



Engineering Document Signing and Sealing at MoDOT

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**Division 30—Missouri Board for Architects,
Professional Engineers, Professional Land Surveyors,
and Landscape Architects
Chapter 3—Seals**

- In January, 2004, new regulations became effective in Missouri to allow Electronic Signing and Sealing

(3) In addition to the personal seal, the licensee shall also affix his/her signature on or through his/her seal and place the date when the document was originally sealed, under the seal, at the minimum, to the original of each sheet in a set of plans, drawings, specifications, estimates, reports and other documents which were prepared by the licensee or under his/her immediate personal supervision. The term "signature," as used herein shall mean a handwritten identification containing the name of the person who applied it; or for electronic or digital documents shall mean an electronic authentication process attached to or logically associated with the document. The digital signature must be unique to, and under the sole control of the person using it; it must also be capable of verification and be linked to a document in such manner that the digital signature is invalidated if any data on the document is altered.



How do Electronic Plans Work?

- Designers continue to create their plans using MicroStation and Geopak
- All drawings will be tracked through the ProjectWise system
- When plan files are completed, designers submit them to have Electronic images created.



How do Electronic Plans Work?

- Images are stored in the PDF format and submitted to the Project Manager for Signing and sealing
- Project Managers affix their seals and signatures electronically using Adobe Reader
- Changes to sheets will require regeneration and new signing and sealing to be performed on those sheets



Sheet Naming Scheme

001_TITLE_J0P0928_ITITLESHEET.dgn

009_SS_02_J0P0928_I20.dgn

002_TS_01_J0P0928_I5.dgn

010_EC_01_J0P0928_I50.dgn

002_TS_02_J0P0928_I5.dgn

[003]_[abbreviated sheet type]_ [*optional* sheet# range]_[job#]_[scale]_.dgn

003 QU 01-05 J0P0928 I.dgn



How do Electronic Plans Work?

- Seals and Signatures are controlled with public/private key encryption
- Passwords for the keys remain under control of the Project Manager but will be physically stored in ProjectWise for authentication
- Once all plan sheets are sealed, the Project Manager can mark the job complete and a notice is sent that the job is “Ready to Let”



How did we enable signing?

- MicroStation Electronic Signatures – Even Bentley did not recommend this
- Original Plan was to have Project Managers create a signature block and sign the drawing with Acrobat Professional
- Very time consuming process
- Only worked with Adobe Acrobat Pro - \$\$



Enter.... Adobe Lifecycle Reader Extension

- Improve collaboration and streamline document reviews.
- Enhance the security of enterprise forms and data with digital signatures
- Enable Adobe Reader (Free) to perform signing of electronic documents



Lifecycle Reader Extension

- J2EE based server extensions that “enable” functions usually reserved for Acrobat Professional in Acrobat Reader
- Bentley integration with ProjectWise through ProjectWise Plot (iPlot)



How does it work?

- User changes the state of a MicroStation Drawing to “Ready for Letting”
- ProjectWise generates the PDF file with iPlot and passes it to Lifecycle
- Lifecycle enables the sealing block that is a part of the MoDOT border file
- Returns and checks the PDF into a specific location in ProjectWise



Process to Sign and Seal

| | | | | |
|-----------------|-------------|----------------|----------------|---|
| ROUTE 72 | STATE MO | DISTRICT 10 | SHEET NO. 4 | "THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT." DATE _____ |
| JOB NO. JOP0851 | | | | |
| CONTRACT ID. | | | | |
| PROJECT NO. | | | | |
| COUNTY MADISON | | | | |

ELECTRONICALLY SEALED AND DATED.



Process to Sign and Seal

| ROUTE | STATE | DISTRICT | SHEET NO. | |
|-----------------|-------|----------|-----------|---|
| 72 | MO | 10 | 4 | |
| JOB NO. JOP0851 | | | | |
| | | | | "THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT." |
| | | | | DATE _____ |

Document Is Not Certified

 You are about to apply the first Digital Signature to this document. If you received this document from someone else, it could have been altered without the author's consent. Unless you receive this file from a trusted sender, you may not want to sign it.

If you created this document, you may want to apply a Certifying Signature instead of a regular Digital Signature. If unauthorized changes are made to a Certified document, the Certifying Signature will be invalidated.

