

**Electronic Signing
and Sealing using
PEDDS**

Florida Chapter of the
**American Society of
Landscape Architects**

Shawn McGaffick
Bentley Systems, Inc

61G10-11.011
**Electronic Transmission of Plans,
Specifications, Reports, and Seals.**

(1) Landscape architecture work, which must be sealed under provisions of Chapter 481, F.S., to be stored or transmitted in electronic format, shall be signed, dated, and sealed by the Landscape Architect.

(2) A license holder may use a computer generated representation of his or her seal on electronically conveyed work; however the final hard copy documents of such landscape architecture work must contain an **original signature of the license holder and date or the documents must be accompanied by an electronic signature as described in this section.** A scanned image of an original signature shall not be used in lieu of an original signature or electronic signature. Landscape architecture work that contains a computer generated seal shall be accompanied by the following text or similar wording: "The seal appearing on this document was authorized by [Example: Leslie H. Doe, L.A. 0112 on (date)]" unless accompanied by an electronic signature as described in this section.

(3) An electronic signature is a **digital authentication process attached to or logically associated with an electronic document and shall carry the same weight, authority, and effect as an original signature.**

The electronic signature, which can be generated by using either public key infrastructure or signature dynamics technology, must be as follows:

- (a) **Unique** to the person using it;
- (b) Capable of **verification**;
- (c) Under the **sole control** of the person using it;
- (d) **Linked** to a document in such a manner that the electronic signature is invalidated if any data in the document are changed.

4) Alternatively, electronic files may be **signed and sealed** by creating a "**signature**" file that contains the Landscape Architect's name and license number, a brief overall description of the documents, and a list of the electronic files to be sealed. Each file in the list shall be identified by its file name utilizing relative Uniform Resource Locators (URL) syntax described in the Internet Architecture Board's Request for Comments (RFC) 1738, December 1994, which is hereby adopted and incorporated by reference by the Board and can be obtained from the Internet Website:

<ftp://ftp.isi.edu/in-notes/rfc1738.txt>

Each file shall have an **authentication code** defined as an **SHA-1 message digest** described in Federal Information Processing Standard Publication 180-1 "Secure Hash Standard," 1995 April 17, which is hereby adopted and incorporated by reference by the Board and can be obtained from the Internet Website:

<http://www.itl.nist.gov/div897/pubs/fip180-1.htm>

A **report** shall be created that contains the Landscape Architect's name and license number, a brief overall description of **the documents** in question and the authentication code of the signature file. This report shall be **printed and manually signed, dated, and sealed** by the Landscape Architect in responsible charge.

The signature file is defined as sealed if its **authentication code matches the authentication code on the printed, manually signed, dated and sealed report.** Each electronic file listed in a sealed signature file is defined as sealed if the listed authentication code matches the file's computed authentication code.

How does it all work...

Combined electronic documents that are signed and sealed including signature document and manifest document that contain traditional ink signature and impression seal.

Professionals Electronic Data Delivery System



Terminology

- What is an SHA-1 Hash?
- What does Secure a project mean?
- What does Authenticate a project mean?
- Who is a Signatory?
 - Professionals of Record
 - Other (Lay) Signatories
- What is a Signature File?
- What is a Signature Document?
- What is a Manifest File?
- What is a Delivery Manifest Document?

SHA-1 Hash Code

- PEDDS relies on a one way cryptographic hash (SHA-1) to uniquely identify electronic data, (fingerprint)
- Highly condensed representation (hash code or message digest) of the file (message)
- Hash codes themselves are protected by traditional means (ink signatures and impression seals)

SHA-1 Hash Code

- Algorithm developed by NSA and published by NIST.
- Dependent on files content fed through SHA-1.
- 160-bit, each bit 0 or 1 (2^{160})

Stored HASH CODE:
EAEDEF8F-A544B5E1-AC3FE501-03A0348D-14C63185
Computed HASH CODE:
8C25EE5D-6A48232E-056EDFF7-DB84DFE3-BF2692AA
This file has been modified, a space has been added.

