

**BOARD FOR ARCHITECTS, PROFESSIONAL ENGINEERS, LAND SURVEYORS,
CERTIFIED INTERIOR DESIGNERS AND LANDSCAPE ARCHITECTS
(APELSCIDLA)**

PROFESSIONAL ENGINEERS/LAND SURVEYORS SECTION MEETING

**Wednesday, December 4, 2024 –12:30 p.m.
First Floor Training Room**

**Department of Professional and Occupational Regulation
9960 Mayland Drive
Richmond, Virginia 23233**

Mission: Our mission is to protect the health, safety and welfare of the public by licensing qualified individuals and businesses enforcing standards of professional conduct for professions and occupations as designated by statute.

I. CALL TO ORDER

- a. Emergency Evacuation Procedures

II. APPROVAL OF AGENDA

III. PUBLIC COMMENT PERIOD *FIVE MINUTE PUBLIC COMMENT, PER PERSON*

IV. SUBSURFACE UTILITY ENGINEERING

V. OTHER BUSINESS

VI. COMPLETE CONFLICT OF INTEREST FORM AND TRAVEL VOUCHER.

VII. ADJOURNMENT

- ❖ Agenda materials made available to the public do not include disciplinary case files or application files pursuant to §54.1-108 of the Code of Virginia.
- ❖ Five-minute public comment, per person, with the exception of any open disciplinary or application file.
- ❖ Persons desiring to participate in the meeting and requiring special accommodations or interpretative services should contact the Department at (804) 367-2785 at least ten days prior to the meeting so that suitable arrangements can be made for an appropriate accommodation. The Department fully complies with the Americans with Disabilities Act.

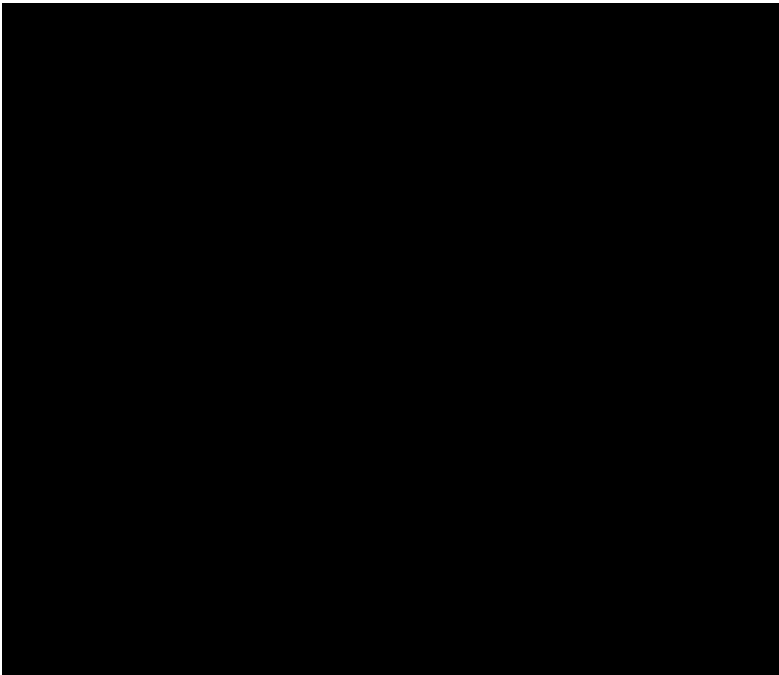
that the attachment and content are safe.

To all,

In an effort to get this task underway and some discussion started, I have gathered together a listing of current rules, regulations, and codes which may provide support to the idea that the field survey & mapping of utility paint targets and utility features in Virginia should fall under the oversight and regulation of the APELSCIDLA Board. Please review over the next few days and provide your input.

We (I) need to present a "Draft Policy" to a joint meeting of the Survey & Engineering Sections of the Board on 12/4. Specific input on the language & format of that document will be greatly appreciated.

