

CHAPTER 3

SIGNING AND SEALING OF PROFESSIONAL SURVEY DELIVERABLES

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Sec. 3.01 Introduction

The purpose of the VDOT GeoSpatial Program Area is to provide accurate and complete survey information, which meets legally required minimum standards and that can be utilized for design, right of way and construction efforts. The creation of a survey plan base, the platting of rights of way and easements, and the monumentation of right of way limits fall under the responsibility and purview of professional land surveyors. This chapter establishes new processes, streamlines existing processes and addresses issues that will bring VDOT into compliance with the Code of Virginia with respect to the professional [practice of land surveying](#). This chapter is a general plan to focus attention on these areas of practice within the Department, to aid management in scheduling and budgeting resources for successful implementation and to ensure compliance with both the Code of Virginia and Department policies and procedures.

Sec. 3.02 Business and Legal Purpose for Signing and Sealing Survey Products

In accordance with the Chief Engineer's directives, beginning July 1, 2009, all new VDOT surveys, deliverables and services listed and described in this chapter and the current [VDOT L&D IIM-243](#) "Sealing and Signing of Plans and Documents", shall be sealed and signed by a surveyor, licensed in the Commonwealth of Virginia. The work shall be performed by, or under the direct control and supervision of a land surveyor in good standing who is licensed in the Commonwealth of Virginia. The survey products and services shall meet applicable [APELSCIDLA minimum standards and regulations](#) and shall follow procedures and practices established in the Department's Survey Manual.

VDOT requires that all plans and documents are to be signed with ACES (Access Certificates for Electronic Services) Business Representatives Digital Certificates. These certificates are purchased from [IdenTrust, LLC](#), and supplied to VDOT staff. For information regarding the application of these products refer to VDOT's CADD Manual [Chapter 5](#).

Sec. 3.02.1 Description of Work and Guidance

These services consist of performing records research, field work and office computations that ultimately provide certified professionally surveyed information to the Department for its use in evaluating and ascertaining an area for its suitability for transportation purposes, construction or for any other purpose incidental thereto. Safety in the field is paramount therefore; all work zones shall conform to the [VDOT Work Zone Safety Protection Manual](#).

Sec. 3.02.2 **Materials Necessary to Provide Services**

Survey work shall be performed using calibrated, modern surveying equipment, combined with practices and procedures that ensure applicable accuracy requirements are met. All work shall be authorized by the respective Survey Manager (VDOT employees) or the GeoSpatial Program Manager (limited services consultants) with a written notice to proceed and anticipated delivery date. The limits of the area and/or identified facilities requiring survey information shall be identified as the result of a scoping meeting or field site review.

Sec. 3.02.3 **Application of Survey Seal**

These survey products will follow the guidelines outlined in the electronic submission guides and contain the surveyor's electronic seal, digital signature and certification statement(s) when necessary. These products may contain notes and statements, by the professional, that define what the product represents and what it does not. The [Survey Cell Libraries](#) contain sample notes for modification and insertion into the CADD file product. These survey products are deliverables contained within the MicroStation CADD environment. The surveyor shall affix their seal in the proximity of the Title Block portion of the survey file as depicted [Figure 3-A](#). Additionally, the surveyor shall include general notes pertaining to the representation of the survey in the same proximity of their seal. In the case of specific notes, the surveyor shall place these in proximity to the areas of concern that require attention. Digital signatures are to be placed with ACES (Access Certificates for Electronic Services) Business Representatives Digital Certificates.

Sec. 3.03 **Engineering/Topographic Surveys**

The majority of this work occurs after project scoping, once funding is authorized, and is delivered at various periods prior to the Plan Coordination Review stage as depicted in the [VDOT Project Development Process](#). See the [Project Development Process Flow Chart](#) or refer to the [PDP Overview](#) for more information.

