The mix design must also be approved for your project and the proper association made in SiteManager® by the Region Lab Manager.

**Material Test Templates:**

The type of acceptance is determined automatically from the Mix Design in SiteManager® and it can be Voids acceptance or gradation acceptance. The material test templates used by the report are summarized in the tables below.

**Voids Acceptance:**

Mat Density	CP44 or CP81
Joint Density	CP44L
AC Content	CPL5120 or CP85
Voids	CPL5115
VMA	CP48
Compaction Test Section	CP82

**Gradation Acceptance:**

Mat Density	CP44 or CP81
Joint Density	CP44L
AC Content	CPL5120 or CP85
Gradation	CP31HMA
Compaction Test Section / Demonstration Control Strip	CP82

**Binder Paid Separately:**

When the binder is paid for separately from HMA the **ACCOST template will need to be completed for each Item Code/Mix ID combination** that is used on the project. **The ACCOST template shall be completed before any other tests for each HMA item.** There are two fields on the ACCOST template; The Bid Item # should indicate the 411 Item Code for the binder that is used in the asphalt mix and also listed on the CAR report Owner Acceptance Sampling Checklist. The price per ton of the 411 items will also be entered into the ACCOST template in the AC Cost field. These two pieces of data are used to connect the 403 HMA item to the 411 items which the report will use to calculate the Total Cost/ton of HMA.

The screenshot shows a software window titled "Enter Test Results" with a sub-tab "Test Data". The main heading is "ACCOST Document AC Cost per Ton of HMA". On the right side, there are three radio button options: "In Spec", "Out of Spec", and "No Spec" (which is selected). Below these is a "Print" button. The form contains two input fields: "Bid Item #:" with the value "411-03354" and "AC Cost:" with the value "320.00". At the bottom, there is a "Remarks:" label followed by a large empty text area.

**CAR Quality Level Report:**

The first page of the report will display any error messages that indicate what might need to be fixed in SiteManager and the report can be generated at any point during the project to get an indication of the moving quality level. The report is broken into the various elements that are used to make up the incentive/disincentive for each Item Code/Mix Design with a summary for each process at the bottom of the element. Elements are included in the report based on whether the mix design is determined to be voids or gradation. Each element has a header, which includes Item Code, Material Code, Mix Id, HMA Cost/ton, etc. There is also a secondary header to indicate spec limits and W and V factors and if the report is final or interim. The bottom of each element will indicate the processes that are included and an element summary.

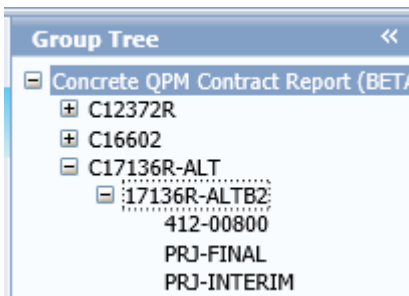
At the end of each item section, there is a summary for each mix design and then a final summary at the end of the report for a comparison of the element totals and a list of the total incentive/disincentive by mix design.

## Addendum 2

### 1.0 CONCRETE QUALITY LEVEL REPORT

#### INTRODUCTION:

Specifications for concrete paving are found in the Standard Specifications for Road and Bridge construction sections 105.06, 106.06, and 412. The Quality Level Report is used to replace the Conctete03 program. The report will generate by choosing the contract and project in CAR. It will be possible to run different versions of the report by using the expand (+) and collapse (-) icons



- Item Code – shows the quality level, incentive or disincentive, for each concrete item on the project.
- Interim – shows a preliminary report without checking for element totals or sample completion to ensure the square yards for each element match.
- The final – final report will check the element totals to ensure they match.

Like other CAR reports the data is pulled from SiteManager once the report title is clicked in the Trns\*port folder. Error checking is included on the first page of the report to show what data is missing or incorrect. This may include a blank Control Type, Control Number, or having incomplete data in a test template, etc.

**Maintain Sample Information Window:**

The report pulls data for all Quality Acceptance Testing samples on a project that has 412 and 601 material codes. The following are critical fields used by the report that must be correctly populated in SiteManager:

**BASIC SAMPLE DATA TAB:**

**Sample Date:** Defaults to sample creation date and can be changed to any time before the sample creation date. Sample creation should be completed in the order they are obtained and tested so they appear in the correct order on the report.

