

## Electronic Documentation - 21

CDOT is transitioning toward accepting all submittals, forms, project records, and supporting documents in electronic format. This Manual reflects technology as of 7/01/2020. Users should work in partnership with CDOT staff to continue to advance this effort in between Manual updates.

### 1. Description of Bentley Software Tools and Adobe Sign

#### Adobe Sign

Adobe Sign is the electronic signature and professional seal software selected by CDOT and required for use on Project Records including Change Modification Orders (CMO), which facilitates automated workflows including the ability to route Project Records for acknowledgments, electronically sealing, and/or signing. Adobe Sign is not the eSignature program selected for use on a document requiring a CDOT Controller or State Controller signature (contracts).

#### Deliverables Management

CDOT uses a series of tools in the Bentley suite for design, construction, and engineering documents. One of them is ProjectWise Deliverables Management. This is a cloud-based service that streamlines how a project team works with transmittals, submittals, and Requests for Information (RFI). It provides improved visibility into these processes and also retains confidentiality when legally required.

ProjectWise Deliverables Management is utilized to ensure that documents are submitted, completed, and processed on schedule. Functions include: ensuring delivery to correct parties, enabling faster reviews and responses, automating an audit trail thereby increasing accountability with detailed recordkeeping, connecting the entire supply chain through a secure cloud platform, and leveraging project dashboards to monitor workflows and evaluate project performance. ProjectWise Deliverables Management is capable of handling reference files used in design.

#### Project Share

The Cloud-based software tool hosted in the Bentley / Microsoft Azure Cloud is used for document collaboration. Project Share connects to and synchronizes with ProjectWise Explorer, such that files placed in a Project Share folder, which is synchronized with ProjectWise Explorer, are automatically copied to the same folder in ProjectWise Explorer. Note that Project Share is not used for DGN reference files in design.

### **ProjectWise Explorer**

Bentley ProjectWise Explorer is the Electronic Document Management System (EDMS) for archiving all electronic Project Records outlined in the CDOT Record File Plans.

## **2. Definitions (Please also use the Definitions in the PDs if they are necessary for your Manual. The PDs are available in Word format in the Workshop Documents folder)**

**Adobe Acrobat DC.** The software selected by CDOT and required for users to create and/or modify a PDF (portable document format) Project Record, to retain a record in an ISO Compliant format. By using Adobe Acrobat DC tools, the software “Smart Scans” Project Records to meet state and federal legal requirements before archiving in ProjectWise Explorer.

**Adobe Sign.** The electronic signature and professional seal software selected by CDOT and required for use on Project Records including Change Modification Orders (CMO), which facilitates automated workflows including the ability to route Project Records for acknowledgments, electronically sealing, and/or signing.

**Electronic Document Management System.** (“EDMS”) ProjectWise Explorer has been selected by CDOT as the EDMS for CDOT Project Records.

**Form 950 “Project Closure”.** This CDOT form provides notice of the financial closure of the project. It includes notification to the FHWA that the project is closed and includes an electronically generated Project Record retention date.

**ISO Compliant.** A Record is retained in a format approved by the International Organization for Standardization, a worldwide federation of national standards which refers to the ISO 19005 series of standards with PDF/A-1 approved as a minimum. Archiving an electronic Record in an ISO Compliant format ensures that it can be read in one hundred years, regardless of the hardware or software used to create the record. An ISO Compliant Record replaces microfilm as a method of archiving.

**Naming Convention.** A thread of acronyms that allows the CDOT Project Record to be correctly named and located in the ProjectWise Explorer locally-hosted or cloud-based EDMS.

**Project Records.** Engineering, Design, Specialty Group, and Construction Records pertaining to CDOT projects, including change modification orders (CMO). See § 24-80-101(1), C.R.S. “Record” shall also mean information that is inscribed on a tangible medium or that is stored in an electronic or another medium. See § 24-71.3-102(13), C.R.S. For further clarification, see relevant CDOT Records File Plans pertaining to Project Records.

**Project Share.** The Cloud-based software tool hosted in the Bentley / Microsoft Azure Cloud is used for document collaboration. Project Share connects to and synchronizes with ProjectWise Explorer, such that files placed in a Project Share folder, which is synchronized with ProjectWise Explorer, are automatically copied to the same folder in ProjectWise Explorer.

