The Pennsylvania One Call System, Inc dba Pennsylvania 811 was born out of necessity when underground facility owners were scrambling to stop the repeated damage/repair cycle happening with their underground lines back in 1972. Since the need to protect underground infrastructure from excavation began 50 years ago, Pennsylvania 811 has been here to provided effective communication between underground stakeholders and is recognized as the ***"Keystone of Damage Prevention"*** *in the prevention of damages to underground facilities in Pennsylvania.*

Pennsylvania 811 is a non-profit 501(c) (6) Pennsylvania corporation created to help protect the underground facilities of members through communication with any person(s) planning to disturb the earth. ***Our purpose is to prevent damage to underground facilities. To promote safety, we provide an efficient and effective communications network among project owners, designers, excavators, and facility owners.***

Over the years the use of this communication network by excavators, contractors, plumbers, builders, designers, and the general public, increased from 389 work location requests back in 1972, to reaching a record breaking ***1,046,498 in 2021.*** *Today, Pennsylvania 811 disseminates this work location information to approximately* ***3,718 underground facility owner/operators in all 67 counties*** *from the following industries: cable television, electric, gas, propane, Marcellus shale, pipeline, sewer, telecommunications, telephone, water and government, including state, county, city, borough, townships of the 1st class, townships of the 2nd class, and municipal authorities.*

The principal place of business is located at 925 Irwin Run Rd., West Mifflin, PA 15122. The company can be reached using the national call before you dig number of ***8-1-1*** *or through its toll- free telephone number* ***800-242-1776*** *by anyone requesting location of underground lines prior to digging. The service is available* ***24 hours per day, every day of the year****.*

Education and Public Awareness are a critical part of the service we provide. We provide an array of Educational Seminars annually. However, our yearly three to five flagship "Safety Day" conferences are among the largest one-day underground excavation and utility industry safety conferences in North America. The Safety Day conferences are the preferred education source among underground safety professionals. The conferences feature hands-on demonstrations and an opportunity for participants to learn about the latest safety practices, tools and techniques through the education sessions, sponsors and exhibitors who support our mission to prevent damage prevention to underground utilities while excavating.

Along with providing robust education services to the underground stakeholders, Pennsylvania 811 also provides on-line tools, i.e. Coordinate PA, Member Mapping, Drawing Exchange, On-Line Ticket Management, and other applications to assist members with notification processing, and with planning and coordinating large complex excavation projects. Furthermore, to promote early utility communication, cooperation, collaboration and coordination, we devote resources to starting, building, contributing and maintaining ***thirty-two (32)*** *active* ***Utility Coordination Committees (UCC)*** *throughout the Commonwealth.*

2022 is a milestone celebrating 50 years of operation. As technology advances and stakeholders strengthen the commitment to reach zero underground damages, Pennsylvania 811 work endures. This milestone would not have been possible without the tremendous dedication to safety from Pennsylvania 811's various stakeholders, Pennsylvania's Legislators, and various federal and state safety agencies. However, Pennsylvania 811 mission would not been fulfilled without the dedication and commitment from its Board of Directors and its outstanding employees.

With 50 years of experience, passion, and dedicated service as its foundation, Pennsylvania 811 looks forward to continue its safety mission well into the future.

Pennsylvania 811

Design Requirements and SUE Process
thru "Coordinate PA"

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1

Pennsylvania One Call System, Inc.

Our purpose is to prevent damage to underground facilities.

To promote safety, we provide an efficient and effective communications network among project owners, designers, excavators, and facility owners.

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PA ACT 287, as Amended

Design Requirements and the SUE Process

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3

Pennsylvania's Design/SUE Process

William **"Bill" Kiger**
President & CEO Pennsylvania 811

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What is SUE?

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What is SUE?

Subsurface Utility Engineering (SUE):

It is an Engineering "Process"

A ***branch of engineering practice*** that involves managing certain risks associated with utility mapping at appropriate quality levels, utility coordination, utility relocation design and coordination, utility condition assessment, communication of utility data to concerned parties, utility relocation cost estimates, implementation of utility accommodation policies, and utility design.

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Pennsylvania's Design/SUE Process

- **Project Owner or their designee, and the Designer must follow:**
  - The new **ASCE Standard 38-22** that stipulates the utility investigation standards, and mandates that all the utility investigations takes place under the **direct responsible charge of a licensed professional engineer (PE)**
  - The new **ASCE Standard 75-22**, Standard Guideline for Recording and Exchanging Utility Infrastructure Data, specifies the essential element for recording and exchanging utility infrastructure data

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Pennsylvania's Design/SUE Process

- **Act 287, as Amended specifies that the Project Owner or their designee shall:**
  - To ***utilize sufficient quality levels of Subsurface Utility Engineering*** **(SUE)** or other similar techniques whenever practicable to properly determine the existence and positions of underground facilities when designing known complex projects having an estimated cost of four hundred thousand dollars ($400,000) or more.

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Pennsylvania's Design/SUE Process

- **Preliminary Design**
  - Designers **may** request line and facility information ***more than ninety days*** before final design is to be completed, however, they shall state in their requirements that such work is preliminary.
  - Is the phase in which general project location and design concepts are determined. It includes all that is necessary to conduct an alternatives analysis and review process properly.

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Pennsylvania's Design/SUE Process

- **Designer shall:**

To request the line and facility information prescribed by section 2(4) from the One Call System, via **Coordinate PA**, not less than ten nor more than ninety business days before final design is to be completed.

This clause is not intended to prohibit designers from obtaining such information more than ninety days before final design is to be completed; however, they shall state in their requirements that such work is preliminary.

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Pennsylvania's Design/SUE Process

- **Designer shall:**

To forward a copy of the project plans to each facility owner who requests a copy. If a designer is unable to provide a copy because of security of the project or proprietary concerns regarding the design or the project, the designer shall negotiate in a timely manner with the facility owner the means of obtaining the necessary data.

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Pennsylvania's Design/SUE Process

- **Designer shall:**

To show upon the drawing the position and type of each facility owner's line, derived pursuant to the request made as required by clause (2), and the name of the facility owner as shown on the list referred to in section 3.

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Pennsylvania's Design Process

- **Complex Project**
  - In the case of a **Complex Project**, notification shall not be less than ten business days in advance of the beginning of excavation or demolition work.
  - **All Pennsylvania 811 Preliminary Design, Final Design, and Complex Projects notifications shall be prepared via Pennsylvania 811 "Coordinate PA" Web Application**

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Pennsylvania's Design/SUE Process

What is Coordinate PA?

It's The Next Generation of Utility Coordination

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Pennsylvania's Design/SUE Process

Coordinate PA enables users to add and/or import existing projects, find opportunities with others who want to coordinate and collaborate, share project documents and communications with designated contacts, and notify facility owners and other contacts at any phase of a project.

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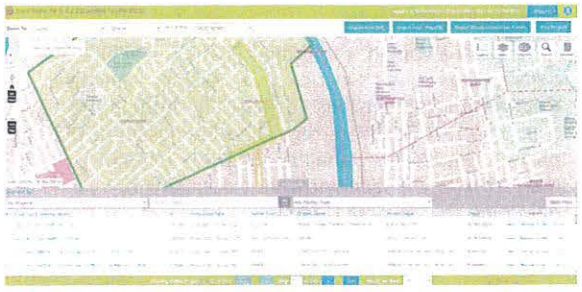
Pennsylvania's Design/SUE Process



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Pennsylvania's Design/SUE Process

- Free web based application
- Coordinate PA is a secure repository
- Add project contacts and permissions
- Design Drawing Exchange
- Virtual maps with different map base options
- Import moratorium data
- Share future project information at the user's discretion allowing you to communicate and document electronically
- Provides opportunity for Project Owners/Designers to **Collaborate**, **Coordinate**, **Communicate** and **Cooperate** on future and current projects

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Pennsylvania's Design/SUE Process

Final Design

- "**Final design**" means the engineering and construction drawings that are provided to a bidder or other person who is asked to initiate construction
- During the final design phase of the **detailed engineering and construction drawings (electronic and hard copy) of all physical components of the project are produced**

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Pennsylvania's Design/SUE Process

- **In the Final Design, the Designer shall:**

To make a reasonable effort to prepare the construction drawings to avoid damage to and minimize interference with a facility owner's facilities in the construction area by maintaining the clearance as provided for in the applicable easement condition or an eighteen-inch clearance of the facility owner's facilities if no easement restriction exists.

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Pennsylvania's Design/SUE Process

- **In the Final Design, the Designer shall:**

Utilize ***Utility Quality Level A (QL-A)*** based on the data received from the other QL (D,C,B), meaning **that any conflicting utilities** were exposed and verified at that exact spot, documented and the uncertainty of its location is nearly zero or at a minimum maintain an 18" clearance from the facility owners' existing lines

*Typically used in **final design phase**. Allows small adjustments in design for big savings in construction*

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Pennsylvania's Design/SUE Requirements

- **Project Owner or their designee, and the Designer shall:**

  To not release to bid or internal construction any project until after **Final Design** is completed.

  To furnish the pertinent data obtained through **Subsurface Utility Engineering** (SUE) **per ASCE 38 and ASCE 75** to the One Call System in a mutually agreeable format.

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What is the ASCE 38-22 Engineering QL Process?

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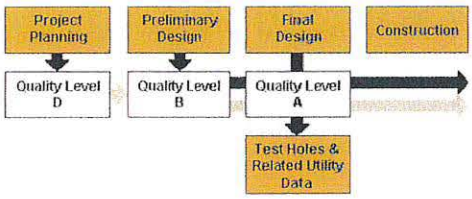
Pennsylvania's Design/SUE Process

Four ASCE 38-22 Quality Levels Summary



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What is a Utility Quality Level (QL)?

- A utility QL is a value assigned by a **professional,** (**SUE Engineer**), of a utility segment that identifies the relative (non-quantifiable) uncertainty of that utility segment's existence and actual location to that of its depicted location.

- The value is determined and assigned based on a variety of factors including but not limited to data sources, field acquisition methods, independent tests, quality assurance checks, apparent precision, consistency of findings, and interpretation of these data.

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What is a Utility Quality Level (QL)?

- The professional places all sources of information at hand into context to indicate a QL for that depiction of the utility segment at that point in time.
- Utility QLs assigned to utility segments of an underground utility are for a **specific project and a specific time;** professional responsibility for those designated depictions persist usually until project completion

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There are Four Quality Levels (QL)

- ***Utility Quality Level D (QL-D)*** is assigned when there is no data other than records or One-Call marks. QL-D is the most uncertain depiction.
- May include plotted on plans from records. Sometimes a field visit - to look for utility indications on the site - is made, or sometimes "verbal recollections" are plotted.
- ***The least reliable utility data***

Used for PA One Call Preliminary Design Ticket

*This level of effort is great for **early Project Planning purposes**. (CPA) utility "inventories." and very preliminary utility relocation cost estimates*

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There are Four Quality Levels (QL)

- ***Utility Quality Level C (QL-C)*** exists if only records and visible features are able to determine the best judged position of a utility because the geophysical methods did not work.

Surface Appurtenances are surveyed and accurately plotted on a current site plan. Utility data from records (QL-D) are correlated to the appurtenances

Problems with records interpretations still exist: e.g. schematics, no appurtenances depicted, utilities not straight between appurtenances, no records exist, and so on.

Used for PA One Call Preliminary Design Ticket

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There are Four Quality Levels (QL)

- ***Utility Quality Level B (QL-B)*** means geophysical methods were used to search for, detect, and interpret the existence and location of a particular utility segment, i.e. facilities that conflict with your project.

Surface Geophysical Methods used to search for and trace existing utilities.

Used for PA One Call Preliminary Design Ticket

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There are Four Quality Levels (QL)

- ***Utility Quality Level B (QL-B) Cont....***

Surface Geophysical Methods used to search for and trace existing utilities.

Designated utilities are then surveyed and plotted on site plan.

A significant upgrade in quality

Used for PA One Call Preliminary Design Ticket

Non-recorded utilities found. Utilities' routes between appurtenances are imaged.
*Typically used in **design** for construction footprint decisions.*

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There are Four Quality Levels (QL)

- ***Utility Quality Level B (QL-B) Cont...***

QL-B has some uncertainty owing to geophysical limitations (*e.g., depth/material/size of target, diverging magnetic fields, interference and distortion, weak signal-to-noise ratios, superposition effects, conductive soils, concrete pavement reinforcement wire and rebar, adjacent /overlapping/crossing conductors, indistinct and insufficiently contrasting geophysical properties, and so forth*), interpretation, and positioning.

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There are Four Quality Levels (QL)

Utility Quality Level A (QL-A) based on the data received from the other QL (D,C,B), it means **that any conflicting utilities** were exposed, verified and documented at that exact spot of the proposed design conflict, and the uncertainty of its location is nearly zero.

There is a risk that the utility may not be the one targeted, so a small amount of uncertainty always exists.