**Smpl Type:** The Quality Level Report picks up samples with a sample type of Quality Acceptance Testing and an "Acpt Meth" of Sample and Test.

**Material:** The material codes used for concrete paving will begin with either 412 (Thickness) or 601 (Strength) refer to the OA Sampling and Testing Checklist for the exact code.

**Repr Qty:** These quantities will be added together for each process/mix design to obtain a total quantity for the element.

**Maintain Sample Information**

Basic Sample Data | **Addtl Sample Data** | Contract | Other | Tests

Smpl ID: SEMUSD1586094653 Buy American:  Spaces

Reqst By: PROJECT Witnessed By: SEMUSD

Smpl Size: 1 Lot

Dist from Grade: Spaces

Station: 277+50 Offset: Reference:

Smpld From: GRADE

Smpl Origin:

Control Type: PROCESS Cntrl Number: 1 Seal Number:

Design Type: PCC Mix ID: 2015081R

Plant ID: Plant Type: Spaces

Creator User ID: SEMUSD Include Standard Remarks:  Sample Created from DWR  DWR Date: 00/00/00

Last Modified User ID: MAYHEWT Last Modified Date: 03/25/16 DWR Inspector:

**ADDTL SAMPLE DATA TAB:**

**Control Type:** Used to record what type of paving being performed. For concrete paving only use the control type: PROCESS.

**Cntrl Number:** This field will identify the number of the process. There may be several different situations on a project that will require different combinations of processes and control numbers. For example, you may have Control Type: Process with Cntrl Number: 1 for mainline concrete pavement and a Control Type: Process with a Cntrl Number: 2 for hand pours. For the pavement thickness element, a new mix design is not a reason to create a new process as per 105.06 (a) of the Standard Specifications

**Design Type:** This field will be **PCC** for concrete paving.

**Mix ID:** Populated with the mix design that represents the material tested. The mix design must be approved by the HQ Concrete Unit for your project and the proper association between the mix design and project made in SiteManager.

**Note:** For the Thickness element, do not enter a mix design on the sample record, as the cores are associated with the 412 paving element and not the 601 concrete elements. Mix designs are only associated with 601 concrete elements.



Contract ID	Project	Line Item	Proposal Line Number	Item Code	Line Item Desc	Fed State Prj Nbr
C17136R-ALT	17136R-ALTB2	0220	0725	412-00800	*Concrete Pavement (8 Inch)	STA 0142-051

**CONTRACT TAB:**

On the Contract, Tab, choose the appropriate contract and line item that is associated with the sample. There should only be one.

**Material Test Templates:**

Automatic determination of the type of acceptance uses the presence or absence of the T 97-28 and T 97-QC templates.

**Compressive Strength Acceptance:**

Thickness	T148
Compressive Strength	C39-28 or T24-28

**Flexural Strength Acceptance:**

Thickness	T148
Flexural Strength QA	T97-28
Flexural Strength QC	T97-QCaa and C496

**Note:** Canceled tests and voided samples will not be included in the report.

**CAR Quality Level Report:**

The report will be accessible in CAR and there will be an interim and final report which can be viewed by expanding the group tree by clicking the +. Reports can then be exported to a PDF to be saved or printed using the "Export this Report" icon.

The first page of the report will display any error messages that indicate what might need to be fixed in SiteManager and the report can be generated at any point during the project to get an indication of the moving quality level. The report is broken into the various elements that are used to make up the incentive/disincentive for each Item Code/Mix Design with a summary for each process at the bottom of the element. The elements that make up the report are:

- Thickness
- Compressive Strength
- F & t-Test Comparison
- Flexural Strength

Elements are included in the report based on the presence of the C39-28 or the T97-28/T97-QC templates as well as the F & t Comparison made between the T97-28 and T97-QC

At the end of each item section, there is a summary for each mix design and a final summary at the end of the report for a comparison of the element totals and, a list of the total incentive/disincentive.

**Thickness**

The thickness section of the report will use the T148 data and will obtain both the thickness test result and the Plan thickness from this template. There will be a warning message at the bottom of the element to indicate if a result is lower than the lower tolerance limit. If a test result is more than 1" below the lower tolerance limit it will be but in a separate process. I/DP will not be calculated on that test as this is a "remove and replace" situation.