Sec. 3.03.1 **Professional Surveying Services & Responsibilities**

The application of the professional's seal, electronic signature, and date shall be evidence that the survey meets or exceeds the minimum requirements of DPOR's APELSCIDLA regulations and VDOT's Survey and CADD manuals, is an accurate representation of the existing site and ownership conditions on that date for the area of concern, and correct to the best of the professional's knowledge, information, and belief on that date for:

a. **Location Surveys**

These types of surveys shall conform to the [VDOT Survey Manual Chapter 7](#). These surveys include and encompass ownership of record, compiled title evidence, topography, planimetry, drainage information, subsurface utilities and base survey control on an as needed basis. These surveys may include or be requested to obtain information pertaining to wetland identification and mitigation and other environmental

aspects of the project. Survey updates will be evaluated during the Detailed Design phase of the VDOT project plan process. Updates are critical to the successful completion of the plan, all survey and sue information will be evaluated to see if it warrants updating the survey or sue information. If consultants or VDOT personnel are being used on the project, the same party should be used to complete the project through setting monumentation at the completion of construction if available by contract. If the original consultant is not available, it is imperative that the Project Manager and Survey Manager determine who will be responsible for signing and sealing the plans.

b. Photogrammetric Surveys

These types of surveys shall conform to [VDOT Survey Manual Chapter 6](#) , titled “Photogrammetric Surveys”.

c. Hydraulic Surveys

These types of surveys shall conform to [VDOT Survey Manual Chapter 8](#), titled “Hydraulic Surveys”. These surveys are requested for the specific purpose of hydrologic and hydraulic opening evaluation and engineering. The VDOT Survey Manual establishes the methods and criteria to achieve the desired result. This section of the Manual also contains guidance for the performance of Bridge Situation surveys and deliverables.

Sec. 3.04 Right of Way, Boundary and Easement Surveys

The majority of this work occurs after the Design Approval phase as depicted in the [VDOT Project Development Process](#) but before the Project Advertisement phase. This work requires good communication and coordination between Survey and Design team members during the project.

Sec. 3.04.1 Description of Work and Guidance

On October 28, 2009, the Department presented the DPOR with a letter entitled “Virginia Department of Transportation – Documents Required to be Signed and Sealed” outlining the documents to be signed and sealed.

On July 17, 2012, the Department sent an updated document to clarify the use of the right of way plan sheet, monumentation be set and the timing for setting final monumentation. The LS/PE board met on August 16, 2012 and accepted the clarification. On September 25, 2012, the full APELSCIDLA met and accepted the clarification letter.

L & D Survey and Right of Way have agreed upon the following work products and documentation includes:

- The Right of Way Section will record each acquisition recordation instrument with a right of way plan sheet for partial takes and a plat for total take parcels per the [Right of Way Manual of Instructions](#). On total takes existing plats of record may be used if no out conveyances have occurred. Additional plats may be necessary and will be provided on an as needed basis.

- The right of way plan sheet or plat will be referenced in the conveyance documents.
- The Survey Section will provide acreage for fee take (prescriptive and non-prescriptive), permanent and temporary easements on the right of way data sheet.
- The Right of Way Section may pay landowners for the replacement of lot corners lost during the construction process. VDOT or a consultant will be responsible for setting the angle breaks, PC's, and PT's along the perimeter of the right of way once construction is complete in accordance with the [Road Design Manual, Appendix C](#).

Sec. 3.04.2 Professional Surveying Services & Responsibilities – after January 1, 2013

Right of Way Plan Sheets -

The Right of Way and Utilities Division and the Location and Design Division have agreed to utilize a right of way plan sheet to acquire properties. This will be a collaborative effort by the design team and the survey team; *Communication is the key to the success of this process.*

Design Team responsibilities:

- a. The design team will create the master right of way design file.
The master Right of Way design file will only have the line work for proposed right of way and easements that is referenced into the master roadway design files.
- b. After UFI is reached and comments are addressed, the Design team will create a RW file for each plan sheet in the R folder. At the discretion of the Project Manager and Survey Manager, these may be created at FI so Survey can proceed with checking and sheet setup.
Permissions will be restricted to Survey staff only for the R and O folders after UFI. The Design teams will provide the design files that have the alignment data so the stations and offsets can be annotated.
- c. The handoff from Design to Survey shall be documented so each team understands their responsibilities.
- d. The Design team will coordinate any changes to the SPO and Right of way design files through Survey after the handoff. Major revisions to the Right of Way design files will be completed by the design teams and resubmitted to Surveys in accordance with the Road Design Manual, [Chapter 2F](#).