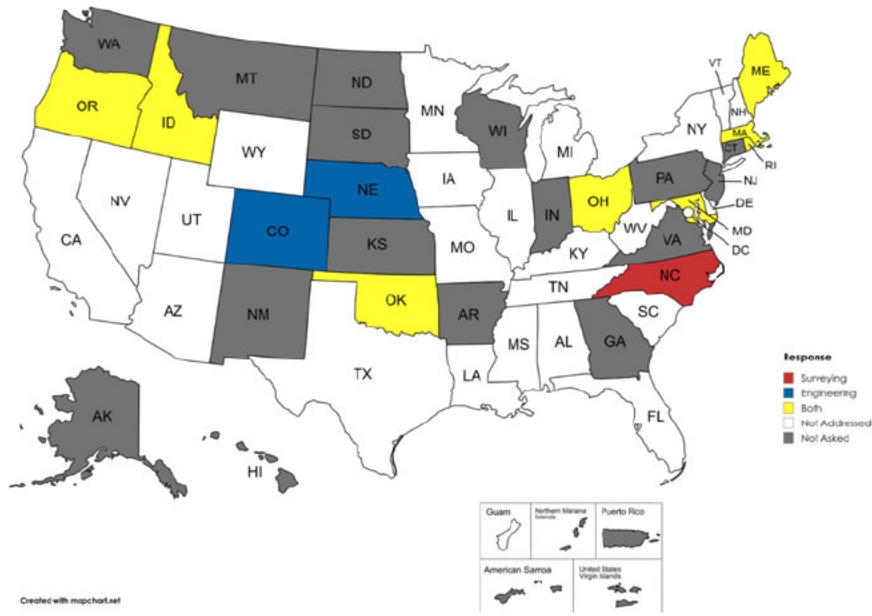
Attached are "Talking Points," a copy of the North Carolina Policy, and early comments from Kevin this morning. I included a Word version of my "Talking Points" if you want to add to or comment there.



DRAFT AGENDA
Materials contained in this agenda are proposed topics for discussion
And are not to be construed as regulation or official board position
DRAFT AGENDA

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Subject: RE: SUE

Good morning Kate!!!

I don't recall any specific SUE discussion at the Board, but maybe sometime at an NCEES function?? There was discussion regarding a Massachusetts(?) law or case finding based on contractor licensees required to sign/seal design drawings while working for a utility owner but the company employees doing the same type/level of design work (internally) were not required by some archaic rule, interpretation or exemption.... Didn't Jim discuss how the shipyard operates in that scenario?? NSPE and ASCE (another engineering org too) were rallying the troops to have something done because the finding from the accident had shown a tremendous design error?? Did our Board have to answer a question or just be aware of that type of legislative change because of that accident and finding?? I can't remember and sometimes I hear these horror stories and don't remember where I heard them....

SUE is a specialized subset of engineering with strong surveying presence. And since it has "Engineering" in the acronym, I can understand the confusion of what it really is. SUE is a type of topographic data, SUE is a process, SUE is a damage prevention requirement, SUE is also engineering analysis and development of risk-based decisions. SUE has come to the forefront as more and more utilities are installed underground and new construction or the addition of more utilities underground has caused damages creating economic impacts and endangerment to life when existing lines are damaged or cut. The onus is on the utility owners to "go back" and create an accurate record of the locations of their utilities within a corridor so that damages are avoided and risk to life is minimized. The industry has really been revolutionized in the last 40 or so years based on this need. Instrumentation to detect these underground facilities has gotten better with newer technologies. Accurate record keeping and keeping a sense of confidentiality of facilities is important in today's age. And the next frontier with the next generation of equipment is developing better depths to the utility lines and facilities underground. I believe all states have an "811-type" of service now where you have to call "before you dig" and if you don't and you cause damages, you are held liable.