Used for PA One Call Final Design Ticket

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There are Four Quality Levels (QL)

- ***Utility Quality Level A (QL-A)*** *Cont....*

Utilities exposed via non-destructive air-vacuum and exposed utilities are then surveyed and plotted on site plan Elevations, Size, Condition, Materials, Precise Horizontal Positions are measured and documented

Used for PA One Call Final Design Ticket

*Typically used in **final design stage**. Allows small adjustments in design for big savings in construction*

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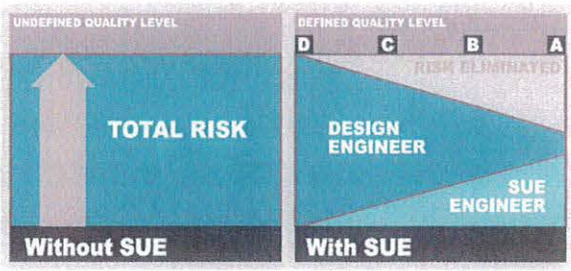
Pennsylvania's Design/SUE Process



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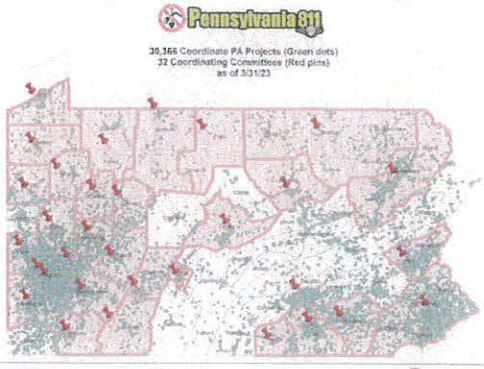
Pennsylvania's Complex Projects



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Pennsylvania 811 User's Guide Task Force: SUE team included

- *Brenda Reigle*, Govt. Relations *NUCA PA*
- *Bill Steinhart* - RETTEW Engineering *SUE PA*
- *Alma Rettinger*, Micheal Baker Intl & UESI – *Engineer PA*
- *Howard Hodder*, Honor Engineering, *Geospatial & SUE PA*
- *Bryan Teschke*, The Lexis Group, *SUE PA*
- *Eric Swartley*, Retired - *UGI Representative PA*
- *Jason Peters* - Lehigh County Authority - *PA Local Gov*
- *Jay Smith*, Collier engineering – *SUE PA*
- *Jim Anspach*, *Subject Matter Expert*
- *Nicholas Zembillas* - *Subject Matter Expert*

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Questions?

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DESIGNER EFFECTIVENESS GUIDELINES

Adopted by the Pennsylvania One Call System, Inc. Board of Directors April 29, 2020

Disclaimer of Liability

This Guide has been prepared as an educational document for project owners, designers, architects, engineers, operators, surveyors, facility owners and excavators. For this document the term 'Designer" shall mean any architect, engineer or other person who or which prepares a drawing for a construction or other project which requires excavation or demolition work. It is intended as a reference tool for interacting with the Pennsylvania One Call System, (POCS). It is also intended to explain, in a general way, the requirements provided for in Pennsylvania's Underground Utility Line Protection Law (UULPL), Act 287 of 1974, as amended. It is strongly recommended that all individuals who regularly contact POCS review the UULPL and this Guide. Familiarity with its contents will be valuable, but the Guide is meant to clarify and explain the UULPL law according to POCS' understanding of how it affects interaction with POCS. **This Guide is not a substitute for the UULPL and it does not relieve anyone from discharging their responsibilities as set forth in the Act or as otherwise required by law.**

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Designer Effectiveness Guidelines

The information contained within this document is from the UULPL and Common Ground Alliance (CGA) Best Practices, which are part of the UULPL. The following guidelines are not intended to replace any existing designer policies or procedures that have been established by the individual company or designer. The following Designer Effectiveness Guidelines are to be utilized as a guide by anyone who may wish to take advantage of the information contained within.

An effective Underground Project Design includes consideration of all existing underground facilities. The Designer should make a reasonable effort to prepare the construction drawings to avoid damage to and to minimize interference with a facility owner's facilities in the construction area by maintaining the clearance as provided for in the applicable easement shown on the plat or an eighteen-inch (18") clearance from the edge of the facility owner's facility if no easement restriction exists. This document will identify the various areas that should be addressed in your designing process, it will also identify the recommended guidelines that a designer should follow to complete an effective underground project design. The first stage of the design process that will be addressed is "knowing," the second stage consists of "appropriately designing" and the final stage of effective design is "effectively communicating the location of all underground facilities provided by facility owners to the excavator and in association with excavation activities."

1. Utility Coordination

Guideline: Project Owners should see if there is an opportunity to contact and collaborate on your projects with other Project Owners, Designers, and Facility Owners during the conception phase of the project via Utility Coordinating Committees/Councils (UCC), CGA Regional Partnerships, engineering societies, and governmental agencies. This is done as a means of identifying underground facility owners/operators in an excavation area of your project that are possibly doing a project in the same area at or close to the same time as your project.

Utility coordination fosters an open exchange of information among private and public facilities, governmental agencies and construction related organizations. Utility coordination also promotes cooperation among said groups in the planning, design and construction of projects affecting the overall good of participating parties, their organizations and customers or constituents, and the general public.

Utility Coordinating Committees (UCCs, or Councils) or CGA Regional Partnerships, where existing, include private utilities, public agency utilities, engineering firms, contractor associations, and others with facilities or business interests in public rights-of-way. UCCs and CGA Regional Partnerships function in multiple counties in Pennsylvania to promote excavation project coordination. Typical items of discussion include facility excavations in existing and recently paved roadways, disruption of essential facility services, location of utility facilities, environmental impact of damages to utilities, permit procedures, right-of-way access controls and underground facility damage prevention. Plans of future roadway improvement and of future facility installations are also reviewed regularly.

To assist in the collaboration and coordination on complex projects, Project Owners should use POCS' Coordinate PA (CPA) application. CPA enables users to add and/or import existing projects, coordinate opportunities with others who want to collaborate, share project communications with designated contacts and notify facility owners at any stage of a project.

CPA also helps project owners coordinate their complex projects with other project owners, designers, excavators, and facility owners. A Complex Project means any excavation project that involves more than properly can be described in a single locate request; or any project designated as such by the excavator or facility owner as a consequence of its complexity; or

its potential to cause significant disruption to lines or facilities and the public, including excavations that require scheduling locates over an extended time frame.

CPA helps maximize the benefits of shared costs and much more. CPA also allows seamless transition of an underground complex project from the Project Owner to Designer for the design phase of the project; and from the Designer to the Excavator for the construction phase of the project. To ensure compliance with the UULPL, Project Owners, Designers, and Excavators must use CPA on all complex underground projects, and complex excavation notifications in Pennsylvania.

2. **Plat Designation of Existing Underground Facility Easements**

Guideline: Plats involving development of real property should include the designation of underground facility easements. Various items are required on the plats filed prior to the development of lands. Where plats are filed, they should include the identification of the easements of underground facilities traversing the land described on the plat. Identification of easements of underground facilities on the plat increases notice to developers and the public about the existence of the underground facilities.

3. **Gathering Information for Design Purposes**

Guideline: During the planning phase of the project, available information is gathered from facility owners/operators. This may include maps of existing, abandoned and out-of-service facilities, cathodic protection and grounding systems, as-builts of facilities in the area, proposed project designs, and schedules of other work in the area. This information is gathered for the purpose of route selection and preliminary neighborhood impacts, and as part of the process of impact analysis when evaluating different design possibilities.

In CPA, once a project is ready for the design phase, the Project Owner will give the Designer access to the Project. The Designer then does a Preliminary or Final Design notification in CPA to notify all the owners of underground facilities in the project area. This notification alerts underground facility owners/operators to establish communication between the Project Owner, Designers and the Facility Owners to facilitate a plan and design for the use of the land, which complements the underground facility.

In accordance with the UULPL, a Designer is required to request the line and facility information via POCS, not less than ten (10) nor more than ninety (90) business days before final design is to be completed. However, the Designer can request information more than ninety (90) days provided that the Designer states that their work is a preliminary design. Gathering information may also include a review of the site for above ground indications of underground facilities (i.e. permanent signs or markers, manholes, covers, vent pipes, pad mounted devices, riser poles, power and communication pedestals and valve covers). POCS provides a listing of operators directly to the designer, or to the subsurface utility engineer. This information is available in formats that are accessible to all users such as voice, fax, E-mail or web site. The Facility Owner will provide information to the designer by either marking up design drawings or providing facility records to the designer. This can be done on paper or electronically via Drawing Exchange. At the Facility Owners sole discretion, the

facility owner/operator may field locate their underground facilities or provide the physical locations of their underground facilities at the site on a POCS Design Notification.

The recommended method for gathering underground facility information in Pennsylvania is by using the POCS CPA application, but it may also include contacting the facility owners/operators directly, UCCs, CGA Regional Partnerships, other designers, engineering societies, and governmental agencies as a means of identifying underground facility owners/operators in an excavation area.

Coordinate PA is the next generation of utility coordination. Instead of a physical meeting to discuss plans, or copy maps, or create a spreadsheet of projects, utility companies, public works directors and others describe their projects on a map via the internet. Coordinate PA then shows the projects and the project timeframes for users and automatically identifies opportunities for collaboration between underground projects.

Maps display project scopes and phases to make it easy for stakeholders to identify opportunities to collaborate. When done far enough in advance, everyone may recognize cost savings and minimize disruption to the public through sharing and coordination

4. Subsurface Utility Engineering (SUE)

Guideline: The use of Subsurface Utility Engineering (SUE) techniques is also utilized in information gathering. On known Complex Projects having an estimated cost of $400,000 or more, the use of a sufficient quality level of SUE is required in Pennsylvania. SUE includes up to four quality levels for gathering underground facility information. It is recommended that SUE Level A be used on complex projects having an estimated cost of $400,000 or more. Please see the Federal Highway Administration publications and ASCE 38-02, standard guideline for the collection and depiction of existing subsurface utility data for additional details.

The use of Subsurface Utility Engineering (SUE) is applied during the design phase to locate, identify and characterize all existing utility infrastructure (and other relevant non-utility features) found within a given project/area. SUE is applied in a structured manner, in accordance with practices and Quality Levels found in ASCE 38-02 "*Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data.*" The project owner dictates the required Quality Levels, as well as the amount of effort expended by the SUE provider on each complex project. Although the Standard is more detailed and comprehensive, the following is a brief summary of the Quality Levels defined therein: *QL-D involves utility records research and interviews with knowledgeable utility personnel. QL-C involves surface survey, identifying and recording aboveground features of subsurface utilities, such as manholes, valves, and hydrants. QL-B involves application of "surface geophysical methods," such as Electromagnetic-based locating instruments, Ground Penetrating Radar, Radar Tomography, metal detectors, and optical instruments, to gather and record approximate horizontal (and, in some cases, vertical) positional data. QL-A involves physical exposure via "soft-digging" (vacuum excavation or hand-digging) and provides precise horizontal and vertical positional data via traditional survey methods.* SUE results are then integrated into the design process, where design engineers use the information to create

construction plans that accommodate existing infrastructure, thereby reducing the overall risk of conflicts and/or damage.

5. **Identifying Existing Facilities in Planning and Design**

Guideline: During the planning phase of the project, existing facilities are shown on the design plans. The planning documents include possible routes for the project together with known underground facility information. The various facility owners/operators may be given the opportunity to provide appropriate feedback.

During the design phase of a project, underground facility information from the planning phase is shown on the plans. The Designer shall make a reasonable effort to prepare the construction drawings to avoid damage to and minimize interference with a facility owner's facilities on the construction area by maintaining the clearance as provided for in the applicable easement condition or an eighteen-inch (18) clearance from the edge of the facility owners' facilities if no easement restriction exists. If information was gathered from field-located facilities, from underground facility surveys, or from subsurface utility engineering, this is noted on the plans. As a result, the designer and the excavator both know the quality of the information included on the plans. If an elevation was determined during the information gathering, it is shown on the plan. The facilities shown include active, known abandoned and out-of-service facilities, and proposed facilities. The Designer shall also show the toll-free number of POCS on the drawing near the POCS Design Notification Serial Number. The design plans should also include a summary drawing showing the proposed facility route or excavation including streets and a locally accepted coordinate system

Distribute plans to facility owners/operators to provide the opportunity to furnish additional information, clarify information, or identify conflicts.

6. **Markers for Underground Facilities designed by the Facility Owner**

Guideline: If construction involves the installation of new facilities, and where practicable in the opinion of the Project Owner, the project owner shall install color-coded permanent markers to indicate the type and location of all laterals for future identification. The purpose of these color-coded above-ground markers is to identify underground facilities, not to locate for excavation or circumvent the one-call process. Designing underground facilities for future location reduces the risk of an incorrectly marked underground facility during an excavation project. Above ground markers are developed during the design process and include the company name, type of facility, emergency contact, and the one-call number. The locations and types of markers are specified in the construction plans. The design provides a marker system to include, but not limited to, stream crossings, public road crossings, other facilities' rights-of-way, railroad crossings, heavy construction areas, and any other location where it is necessary to identify the underground facility location. If non-detectable facilities are being installed, the design includes a means to accurately locate the underground facility from the surface. The facility markers shall be color-coded in accordance with the APWA guidelines to assist in identifying the particular facility.

7. Follow Applicable Codes, Statutes and Facility Owner/Operator Standards

Guideline: The designer of a facility project should consider all national, state, local, and industry codes, regulations and practices as well as facility owner standards. Regulations, codes, standards and other design documents generally specify depth of cover, and horizontal and vertical clearances between adjacent facilities. In addition, certain facility owner/operator codes may allow exceptions to the prescribed minimum clearances, contingent upon written approval between the affected facility owners/operators.

The designer shall also consider the protection and temporary support of adjacent facilities, and any interference to existing cathodic protection and grounding systems. Consequently, the designer shall provide procedures for emergency notification and repairs in the case of any damage to an adjacent facility.

Designers need to be aware of proposed and revised standards and codes that may affect the project.

8. Pre-Bid or Pre-Construction Design Conferences

Guideline: Project Owners shall not release a design project for bid or construction until after a Final Design notification is completed through POCS. Depending on the level of impact of proposed construction upon facilities in the excavation area, the project owner or designer may require potential excavators to attend a pre-bid or pre-construction *design* conference, which may include underground facility owners/operators. This pre-bid or pre-construction *design* conference is exercised to discuss, among other things, the particular facilities in the area and the requirements to properly protect, support, and safely maintain the facilities during excavation. Official minutes shall be taken, recorded and disseminated as written to all attendees.