Survey Team responsibilities:

- a. The Survey team is responsible for the master right of way design file, right of way data sheet and SPO file from the handoff until Ad. Any changes to this line work through the checking or annotation process should be communicated back to the PM and the design team so all reference files can be updated. RW sheets will be provided to Survey by the Design team per the [CADD Manual](#) and should match the plan sheets. Survey will turn off all design information from the RW sheet except for proposed right of way and easements for clarity.

- b. All existing monumentation, owner's information, and boundary data should be shown and referenced to the construction centerline. Prescriptive easements will be shown graphically only. All VDOT right of way, limited access, and easements depicted on existing VDOT plans must be shown unless it has been verified that VDOT never acquired the right of way and/or easement. The typical notes should be added to the sheet and all references to sheet numbers should be corrected to RW and includes match line references.
- c. VDOT Monuments should be shown on the applicable RW sheets and labeled.
- d. All angle breaks should be annotated using plus and offsets for the proposed right of way and proposed easements. A plus and offset legend will be shown on the sheet. The perimeter of the new proposed right of way will be shown with metes and bounds sufficient to close the right of way, tie lines may be necessary.
- e. All proposed right of way will be labeled on the sheet. All easements will be labeled for their respective uses.
- f. All right of way takes, existing prescriptive easement and proposed easement areas shall be shown on the RW sheet in table format per parcel. The table will specify the areas for each different easement use. Areas less than 1 acre will be shown in square feet to the nearest square foot and areas greater than 1 acre will be shown in acres (X.XXX acres) to three decimal places.
- g. On each sheet, two points on the construction centerline will be labeled with the project coordinate values. The construction centerline will show all tangent and curve data shown on the plan sheet. Roads will be labeled with Route numbers and names.
- h. The Surveyor of Record will be responsible for setting right of way break points along the perimeter of the proposed right of way after construction is complete.

Example sheets have been provided. See [Figure 3-C](#) and [Figure 3-D](#).

Please reference [CADD Manual](#) for more specific details.

All submissions will follow the Electronic Plan Submission Process Reference and Right of Way Submission Guides shown below.

Electronic Plan Flow Chart

http://www.virginiadot.org/business/resources/LocDes/ElectronicPlan_Submission.pdf

Right of Way Submission Tier 1 & Tier 2

http://www.virginiadot.org/business/locdes/Right_of_way_partial_take.asp

Sec. 3.04.3 Metes and Bounds Surveys

These types of surveys shall conform to [Chapter 4](#) of the VDOT Survey Manual, Section 4.04 entitled, "Metes and Bounds Surveys" and CADD Manual [Chapter 5](#), Section 5.6.6-5.6.9 in the Right of Way Manual of Instructions. These surveys, also referred to as Boundary Surveys or Closed Surveys, represent an extensive effort beyond a typical location survey, to identify and delineate record title lines of a parcel of interest to VDOT. It is important that all VDOT right of way, limited access, and easements are shown on the plat when performing metes and bounds surveys.

Sec. 3.04.4 Plat Process prior to January 1, 2013

Right of Way Acquisition Plats

Note: This process is only available for projects prior to January 1, 2013 that have been started using individual plats. All projects after January 1, 2013 will use the RW plan sheet described above. Plats will be needed for total takes and special properties.

Right of Way Division and Location and Design agreed in 2010 to a pilot program to utilize the Survey Section to develop right of way acquisition plats for use in acquiring fee property and/or interest in property for transportation purposes. The plat shall contain a note that it is produced from compiled data, and will contain the fee take, all easements and applicable minimum requirements as required by [DPOR's APELSCIDLA regulations](#). The plat shall meet the [State Library of Virginia standards for recordation](#). Preliminary plat preparation shall begin after all Utility Field Inspection comments have been incorporated into the project plans.