This link is from the Federal Highway page that describes SUE and references the accepted standards created by American Society of Civil Engineers of qualifying types of collected utility information. <https://www.fhwa.dot.gov/design/sue/suebrochure.cfm>

So, as Kevin accurately points out, SUE is whatever lens you view it as and your role and your company's. Should it be professionally-regulated? My opinion, Yes within a land disturbance with engineering and construction outcomes. Is it strictly a survey practice?? No, Not in my opinion. Same for Engineering practice.

Our company works in many states within the region and here's a sampling.... The DOTs are our main client and they are a tremendous land disturber. So... VDOT uses consultants to collect SUE data for route surveys. Currently, they allow a PE or an LS to certify the deliverables. NCDOT only requires the LS to certify corridor utility files. Maryland recognizes SUE as a Survey-only practice and the State Highway Administration allows LS or PE to certify SUE files. Delaware recognizes SUE as a PE-only profession. Arguments can be made when you are performing a Quality Level A location on a utility and a surveyed position with an accurate elevation is required, but that's their call.

If you've reviewed the Quality Levels (in the brochure link above), the Quality Level A is a non-destructive excavation for exposure of the utility using high-pressure air or water typically. Once exposed, the surveyor locates the line X,Y and Z very accurately and also confirms material and outside diameter of the line to confirm with records (provided by the utility owner). Provides a certified report to the engineer.

Quality Level B involves tracing out the utility lines (under the pavement or ground) using radio-detection or geophysical equipment, painting on the ground the location of the utility as determined by the instrument and then surveying the paint marks and checking those lines against records (provided by the utility owner). Provides a certified file to the engineer.

According to our regulations, all quality levels can be performed by a LS or PE.

How is the data used?? The data captured is used in the design work say to add a drop inlet and drainage piping or a bridge abutment. An engineer typically reviews the locations of those lines and depths and determines if there are conflict issues and the resolution of those conflicts. This is the risk-based decision and engineering judgement applied for the design effort. Also knowledge of the depth, cover, slope and pressure considerations falls more in the realm of the engineer when it's the installation and relocation of these utilities within the project.

I hope this helps and I don't confuse the issue. SUE does not require a specialized license (my opinion). So briefly, these are my thoughts, and now I offer my answer to the original NCEES questions.....

NCEES is asking the following:

- Is SUE the practice of engineering in your state? Aspects of SUE fall under the practice of Engineering in VA
- Is SUE the practice of surveying in your state? Aspects of SUE fall under the practice of Surveying in VA

- Is SUE both surveying and engineering in your state? **Yes**
- Is SUE neither engineering or surveying in your state? **SUE definitely falls under both**
- Has your board ever taken a position on SUE issues? **No, not that I recall**

Thank you Kate, and of course, I am available to discuss with anyone as needed.
Mike

Subject: [EXTERNAL] Fw: SUE

Cyber Security Reminder: Please use caution - message originated outside JMT.

Hi Mike,
Do you recall us discussing SUE on your time on the board? Jim and I remember discussing but not the outcome and staff can't find minutes regarding the discussion. Please see Kevin's comments below. Is there anything you would add?

Thanks,
Kate

Kate Nosbisch (she/her/hers)

Kathleen R. Nosbisch, Hon. AIA Virginia
Executive Director
Board for Architects, Professional Engineers, Land Surveyors, Certified Interior Designers and Landscape Architects (APELSCIDLA)
[APELSCIDLA Centennial Book 1920-2020](#)
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Subject: Re: SUE

Good morning Kate, please see my comments below. Have a great day!

Kevin D. Shreiner, LS, PS
Land Surveyor Supervisor - VDOT Fairfax District
DPOR - APELSCIDLA Board Member - Survey
NCEES Member - Southern Zone
Professional Land Surveyor (VA & WV)

Hello PE/LS Board Members:

NCEES is asking the following:

- Is SUE the practice of engineering in your state?
- Is SUE the practice of surveying in your state?

Regarding the first 2 questions, I believe the practice of SUE is more of a Survey function. Numerous land development engineering firms in VA provide SUE work and such is typically categorized as a Survey function. In fact there are firms that place the SUE work under the supervision of a Surveyor (example is Mike Zmuda with JMT). Previously, SUE work was under my direct supervision while I was the Survey Division Manager at Draper Aden Assoc. However, some aspects of SUE work require review and certification by a PE, particularly when there are critical underground utilities that cross, or potentially interfere with, proposed infrastructure design.