The designer's continuing involvement during the pre-bid/bid phase with the potential excavators(s) allows for more effective communications between all parties. The designer can assess whether the interested bidders have the expertise needed and the correct understanding of the intended design. (This applies if the designer has a contract with the Project Owner for assisting with bidding services.)

Once the project has been awarded to an excavator via the bidding or other selection process, the Designer can assign the project to the excavator via CPA for the construction phase of the project.

9. Use of Qualified Excavators

Guideline: Excavators that excavate on and near underground facilities should possess the qualifications necessary to conduct such activities in a manner that is skillful, safe and reliable. These qualifications should include detailed knowledge of the UULPL, CGA Best Practices and if applicable Horizontal Directional Drilling (HDD) Good Practices. The requisite qualification of the excavator serves to protect the public and integrity of underground facilities in the vicinity of the excavation. Using qualified excavators ensures all who bid and

work on a project employ safe work habits and are capable of performing the requested work.

When working with excavators, the project owner should be familiar with the excavator's work experiences and financial abilities and should not ask the excavators to bid beyond their capabilities. Allowing a competitive bidding process from qualified and competent excavators, as determined and approved by the project owner, helps assure the best quality and pricing available, while reducing the potential for damages to underground facilities and workplace injuries.

10. Continuous Interface between the Project Owner, Designer, Excavators and Facility Owners *before* the Construction Phase

Guideline: At the beginning of the construction phase of the project, the excavator should determine if the project is a Complex Project, i.e. *"greater than 1000' or intersection to intersection, whichever is greater, along the same street, within the same political subdivision."* If the project is determined to be Complex Project, the excavator shall generate a POCS Complex Project notification from CPA for their specific project.

With a Complex Project notification, the excavator should have a pre-construction meeting. The excavator will set the date, time and the location of the meeting. The meeting must be held within ten (10) business days before the start of the excavation. All invitees, i.e., Designer who have a construction administration contractual role with the Project Owner and Facility Owners, must attend the meeting. At the meeting the excavator will explain the job and the parties will collaborate to reach a consensus on how the excavation area will be located to avoid damages to underground facilities. This may include breaking the project up into multiple phases and involve multiple dig notifications. Results of the meeting are documented in CPA so all parties have access to agreements, commitments, and decisions.

If the excavator determines that a pre-construction meeting is not needed, and all Facility Owners agree through POCS's KARL System, then the excavator shall proceed to place standard dig notifications using CPA. However, if a Facility Owner feels a meeting is required, that Facility Owner must post the proper response via POCS's KARL system and contact the excavator to make arrangements to meet and discuss the project before the lawful start date on the original dig notification.

11. Continuous Interface between the Project Owner, Designer and the Excavator *during* the Construction Phase

Guideline: This practice allows the designer, who has a construction administration contractual role with the Project Owner, to be available for pre-construction conferences, and construction conferences for unforeseen conditions, design changes, and post-construction conferences if applicable. (This applies if the designer has a contract for construction phase services.) When information required from the Facility Owner under the UULPL cannot be ascertained or has not been provided and it is reasonably necessary for the excavator to ascertain the precise location of any line, or abandoned line, or unclaimed lines by using prudent techniques, which may include hand-dug test holes, vacuum excavation or similar devices, the excavator shall promptly notify the Project Owner or the Project Owner's

representative, either orally or in writing. If the oral notification is given, the notice shall be reduced to writing within a reasonable time by the project owners or excavator. After given notice, the excavator shall be entitled to compensation from the Project Owner for the additional work as provided in the latest edition of the Pennsylvania Department of Transportation Form 408 specifications for extra work performed on a force account basis.

Provisions in any contract, public or private, which attempt to limit the rights of excavator under the Section 5 Clause (15) of the Act shall not be valid for any reason, and an attempted waiver of Section 5 Clause (15) of the Act shall be void and unenforceable as against public policy and any such attempted waiver shall be reported to the Public Utility Commission (PUC) with an Alleged Violation Report (AVR)

12. As-Built Drawings

Guideline: Installation should be made in accordance with the approved construction plans. Any deviation to the plans shall be documented and such changes indicated on the Excavator's as-built drawings. As-built information shall be recorded, retained and made available for subsequent excavation. (This applies if the designer has a contract for prepared record drawings.)

13. Supply Line Separation

Guideline: When installing new direct buried supply facilities in a common trench, a minimum or eighteen (18) inch radial separation should be maintained between supply facilities such as steam lines, plastic gas lines, other fuel lines, and direct buried electrical supply lines. If eighteen (18) inches of separation cannot be feasibly attained at the time of installation, then mitigating measures should be taken to protect lines against damage that might result from proximity to other structures. Examples may include the use of insulators, casing, concrete encasement, shields or spacers. If there is a conflict among any of the applicable regulations or standards regarding minimum separation, the most stringent should be applied.

14. Trenchless Excavation

Guideline: The project owner and designer shall take prudent measures to make the determination whether to use trenchless excavation installation. The project owner and designer shall coordinate with facility owners to design projects that maintain minimum radial clearances between the new facility and existing facilities. Minimum clearances are equal to or greater than applicable standards. The project owner and designer shall establish line and grade of the proposed excavation to maintain the established minimum clearances.

Any excavator using HDD in Pennsylvania must, at a minimum, utilize the best practices published by the HDD Consortium. Minimum standards include calling 8-1-1 in advance of your excavation; identify every facility near or across the proposed excavation path and adjust the plan as necessary; use a spotter during the trenchless excavation; and uncover and inspect existing underground facilities that are in or crossing the path of excavation prior to or during the bore.

15. Reporting Violations of the Act

Guidelines: The Act authorized the Pennsylvania Public Utility Commission (PUC) to be the enforcement agency responsible to enforce all provisions of the UULPL. The PUC may issue a warning and order requiring compliance with the Act and may levy an administrative penalty up to $2,500 for a violation of the Act. Designers shall submit an Alleged Violation Report (AVR) to the PUC through POCS not more than 30 Business Days from the time the Designer becomes aware that a violation of the Act may have been committed in association with excavation or demolition work. The AVR shall be in a form and manner required by the PUC. Failure of the Designer to submit an AVR for a known violation of the Act is in itself a violation which could result in an AVR, and possible penalties, against the Designer.

Reference Material

We strongly recommend you read and review POCS:

- Responsibilities of a Designer, Section 4
- Responsibilities of a Project Owner, Section 6.1
- Design Coordination Checklist (In this document)
- Complex Project Policy
- POCS Design Notifications
- Coordinate PA Users Guide

www.paonecall.org

The Common Ground Alliance (CGA) is a member driven association formed in 2000 after the Common Ground study commissioned by the Congress to work on damage prevention and best practices. www.commongroundalliance.com/best-practices-guide

Federal Highway Administration publications and ASCE 38-02, standard guideline for the collection and depiction of existing subsurface utility data for additional details.
https://www.fhwa.dot.gov/programadmin/asce.cfm

Pennsylvania Department of Transportation Publication 408 Specifications
http://www.dot.state.pa.us/public/PubsForms/Publications/Pub_408/PUB%20408.pdf

NASTT's Horizontal Directional Drilling (HDD) Good Practices Guidelines – 4th Edition
https://member.nastt.org/products/product/HDD4thEdition

You can learn more about Alleged Violations by visiting the Pennsylvania Utility Commission's website: http://www.puc.pa.gov Click on UTILITY & INDUSTRY Click on PA ONE CALL ENFORCEMENT

Design Coordination Checklist

This checklist summarizes tasks that project owners and designers should use for utility coordination. This checklist supports early and frequent communication with facility owners and excavators. Subsurface Utility Engineering should be considered for complex projects with major utility impacts.

Utility Research and Identification – obtaining utility contact information

- ☐ Review old plans (road, bridge, plat, etc.)
- ☐ Project Owners put project in Coordinate PA
- ☐ Utilize the POCS Design Ticket Notification
- ☐ Review other information sources (permit/facility owner databases, GIS websites, etc.)
- ☐ Conduct field review to identify underground utility structures and markers

Project Notification and Early Communication – verifying utility involvement

- ☐ Contact facility owners' collaboration opportunities via Coordinate PA and POCS Preliminary Design Notification.
- ☐ Project description, location and job number
- ☐ Vicinity map
- ☐ Request utility location information
- ☐ Construction start date
- ☐ Contact non-responsive utilities
- ☐ Plot received utility location information on the plans
- ☐ Consider modifying design to minimize utility impacts and/or relocations
- ☐ File an alleged violation report (AVR) through the POCS website for any alleged violation to the UULPL

Design Coordination Meeting - information sharing and conflict resolution

- ☐ Discuss project scope and schedule
- ☐ Discuss potential utility conflicts
- ☐ Discuss possible utility conflict resolutions including the following:
    - ☐ Design adjustments to avoid or minimize conflict
    - ☐ Working in close proximity to utilities (temporary shut-down, utility support, safety concerns, etc.)
    - ☐ Discuss work utilities may want to complete during construction (upgrades, new installations, etc.)
    - ☐ Discuss required utility relocation work
    - ☐ Timeframe
    - ☐ Location of new facility
    - ☐ Constraints (easements, material, available Right-of-Way, etc.)
    - ☐ Identify reimbursable utility relocations (utility has property interest such as an easement, street lighting, etc.)
    - ☐ Discuss permitting requirements for utility work (relocations, upgrades, etc.)
    - ☐ Verify utility construction contact information shown on construction plans

- ☐ Determine if additional utility coordination meetings are needed
- ☐ Complete and distribute meeting minutes to all invitees and participants

☐Utility Coordination Follow-up - continue to coordinate utility conflict resolutions
☐ Follow-up with non-participants
☐ Provide additional design information to utilities (cross sections, etc.)
☐ Request field verification where additional information is needed
☐ Vertical location (depth)
☐ Horizontal locations (from known reference)
☐ Coordinate additional meetings with individual utilities as needed
☐ Review possible design modifications
☐ Request utility relocation plans and permit applications
☐ Review utility relocation plan and ensure permits have been issued
☐ Ensure utilities have been provided with notification to relocate and that documentation includes the following:

- ☐ Project description
- ☐ Summary of specific utility conflicts
- ☐ Relocation deadlines
- ☐ Potential for utility to incur costs due to construction delay if not relocated by the deadline
- ☐ File an alleged violation report for any alleged violation to the UULPL

Final Design Stage of Utility Coordination

☐ Notify project owner of potential project risks of bidding without utility relocations completed prior to construction
☐ Create Final Design Notification via Coordinate PA to Bidders including the following:

- ☐ Timeframe
- ☐ Location of new facility
- ☐ Constraints (easements, material, available Right-of-Way, etc.)
- ☐ Identify reimbursable utility relocations (utility has property interest such as an easement, street lighting, etc.)
- ☐ Discuss permitting requirements for utility work (relocations, upgrades, etc.)
- ☐ Follow-up with non-participants
- ☐ Provide additional design information to utilities (cross sections, etc.)
- ☐ Request field verification where additional information is needed
- ☐ Vertical location (depth)
- ☐ Horizontal location (from known reference)
- ☐ Coordinate additional meetings with individual utilities as needed
- ☐ Review possible design modifications
- ☐ Request utility relocation plans and permit applications
- ☐ Review utility relocation plan and ensure permits have been issued
- ☐ Project description
- ☐ Summary of specific utility conflicts
- ☐ Relocation deadlines
- ☐ Verify utility construction contact information shown on construction plans
- ☐ Utilities to be relocated in advance of project

- ☐ Utilities to be relocated concurrently with construction
- ☐ File an alleged violation report for any alleged violation to the UULPL

Construction Stage of Utility Coordination

- ☐ Excavator hold a pre-construction meeting for a Complex Project via Coordinate PA
- ☐ Invite affected facility owners via a Complex Ticket Notification
- ☐ Review facility owner responses
- ☐ Use the complex project email reminder system to invite non-project contacts to the meeting
- ☐ Review construction coordination requirements for locates
- ☐ Discuss project scope and schedule
- ☐ Discuss potential utility conflicts
- ☐ Discuss possible utility conflict resolutions including the following:
    - ☐ Design adjustments to avoid conflict
    - ☐ Working in close proximity to utilities (temporary shut-down, utility support, safety concerns, etc.)
    - ☐Relocate utilities in advance of project
    - ☐ Relocate utilities concurrently with construction
    - ☐ Verify facility owner construction contacts
    - ☐ Record and upload meeting attendee list and minutes in CPA
    - ☐ Follow-up with non-participating facility owners, if actions are required
    - ☐ Add new Complex Project meetings in CPA, if applicable
    - ☐ File an alleged violation report for any alleged violation to the UULPL

Drawings

To forward a copy of the project plans to each facility owner who requests a copy. If a designer is unable to provide a copy because of security of the project or proprietary concerns regarding the design or the project, the designer shall negotiate in a timely manner with the facility owner the means of obtaining the necessary data.

To show upon the drawing the position and type of each facility owner's line, derived pursuant to the request made, the name of the facility owner as shown on the list from the one call system, the serial number of one call notice and the toll free number of the one call system.

To make a reasonable effort to prepare the construction drawings to avoid damage to and minimize interference with a facility owner's facilities in the construction area by maintaining the clearance as provided for in the applicable easement condition or an eighteen-inch clearance of the facility owner's facilities, where practical, if no easement restriction exists, or other clearance permitted or agreed upon.

Facility Owner Responses

- Clear. No facilities.
- Design Conflict, Send Plans.
- Engineering Completed – a PDF file or marked up plans were sent to the requestor.