By sealing and signing the product, the land surveyor is testifying that the information shown and depicted in the Right of Way Acquisition Plat is a representation of the existing field and ownership conditions on that date for the area of concern, it is produced from compiled sources of data and that the survey meets the minimum requirements of DPOR's APELSCIDLA regulations pertaining to boundary or compilation surveys and plats of record. Please refer to [Figure 3-B](#) for a sample Right of Way Acquisition Plat.

Bearings and Distances are the controlling elements for acquisition plats. Stations and offsets are shown on the plat to tie the plat to the project baseline controls (Provide a minimum of 2 points). Plats shall reference the VDOT project number, UPC number, parcel number and the corresponding plan sheet associated with these project controls and plusses and offsets. Plats shall clearly show calculated areas of right of way and/or each easement type required to construct the project.

As part of plat development, recordation and prior to the commencement of construction, The Surveyor of Record will be responsible for setting right of way break points and points of intersection between the new right of way and existing property lines. Such break points will be shown on the acquisition plats.

Sec. 3.05 Construction Surveys

The majority of this work occurs after the Project Advertisement phase as depicted in the VDOT [Project Development Process](#).

Sec. 3.05.1 Professional Surveying Services & Responsibilities

All survey work shall adhere to the minimum specifications and guidance as referenced in the current [Road and Bridge Specifications](#) (Sections 105.13 and Section 517) and [Chapter 11](#) of the VDOT Survey Manual and Sec. 3.02 above.

Sec. 3.06 Survey Information Not Requiring a Seal or Signature

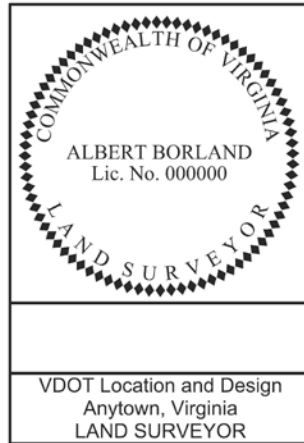
Asset management surveys, or those surveys that are for purely quantitative purposes (i.e. measuring linear feet of guardrail, number of signs, etc.) will not require a seal or signature unless deemed necessary by the requestor. Information secured by surveyors that does not depict critical elevations or planimetric locations, modeled existing conditions or boundary evidence are not required to be sealed and signed.

Information not listed above that is contained within the Chapter Contents section of [Chapter 11](#) of the VDOT Survey Manual will not require sealing and signing unless specifically requested.

IIM-LD-243 Signing and Sealing

<http://www.virginiadot.org/business/resources/LocDes/IIM/IIM243.pdf>

Figure 3-A



Route : 1
Project : 0001-026-107-PI01.C501
District : Richmond
County : Dinwiddie
From : 0J6 MI.N.Of Int.Rte.1 & Rte.226
To : 0J5 MI.S.Of Int.Rte.1 & Rte.226
Horizontal Datum Based On NAD 83 (93)
Vertical Datum Based On NAVD 88
Survey By : Albert Borland L.S.
Operator : P.W. Herman
Date : 7 - 13 - 09
Scale : 1" = 25'
UPC# : 73268

NOTES:

I HEREBY CERTIFY THAT THIS ROUTE SURVEY TO THE BEST OF MY KNOWLEDGE AND BELIEF IS CORRECT AND COMPLIES WITH THE STANDARDS AND PROCEDURES AS ESTABLISHED BY THE VIRGINIA DEPARTMENT OF TRANSPORTATION LOCATION AND DESIGN DIVISION, SURVEY MANUAL 2009.