**ProjectWise Explorer** The Bentley software system utilized by the Department for archiving Project Records.

**Record File Plan.** CDOT's internal governing document developed by each division, program, or unit contains the state and federal legal retention requirements for CDOT Records pertaining to the specific Records. Record File Plans include the correct location in ProjectWise Explorer for each Project Record.

**Smart Scanning.** The term CDOT uses to meet state and federal retention requirements for CDOT Project Records by utilizing Adobe Acrobat to make Project Records searchable, page-aligned, and compressed. It also means archived in an ISO Compliant format. Note that some mediums, such as video files and image files cannot be archived in an ISO Compliant format. In this case, the files shall be retained in their original format.

### 3. **Language for CDOT Legal Requirements Regarding Record Retention**

CDOT’s legal requirements to retain project records extend not only to CDOT employees but also to the consultants, contractors, and local agencies who work on CDOT project records. As a public agency, CDOT is legally required under state and federal law to retain certain Project Records for specified periods. These periods are outlined in the CDOT Record File Plans.

**4. Language for Compliance with Procedural Directive 21.1 “Requirements for the Retention of Records for Specified Design, Construction, Engineering, and Specialty Groups (Paper and Electronic)” effective June 20, 2019.**

**General Reference to PD:**

CDOT’s requirements for Project Records are outlined in Procedural Directive (“PD”) 21.1 “Requirements for the Retention of Records for Specified Design, Construction, Engineering, and Specialty Groups (Paper and Electronic)” effective June 20, 2019.

The requirements of Procedural Directive (PD) 21.1 apply to CDOT employees and contractors, consultants, and local agencies who develop, transfer, augment, or are in any way involved with or responsible for CDOT records. It applies to all CDOT projects including local agency, P3, Innovative, Design-Build and CMGC projects.

**Applicability**

Procedural Directive 21.1 shall apply to all divisions, offices, and regions of CDOT engineers and project staff who develop, handle, or receive records. It also applies to all projects, including but not limited to capital engineering projects, Local agency, P3, Innovative, Design-Build (DB), and Construction Management General Contracting projects (CMGC). It applies to all consultants, contractors, and local agencies who develop, transfer, augment, or are in any way involved with or responsible for CDOT records.

**Archiving Project Records in ProjectWise.**

All active and future Project Records shall be archived in Project Share / ProjectWise Explorer Electronic Document Management System on an ongoing basis rather than at the conclusion of the project.

Phases or milestones from scoping to project closure shall be established for archiving purposes. Record File Plans indicate the correct archive location for these records. They are located in the Governing Documents folder under “5 – Record File Plans”. For external users, a link to this file is included in all project share sites.

**CDOT’s EDMS for Project Records**

Bentley ProjectWise Explorer is the Electronic Document Management System (EDMS) for archiving all electronic Project Records outlined in the CDOT Record File Plans.

If project consultants are using Aconex, the PM and CDOT Resident Engineer must develop a phased approach to migrate records into ProjectWise Explorer on an ongoing basis within 45 days of the project's final acceptance.

### **Record Retention Schedules for Project Records**

CDOT's Record File Plans contain a list of the public records that are required to be retained, as well as the electronic folder in ProjectWise Explorer where they will be archived. A link to the CDOT Record File Plans is made available on each Bentley Project Share site. This link will provide access for consultants, contractors, and local agencies to CDOT Record File Plans.

CDOT's project records are created and retained in electronic format unless the record has a retention period of 3.5 years or less from the Form 950 closure date. If the retention period is shorter, the Project Engineer along with the Region Finals Administrator shall determine to retain documents in paper form.

Project Records that are subject to the following categories must be retained for seven years from the Form 950 close date (may be longer if FEMA requirements apply):

- Major project (CMGC, DB, P3, or other innovative contract projects)
- The subject of internal or external audit
- Litigation hold
- Emergency funded

Project Records must be archived according to milestones established by the project engineer on an ongoing basis rather than at the conclusion of the project.