**Compressive Strength**

The compressive strength section of the report will use the C39-28 or the T24-28 template. There will be a warning message on the report if a test value is less than the lower tolerance limit. There is no 2 x V out of tolerance or removal and replacement for concrete paving. If a test is below the lower tolerance limit and the contractor chooses to core, a T24 test is should be added to the same sample ID that contains the C39 test. Although a core may be older than 28 days the T24-28 template should still be used in SiteManager Materials/LIMS. The break date and age will be recorded on the template.

## Handling Failures or Low Test results

### Thickness:

- If a core is lower than the Plan Thickness by more than .4" but not more than 1". obtain additional core, if the core is greater than Lower Tolerance (TL) no action necessary, document additional core results into SMM as Information Only.
- If the additional core or any randomly selected core is less than Lower Tolerance Limit (TL) but greater than Plan Thickness (PT) minus 1.0 inch, the area represented by this core shall become a separate process and this core will not be used to compute an I/DP. The Quality Level Report will remove this test from the element automatically and create a separate process called LOW-X). Four additional randomly selected cores should be obtained within the area represented by this core. The four additional cores will be used to compute an I/DP per Section 105. Cores taken at locations not randomly determined, such as process control cores will not be used to compute I/DP.
  - Create **four additional QA samples** for the additional cores, assign the same, unique, process number to the samples, This process number is different from the original sample. The total represented quantity of the four cores should total the area represented.
  - Cancel/Void the original test/sample.
- When the measurement of any core is less than PT minus 1.0 inch, whether randomly located or not, the area represented by this core shall become a separate process and this core will not be used to compute an I/DP. This is a "remove and replace" situation. The actual thickness of the pavement in this area will be determined by taking exploratory cores. Cores shall be taken at intervals of 15 feet or less, parallel to the centerline in each direction from the affected location until two consecutive cores are found in each direction which is not less than PT minus 1.0 inches.
  - Obtain exploratory cores to define the out-of-specification area, document additional core results in SMM as Information Only.
  - Once the removal and replacement have been completed create **four additional QA samples** for the four additional cores that represent that area. Assign the same unique process number to the samples, which is different from the original sample. The total represented quantity of the four cores should total the area represented.

### Flexural Strength:

- When flexural strength is less than 650 psi the contractor may take cores for split tensile testing (C496). The higher value between the T97-QC and C496 shall be used. The C496 template includes a field for the correlated flexural strength as per CP65. This correlation will be figured outside of SMM/LIMS and manually entered into the template. Only the contractor's QC results can be replaced with a C496 (Splitting Tensile).
  - Add the C496 test to the original sample that contains the low T97-QC. This can be done using the Maintain Test Queue in LIMS.
  - Both tests are left as valid tests and the report will choose the higher value for the I/DP Calculations

**A partial list of error or informational messages that appear on the first page of the report:**

A sample ID with two of the same valid tests. (I.e. two T148 tests on the sample)  
Specification Height on T148 template is null or zero  
The average Core Inch Height cell is null or Zero on T148  
Sample with zero (0) Rep. Qty.  
Valid sample created with valid control type and null (blank) control number  
Total quantities do not match among element totals (final only)  
Not all samples are complete (final only)  
Compressive and Flexural samples the Mix ID is blank  
If there is more than one Item on the Contract tab

**Messages included below the element:**

C39-28 value is below Plan Value  
T148 value below Plan Value by more than 1 inch  
T148 value below Plan Value by more than .4" but not more than 1 inch  
T148 value is more than 1 inch above plan value  
Element message for a T148 Value below Plan Value but above TL  
Test data that is > 1 inch above Plan Value