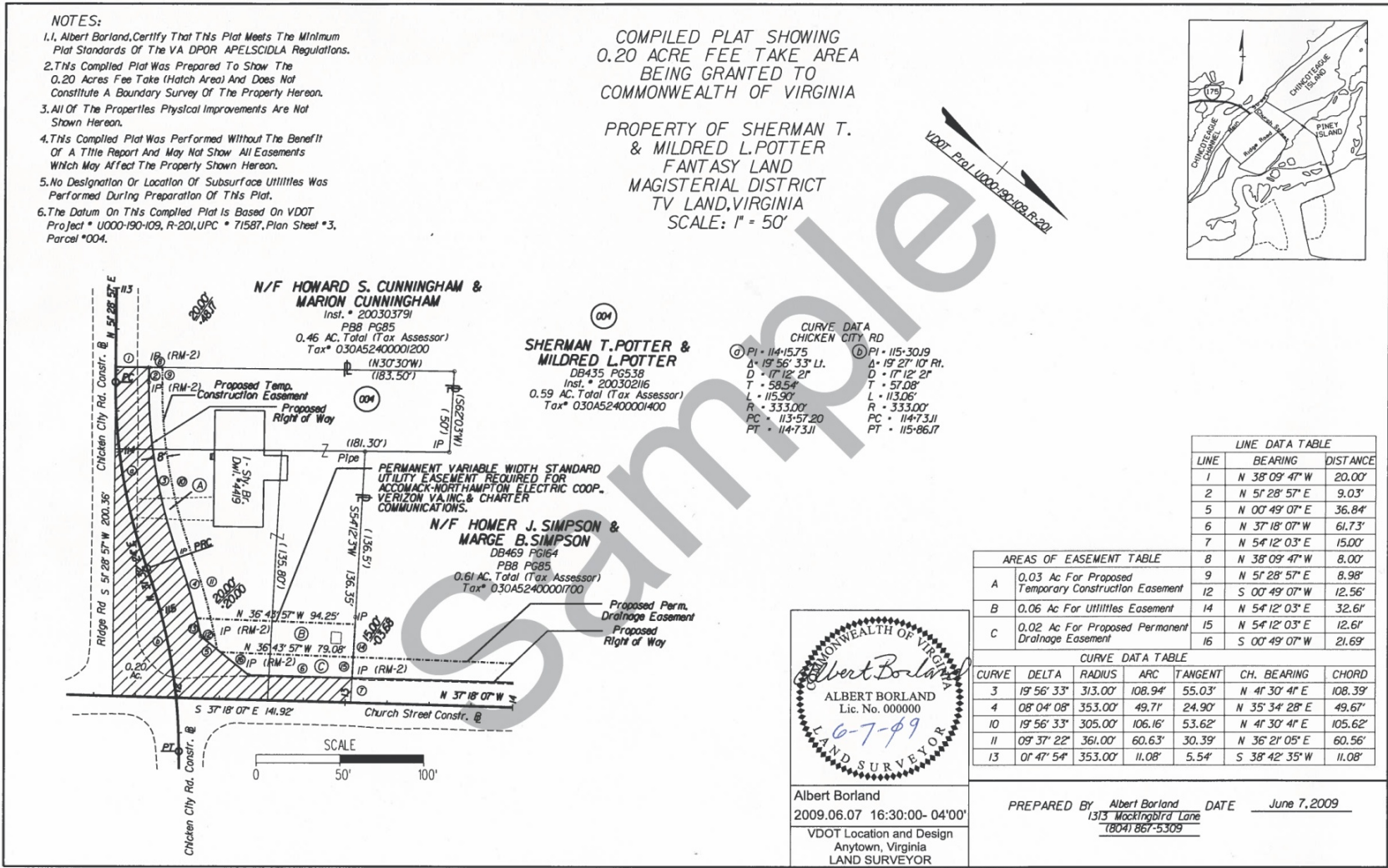
PROPERTY INFORMATION IS BASED ON DEEDS AND PLATS OF RECORD. PHYSICAL EVIDENCE FOUND WAS PLACED ON DRAWING.

THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING LAND RECORDS AND DOES NOT REPRESENT A BOUNDARY SURVEY.