### **Smart Scanning (ISO Compliant Requirement)**

Properly archiving Project Records means that they will be preserved in digital PDF format so that they can be read with original fidelity in one hundred years regardless of the hardware or software used to create them. This ensures that CDOT's most critical records with long-term or permanent retention requirements may be retained in digital form rather than paper or microfilm.

Project Records with retention periods longer than 3.5 years must be "Smart Scanned" before archiving. Training on Smart Scanning is available by registering through the Transportation Engineering Training Program ("TETP") website located here:

<https://www.codot.gov/programs/tetp> Smart Scanning makes the Project Record searchable, compressed, page-aligned, and in compliance with International Standard Organization's ("ISO") standard PDF/A-1b.

Project Records that do not need to be Smart Scanned are the following:

- (1) Project Records approved by the Project Engineer and CDOT Finals Administrator to be submitted in paper form. The CDOT Finals Administrator and Project Engineer may determine that Project Records with a retention period of 3.5 years or less from the CDOT Form 950 closure date can be provided to CDOT in paper form.
- (2) Videos, photos, image files, and other media formats that cannot be converted to PDF. Certain files are unable to be Smart Scanned and must be placed in ProjectWise Explorer in their original formats.

### **Paper Record Retention**

If paper Project Records have a retention period of 3.5 years or less from the Form 950 project closure date, they may be scanned and retained electronically or retained in paper format until they have met their retention period. A Destruction Form shall then be completed. Once approved, the records may then be shredded or disposed of.

Project Records in paper form are now retained by the Regions for archiving until the Records meet their retention period. Headquarters no longer receives a copy.

### **Naming Conventions for File Names**

Use standard naming conventions (PD 21.1 Appendix "A") and as noted in Record File Plans. For questions on naming conventions, ask CDOT Finals Administrators.

### **Adobe Sign: CDOT's Electronic Signature Software for Project Records.**

Unless otherwise notified by the Chief Engineer, Adobe Sign is CDOT's approved electronic workflow signature software for "Project Records." This includes the use of Adobe Sign for sealing with the professional engineer seal (see Procedural Directive 508.1 below, which sets forth requirements for sealing). Adobe Sign may not be utilized for any document which requires a signature from the CDOT Controller or State Controller.

For all Project Records that do not require a CDOT Controller/State Controller signature, Adobe Sign shall be used for both eSignatures and eSeals on Project Records. Note that Adobe Sign is permissible for use on contract modification orders ("CMO") given that CMOs do not require a signature by the Office of the State Controller. Adobe Sign workflows for Project Records will significantly cut downtime routing paper records for signature, and will automatically archive the signed Project Record in ProjectWise.

### **Local Agency Records**

On Local Agency projects with CDOT oversight, Local Agencies follow their record retention schedules that adhere to the Inter-Governmental Agreement with CDOT. However, specific documents in the CDOT Record File Plans are required to be retained by CDOT and must be provided to the CDOT Local Agency Coordinator by the local agency or its representative. CDOT uses Bentley Project Share for this purpose so that the Local Agency can transmit the project record to the CDOT Local Agency Coordinator using the project-specific Project Share site. The Local Agency Coordinator will then archive the project record utilizing the synchronization function in Project Share, and the document will automatically be archived in the correct ProjectWise Explorer folder.

### **CDOT Responsibilities:**

#### **Resident Engineers:**

- Must ensure that their staff is trained to properly archive records in the correct location and format.
- Include a provision requiring compliance with PD 21.1 in all task orders.
- Provide a copy of PD 21.1 with the Notice to Proceed.

#### **Project Managers:**

- Must fill out all attribute fields known at the time of project creation and thereafter when modifications occur. Attribute fields are filled out in SAP CJ20N (and, when launched, On Track).

#### **Finals Administrators:**

- Responsible for creating three electronic plan sets in PWZ Explorer: Award Set with watermark, Record Set with watermark, As-Constructed Plan with watermark.

### **Records Coordinators**

- Records Coordinators are selected by their Appointing Authority to handle Project Records. Their responsibilities are outlined in PD 51.1 and the Overview of Records Management and Records Coordinator Certification available through SAP/My Learning.