At VDOT, SUE work is performed by subcontractors. The SUE work is ordered, reviewed and overseen by the District Survey Managers.

- Is SUE both surveying and engineering in your state?

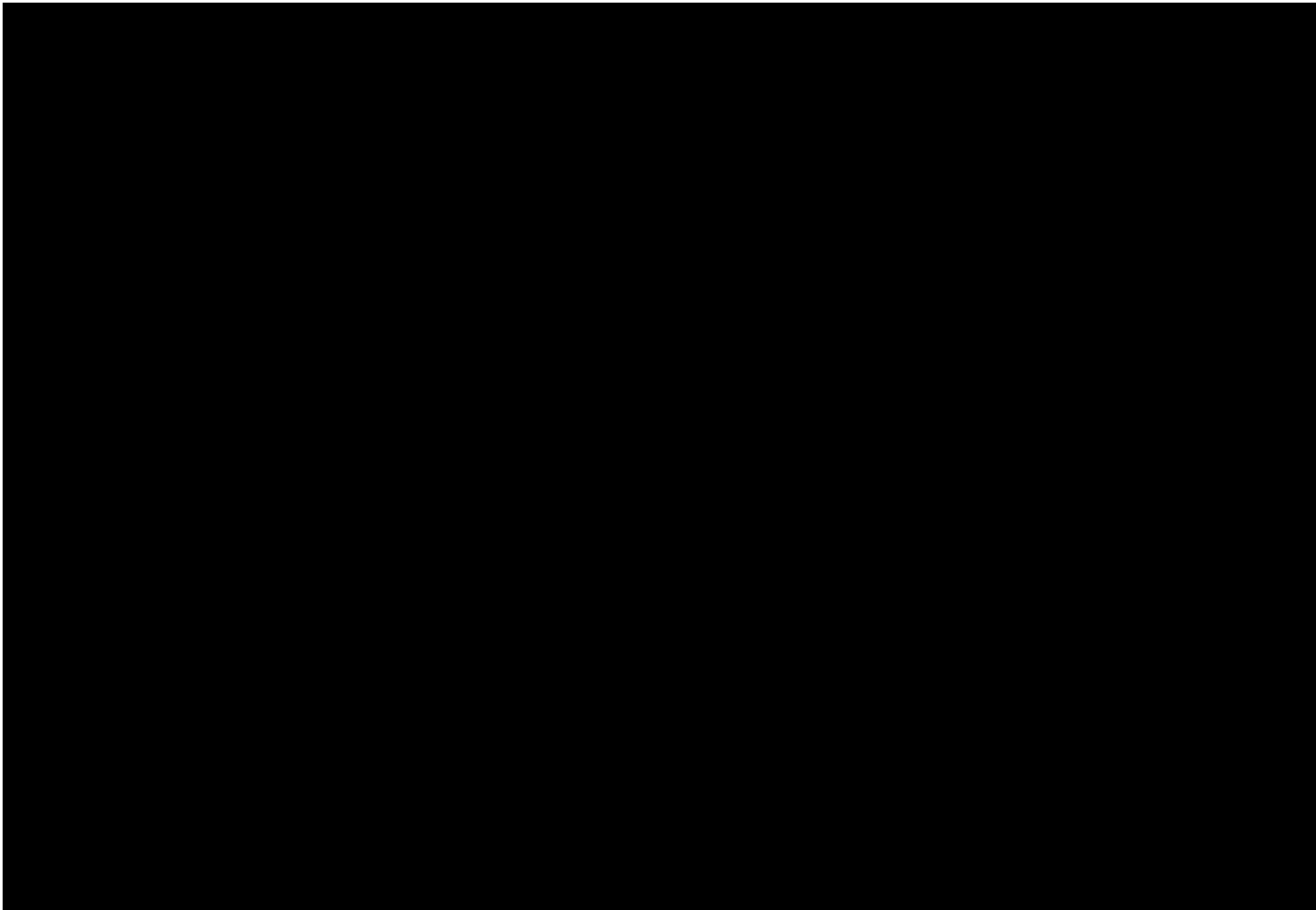
This question will probably have many different answers, depending on who you speak to. In my opinion, it is more of a Survey function because the marking of utilities must be surveyed so the information can be depicted on topographic maps



accurately. Measuring of utility paint mark locations is a function of Survey.