Facility Owner Options

Send plans to the Designer, or; mark the plans provided by the designer by field location or by another method agreed to by the designer, excavator and facility owner, or their agent, or;

Use the Drawing Exchange Portal, or;
Mark the field, or;
Clear if there is no conflict with the notification.

Project Owner

The Project owner is any person who or which engages an excavator for construction or any other project which requires excavation or demolition work.

The Project owner responsibilities under the Act during design stage are as follows:

- To utilize sufficient quality levels of Subsurface Utility Engineering or other similar techniques whenever practicable to properly determine the existence and positions of underground facilities when designing known complex projects having an estimated cost of four hundred thousand dollars ($400,000) or more.
- "Subsurface utility engineering" or "(SUE)" means those techniques set forth in the American Society of Civil Engineers (ASCE) standard CI/ASCE 38-02, or its successor document.
- To not release to bid or construction any project until after final design is completed;
- To participate in design and preconstruction meetings either directly or through a representative. The designer is required to attend preconstruction meetings on complex projects.

POCS DOES NOT MARK FACILITIES. POCS takes the information from an excavator or a designer and relays it to its member underground facility owners. These facility owners are responsible for responding to the request and ensuring their facilities are properly marked.

Pennsylvania One Call System

Design Notifications

PA Act 287 of 1974

as amended by

PA Act 160 of 2016

January 2017

www.paonecall.org

Pennsylvania One Call: The Keystone of Damage Prevention

Designer Responsibilities

The Design Notice is meant to allow the designer to plan the new work around existing facilities as PA Act 287 as amended prescribes. Notifying POCS is only the first step and there are several other responsibilities, which need to be considered. Once the responses are received it is acceptable to send enhanced .pdf plans of the site.

Who Should Call?

Each designer preparing a drawing requiring excavation or demolition work within the Commonwealth; the Act states that the person preparing the drawing shall make the call.

Designer Definition

Any architect, engineer or other person who or which prepares a drawing for construction or other project which requires excavation or demolition work as defined by the Act.

When to Call?

Plan the design work to avoid damage to or minimize interference with a facility owner's facilities in a proposed construction area. Those planning work that disturbs the earth are required to notify POCS not less than 10, nor more than 90 business days in advance of the final design. Designers can obtain such information more than 90 days before final design is to be completed, however, they shall state in their requirements that such work is preliminary.

POCS can be notified over the phone or via the web for those who qualify.

Business Day Definition

Means any day except a Saturday, Sunday or legal holiday prescribed by statute. A business day begins at 12:00:00 a.m. and ends at 11:59:59 p.m.

Design Request

To request the line and facility information from POCS; the information provided should cover the entire scope of the plan or development with enough detail to allow the facility owners to provide the location of their lines in the proposed work area. Give as much descriptive information as you can to help the facility owner identify the proposed construction area. Please be as specific as you can with the location information. It is very important to describe the site in detail.

Drawing Exchange Portal for Design Notifications

The Drawing Exchange Portal offers an online tool to improve Design stage One Call communications between Designers and Facility Owners.

The application allows Designers to upload their plans in an electronic format, making the plans available for Facility Owners, who then may download the file, annotate with their facilities, save, and upload the electronic plan for the Designer to view.

- Designers add files to the Drawing Exchange Portal when qualified to create tickets via Web Ticket Entry.
- Facility Owners who have the link for Facility Owner Member Web Access will automatically have access to the Drawing Exchange Portal to annotate these files.
- Designers with Excavator Designer Web Access will automatically have access to the Drawing Exchange Portal to view the facility annotated files.

Guidelines for Preparing a Design Request

1. Verify Information

2. Telephone Number - becomes your account number

3. County - the name of the county in which the work will be performed

4. Municipality - the name of the municipality in which the work will be performed

5. Street Name - use exact address numbers and the street suffix, i.e, ST, RD, WY, DR, LN, AVE

6. Nearest Intersection - the nearest intersecting street or route (within a reasonable distance)

7. Location Information - describe the work site in detail and give the distance from the street, structure, property line, fence or other landmarks. If specific work site information cannot be given, outline the work site in white.

Serial Number - the number assigned to the notification. Please write your serial number down for your records.

Design Stage notification can be placed over the phone by calling 1-800-242-1776 or 8-1-1 or through Web Ticket Entry for those who qualify.

References

ASCE 38-02, Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data
Common Ground Alliance Best Practices – www. CommonGroundAlliance.com
www.FHWA.dot.gov

Pennsylvania One Call System, Inc.

Complex Project Process Policy

I. Terms used in this document are as defined in the Underground Utilities Protection Act (UULPA).

II. Notifications will be handled through the Pennsylvania One Call System (POCS) Coordinate PA (CPA) Web Portal.

A. Designers:

1. The designer creates a project within the CPA web portal.
   a. Includes Project Description and proposed timeline.
   b. Uploads drawings.
2. Through permissions, the designer assigns access rights (View Only or Modify) to the project owner.
3. Depending on the timeline of the project, the designer creates at least one Preliminary Design or Final Design notification ticket via the portal, from within the CPA project.
   a. If multiple excavators will be working on the same project, the designer segments the project into phases based on bid requirements.
   b. The designer creates at least one Final design ticket for each phase of the project.
4. When the project moves to construction phase, the project owner or designer assigns access rights (Modify) to the excavator for the phases of the project in which they are involved.

B. Excavators:

1. When a project exists in Coordinate PA:
   a. The excavator creates a complex project notification ticket via the portal, **from within the CPA project,** and indicates if a preconstruction meeting is requested. The excavator follows Option 1 or Option 2 below.

2. When a project does not exist in Coordinate PA:
   a. The excavator creates a project within CPA.
   b. The excavator creates a complex project notification ticket via the portal, **from within the CPA project**, and indicates if a preconstruction meeting is requested. The excavator follows Option 1 or Option 2 below.

Option 1: When a preconstruction meeting is requested, the excavator establishes the date, time and place of meeting in close proximity to the project work location. Electronic meetings are also acceptable. Meetings are strongly encouraged in the case of complex projects.

c. It is strongly recommended that in the case of a complex project that extends over a large geographic area, the party should consider scheduling multiple meetings throughout the site to accommodate travel needs.
d. The excavator is responsible for notifying the project owner and the designer of the meeting. Note: The designer is the one that prepared the drawing, not necessarily the one that is managing the project.

Option 2: If the excavator determines that a pre-construction meeting is not necessary, the notice shall indicate. If an individual facility owner nonetheless wishes to have a meeting, a meeting shall take place between that facility owner and the excavator. Other facility owners need not attend. [Sec 5(3) of Act.] In the notice, the excavator shall state the reason for determining that a pre-construction meeting is not necessary.

a. A facility owner requests a meeting by sending response code 092 (Requests Meeting) through POCS. This notice must be made prior to the third business day from the complex project notification.
b. The facility owner then contacts the excavator to establish the date, time, and place of meeting in close proximity to the project work location. The meeting must be held prior to the seventh business day from the complex project notification. Electronic meetings are also acceptable.

III. Meeting Protocol

1. At the meeting the parties shall agree upon their individual obligations consistent with the project. These obligations may vary from project to project based upon the specifics of the project and it is not the intent of this process to provide a specific set of standards for all complex projects. Rather it is intended that the parties shall have the flexibility to make decisions consistent with the project's parameters.

a. Involved parties (facility owner, excavator, designer, project owners) are required to attend the meeting.
b. The entire scope of the project must be defined at the meeting. Detail on phases should be defined as much as possible.
c. Agreement on the scope of ticket will be left to the parties attending the preconstruction meeting.
d. If a facility owner cannot agree to the proposed locate schedule, everyone must work to find a schedule that the one facility owner can agree to.
e. If no agreement can be reached, the excavator must create single routine excavation notifications, from within the project, for the areas where the dissenting facility owner owns/operates lines.

   f. If an involved party fails to attend the meeting, the excavator may proceed according to the agreement reached at the meeting.

2. Meeting notes shall be taken by the excavator calling the meeting using the POCS approved template and the minutes shall set forth the agreements made by the parties. Meeting notes shall be uploaded to the POCS web portal as soon as practicable. In the absence of minutes or a meeting the parties shall be bound by the provisions contained in the POCS Users Guide for non-complex excavation notifications.

3. Within 90 days of the pre-construction meeting the excavator shall provide the routine excavation notification required by Sec. 5 of the Act. The notification shall be consistent with the agreements reached at the pre-construction meeting, if such a meeting is called.

4. A complex project requires 10 business days' notice. The excavator shall not enter a routine excavation notification prior to the pre-construction meeting.

5. If the **project start** is delayed AFTER the complex project preconstruction meeting has been conducted and the mark out schedule agreed to, the following will apply:

   a. If the **start date** that was agreed to is delayed more than 90 days:
      i. A new Complex Project ticket and meeting will be required, from within the same CPA project.

6. If the scope of the project changes, a new complex project notification and meeting will be required, from within the same CPA project.

Additional Guidance:

1. In the case where an excavator creates multiple routine excavations tickets:
   a. The facility owner may respond 092 (Requests meeting), via the KARL system and reach out to the excavator to work out a locate schedule.
   b. The one call system may reach out to the excavator to educate them on complex projects.
2. In the event an impacted facility owner fails to attend the pre-construction meeting, it is highly encouraged the facility owner contact the excavator and schedule a one on one meeting, a minimum of at least 3 business days prior to the first lawful start date of the first routine excavation ticket.
3. If a party disagrees with the posted minutes, they communicate back to the excavator through the communication tool within the CPA portal.
4. Announcements will be sent to all parties for communication related activity in CPA.

A Privately funded non-profit Pennsylvania Corporation

Pennsylvania 811 White Paper

Successfully Designing and Constructing Broadband Fiber Project builds in Pennsylvania

Introduction

To address Pennsylvania's broadband infrastructure challenges and increasing access to high-speed broadband services to all Pennsylvanians, the Commonwealth of Pennsylvania created a Statewide Broadband Plan. This plan addresses both the immediate needs and long-term objectives for Pennsylvania broadband expansion and outlines the goals and action steps toward achieving universal broadband access throughout the state.

To meet the need for Broadband expansion in Pennsylvania, numerous government funding programs where initiated. For example:

- In 2020, the General Assembly created the Unserved High-Speed Broadband Funding Program through Act 132 of 2020, a **$10 million** grant program that provides funding for the advancement of high-speed broadband services infrastructure deployment in unserved areas of this commonwealth.
- In March 2022, the Commonwealth Financing Authority approved **$10 million** for nineteen projects for nongovernmental entities to deploy middle-mile and last-mile high-speed broadband infrastructure to unserved areas.
- Act 98 of 2020 removed the requirement that mandated commonwealth rural electric cooperatives to enter into new easement agreements with each property owner for the installation of high-speed infrastructure.
- In June 2021, Act 50, otherwise referred to as the Small Wireless Facilities Deployment Act was signed into law to expedite the deployment of wireless small cell facilities throughout the commonwealth.
- in late 2021, Congress passed, and President Biden signed into law, the Infrastructure Investment and Jobs Act (IIJA), also known as the Bipartisan Infrastructure Law. This was a historic step forward toward the goal of providing broadband access to the entire country. The IIJA invests $65 billion into broadband to close the digital divide – of which Pennsylvania is guaranteed a minimum of **$100 million** and is expected to receive hundreds of millions in additional funding through formula or competitive funding opportunities.
- The Commonwealth was also allocated **$278,793,641** million from the American Rescue Plan Act Capital Projects Fund to allot toward broadband deployment.

To ensure that this influx of funding is properly allocated and managed, the Pennsylvania legislature created The Pennsylvania Broadband Development Authority (PBDA). [1] This is an independent agency of the Pennsylvania Department of Community and Economic Development (DCED). The authority is responsible for creating the **statewide broadband plan** [2] for distributing federal and state monies for broadband expansion projects in unserved and underserved areas of Pennsylvania. PBDA efforts focus on closing Pennsylvania's digital divide so all Pennsylvanians can get connected to affordable and reliable high-speed broadband internet at home, at work, or on the road.

The Statewide Broadband Plan is very comprehensive, with details on the challenges, goals, and actions steps needed to close the digital divide in Pennsylvania. However, the plan does not cover the details of how to safely and efficiently construct new underground broadband fiber facilities throughout the numerous municipalities in Pennsylvania.

This white paper is designed to provide guidance on how to successfully build new underground broadband fiber facilities in Pennsylvania. The goal is to educate all underground stakeholders i.e., Project Owners, Designers, Excavators and Facility Owners, on the necessary steps that must be taken to ensure that any new underground broadband fiber build in Pennsylvania is done efficiently, timely, and most importantly, done safely.

Pennsylvania's One Call Law i.e., The Underground Utility Line Protection Law Act 287 as amended by Act 50 of 2017 (UULPA) [3] deals exclusively with safety and utility services to the public when excavation is used in the installation of new underground infrastructure. This Law is enforced by the PA Public Utility Commission [4]. As background, Pennsylvania 811 was created as a sub-committee of the Pittsburgh Public Service Coordinating Committee in 1968. Operations were established in September 1972 and the service covered 6 utilities serving Allegheny County in Southwestern Pennsylvania. In April 1975, Act 287 (1974) went into effect requiring excavators to call before digging, and expanded the service area to 11 counties. At that time, in honor of the 1776 United States Bicentennial, the toll-free number 800-242-1776 was added as an additional way to reach the call center, and coverage included the 33 counties of Western Pennsylvania.

Expansion continued across the Commonwealth in 1977, adding Central Pennsylvania in a merger with JUNE (Joint Utility Notification for Excavators) and the Southeastern counties were added in September 1977. Pennsylvania One Call System, Inc. is incorporated under the laws of the Commonwealth of Pennsylvania and registered as a non-profit corporation under Section 501(c)(6) of the Internal Revenue Code.