### **Engineering Contracts:**

- Must include in contracts that PWZ Explorer is CDOT's EDMS for Project Records.
- Standards and Specifications Unit must include relevant requirements of PD 21.1 in project special provisions by January 2020 (deadline extended to July 30, 2020).

## 5. **Procedural Directive (PD) 508.1 “Requirements for the Use of the Professional Engineer’s Seal”**

### **General Description**

PD 508.1 defines the procedures for the use of the Professional Engineer seal by CDOT employees, consultants, contractors, and local agencies who perform engineering work for CDOT.

All CDOT, local agency, and consulting Engineers must utilize electronic sealing (rather than mechanical sealing on paper) by January 2020 unless an exception request and approval are granted by the Chief Engineer.

Beginning January 2021, no exemptions will be granted to the electronic sealing requirements.

### **Applicability**

The requirements of PD 508.1 apply to CDOT employees and contractors, consultants, and local agencies who develop, transfer, augment, or are in any way involved with or responsible for CDOT records. It applies to all CDOT projects including local agency, P3, Innovative, Design-Build and CMGC projects. PD 508.1 must be read together with PD 21.1. Sealed Project Records must be retained in ProjectWise Explorer in conformance with the CDOT Record File Plans.

Engineering designs, Record Sets, and Contract Modification Orders, contract drawings, and specifications for CDOT projects prepared by COOT employees or by contractors or consultants who perform work for CDOT, or by local agencies who perform work for projects with COOT oversight and/or funding or federal funding passed through CDOT, shall be Sealed per Procedural Directive 508.1.

### **Legal Requirements for Sealing**

CDOT’s Sealing requirements are dictated by and adhere to the Sealing requirements for licensed engineers outlined in the AES Board Rules, 4 CCR 730-1, which have the effect of law. The AES Board Rules dictate which documents require a Seal. The AES Board Rules have the effect of law. These include Record Sets, Contract Modification Orders, VECP’s M&S Standards, and changes thereto.

To limit the scope of responsibility to one or more disciplines, a statement must be included adjacent to the Seal which limits responsibility to those portions of work done, such as: "My responsibility concerning this standard plan revision is limited to-----"

Transmittal and storage of all CDOT project records shall adhere to the requirements of Procedural Directive 21.1 and CDOT's Record File Plans. The Sealed RecordSet is required to be deposited in CDOT's ProjectWise Explorer. This will constitute the official record and will be retained permanently.

## **Responsibilities**

### **Engineer in Responsible Charge:**

- Must seal respective documents for work within their scope of work, including local agencies. Must ensure that all seals are obtained on the recordset. This includes the limitation of scope for each seal.
- The Engineer in Responsible Charge on a local agency project with COOT oversight is required to Seal all documents within the scope of their work. They shall be responsible for depositing the Seal RecordSet into ProjectWise within 45 days of the award.

### **CDOT Resident Engineer:**

- Is responsible for ensuring that all documents requiring Seals are obtained within 45 days of award of the construction project and archived in the correct PWZ Explorer folder.

## **Exclusions from Sealing Requirements**

- **Manufactured Components.** Engineers may specify manufactured components (e.g., impact attenuators, products on the Approved Product List ("APL")), which are exempted by statute as part of design documents. Manufactured components for this Procedural Directive shall consist of such items as a pump, motor, steel beam, or other types of items that are manufactured in multiple units for selection and use in projects which must be designed by Engineers. Systems of manufactured components that are specific to a particular use or application must also be designed by an Engineer. The Engineer may show the manufactured component on the drawing or document and is responsible for the correct selection and specification of the manufactured component but is not responsible for the proper design and manufacture of the manufactured component.
- **Stormwater Management Plans**  
Stormwater Management Plans (SWMPs) and Erosion/Sediment Control Plans are excluded from the Seal requirement. Stormwater Management Plan sheets that do not contain engineering information (e.g. hydrology, hydraulics) are not considered "engineering drawings"; therefore, Sealing by a professional engineer is not required. Engineering features (e.g., ditches, storm sewer, and permanent water quality facilities) required for the management of stormwater on the project shall be included in the plans on separate sheets as details with the associated information which would require Sealing per this Directive.

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