- Is SUE neither engineering or surveying in your state?

-



Materials contained in this document
And are not to be construed as DK

APELSCIDLA - Proposed SUE Policy - Talking Points Received

11/18/24

From Kevin Shreiner

SUE work was bound to become a “thing” with the Board sooner or later. There are 2 things that I think we need to discuss on December 4.

First, we need to respond to NCEES’ inquiry of what SUE is, a survey function, an engineering function, or both. I was in total agreement with the discussion last week at the Board meeting between you and Jim Kelly. I agree that it is both. I think it is a survey function first, and if the data/mapping is used for engineering design, then it also becomes an engineering function. This can be debated further on December 4, if necessary, but I believe the Board should provide NCEES with a direct answer to their questions about SUE, even if they are opinions and not policy.

Second, I too am in agreement with the wording in the NC Board’s policy. I think their wording is simple and to the point. NC does not appear to be on board with calling it BOTH a surveying & engineering function, which I do not necessarily agree with. But again, this is a discussion that will need to take place amongst the Board members. Informally, I asked XXXX what his opinion is, and he gave me an answer that, from his perspective, follows along with VDOT policies. Here is his response:

I feel as if the actual SUE that our consultants do does NOT involve any actual engineering. They merely locate and map the underground utilities. That certainly is only a survey function. The actual "engineering" involves low level techs in our utility section or subs determining whether or not the utilities are in conflict with the proposed installation of new utilities. This certainly is not considered engineering and not overseen by PE's, not even required to be under their direct charge. That as you may know is a task any one with some basic skills can master. It's math, not engineering. Maybe the correct acronym should be Subsurface Utility Surveying, SUS.

I do not completely agree with XXXX’s viewpoint on this; however, he may not be alone as far as other opinions within VDOT. But you and I both know there are private sector uses of the SUE mapping data that should fall under the purview of engineering.

**NORTH CAROLINA BOARD OF EXAMINERS
FOR ENGINEERS AND SURVEYORS**

Policy

Subsurface Utilities Location Data Policy			
NUMBER: BP-1012-01	REV. NO.: 1 (Revisions: Underlined or Struck-through)		ORIGINAL BOARD APPROVAL: 12/08/2010
			LATEST COMMITTEE REVIEW: 07/19/2019
BOARD APPROVED	11/13/2019		
CATEGORY(IES)	<input checked="" type="checkbox"/> Surveying	<input type="checkbox"/> Engineering	<input type="checkbox"/> Other
	<input type="checkbox"/> Unlicensed	<input type="checkbox"/> Seal	
ORIGINATION:	<input checked="" type="checkbox"/> Surveying Committee	<input type="checkbox"/> Engineering Committee	<input type="checkbox"/> Other

Determining the location data of Subsurface Utilities, and the reporting or mapping, falls within the definition of land surveying under G.S. 89C-3(7)(a) and must be performed by a Professional Land Surveyor (PLS) or under the responsible charge of a PLS as defined in Board Rule 21-56.0701(c)(3). Any location data generated by delineators is only for the use of the PLS in performing a survey of the subsurface utilities and should be noted with a disclaimer to that effect. The preliminary subsurface utility map with a disclaimer by the delineator, that the location data is not to be relied upon for accuracy and is only for appropriate use by a PLS or PE, may be used by a PE for Preliminary Planning Purposes. If equipment other than survey grade accuracy equipment is used on the survey, a statement indicating the equipment, procedure, and position tolerances (21-56.1608) used for the work must be clearly stated on the plat or work product.