A 35-member Board of Directors governs the organization. The composition of the Board includes representation from the following industries: Electric, Gas (including an owner or operator associated with Conventional oil and gas wells and a facility owner representative of a pipeline associated with Unconventional oil and gas wells), Municipal, Pipeline, Telecommunications, Telephone, Water, Cable Television, Associate, Contractor, Designer, the Pennsylvania Public Utility Commission, Pennsylvania Emergency Management Agency, and the Department of Transportation. William G. Kiger, is the President and Chief Executive Officer of the corporation.

Funding of the company has come from notification service fees to members. Increased revenues from growth are used to offset operating expenses. A lesser amount comes from collection of excavator fees. The excavator fees are used to offset the cost of membership for municipalities and municipal authorities, to offset certain company operational costs, and to partially fund the PUC enforcement effort.

Today Pennsylvania 811 serves all 67 counties and employs over 90 people. For 51 years Pennsylvania 811 has been known as the ***"Keystone of Damage Prevention"*** in the prevention of damages to underground facilities in Pennsylvania with the clear mission of ***"Our purpose is to prevent damage to underground facilities. To promote safety, we provide an efficient and effective communications network among project owners, designers, excavators, and facility owners."***

With millions of dollars being allocated for Pennsylvania broadband fiber infrastructure projects, all underground stakeholders need to be prepared for the influx of construction activities associated with these infrastructure projects. Pennsylvania 811 has all the project management tools in place that will allow all underground Project Owners to safely manage their underground projects. Past history has

shown that if the underground design and construction guidelines are not strictly adhered too, damages to existing facilities; to property; and serious injury to workers or the general public will occur.

To mitigate this concern, all underground stakeholders must follow the design, and construction guidelines and standards that are already in place for building their broadband fiber projects in Pennsylvania. Furthermore, it is imperative that all stakeholders follow several basic business principles or business etiquette to meet each other goals and objectives on these projects:

- That all stakeholders Communicate, Cooperation, Collaborate, Coordinate with each other during the entire project build.

- Stakeholders need have empathy for each other business problem(s) and negotiate fairly and openly while dealing with each other

- To **Communicate Early and Communicate Often** with each other

- ***That personal Safety and Zero Damages to existing infrastructure is the number one priority!***

In the following pages, we will outline the necessary steps that the Project Owner, Designer, Excavator and existing Facility Owners need to do during the Conception Phase, the Design Phase, and the Construction Phase of the broadband fiber project. The information we will provide is based on scientific hypothesis, meaning that the methodologies put forth have been tested and proven to work in minimizing damages to existing facilities and eliminating personal injury.

The first phase of any broadband fiber project build is to familiarize you and your staff with Pennsylvania's UULPA Law. Pennsylvania 811 strongly recommends that all new Project Owners, Designers and Excavators (Contractors) that are involved in a broadband fiber project build take Pennsylvania 811 training prior to commencing any work on the project. Education and Public Awareness are a critical part of the service Pennsylvania 811 provides. Educational Programs, Compliance Training, and Safety Presentations are offered targeting facility owners, designers, excavators (contractors), and locators. To learn more about Pennsylvania 811 Education Team and its class offerings please visit our website at www.paonecall.org

I hope you will find the information contained in this report valuable resource for you as begin your broadband fiber project build. Feel free to contact me or other members of the Pennsylvania 811 staff with any questions you have about this white paper.

Sincerely,

William G. Kiger

President and Chief Executive Officer
Pennsylvania One Call System, Inc. dba Pennsylvania 811

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The Problem

With underground fiber capital builds there tends to be a disconnect between speed to market and actual construction. Fiber Project owners prioritize the getting the fiber assets in the ground quickly to maximize Return on Investment (ROI) and to beat their competitors to market.

When Fiber Project owners develop their business plans those two factors are the primary drivers. The disconnect with construction happens when the Project Owner build plan doesn't take into account the ability of the existing facility owners to identify and locate their underground facilities during construction.

With the main driver being ROI and speed to market, the Project Owners will generally attempt to "crash the task" to expedite the build. The Project Owner will employ a General Contractor to assume the responsibility to manage the project build. To meet the Project Owner's proposed build schedule and financial objectives, the General Contractor will use as many subcontractors as necessary to meet the build schedule.

For example, visualize a 100-home subdivision where a new fiber company decides to be a competitor to the incumbent cable TV or Telecom provider. Let's also add that this fiber company plans on building in 5 of these types of subdivisions in one specific municipality. The General Contractor wins the bid and agrees to the payment terms of $1,000 per household passed and agrees to a specific timeframe for completion of the build. To meet the Project Owner's timeframe, the General Contractor decides to hire 4 subcontractors for this project. The build plan is to have all of the subcontractors working concurrently within the municipality. This build plan as outlined will maximize the use of subcontractor's personnel to meet the project objectives. However, the build plan has one big flaw, the Project Owner or the General Contractor never took into account of the external forces, i.e., the locating of existing facilities, that may delay and impact their build plan.

The locating of existing facilities is the biggest hurdle to many fiber build plans. Why would this be an issue. General Contractors must review the requirement of each individual states one call laws and follow the applicable municipality permitting guidelines. In Pennsylvania you are required to call 3 days before your dig. In addition, if the project is complex, meaning that there is complexity to the work based on duration, impact, size or complexity, then the excavator must have a complex project meeting 10 days before excavation. We will discuss the rules and guidelines of a Complex Project later in this document.

The main issue with most fiber build plans is that the General Contractor didn't account for the locate capacity of the existing facility owners' locators in their planning. Many of the fiber builds are being placed in existing utility rights of way. In the existing ROW you may have electric, gas, water and other telecom/Cable TV facilities. All of these facilities will need to be located prior to excavation. However, many times the local municipality that owns the sewer and sometimes the water facilities have limited personnel to do the locates. Most municipalities will base their locate personnel based on past locate demand history. For example, if a municipality typically get 10 to 15 locates notifications daily, then most likely they will only have one or two persons assigned to do locates for the municipality. To complicate this scenario further, the local utilities also have limited personnel for locates. Even though

they may be staffed with more locate personnel, those locators are usually doing locates in multiple municipalities within a county.

With this information, let's go back to the General Contractor who is "crashing the task" to meet the project owner's financial and speed to market objective. Remember the General Contractor just hired 4 subcontractors that are going to be working in the municipality concurrently. Let's also say that each one of the subcontractors has a goal of completing approximately 2,000 feet a day in their specific build area.

However, the Project Owner nor did the Designer ever directly contacted the local facility owner in advance to inform them of the proposed project. Many times, there may have been communications about the proposed build between Project Owner and local elected officials, but that communication doesn't provide the advance notice needed for the facility Owner's Operations staff to prepare for this influx of underground excavation.

With the local Facility Owners not being directly informed of this fiber build project in advance and with the Facility Owners locate capacity being limited, this proposed fiber build project will clearly exceed the capacity of the Facility Owner's locators. Poor project design, poor project communication, and the lack of adequate advance notice will end up causing numerous damages to existing underground facilities, along with frequent complaints from local residents.

How do we mitigate this issue? The information in this white paper will elucidate how Pennsylvania underground stakeholders can successfully manage this critical issue so that all underground fiber builds get completed timely and done with minimal damage to existing facilities.

Let's Begin to Design and Construct a Successful Fiber Build

You as the Project Owner have just secured funding to do a new underground build out. As stated in the introduction of this paper, before you begin, Pennsylvania 811 strongly recommends that all Project Owners, Designers and Excavators that are involved in a broadband fiber project build take Pennsylvania 811 training prior to commencing any work on the project. The UULPA addresses the details of the build process beginning with Preliminary Design, Subsurface Utility Engineering (SUE)[5], and posting Facility info and SUE Level A confirmation on the Final Design before bids are sent to contractors.

Project Owner Process

Let's start with the definition of a Project Owner in Pennsylvania. UULPA defines a Project Owner as "any person who or which engages an excavator for construction or any other project which requires excavation or demolition work." UULPA further elucidates the responsibilities of the Project Owner in Section 6.1 of the law. Highlighted below are key obligations of the Project Owner in Pennsylvania:

- **To participate in design and preconstruction meetings either directly or through a representative.**
- **To install color-coded permanent markers to indicate the type and location of all laterals installed on new construction or where practicable on your projects**
- **To use sufficient quality levels of Subsurface Utility Engineering (SUE) when a project cost is $400,000 or more.**

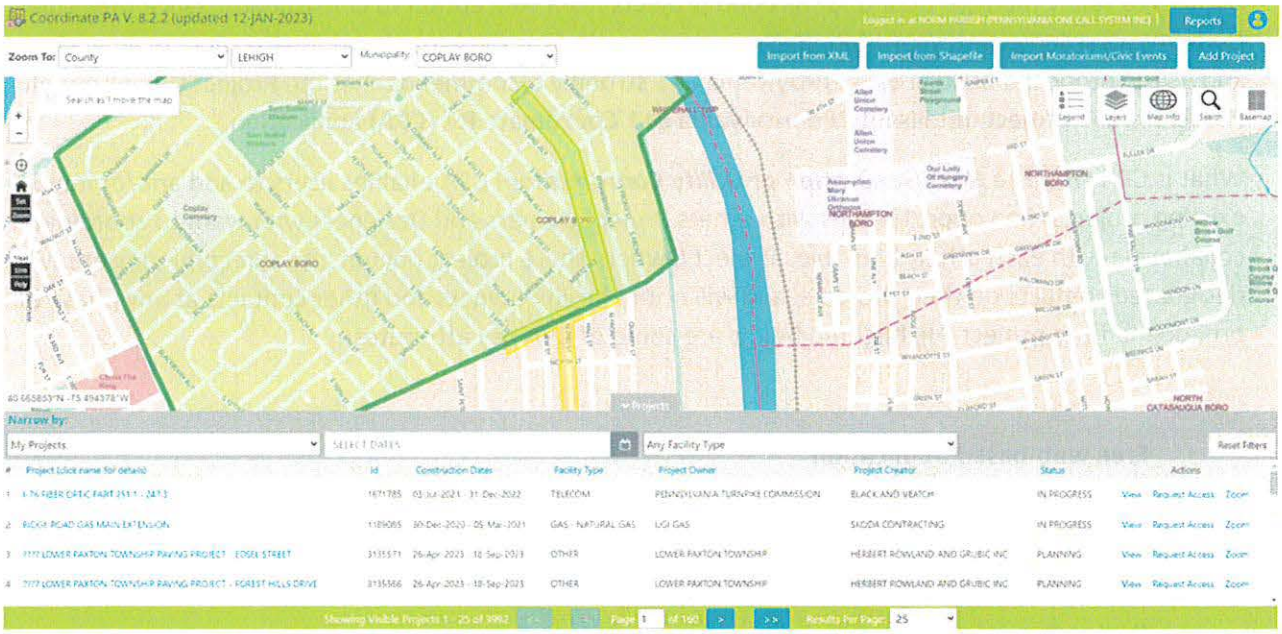
- **To provide the SUE data to the One Call system in a mutually agreeable format.**
- **To wait for the final design before releasing to bid or starting the construction project.**
- **To respond to all notifications from the excavator.**

Pennsylvania 811 has all the project management tools in place that will allow all underground Project Owners to safely manage their underground projects from conception to construction. Once the Project Owner is awarded government funding or venture capital for the broadband fiber project build and knows the proposed build area, Pennsylvania 811 strongly recommends that the Project Owner put all the fiber build project details into **Pennsylvania 811 Coordinate PA (CPA)** application.

What is CPA? ***It's The Next Generation of Utility Coordination!*** CPA enables users to add and/or import existing projects; find opportunities with others Project Owners and Designers who want to coordinate, collaborate with each other; it enables Project Owners share project documents and communicate with designated contacts on their projects; and will notify facility owners and other contacts at any phase of a broadband fiber project. Highlighted below are some of CPA key attributes:

- **Free web-based application**
- **Coordinate PA is a secure repository**
- **Add project contacts and permissions**
- **Design Drawing Exchange**
- **Virtual maps with different map base options**
- **Import moratorium data**
- **Share future project information at the user's discretion and to follow the PBDA "Dig Once" Strategy**
- **Provides opportunity for Project Owners/Designers to Collaborate, Coordinate, Cooperate and Communicate on future and current projects all the way to completion in a safe repository.**

Here is a screen shot of CPA



Having the Broadband Fiber Project in CPA will provide the Project Owner the ability to manage and communicate the project among all the underground stakeholders throughout the broadband project lifecycle i.e., conception to construction of project. Entering the project in CPA also begins the process of **Communicate Early and Communicate Often** to all underground stakeholders, which will allow you to get your project done efficiently while minimizing potential underground damages.

This is also the time when the Project Owner should engage the elected officials of the County/Municipality of where the build is going to take place. This first communication is key to ensure the local elected officials are aware of the entire project proposal and can disseminate any needed information to their constituents. In addition, by entering the project information into CPA you will also have the option to allow other existing Project Owners (utilities) to see each other projects in the area.

The benefit of having the ability to see each other's underground projects is to allow the underground Project Owners to collaborate, coordinate, cooperate, and communicate on large complex underground excavation projects that are occurring in the same area. This type of collaboration creates the potential of reducing cost for road openings and repaving; it eliminates the issue of multiple facility owners cutting open the same road multiple times; and all underground excavation work can now be coordinated effectively to minimize the disruption to the residents in the proposed build area.