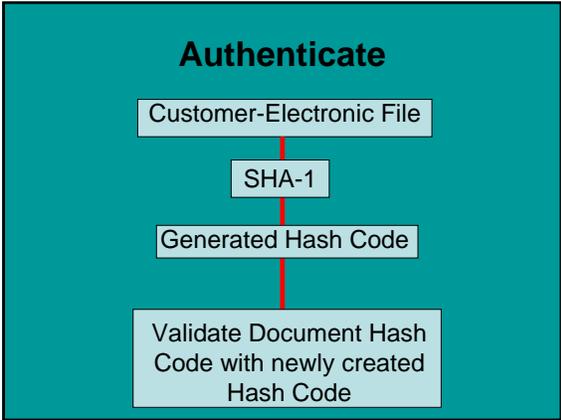
Secure

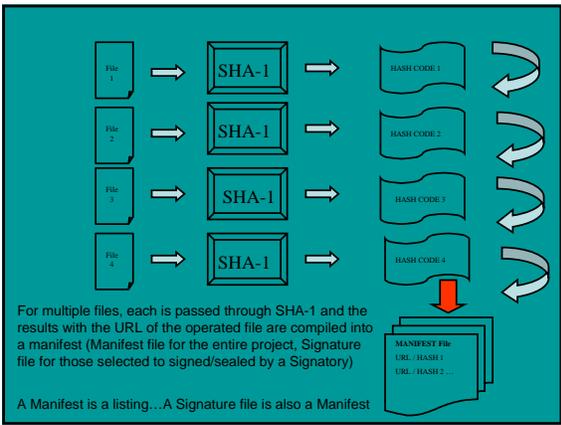
Producer of Electronic File

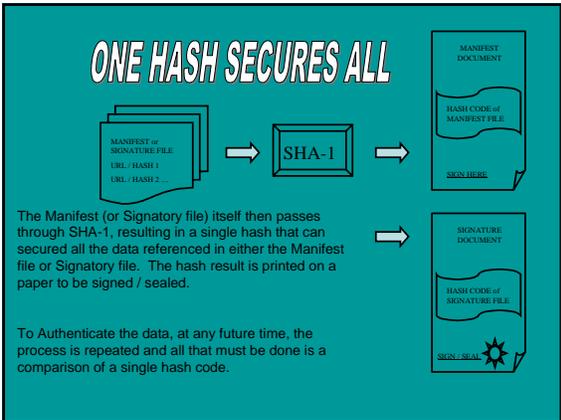
SHA-1

Generated Hash Code

Printed Document with
Hash Code, Signed/Sealed



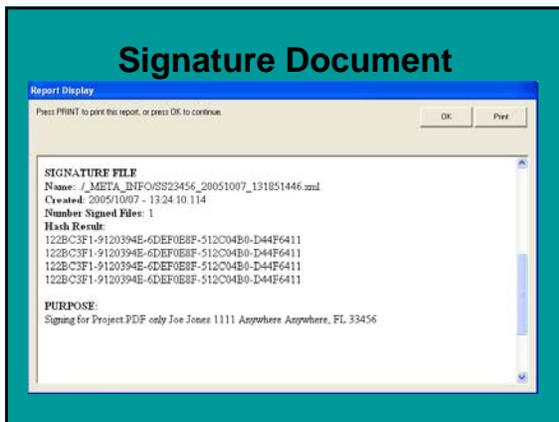




Signatory

- Signatories are the person(s) or professional(s) who secure the files using a signature file and document.
 - Professionals use LA number (Sign and Seal)
 - Lay signatures (Signature-No Seal) use FL Drivers License Number

Signature Document



Signatory Report

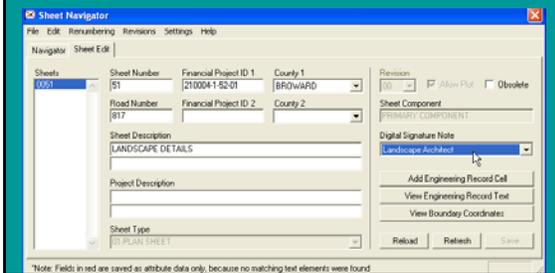


PEDDS Project Manager

- This is person designated to perform the Pre- and Post-Production functions.
 - This person manages DATA not the Project.
 - Could be the same as the EOR/LA etc.

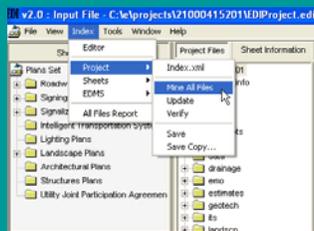
Sheet Navigator for MS

- If you use MicroStation, we have some tools to help in the process

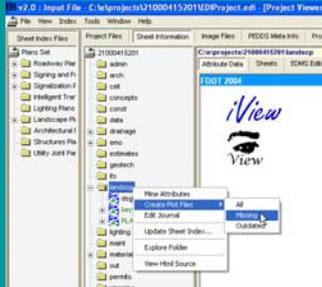


Indexing

- As sheets are created, Indexing must take place.



Generating PS images



Demonstration

- Creating a PEDDS Project
- Secure the Project using PEDDS
- Authenticate the Project using PEDDS
- No MicroStation, no Problem, add PDF
- Create Signatory using PEDDS
- Selecting Files using PEDDS
- Sign and Seal using PEDDS
- Secure Project using PEDDS

Training

- Yes there is, contact the districts that you work with.

Questions and Thank You !

Quinton Tillman
Florida Department of Transportation
Engineering/CADD Systems Office
Quinton.Tillman@dot.state.fl.us

Shawn McGaffick
Bentley Systems, Inc
Shawn.McGaffick@bentley.com