**Addendum 3**

**Asphalt Quality Level Report**

**Department of Transportation**

**State of Colorado**

**Report Date:** 5/7/2018

**Contract ID:** C20856

**Project Number:** 20856-BID

**Region No:** 4

**Fed/State Project #:** STA0243-087

**Ad Date:** 20170323

**Acceptance Type:** Void Acceptance

**Location:** US 24 El Paso-Elbert CL Paving

**Item Code:** 403-34741

**Material Code:** 403.02.01.11

**Mix ID:** 42017B1\_20856\_

**Design Type:** SX

**P/S:** Simon Contractors

**Gyrations:** 75

**Total Cost/ton:** \$72.00

**HMA Cost/ton:** \$72.00

**AC Cost/ton:** \$0.00

**(\*\* FINAL REPORT \*\*)**

**Asphalt Content**

**Upper Test Limit:** 6.00  
**Lower Test Limit:** 5.40





















**Design Sp Gr:** 2.424

**V Factor:** 0.2  
**W Factor:** 10

Test Date	Sample ID	Test Quantity	Total Quantity	Max Sp Gr	% AC	SQL
1 07/25/2017	ELLISB177P075534	1000	1000	2.439	5.42	
2 07/25/2017	ELLISB177P102740	1000	2000	2.426	5.69	
3 07/26/2017	ELLISB177Q092930	1000	3000	2.438	5.68	100
4 07/26/2017	GONSERS177V073643	1000	4000	2.446	5.51	94
5 07/28/2017	ELLISB177S112718	1000	5000	2.425	5.61	98
6 07/28/2017	ELLISB177S144315	1000	6000	2.420	5.68	100
7 07/31/2017	ELLISB177V104002	1000	7000	2.429	5.59	100
8 08/01/2017	ELLISB1781112006	1000	8000	2.430	5.53	100
9 08/01/2017	ELLISB1781184212	1000	9000	2.428	5.74	100
10 08/02/2017	ELLISB1782103724	1000	10000	2.424	5.73	100
11 08/02/2017	ELLISB1782121632	1000	11000	2.427	5.78	100
12 08/02/2017	ELLISB1782150453	1000	12000	2.430	5.65	100
13 08/04/2017	ELLISB1784122100	1000	13000	2.420	5.95	100
14 08/04/2017	ELLISB1784123036	1000	14000	2.427	5.87	100
15 08/04/2017	ELLISB1784161309	1000	15000	2.424	5.69	99
16 08/09/2017	ELLISB1789161743	1000	16000	2.433	5.70	100
17 08/11/2017	ELLISB178B084245	1000	17000	2.434	5.68	100
18 08/11/2017	ELLISB178B130304	1000	18000	2.427	5.61	100
19 08/11/2017	ELLISB178B163659	1000	19000	2.435	5.73	100
20 08/12/2017	ELLISB178C145905	1000	20000	2.441	5.43	100
21 08/12/2017	ELLISB178C172546	1000	21000	2.428	5.48	95
22 08/14/2017	ELLISB178E140506	1000	22000	2.442	5.47	88
23 08/14/2017	ELLISB178E154629	1000	23000	2.427	5.61	88
24 08/15/2017	ELLISB178F100503	1000	24000	2.434	5.43	87
25 08/15/2017	ELLISB178F115131	297	24297	2.435	5.60	95

Certification Checklist Requirements						
Dated submitted to PE & Contractor:			August 1, 2018			Page 1 of 3
ITEM Number	Type of Document Required COC or CTR	APL or QML Material Required	Requires Contractor APL/QML Verification YES/NO	Date COC/CTR Received	Accepted or Rejected	Notes
206-00360 Mech Reinforcement	COC	NY-APL for geotex	YES	08/17/18	Accepted	
207-00205 Top Soil	CTR	NO	NO	05/25/18	Rejected	Missing stamp and signature
208-00003 Erosion Logs Typ 2	COC	YES-APL	YES	04/05/18	Rejected	Missing stamp & signature
208-00020 Silt Fence	COC	NO	NO	06/05/18	Accepted	
208-00051 Storm Drain Inlet Protection	COC	YES-APL	YES			
210 Modify Manhole	COC	Precast-YES QML	YES			Poured in place-does not require verification letter
212-00006 Seeding	COC	NO	NO			
212-00032 Soil Conditioning	COC	NO	NO			
213-00003 Mulching Weed Free HAY	COC	NO	NO			
213-00012 Mulch Tackifier	COC	NO	NO			

### Example of Required Project Book Folders

-  COC-CTRs
-  Emails and misc. docs
-  Final Documents
-  Item 203 CIP
-  Item 206 CL 1 and 2
-  Item 206 Filter Material CL A and C
-  Item 304 ABC Class 6
-  Item 403 S(100) PG64-22
-  Item 411 Binder
-  Item 412 8.5 inch
-  Item 412 10 inch
-  Item 412 Mix Designs
-  Item 503 Caissons
-  Item 601 CL D Bridge
-  Item 601 CL D Wall
-  Item 601 Class D concrete
-  Item 603 RCP-all sizes
-  Item 608 Sidewalk
-  Item 609 Curb and Gutter all types
-  Item 624 Pipe all classes