Specifically, it falls within the following paragraphs of G.S. 89C-3(7)(a):

2. Locating, relocating, establishing, or laying out the alignment or elevation of any of the fixed works embraced within the practice of professional engineering;
5. Determining the configuration or contour of the earth's surface or the position of fixed objects on the earth's surface by measuring lines and angles and applying the principles of mathematics or photogrammetry;
7. Creating, preparing, or modifying electronic or computerized data, including land information systems and geographic information systems relative to the performance of the practice of land surveying.

Designating the presence of a subsurface utility and marking its approximate horizontal position on the ground surface does not require a PLS. (Reference Source: ASCE Standard Guideline for Collection and Depiction of Existing Subsurface Utility Data.) ~~Physically finding and marking in the field the location of the utilities does not require a PLS.~~

Existing Pertinent Virginia Administrative Code, Regulations & Policies

Definitions - Chapter 4/Sections 54.1 - 400

"Land surveyor" means a person who, by reason of his knowledge of the several sciences and of the principles of land surveying, and of the planning and design of land developments acquired by practical experience and formal education, is qualified to engage in the practice of land surveying, and whose competence has been attested by the Board through licensure as a land surveyor.

The "practice of land surveying" includes surveying of areas for a determination or correction, a description, the establishment or reestablishment of internal and external land boundaries, or the determination of topography, contours or location of physical improvements, and also includes the planning of land and subdivisions thereof. The term "planning of land and subdivisions thereof" shall include, but not be limited to, the preparation of incidental plans and profiles for roads, streets and sidewalks, grading, drainage on the surface, culverts and erosion control measures, with reference to existing state or local standards.

Administrative Code

18VAC10-20-382 - Minimum standards and procedures for surveys determining topography; field procedures; office procedures.

B. Minimum field and office procedures. The following information shall be shown on, or contained in, all plats, maps, or digital geospatial data including metadata used to depict the results of the topographic survey:

1. Physical improvements on the property, all man-made or installed structures, as well as visible evidence of underground features (such as manholes, catch basins, telephone pedestals, power transformers, etc.), and utility lines and poles shall be shown or depicted when they are visible based on the methodology and scale. If the methodology or scale prevents depiction of the improvements as described in this subdivision, then notice shall be clearly stated on or contained in the map, plat, or digital geospatial data including metadata indicating the improvements that are not depicted.
2. Elevations shall be provided as spot elevations, contours, or digital terrain models.
3. Onsite, or in close proximity, benchmarks shall be established with reference to vertical datum, preferably North American Vertical Datum (NAVD), and shown in the correct location.

18VAC10-20-390. Geodetic surveys.

All geodetic surveys including, but not limited to, the determination and publication of horizontal and vertical values utilizing Global Positioning Systems (GPS), which relate to the practice of land surveying as defined in § 54.1-400 of the Code of Virginia, shall be performed under the direct control and personal supervision of a professional as defined in Part I ([18VAC10-20-10](#) et seq.) of this chapter.

18VAC10-20-392. Photogrammetric surveys or similar remote sensing technology.

The use of photogrammetric methods or similar remote sensing technology to perform any part of the practice of land surveying as defined in Chapter 4 (§ [54.1-400](#) et seq.) of Title 54.1 of the Code of Virginia shall be performed under the direct control and supervision of a licensed land surveyor or a licensed surveyor photogrammetrist.

VDOT Survey Manual

Issued 2009 - Last Revised August 31, 2021

Chapter 3 - Signing & Sealing of Professional Survey Deliverables

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 APESCIDLA minimum standards and regulations and shall follow procedures and practices established in the Department's Survey Manual.

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. 3.03 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:

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.