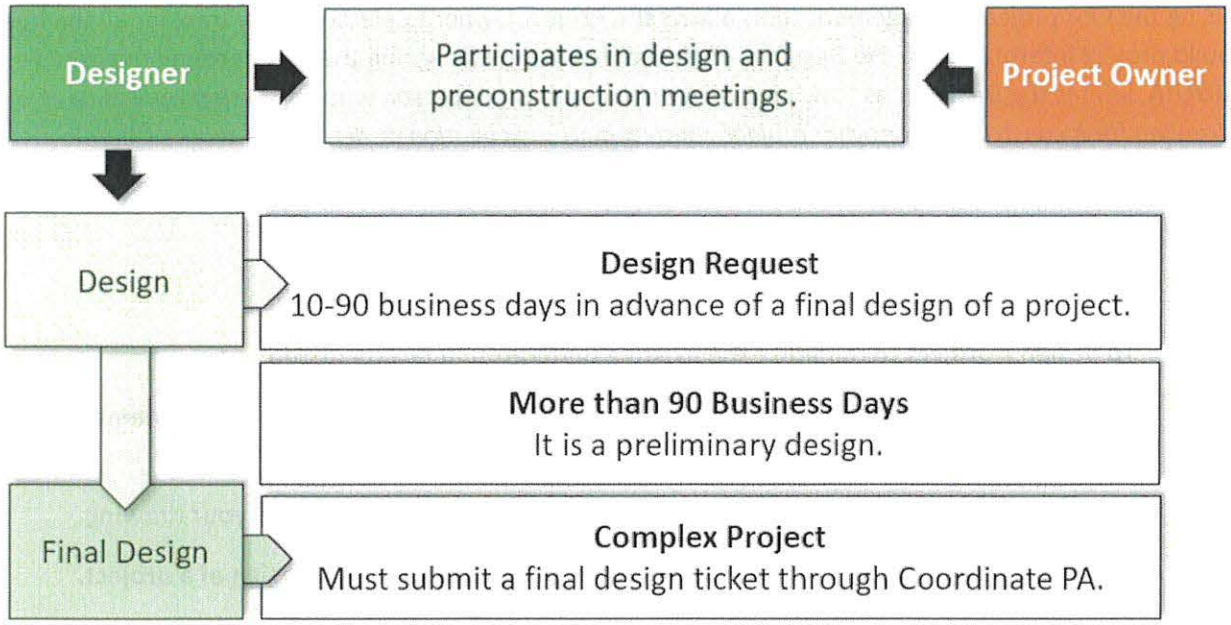
Designer Process

Using the CPA project management tools allows the Project Owner to electronically transfer all the fiber build project information to the Designer of choice that will be designing the underground project. **UULPA** defines the Designer as *"any architect, engineer or other person who or which prepares a drawing for a construction or other project which requires excavation or demolition work as herein defined."* UULPA further elucidates the responsibilities of the Designer in Section 4 of the act.

Highlighted below are key obligations of the Designer in Pennsylvania:

- **To do all Design Notification via Pennsylvania 811 CPA Application.**
- **To design a project to minimize the existing underground facility disruption.**
- **To show on the drawing the position, type of each facility owner's lines and the name of the facility owner.**
- **To show your One Call serial number and the One Call phone number on your drawing.**
- **To submit design requests 10-90 business days in advance of a final design of a project.**
- **To state preliminary design if the design request is more than 90 business days.**
- **To forward a copy of the project plans to each facility owner who requests a copy.**
- **To participate in preconstruction meetings for a complex project if you are responsible for the final design.**
- **To create a new design request of your final design if the scope or project site changes.**

Below is a graphical overview of both the Project Owner and Designer obligations under UULPA:



RESOURCE: Underground Utility Line Protection Law, PA Act 287, as amended

Following the theme of **Communicate Early and Communicate Often** mentioned in the introduction, it is imperative that Designers reach out to the underground stakeholders as early as possible on a broadband fiber build project. In Pennsylvania this is accomplished with the Project Owner putting the project in CPA and with the Designer doing its Preliminary Design Notification via CPA. The Preliminary Design Notification allows a Designer to request line and facility information more than ninety days before final design is to be completed, however, they (The Designer) shall state in their design requirements that such work is preliminary.

If you recall, one the main obligations of the Designer is to design underground projects that minimize existing underground facility disruption. This is a key requirement to minimize underground damages and eliminate the need of design-related change orders during construction. This can only be accomplished by following the **Subsurface Utility Engineering (SUE) Standard Guidelines for Investigating and Documenting Existing Utilities – ASCE/UESI/CI Standard 38-22 and 75-22**.

The goal of the ASCE 38 Standard is to put forth procedures, actions, and guidance that, when coupled with professional judgment, facilitate a constructible project design with a minimum of Utility relocations, design-related change orders, and construction-related delays, claims, or changes owing to errors or omissions in the documentations of known and unknown utilities.

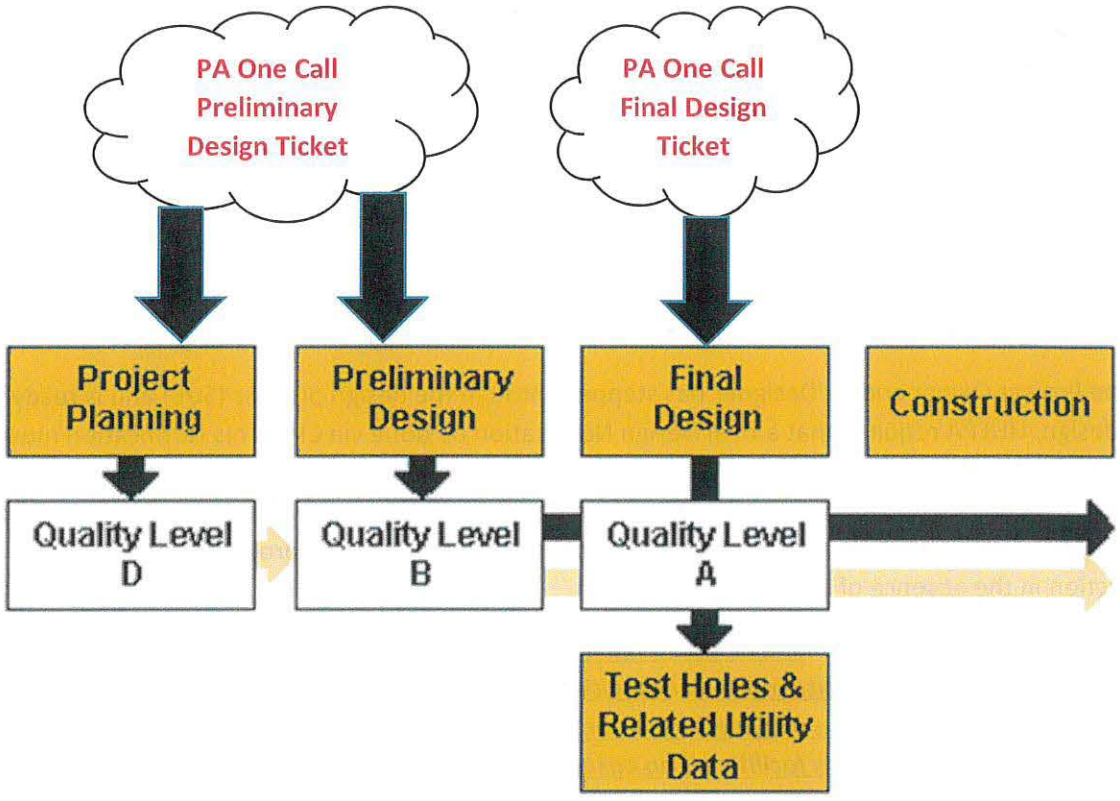
The ASCE 38 Standard is a combination of a prescriptive standard and a performance standard. As a prescriptive standard, it sets forth a series of minimum actions necessary to attempt to achieve a particular Utility Quality Level Documentation. As a performance standard, it describes the significant professional judgment that should be exercised by the professional i.e., The Designer, to determine the appropriate timing, sequencing, and location of Utility investigative effort to achieve the goal of reduced Utility issues during Project Delivery. The diligent use of ASCE 38 Standard protects the Designer from errors or omissions in Utility identification.

The ASCE 38 Standard also pertains to the investigation, identification, and documentation of underground Utility networks. This standard does not replace statutory requirements for Facility Owners to mark their utilities' suspected locations on the ground surface as a construction damage prevention mechanism.

The ASCE Standard 38-22 stipulates that the utility investigation standards, and mandates that all the utility investigations take place under the direct responsible charge of a licensed professional engineer (PE) aka The Designer.

The diagram below highlights how the Quality Levels of the SUE Process align with the Design Requirements of PA Act 287:

Four ASCE 38 Quality Levels Summary



During the Preliminary Design phase, the Designer can reach out to key Facility Owners, i.e., the gas, sewer, water and electric companies in the propose build area. This contact can be done via the preliminary Design Notification where all facility owners will be contacted to either send the Designer their underground facility drawings, or the Facility Owner can request the Designer to send their preliminary drawings to the facility owner, and they will indicate on the drawing where they have facilities. The Designer can also find out what Facility Owners are in a particular municipality via the Facility Owner List on Pennsylvania 811 website www.paonecall.org

This initial contact (Preliminary Design) is the perfect opportunity for the Project Owner and the Designer to have comprehensive conversations with all the underground facility owners in the proposed broadband fiber build area. Pennsylvania 811 strongly recommends that you have either a face-to-face or a virtual meeting with the operational representatives of the effected Facility Owners in the proposed build area at this time. **THIS COMMUNICATION STEP IS CRITIAL FOR THE TIMELY SUCCESS OF ANY BROADBAND FIBER PROJECT BUILD.**

This meeting is where you, as the Project Owner and/or Designer, will find out key details about the underground facilities that are existing in the area. It is also where you can discuss your desired build schedule and the facility owners can provide you details of their locate capacity during construction.

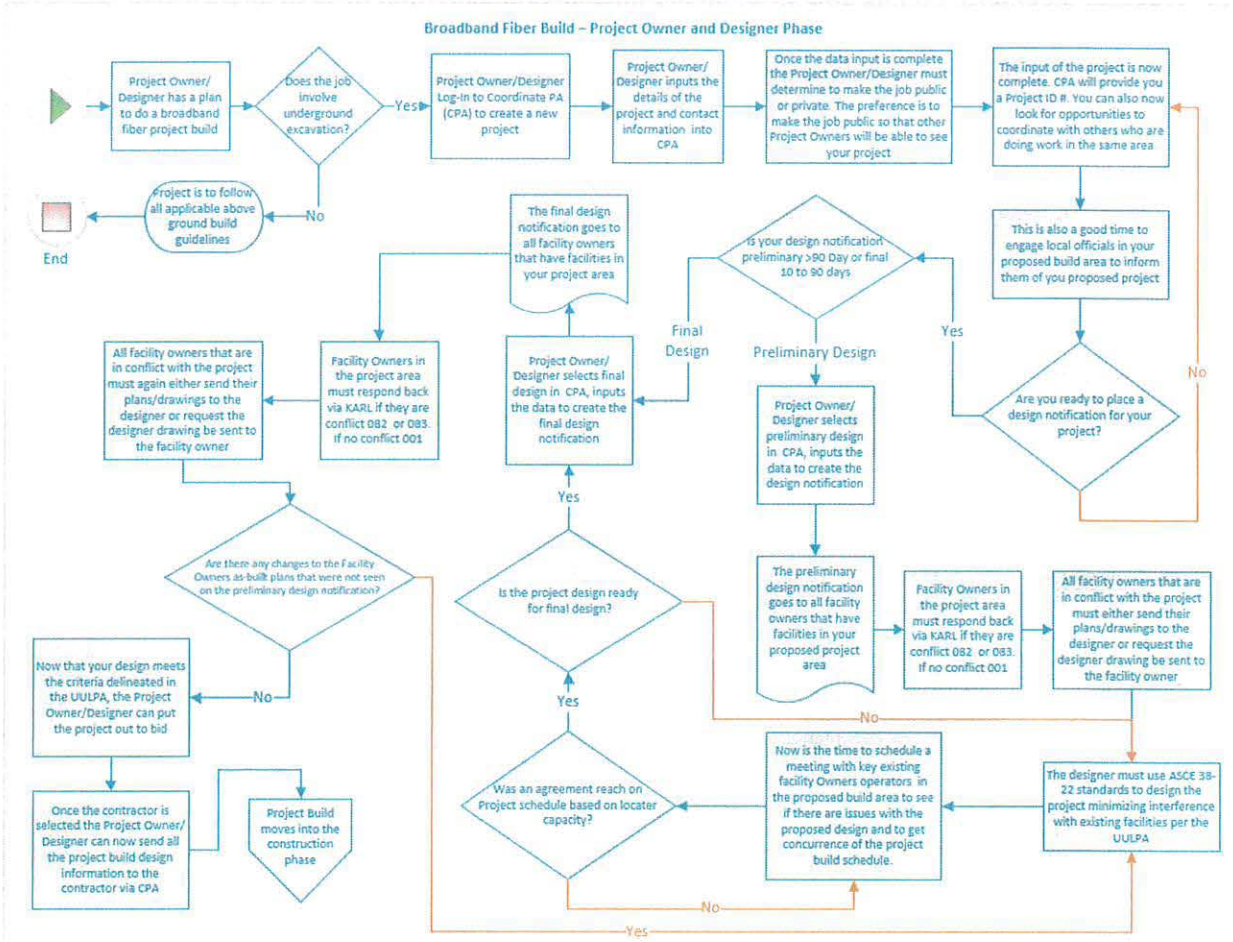
Many times, on large Complex Projects, the Project Owner and Designer build schedule i.e., Project Timeline, is aggressive and will exceed the locate capacity of the local facility owners' staff. For a variety of reasons, Facility Owners do not have the ability to arbitrarily add additional locate personnel to meet the needs of one or several Project Owners. This early communication will allow all parties to discuss, understand, and negotiate, to resolve the scheduling and locate issues during the design phase versus trying to figure it out during construction.