BEARINGS AND DISTANCES IN PARENTHESES ARE FROM RECORDED PLATS OR DEED DATA

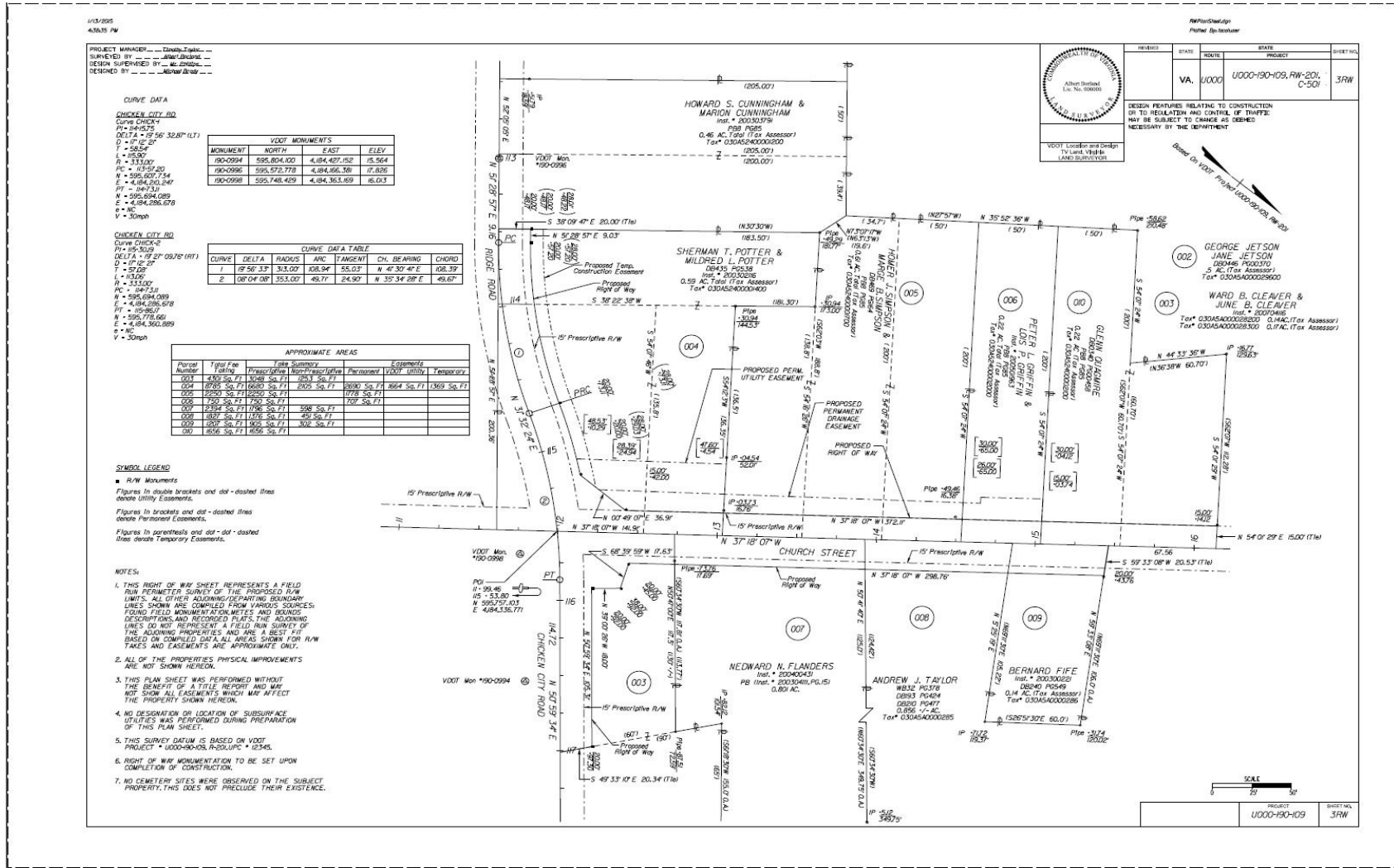
Sample Location of Seal and Signature in MicroStation File
(Note: Digital Signature is embedded in the MicroStation Cell)