ELECTRONICALLY SEALED AND DATED.



Process to Sign and Seal

Apply Signature to Document

To complete the signing process, you must apply the Digital Signature to the document by saving the document. In case you need to later make changes to the original, it is recommended that you create a new signed copy of the document by clicking Sign and Save As.

Signature Details

Signing as **George Kopp.**

Confirm Password:

Reason for Signing Document: (select or edit)

<none>

<< Hide Options

Options

Signature Appearance:

Created 2006.05.17 11:57:36 -05'00'

Location, e.g. city name: (optional)

Your Contact Information, e.g., phone number: (optional)

NO.

"THIS MEDIA SHOULD NOT
BE CONSIDERED A
CERTIFIED DOCUMENT."

DATE _____

EEN ELECTRONICALLY SEALED AND DATED.



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Options

Signature Appearance:

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Your Contact Information, e.g., phone number: (optional)

NO.

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BE CONSIDERED A
CERTIFIED DOCUMENT."

DATE _____

SEEN ELECTRONICALLY SEALED AND DATED.



Process to Sign and Seal

| | | | |
|-------------|----------------|-----------------|--|
| STATE MO | DISTRICT 10 | SHEET NO. 28 |  <p>STATE OF MISSOURI PROFESSIONAL ENGINEER</p> <p>THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.</p> <p>NICALLY SEALED AND DATED.</p> |
| JOP0848 | | | |
| CT ID. | | | |
| T NO. | | | |
| BOLLINGER | | | |

Signature Validation Status

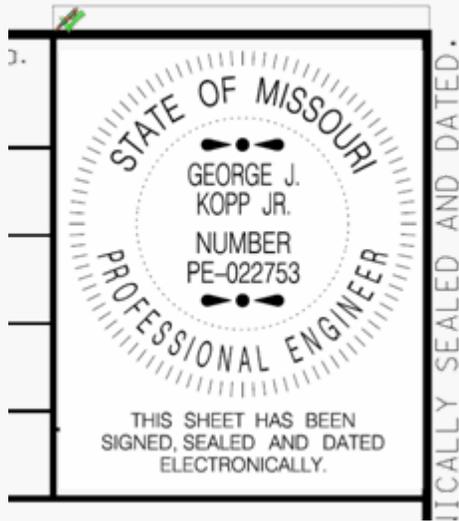


Signature is VALID, signed by George Kopp <george.kopp@modot.mo.gov>.
- The Document has not been modified since this signature was applied.
- The document is signed by the current user.

Legal Notice... Signature Properties... Close



How do we know it was Sealed?