Plus, it is an opportunity to create a rapport with the Facility Owner's operation managers, supervisors and locators. Early communication and good rapport with the Facility Owners' personnel during the Design phase will ensure a smooth construction build. This may take more than one meeting, but again if you **Communicate Early and Communicate Often**, you will eliminate damages to existing underground facilities during construction and you will get your project completed within a reasonable timeline.

Once the Project Owner and/or Designer has stepped through the design process (SUE) and is ready for a final design, UULPA requires that a final Design Notification be done via CPA. This Notification must be done not less than 10, nor no more than 90 business days in advance of the final design. A Final Design Notification means the engineering and construction drawings that are provided to a bidder or other person who is asked to initiate construction on the bid date or the date the project is set for construction in the absence of a bid.

In the final design, the Designer "***shall make a reasonable effort to prepare the construction drawings to avoid damage to and minimize interference with a facility owner's facilities in the construction area by maintaining the clearance as provided for in the applicable easement condition or an eighteen-inch clearance of the facility owner's facilities if no easement restriction exists."*** **For the final design the Designer is required to Utilize *Utility Quality Level A (QL-A)* based on the data received from the other QL (D, C, B), meaning that any conflicting utilities were exposed and verified at that exact spot, and the uncertainty of its location is nearly zero.**

This is a flowchart that details the project entry and design process from concept to final design:

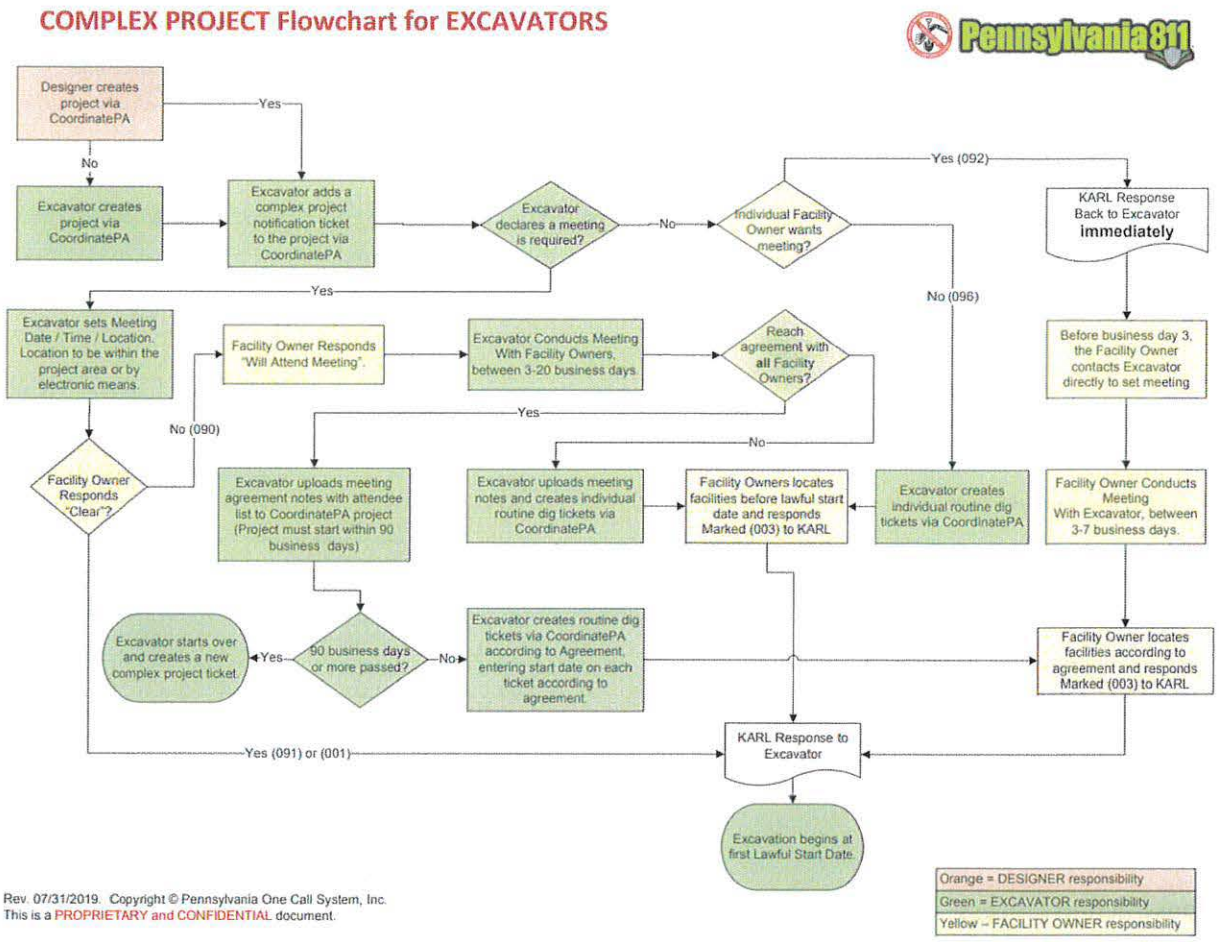


Construction Process

Now that we have a final design that meets all the criteria delineated in UULPA; that follows the ASCE/UESI/CI Standard Guidelines; and we have a negotiated proposed build schedule, between the Project Owner and the Facility Owners that is in alignment with the existing Facility Owners locate work force, it is now the time to move your project to the construction phase of the fiber build project. Again, the Project Owner/Designer can provide all the details of the project that were captured in CPA to the General Construction Contractor (Excavator) that won the bid to do the work with CPA.

The Pennsylvania 811 underground stakeholder community views broadband fiber project builds as a Complex Project. UULPA defines a Complex Project as *"an excavation the involves more work than properly can be described in a single locate request or any project designated as such by the excavator or facility owner as a consequence of its complexity or its potential to cause significant disruption to lines or facilities and the public, including excavations that require scheduling locates over an extended time frame.'* Based on the large scale of the broadband fiber builds, all these types projects are deemed as Complex Project.

To assist the Excavator in managing the broadband project build, Pennsylvania 811 Board of Directors put together a Complex Project policy. The policy provides guidance and rules to follow when managing Complex Projects in Pennsylvania. To aid excavator in navigating the Complex Project Policy, Pennsylvania created a detailed flowchart of the Complex Project process:



With Complex Projects, the excavator must have a Complex Project Meeting. Remember **Communicate Early and Communicate Often**? Because you have done meetings in the design phase of the project, this Complex Project Meeting is a follow up meeting to ensure that everyone involved in the project build are on the same page with what was agreed to in the other meetings. One of the key components of CPA is that all the agreements and meeting notes must be memorialized in the CPA system. Prior agreements and concerns can be reviewed and shared with all the underground stakeholders attending the construction Complex Project meeting. Here is an example of the template used for sign-n sheet and notes in CPA:

Complex Project Meeting Sign In Sheet

Date of Meeting		Notes prepared by		Complex Project Ticket Number	

Download or print. Pass this sheet around during the meeting and collect at the end after all attendees have signed in.

Printed Name	Company Representing	Cell number	Office number	Email address	Initials	Agent Y/N

Please scan or photograph the completed sheet to save, and then upload to the Coordinate PA Project to record the attendance.

Complex Project Meeting Notes

Date of Meeting		Notes prepared by:		Complex Project Ticket Number	

Scope of a Ticket and Mark Out Agreements

Scope of a ticket: (describe the agreement all have made as to the extent or maximum scope of a ticket)
Mark Out Agreement: (Describe the timeframe given for locating, scope of tickets agreed, and if additional meetings will be held.

Download or print. Edit, then scan or photograph to save. Upload to the Coordinate PA Project to record the meeting proceedings.

This meeting is also where the final construction phases can be shared and the locate scheduled can be reaffirmed and finalized. As in the previous meetings, to have the build be done efficiently and with zero damages, all must be in agreement with the phases and the build schedule. To get consensus, both the Project Owner/Designer/Excavator and the Facility Owner must have empathy to each other's business problem, and work together to find an amiable solution that works for everyone. This is all achievable if the Project Owner/Designer/Excavator **Communicate Early and Communicate Often** with the existing Facility Owners during all phases, i.e., Conception to Construction, of the project.

During construction, again communication is paramount. The UULPA requires that the excavator ***"exercise due care and to take all reasonable steps necessary to avoid injury to or otherwise interfere with all lines where positions have been provided to the excavator by the facility owners pursuant to Section 2 (5). Within the tolerance the excavator shall employ prudent techniques, which may include hand-dug test holes, vacuum excavation or similar devices to ascertain the precise position of such facilities."*** In addition, should any damage to existing facilities happen to occur during the construction and installation of new broadband fiber facilities, whether the funding of the project is from government or private funding, the excavator is obligated to report any damage to any underground line or facility within 10 business days to the PUC through the Pennsylvania 811 website.

It should also be noted that all Excavators, i.e., General Contractors and their subcontractors are required to follow all applicable federal, state, local build and permitting guidelines for their broadband fiber project builds. In addition, to ensure a successful build, excavators must follow all clauses in the UULPA, and all safety guidelines and standards referenced in the Common Ground Alliance Best Practices [6], OSHA [7], and Horizontal Directional Drilling Good Practices [8].

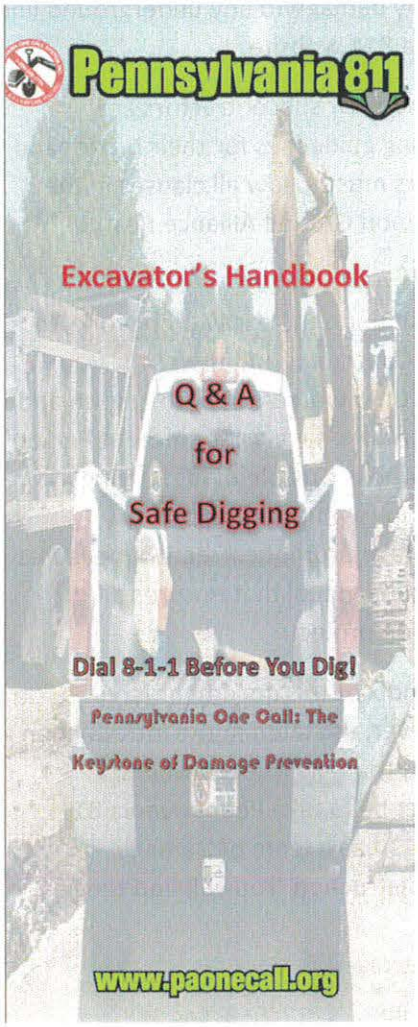
Many times, General Contractors will hire folks that don't speak English to do the excavation work. To mitigate potential employee injuries, it is recommended that General Contractor and their Subcontractors have someone on their staff that can communicate to their workers in both English and Spanish. In addition, it is strongly recommended that excavation contractors have a "Competent Person" at each excavation site. OSHA defines a "Competent Person" as "one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them" [29 CFR 1926.32(f)]. This Competent Person" is the individual that ensures all applicable safety rules and guidelines are followed during the excavation project.

To aid the Excavator with the UULPA rules and guidelines, in the appendix of this document is Pennsylvania 811 Excavator Handbook Q and A for Safe Digging. However, as stated in the introduction of this paper, before you begin Pennsylvania 811 strongly recommends that all Project Owners, Designers and Excavators that are involved in any infrastructure project build take Pennsylvania 811 training prior to commencing any work on the project. Pennsylvania 811 has a team of Damage Prevention Liaisons that can assist all stakeholders from concept to construction. You will find their contact information in the appendix of this document.

Utilizing Pennsylvania 811 CPA application to coordinate and manage the broadband fiber project builds; finding conflicts with facilities in the design phase (SUE); creating a design that ensures minimum interference with existing facilities; excavating using prudent techniques and following all safety guidelines and standards; and by **Communicating Early and Communicating Often,** will result in an efficient, timely, project build, that will have minimal damage to existing facilities and no personal injury to workers or the public.

Norman L. Parrish
Manager – Education
Pennsylvania 811

Appendix



This document is to be used for reference only. It is not legal advice. For any legal requirements, please consult your attorney or refer to the most current amendment to Act 287 of 1974 which is available at www.pa1call.org/palaw.

When applicable, the answers to the questions will reference the section of PA Act 287 of 1974, as amended, 73P.S. § 176 et. seq. and/or the Complex Project Policy (Policy) located on the PA One Call website.

To download this guide go to www.pa1call.org/excavatorhandbook or use the QR code below.

Additional reference materials can be found:

www.paonecall.org
www.commongroundalliance.com
www.puc.pa.gov
www.apwa.net
www.FHWA.dot.gov

- ***Question: What is considered an excavation?***
  Answer: The use of powered equipment or explosives in the movement of earth, rock or other material.
  - There are very specific requirements as to what activities constitute excavation which should be reviewed on the website www.paonecall.org.