Chapter 12 - Subsurface Utility Engineering (SUE) Designation & Location

Sec. 12.02 - Designation & Location Policy and Standards Policy:

- The horizontal and vertical datum used to designate and locate utilities must match the datum and working units used for the survey.
- The SUE team is responsible for the location of all APWA utility features above and below ground unless agreed upon prior to commencement of the survey.
- Standards:
 - o The Department will follow the most current version of CI/ASCE 38-02 standard entitled "Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data" and the requirements outlined in Appendix A of the Survey Manual. ASCE 38-22 is the current version.

Appendix A - Standards of Practice SUE Locations and Designations

Quality Level A (QLA) - Locations

- SUE Consultant Responsibilities:

1. Comply with the Underground Utility Damage Prevention Act, Title 56, Chapter 10.3, Sections 56-265.14 through 56-265.32 of the Code of Virginia (2006), as amended, the provisions of which are incorporated by reference and with the most current version of ASCE Standard (CI/ASCE 38-02) entitled "Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data". Items outlined in this document are meant to supplement the ASCE 38.02. **ASCE 38-22 is the current version.**

10. The Utility Test hole Information spreadsheet provided in the scoping phase will be completed. The following information will be provided:

- a. Field Date
- b. Owner
- c. Surface Type
- d. Surface Thickness
- e. Utility Size
- f. Material of Utility
- g. **Northing/Easting**
- h. **Existing Ground Elevation**
- i. Utility Field Depth to Top
- j. **Elevation (top of utility)**

12. **All test holes will be marked with a permanent surface marker (hub & tack, PK nail) directly above the surface line of the structure.** Surface line can be defined as centerline of singular circular utility, edge of duct or conduit. In all cases, the Consultant will provide sufficient detail/dimensions (to/from the surface marker) such that the designers can

ascertain the limits of the targeted facility. Horizontal locations will be tied to the existing project survey control traverse. The vertical accuracy will be within an accuracy of +/- 0.10' based on the project benchmarks provided by the Survey Consultant or District Survey staff.

Quality Level B (QLB) - Designation

- SUE Consultant Responsibilities:

1. Comply with the Underground Utility Damage Prevention Act, Title 56, Chapter 10.3, Sections 56-265.14 through 56-265.32 of the Code of Virginia (2006), as amended, the provisions of which are incorporated by reference and with the most current version of ASCE Standard (CI/ASCE 38-02) entitled "Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data". Items outlined in this document are meant to supplement the ASCE 38.02. ASCE 38-22 is the current version.

10. The Consultant's Professional judgment will be used to correlate the utility record data to the surveyed features, thus increasing the certainty of both utility location and existence. QLC should be only used for utilities where visible Utility Features can provide a reliable indication of the horizontal alignment (i.e. sewers, water mains, force mains). Some utilities, such as telecommunication cables, have surface features such as pedestals that do not provide a good indication of the horizontal alignment of the underground section of the utility except in the immediate vicinity of the structure and as such, using them as anchor points for a contiguous Utility Segment at QLC should be used with caution. When using surface features such as chambers/vaults/manholes, the lid must be removed to allow for visual confirmation of the location and function of the utilities in the structure to qualify any contiguous Utility Segments as QLC. Use of QLC or QLD will be documented in the designation utility report.

Virginia Damage Prevention Act

56-265.15. Definitions:

"Utility line" means any item of public or private property which is buried or placed below ground or submerged for use in connection with the storage or conveyance of water, sewage, telecommunications, electric energy, cable television, oil, petroleum products, gas, or other substances, and includes pipes, sewers, combination storm/sanitary sewer systems, conduits, cables,

valves, lines, wires, manholes, attachments, and those portions of poles below ground. The term "sewage" does not include any gravity storm drainage systems. Except for any publicly owned gravity sewer system within a county which has adopted the urban county executive form of government, the term "utility line" does not include any gravity sewer system or any combination gravity storm/sanitary sewer system within any counties, cities, towns or political subdivisions constructed or replaced prior to January 1, 1995. No excavator shall be held liable for the cost to repair damage to any such systems constructed or replaced prior to January 1, 1995, unless such systems are located in accordance with § [56-265.19](#).

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