## Instructions for ProjectWise Share

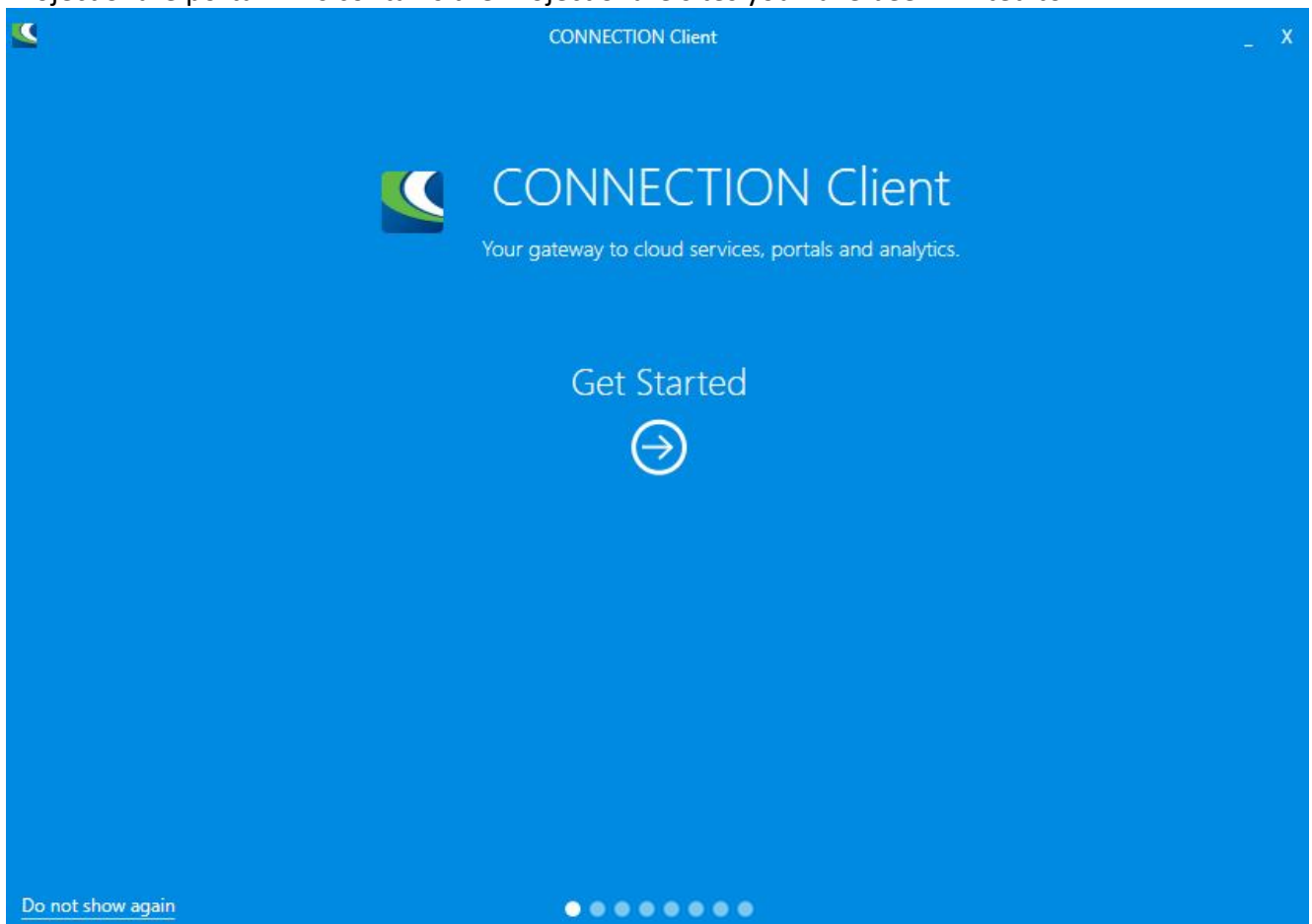
### Project Share and PWZ Explorer for project record retention

Remember that Project Share eliminates the need for consultants to use VPN, and provides the ability for CDOT project records to be automatically archived in ProjectWise Explorer, thus eliminating the burden on CDOT employees to manually obtain and archive critical documents. The CDOT Record File Plans contain which project records need to be retained and which folder they are placed in. When Project Share is linked with PWZ Explorer, this transfer is automatic.