Valid Signature as shown on a MoDOT Plans Sheet



Signature not yet verified



Signers Identity Unknown



MoDOT also applies a border note to alert readers to the electronic signature



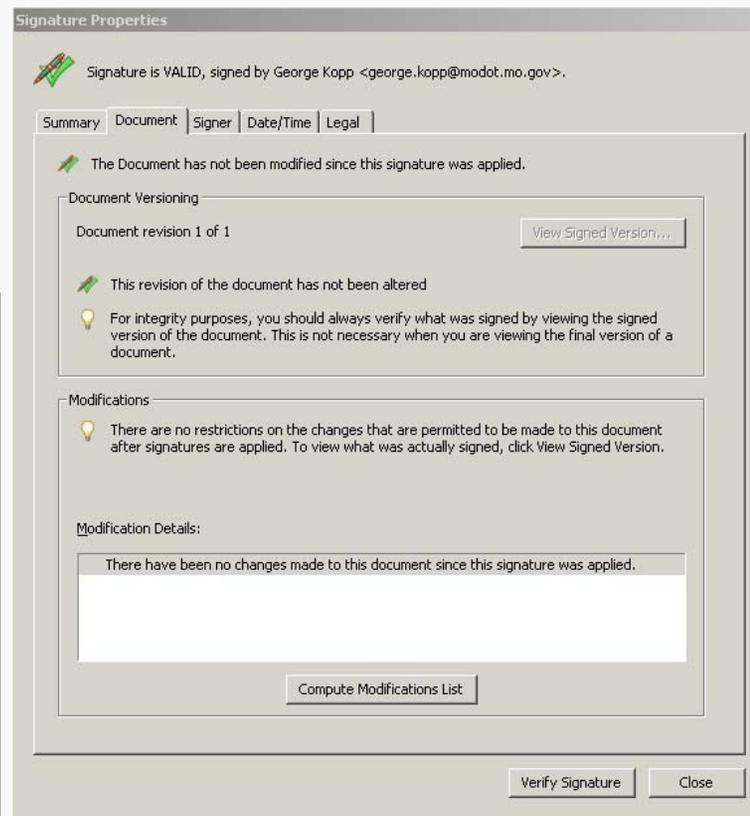
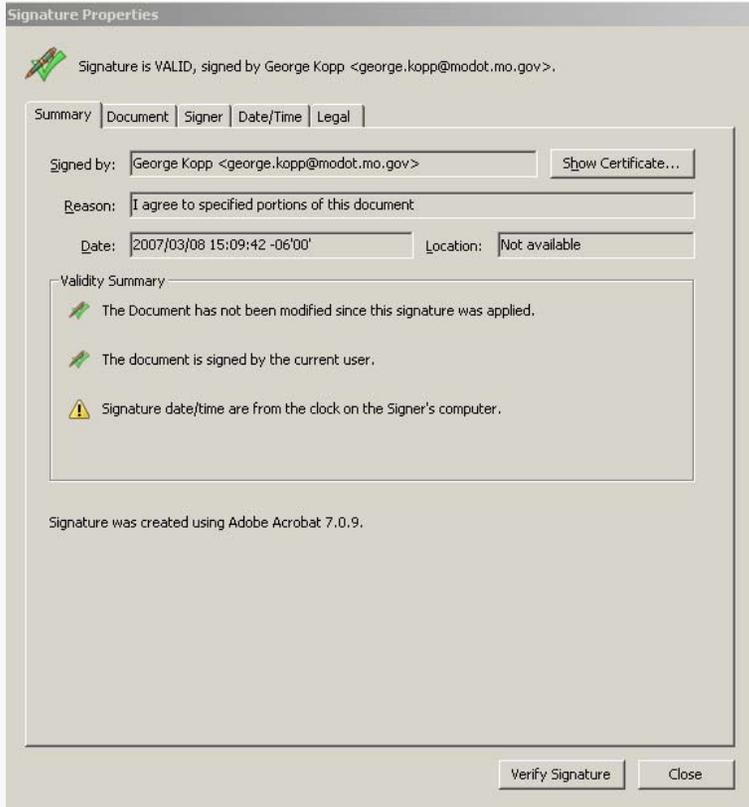


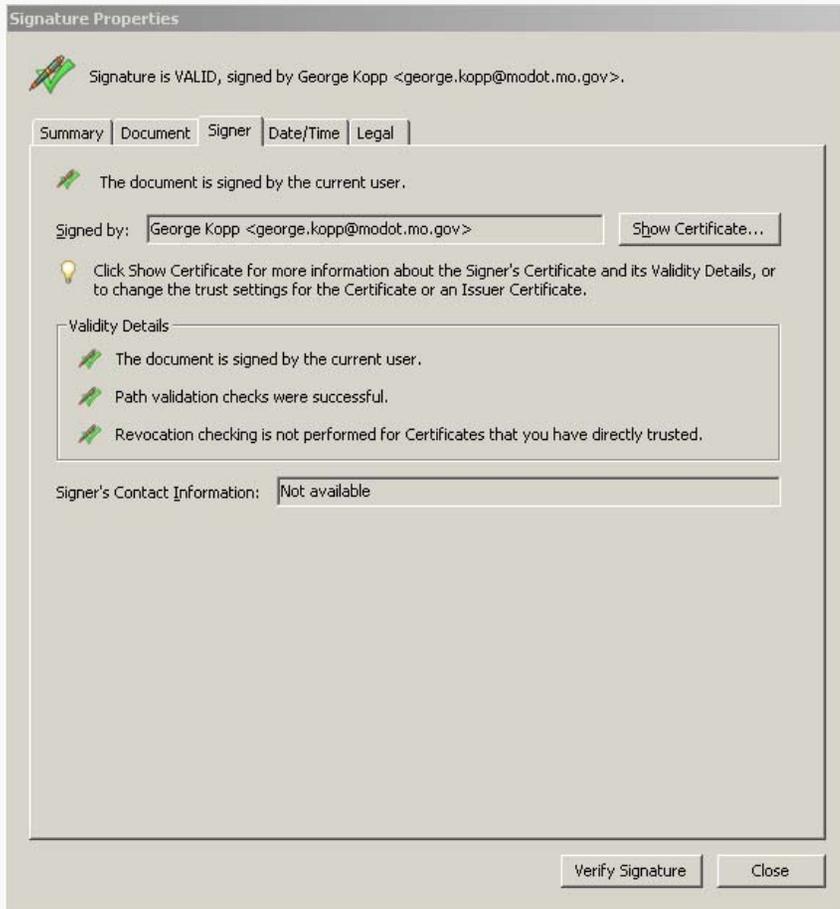
THIS SHEET HAS BEEN
SIGNED, SEALED AND DATED
ELECTRONICALLY.



