Electronic Information Transfer Requirements

Recently an ***Ohio Surveying News*** article addressed liability exposures in electronic information transfer. More business transactions are being conducted electronically each day. Surveyors have been using computer applications from word processors to CAD for many years. Should we have expected the requests for electronic data transfer to become more common? Of course now we can see the answer is yes, and the number of such requests are likely to increase. Since 2000 changes in both Federal[1] and Ohio[2] laws have made totally electronic transfers of land a real possibility. An online article ***Has Congress Murdered the Statute of Frauds?***[3] addresses this from one attorney's perspective. There has been little time for case law to interpret the enacted statutes. Surveyors currently need to answer two questions about electronic information transfer. First what is required now and in the near future? Second how do Professional Surveyors prepare to comply with these requirements?

The answer to the first question may create a conflict with some of the previous advice on controlling liability exposure. State agencies in Ohio permit, or are preparing to require, electronic plans to control over hard copy. The Ohio Department of Commerce began an electronic submission program for code compliance review of building plans three years ago[4]. Over sixty percent of submissions are now electronic. The State Architect's Office response regarding electronic plans **"We are in the process of implementing a state-wide Web-based project management system for management of Ohio Capital Improvements. We will indeed be asking the architects, engineers, and surveyors who perform work under contract with us to submit their documents electronically."** Conceivably such a system could make all phases of contract management from advertising work to delivery of all final documents electronic. In February 2007 PLSO was represented at a meeting, hosted by the Ohio Department of Transportation, to discuss electronic transmission of ODOT plans[5]. The presentation included a statement **"ODOT is considering the use of Digital Signatures on future roadway design projects."** While this presentation is not adopted policy it does indicate a possible future policy direction. Ohio Revised Code[6] (ORC) 4733.14 includes the following:

> ***Each registrant may, upon completing registration, obtain a seal of the design authorized by the board***, bearing the registrant's name and the legend, "registered professional engineer," or "registered professional surveyor," provided, however, that any registered surveyor's seal obtained prior to the amendment of this section effective April 4, 1985, 140 Ohio Laws 4092, shall remain as a legal seal for any registrant who was registered as a "registered surveyor." Plans, specifications, plats, reports, ***and all other engineering or surveying work products issued by a registrant shall be stamped with the seal and be signed and dated by the registrant or bear a computer-generated seal and electronic signature and date***, but no person shall stamp, seal, or sign any documents after the registration of the registrant named thereon has expired or the registration has been revoked or suspended, unless the registration has been renewed or reissued. (Emphasis & underline added)

The portion of this section limiting use of electronic seals was removed by legislation that became effective in 2007. The use of both "may" and "shall" in this section can be misleading. The word **may** indicates an optional condition while **shall** indicates a requirement or command. Electronic transmission of plans and other documents will require professionals, for their own protection as well as legal compliance, to use an electronic seal that will ***certify*** the content of the electronic document has not been altered. Even though a contract states the hard copy will control, how do you make an argument the supporting electronic files are not ***surveying work products?*** The implication is that these supporting files should also bear an electronic seal. The (ORC) includes similar requirements for Architects (4703.12) and Landscape Architects (4703.32) without addressing electronic seals or signatures. However, the Ohio Administrative Code (OAC) for these professions, 4703-3-01 and 4703:1-3-01, contains very specific language regarding electronic seals. Part of that language requires **"Changes to the document after affixing the electronic seal and signature shall cause the electronic seal and signature to be removed or altered in such a way as to invalidate the electronic seal and signature. . ."** The rules for plats of survey OAC 4733-37-05 and 4733-38-05 require **"The surveyor's printed name and Ohio registration number, signature and seal (in a form which may clearly reproduce on any copies which may be made of the original drawing)."** The requirements for Architects should serve as guidelines for Professional Surveyors required to submit electronic files meeting our own OAC requirements. If you are supplying a base map that an Architect will include in his plans you may be contractually required to meet their standards.