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#### Logging on to Project Share:

When you log in on the Connection Client (the blue and green wavy icon) it will take you first to the Connection Client log on. When you try to enter your password, it transfers you to an OIT SSO Portal log-on page. In "user name" fill in "dot\your user name" (not your email address). Next, fill in your CDOT password in the password window. This will then automatically route you to your Bentley Project Share portal. This contains the Project Share sites you have been invited to.





**Step 1**



## Sign In

Access your Bentley Services

**Email**

**Password**

[Forgot password?](#)

Don't have a profile? [Register](#)

**Step 2**

# State of Colorado - SSO Portal

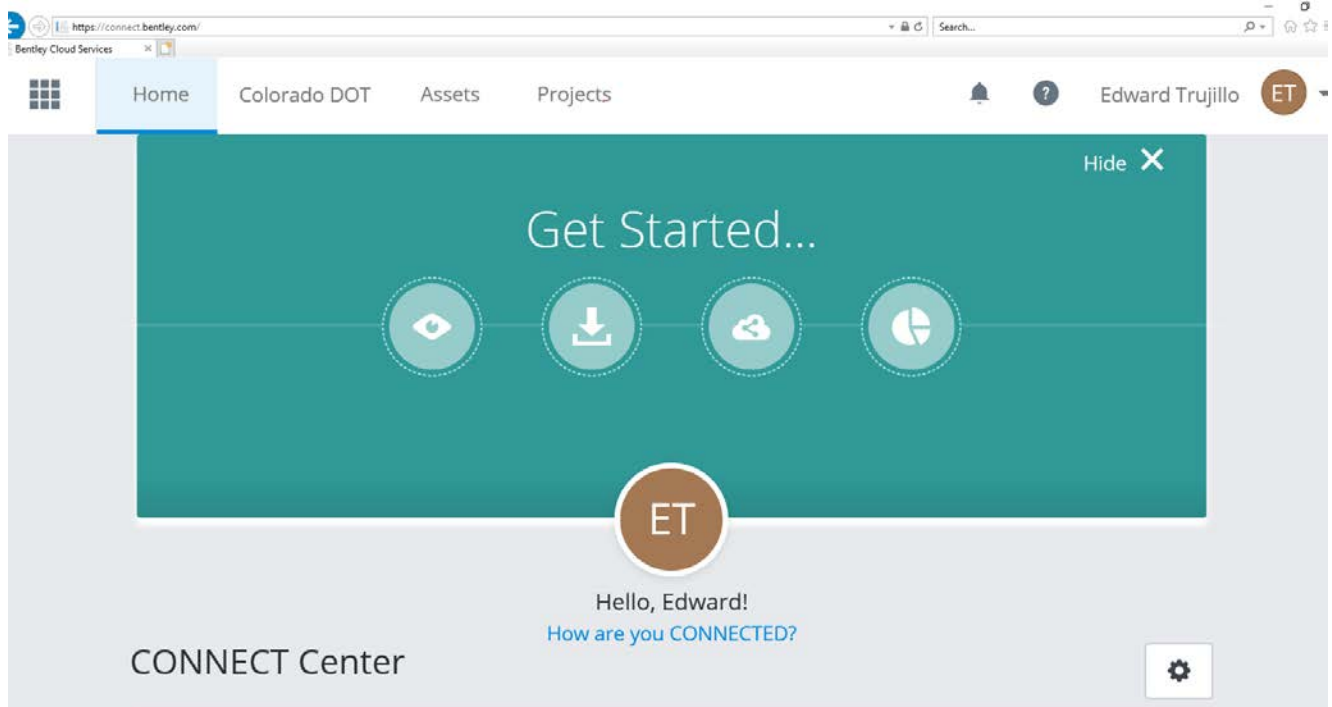
Sign in with your organizational account

 ✕

Sign in

© 2013 Microsoft

### Step 3



The **PowerPoint** developed by Tom Bovee showing the basic functions of Project Share. Note that it depends on the level of authority assigned by the program manager in the Project Share site to other users how much the user can do (i.e., read/write, delete, develop new folders, etc.) so some notes in the PowerPoint will not apply to all users.

We hope this allows you to learn more about Project Share, which will facilitate the collaboration between CDOT and consultants to transfer, retain and archive critical project records in compliance with state and federal requirements.

ProjectWise Training Link:

<https://cdot-pwz.dot.state.co.us/CDOTgMailLauncher.aspx?pw://cdot-pw.bentley.com:cdot-pw-01P/Documents/P%7B561195a2-ad70-472a-a117-dfc5af1783cc%7D/>