Figure 3-B



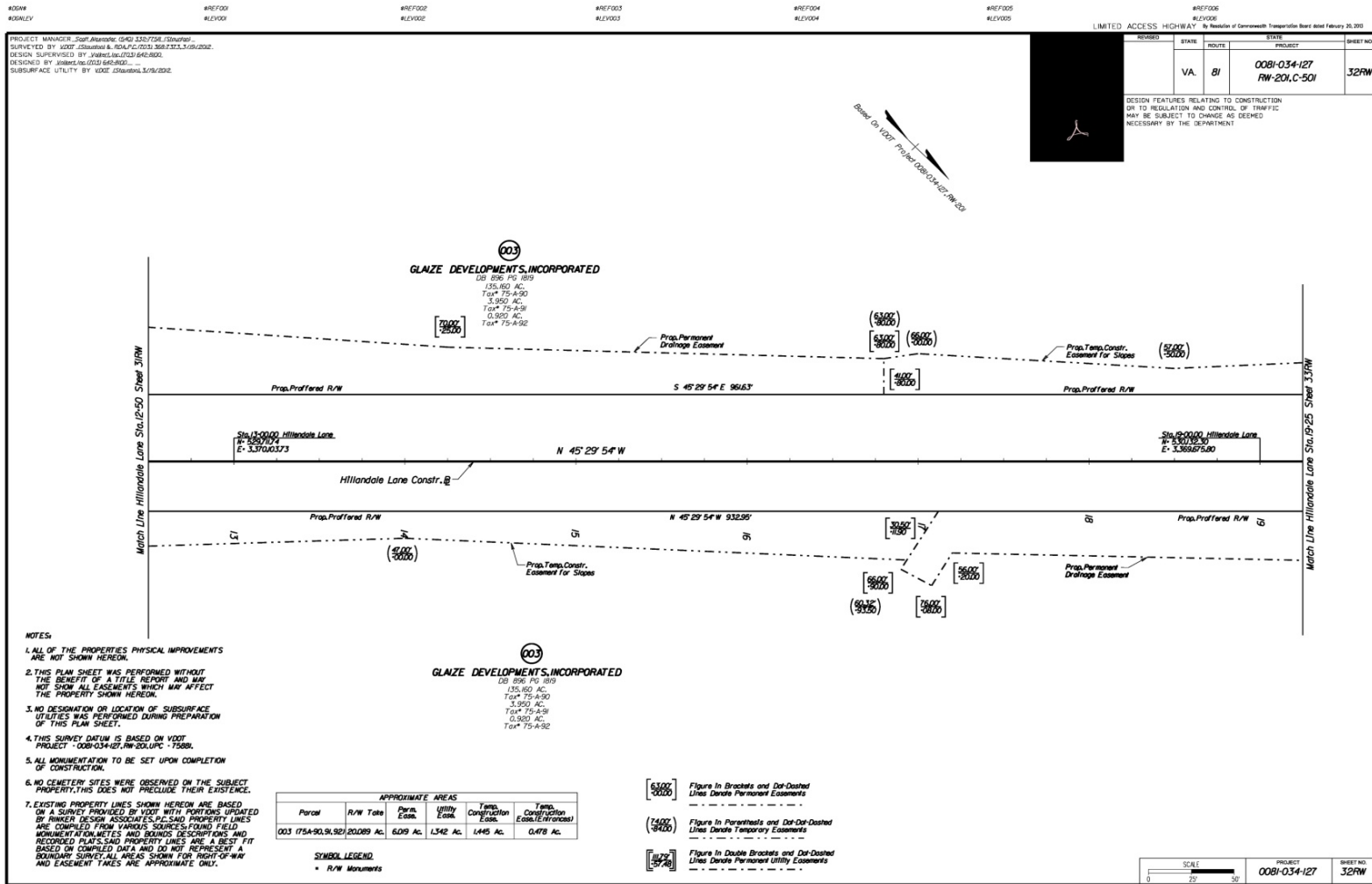
Sample Right of Way Acquisition Plat

Figure 3-C Sample Right of Way Plan



Line Weights have been turned off for clarity.

Figure 3-D



Sample Right of Way Plan