THIS SHEET HAS BEEN
SIGNED, SEALED AND DATED
ELECTRONICALLY.







From the information attached to the file, it can be determined that the signature is valid, if the digital certificate is available



Job. No. J1P0700
Route 8
Daviss County

ROADWAY JOB SPECIAL PROVISIONS TABLE OF CONTENTS

(Job Special Provision shall prevail over General Special provisions whenever in conflict therewith.)

- A. General
- B. Work Zone Traffic Management Plan
- C. Project Contact For Contractor /Bidder Questions
- D. Order of Work
- E. Earthwork
- F. Alternates For Pavements
- G. Utilities
- H. Fertilizing, Seeding, And Mulch
- I. Emergency Provisions And Incident Management
- J. Tree Clearing Time Restriction
- K. Section 404 Nationwide Permit Special Conditions
- L. Supplemental Revisions
- M. Liquidated Damages for winter Months
- N. Local Access Within Project Limits
- O. County Road Access
- P. Zoning of High Liquid Limit Material
- Q. Temporary Inlets And Collars
- R. Embankment in Place
- S. Partial Building Removal - Parcel 8
- T. Electronic Information for Bidders Automation



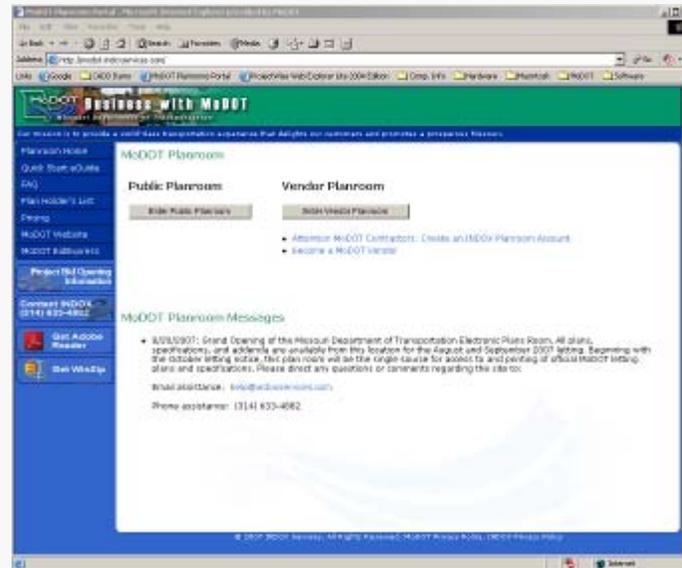
THIS SHEET HAS BEEN
SIGNED, SEALED AND DATED
ELECTRONICALLY.

In addition to
Plan sheets,
Job Special
Provisions will
also be sealed
electronically



Electronic Plans Room

- Drawings are then be submitted to the departments Electronic Plan Room and made available to contractors
- Contractors can view, download, or print plan sheets 24/7 through the internet



What about Consultants?

- Consultants under current contracts still deliver printed, signed, and sealed plans to districts and bridge
- MoDOT will scan these plans to create PDF's necessary for the electronic plans room
- MoDOT is willing to allow consultants to create an electronic workflow that provides for electronic deliverables similar to ours



What Benefits did MoDOT See?

- Managed document environment
- Major reduction in printing costs
- Time savings from shipping plan sheets both on the district to headquarters end and on the headquarters to contractors end



Questions?