  Section 1
- ***Question: What do I need to do before I dig?***
  Answer: Place a call to 8-1-1 at least 3 business days, but not more than 10 business days, prior to starting excavation.
  Section 5 (2.1) and (2.2)
- ***Question: Should I mark in white before I call?***
  Answer: Yes, the perimeter of the Work site should be marked in white. (Do not use any other color.)
  Sections 1, 2 (5)(vi), and 5 (11)
- ***Question: What hours are the one call center open?***
  Answer: 24 x 7 every day of the year.
- ***Question: Who must place the one call?***
  Answer: The responsible person doing the excavation.
  Sections 1 and 5 (2.1)
- ***Question: What is a serial number?***
  Answer: Proof that you placed a one call notification. The serial number is assigned by the One Call System and is on the locate request.
  Section 5 (2.2)

www.paonecall.org 1

+ ***Question: I'm a subcontractor, can I piggyback on my main Excavator's one call?***
Answer: No. Each responsible Excavator must make their own notification.
Section 5 (2.1) and (2.2)

+ ***Question: Who is responsible for finding the precise location of the underground line?***
Answer: The Excavator, using prudent techniques.
Section 5 (4)

+ ***Question: Upon initial arrival at the Work site, what should I do if there are no visible mark-outs?***
Answer: Do not begin excavating. Check the KARL responses through the one call center.
Section 5 (20)

+ ***Question: What should I do if I disagree with the responses in KARL, due to visible evidence in the field?***
Renotify the One Call System. After the renotify, wait up to three hours for the response from the Facility owner(s) before digging prudently.
Section 5 (20)

+ ***Question: What is the Tolerance zone?***
Answer: 18 inches horizontally from the exterior wall of the pipe or facility. (See back of handbook)
Section 1

+ ***Question: What is required within the Tolerance zone?***
Answer: Exercise due care and use prudent techniques.
Section 5(4)

+ ***Question: For how long are the marks good?***
Answer: When excavation begins within the Lawful start dates, you can continue work as long as equipment is on site and the marks are visible.
Section 5 (3) and (14)

+ ***Question: Must I physically protect the marked Facility owner lines I expose in preparation for excavation?***
Answer: Yes, in consultation with the Facility owner.
Section 5 (6)(ii)

+ ***Question: When may I lawfully start digging?***
Answer: Read the locate request for your Lawful start date.
Sections 1 and 1.1

+ ***Question: When do I need to call back for re-marking?***
Answer: You have an obligation to protect the marks. When the marks become obscured or when you remove equipment from the site for more than 2 business days, you must call one call for re-marks.
Section 5 (3) and (14)

+ ***Question: May I refresh anyone else's marks using their color?***
Answer: No. You must protect the marks. You may not refresh anyone else's marks.
Section 5 (3)

+ ***Question: What should I do when I hit or damage a Line or facility?***
Answer:
  - Stop digging!
  - If gas is escaping or blowing, you must call 9-1-1.
  - Call 8-1-1 to create a damage notification or notify the Facility owner directly.
  - Submit an Alleged Violation Report (AVR) not more than 10 business days after the damage occurred.

Section 5 (7), (8), and (16)

+ ***Question: What is an Emergency one call?***
Answer: A notification involving an event that has an immediate effect on life or property.
Sections 1 and 5 (9)

+ ***Question: What is the difference between a single excavation notification and a Complex project?***
Answer: The maximum area of a single notification is 1,000 feet or intersection to intersection, whichever is greater, along the same street, within the same political subdivision. Anything greater than this is considered a Complex project.
Section 3 (4)

+ ***Question: What determines if my Excavation work is a Complex project?***
Answer:
  - Duration
  - Impact on the Facility owner's lines or the public
  - Size
  - Complexity

Section 1

- ***Question: A Facility owner feels my Excavation work is complex and requests a meeting through the KARL System; what happens next?***
  Answer: The Facility owner will contact you directly to schedule a meeting.
  Section 1

- ***Question: My Excavation work falls under the definition of complex; what do I need to do?***
  Answer:
  - If a project does not exist in the Coordinate PA (CPA) portal on the PA One Call website, then create one.
  - Create a Complex project meeting notification from within the project.
  - Hold a Preconstruction meeting, as applicable.
  - Create locate request(s) from within the project based on agreements made at the meeting.

  Sections 1 and 5 (3) and Policy

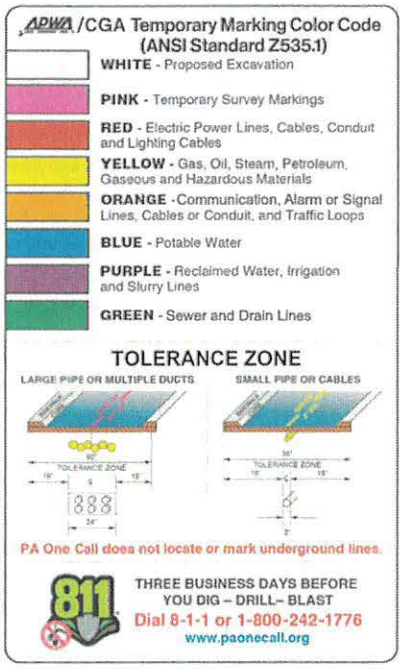
- ***Question: Where should the Preconstruction meeting be held?***
  Answer: In close proximity to the project work location or electronically.
  Sections 1 and 5 (3) and Policy

- ***Question: What should occur at the Preconstruction meeting?***
  Answer: Attendance should be recorded on the POCS approved Complex Project Meeting Sign In Sheet template and notes taken, including the scope of locate request(s) and the agreed upon mark-out schedule.
  Note: Sign in sheet and meeting notes template are available on the POCS website.
  Policy

- ***Question: What should happen after the meeting?***
  Answer: The meeting notes/agreement and sign in sheet should be uploaded to the CPA portal. Locate request(s), as modified, should be created via the CPA portal based on the agreement reached at the meeting.
  Policy

- ***Question: Is a Preconstruction meeting required?***
  Answer: No, if the Excavator chose not to hold a meeting, a Facility owner can request a one on one meeting with the Excavator.
  Section 5 (3)

- ***Question: May an Excavator dig on a Complex project notification?***
  Answer: No, this is the notification that begins the preconstruction planning process.
  Policy



APWA/CGA Best Practices
For Temporary Markings

PA Act 287, as amended

An excavator shall use the color white to mark a proposed excavation site when **exact** site information cannot be provided. THIS SHOULD BE DONE PRIOR TO THE NOTIFICATION, DIAL 811 or 1-800-242-1776 (from outside PA). Pennsylvania law requires no less than 3 nor more than 10 business days before you dig ANYWHERE IN THE COMMONWEALTH. Any excavation within the tolerance zone is performed by using prudent techniques. The excavator shall observe a tolerance zone comprised of the width of the facility plus 18 inches on either side of the outside edge of the underground facility on horizontal plane (see graphic on following page). Use pink temporary survey markings for all surveying and grade marks. *Continue using Prudent Techniques until you find the Line. Notify Project owner and charge PennDOT 408 Spec for necessary work.*

Temporary Facility Markings by Facility Owners

To mark, stake, locate or otherwise provide the position of the facility owner's underground lines at the site within 18 inches horizontally from the outside wall of such line in a manner so as to enable the excavator, where appropriate within the tolerance zone, to employ prudent techniques, which may include hand-dug test holes, to determine the precise position of the underground facility owner's lines. This shall be done to the extent such information is available in the facility owner's records or by use of standard locating techniques other than excavation. The marking can be done in one of two ways: either placing the marks over the approximate center of the facility, or by placing the marks over the actual outside edges of the facility with a line connecting the two horizontal lines to indicate there is only one facility. ***PA One Call does not locate or mark lines.***

Best Practices for Locating & Marking Practices/ Responsibilities

The APWA/CGA Temporary Marking Color Code and Chapter 4 marking practices are specified in PA Act 287, as amended. Operators are responsible for marking the facilities and appurtenances in the appropriate color of their facility type, their company identifier (name, initials or abbreviation), the number and width of their facilities and a description of the facility (HP, FO, STL). Use paint, flags, stakes or whiskers or a combination to identify the operator's facility(s) at or near the excavation site. It is against the Law to tamper with these markings.

Uniform Color Code

The American Public Works Association/CGA's Uniform Color Code is PA law. The code uses ANSI Standard Z535.1 Safety colors, as shown for temporary marking of excavation sites and underground facility identification (examples are provided on the previous page).

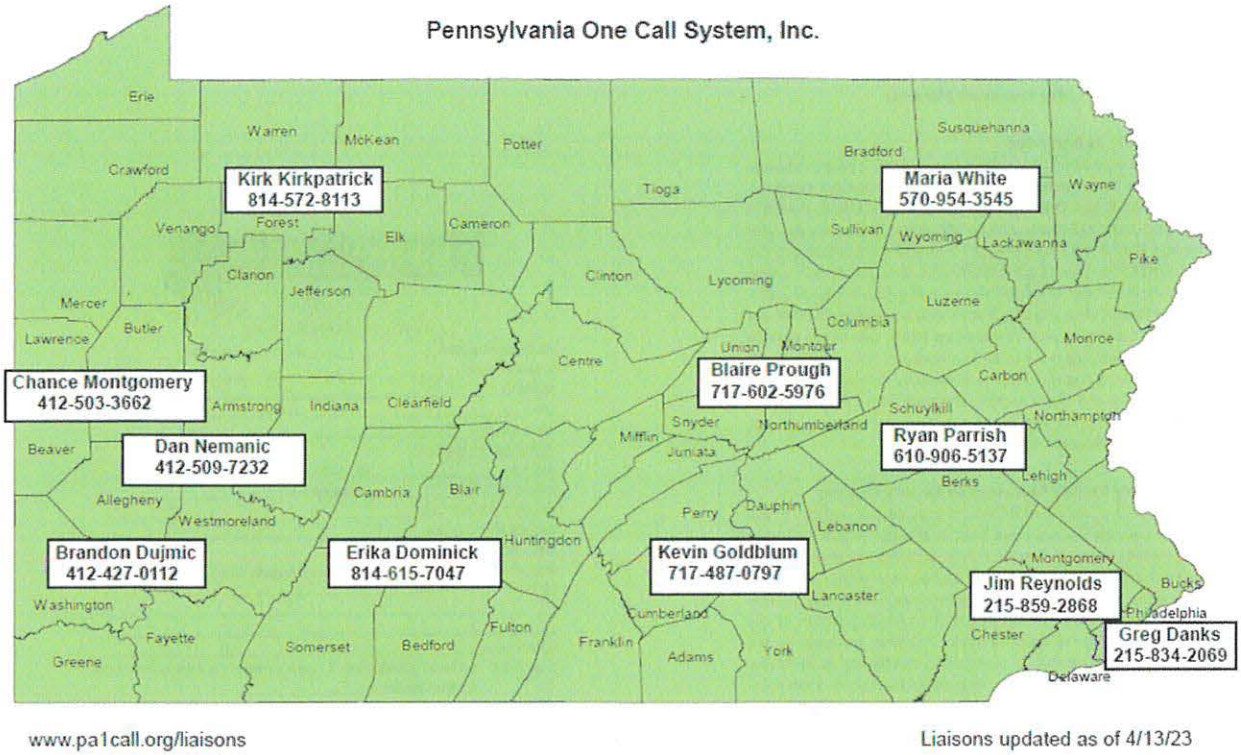
Pennsylvania 811
www.paonecall.org
DIAL 8-1-1 or 1-800-242-1776

WORK LOCATION REQUEST FORM

TELEPHONE NUMBER: (___)_____EXT.:_____CALLER:_____
COMPANY NAME:_____
ADDRESS:_____
CITY:_____STATE:_____ZIP:_____
EXCAVATOR:_____
WORKSITE INFORMATION:
COUNTY: _____MUNICIPALITY:_____WARD:____
STREET ADDRESS:_____STREET NAME:_____
NEAREST INTERSECTION:_____
SECOND INTERSECTION:_____
SITE MARKED IN WHITE: ☐ Yes ☐ No
When specific site information is not provided the site must be marked in white.
LOCATION INFORMATION:_____
_____
_____
SUBDIVISION:_____TYPE OF WORK:_____
WORKING IN: ☐ STREET ☐ SIDEWALK ☐ PUBLIC PROPERTY ☐ PRIVATE PROPERTY
☐ OTHER (SPECIFY)_____
DEPTH:_____EXTENT OF EXCAVATION:_____
METHOD OF EXCAVATION:_____PROJECT OWNER:_____
DURATION OF JOB:_____PERSON TO CONTACT:_____
PHONE:(___)_____EXT:_____BEST TME TO CALL:_____
FAX #: (___)_____EMAIL ADDRESS:_____
PENNDOT CONTRACT/PERMIT #:_____JOB #:_____
REMARKS:_____
_____
_____
NOTIFICATION TYPE:
☐ CONSTRUCTION (between 3 or more than 10 business Days) SCHEDULED EXCAVATION DATE:_____TIME:___
☐ FINAL DESIGN (not less than 10 nor more than 30 Business Days) ☐ PRELIMINARY DESIGN

TO BE COMPLETED AFTER PLACING ONE CALL

LAWFUL START DATES:_____THROUGH_____
FACILITY OWNER MEMBERS NOTIFIED:_____
_____
SERIAL NUMBER(S) ASSIGNED:_____DATE:_____
THERE IS AN ANNUAL FEE



www.pa1call.org/liaisons

Liaisons updated as of 4/13/23

References:

(1) https://dced.pa.gov/programs-funding/broadband-in-pennsylvania/pennsylvania-broadband-development-authority/

(2) https://dced.pa.gov/download/statewide-broadband-plan/?wpdmdl=117083

(3) User Guide Pennsylvania Underground Protection Act 287 of 1974 as Amended by Act 50 of 2017 (UULPA) www.paonecall.org

(4) Pennsylvania Public Utility Commission (PUC) https://www.puc.pa.gov/pipeline-safety/pa-one-call/

(5) Subsurface Utility Engineering (SUE) Standard Guidelines for Investigating and Documenting Existing Utilities – ASCE/UESI/CI Standard 38-22 and 75-22 https://www.asce.org/communities/institutes-and-technical-groups/utility-engineering-and-surveying-institute

(6) Common Ground Alliance Best Practices Version 18 https://commongroundalliance.com/

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(7) OSHA https://www.osha.gov/sites/default/files/publications/trench_excavation_fs.pdf

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(8) Horizontal Directional Drilling Good Practices Guidelines HDD Consortium 2014 (4th Addition) https://nastt.org/

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