Defining how Professional Surveyors should prepare to use an electronic seal in data transfer is more difficult. The question is on par with the classic ***"How much does a survey cost?"*** The answer is also familiar to surveyors ***"It depends on what your client really needs!"*** There are a number of ID security levels and ways to create an electronic ID/seal/signature. What level of certification your client needs should be determined before you agree to transfer data requiring a digital signature. An example at the low end of the ID security spectrum is Adobe Acrobat® creation of a

"digital ID" and using it to sign Portable Document Format (PDF) files. When the visual signature option is used the visible signature will change if the content of the file is altered. This is equivalent to using a crimp or stamp seal on a paper document provided to a client in a face to face transaction. This may be sufficient for the clients of many surveyors. Higher levels of digital IDs are generated by a third party "Certificate Authority" (CA) and linked to your email address. A few of these Certificate Authorities are Verisign (http://www.verisign.com/), Entrust (http://www.entrust.com/), IdenTrust (http://www.identrust.com/) and GlobalSign (http://www.globalsign.com/) with each providing multiple levels of ID security. An example of the first step up is a Verisign "Class 1Digital ID" which currently costs $19.95 per year and will work with email, PDF creators, word processing, spreadsheet and CAD applications. However, the certificate includes a statement "Persona Not Validated" indicating a lack of identity verification. The CA has verified only a working email address and a credit card valid for online purchases. A higher level of identity verification from Verisign is an **"External Certification Authority (ECA)"** certificate. This certificate, which currently costs $125 per year, has similar capabilities to the Class 1 Digital ID but requires **"Robust In-Person Identity and Citizenship Verification."** The ECA certificates are described as electronic ID for companies and individuals doing business with the U.S. government. Hopefully the various Ohio agencies creating electronic document submission systems will adopt digital certificate requirements that do not conflict with each other. The Ohio agencies and licensing boards also have the option of using the e-license database to generate and distribute professional digital certificates. Pursuing this option may require working with one of the established CA firms to insure wide acceptance of the certificate. The level of identity verification inherent in the licensing process likely equals or exceeds the ECA certificate mentioned above.

In addition to the level of identity verification the file format(s) required must be considered when agreeing to transfer data electronically. Some file formats could create conflicts with Ohio legal requirements previously mentioned. Will the software needed to produce the required file format support the digital signature desired? Will the combination of software and certificate comply with all previously mentioned legal requirements? The first requirement is that changes to the document cause the invalidation of the electronic seal and signature. The second requirement is that the seal and signature clearly reproduce on any copies which may be made of the original document. Some software does not have the option to include a visual representation of a digital signature in the file. Some of the CAs mentioned above offer free trial digital IDs. This will allow verification the ID will work with various software and meet your needs. Again it is hoped that the Ohio agencies work together to adopt common standards for file formats that do not conflict with ORC and OAC requirements. Since the topic addressed is digital signatures this document will be converted to PDF format and digitally signed twice in the space provided below. The first will be a self generated certificate and the second from a CA. Adding the second will invalidate and alter the appearance of the first. The invalid signature will show a pen with a red "X"  while the valid signature will show a pen with a green check  mark. Unfortunately the printed document will not show these symbols. Would this be a conflict with current OAC 4733-37-05 and 4733-38-05 or 4703-3-01 and 4703:1-3-01 requirements?

Digitally signed by Dallas P. Morlan, P.S.
DN: CN = Dallas P. Morlan, P.S., C = US, O = Personal Use
Reason: I am the author of this document
Location: Delaware, Ohio
Date: 2008.07.30 13:07:45 -04'00'

Digitally signed by Dallas P. Morlan
DN: CN = Dallas P. Morlan, O = VeriSign, Inc., OU = VeriSign Trust Network
Reason: I am the author of this document
Location: Delaware, Ohio
Date: 2008.07.30 13:09:40 -04'00'

1. U.S. Code Title 15 - Commerce and Trade, Chapter 96 - Electronic Signatures in Global and National Commerce

2. Ohio Revised Code Chapter 1306: Uniform Electronic Transactions Act

3. http://dirt.umkc.edu/files/sof.htm Has Congress Murdered the Statute of Frauds? Patrick Randolph, Jr., Professor of Law, UMKC School of Law

4. http://www.com.ohio.gov/ Building Code Compliance ePlans Submission, and telephone conversation.

5. Sealed Electronic Plans - An ODOT Perspective http://www.dot.state.oh.us/cadd/sealedplans/

6. Ohio law and rule citations from LAWriter® http://codes.ohio.gov/