Network for Success

Local Programs Workshop

VDOT Virginia Department of Transportation

Successful Utility Coordination

Breakout Session #4

Kurt Kuppert – Moderator

Network for Success

Local Programs Workshop

VDOT Virginia Department of Transportation

Successful Utility Coordination

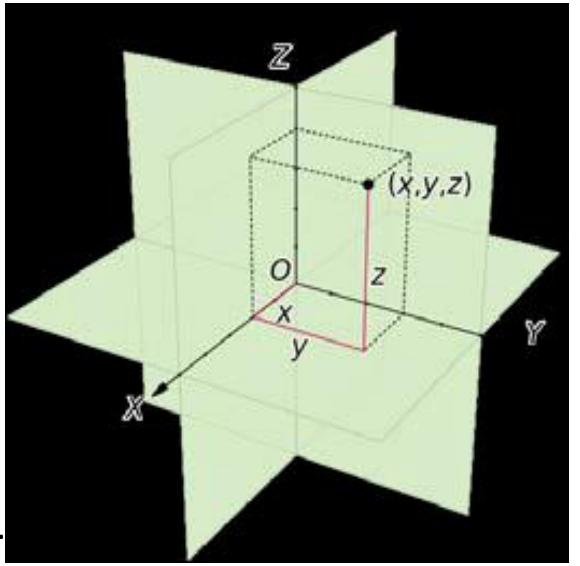
Matt Reynolds
State Utilities, Railroad and Property Manager
VDOT Central Office

Current Initiatives in the Utilities Relocation/Coordination process

- Addition of a Utilities Section in the Locally Administered Project Manual
- Utilities Coordination Process Checklist/Compliance Review Checklist
- Providing standard VDOT Utilities Coordination forms in format for use by localities (outside of RUMS on LAD website)
- CTB Utilities Working Group directives
- Utilities Coordinator Training/Certification (Industry training)

Risks in the Utilities Relocation/Coordination process

Risks



- Major facility impacts – cost/time
- Utility owner resources
- Unrealistic project schedule, lack of proper durations for utility coordination/relocation
- **Lack of accurate utility location information on plans** ----------
- Lack of oversight (inspection)during utility relocation construction – relocations that conflict
- Delays in acquisition of necessary right of way/easements
- Plan changes/revisions late in process
- Inexperienced Utility Coordinator

Risks

- Environmental considerations- Historical areas, Endangered species etc.
- Geo Technical – Rock excavation, Undercut (Unsuitable material)
- Lack of proper Coordination/Communication – internal/external
- Time of Year Restrictions for relocations/weather events
- **Lack of proper Utility Relocation Agreements**

Striking/Damaging a utility line occurs nearly every minute somewhere in the United States. Although most utility strikes result in minimal local damage, many others result in fatalities, injuries, significant collateral damage, or all of these. The costs of repairing the damaged utility line must be considered, as well as the costs associated with disruption of services, traffic patterns, project delays, contractor claims, and potential litigation.

Subsurface Utility Engineering (SUE)

- **Unnecessary utility relocations are avoided.** Accurate utility information is available to the highway designers early enough in the development of a project to design around many potential conflicts. This significantly:
  - Reduces costly relocations normally necessitated by highway construction projects.
  - Reduces delays to the project caused by waiting for utility work to be completed so highway construction can begin.
- **Unexpected conflicts with utilities are eliminated.** The exact location of virtually all utilities can be determined and accurately shown on the construction plans. As a result:
  - Delays caused by redesign when construction cannot follow the original design due to utility conflicts are reduced.
  - Construction delays caused by cutting, damaging, or discovering unidentified utility lines are reduced.
  - Contractor claims for delays resulting from unexpected encounters with utilities are reduced.
- **Safety is enhanced.** When excavation or grading work can be shifted away from existing utilities, there is less possibility of damage to a utility that might result in personal injury, property damage, and releases of product into the environment.

Subsurface Utility Engineering (SUE)

- Quality levels may be thought of as degrees of risk, or how much information is really needed to adequately design and construct a highway project. Highway plans typically contain disclaimers as to the accuracy of the utility information. The use of quality levels allows project owners to decide what quality level of information they want to apply to their risk management challenge and to certify on project plans that a certain level of accuracy and comprehensiveness has been provided.
- There are four recognized quality levels of underground utility information ranging from Quality Level (QL) D (the lowest level) to Quality Level A (the highest level).
- The highest level of accuracy and comprehensiveness is generally not needed at every point along a utility's path, only where conflicts with highway design features are most likely to occur. Hence, lesser levels of information may be appropriate at points where fewer conflicts or no conflicts are expected.

Subsurface Utility Engineering (SUE)

- **Quality Level D. QL-D** is the most basic level of information for utility locations. It comes solely from existing utility records or verbal recollections, both typically unreliable sources. QL-D is useful primarily for project planning and route selection activities.
- **Quality Level C. QL-C** is probably the most commonly used level of information. It involves surveying visible utility facilities (e.g., manholes, valve boxes, etc.) and correlating this information with existing utility records (QL-D information). When using this information, it is not unusual to find that many underground utilities have been either omitted or erroneously plotted.
- **Quality Level B. QL-B** involves the application of appropriate surface geophysical methods to determine the existence and horizontal position of virtually all utilities within the project limits. This activity is called "designating". The information obtained in this manner is surveyed to project control. It addresses problems caused by inaccurate utility records, abandoned or unrecorded facilities, and lost references. The proper selection and application of surface geophysical techniques for achieving QL-B data is critical. Information provided by QL-B can enable the accomplishment of preliminary engineering goals. Decisions regarding location of storm drainage systems, footers, foundations and other design features can be made to successfully avoid conflicts with existing utilities. Slight adjustments in design can produce substantial cost savings by eliminating utility relocations.
- **Quality Level A. QL-A**, also known as "locating", is the highest level of accuracy presently available and involves the full use of the subsurface utility engineering services. It provides information for the precise plan and profile mapping of underground utilities through the nondestructive exposure of underground utilities, and also provides the type, size, condition, material and other characteristics of underground features.

Coordination

Utility Agreements

Required even if Federal Aid participation will not be sought.

(23 CFR 203(b); 645.209(i); and 645.213) These agreements must provide, among other requirements:

- A description of the requirements for relocation, construction, protection of traffic, maintenance, access restriction, and any special conditions applicable to the installation;
- A general description of the size, type, nature, and extent of the facilities being relocated; and
- Adequate drawings and sketches showing the existing and/or proposed location with respect to the existing and/or planned highway improvements.

If Federal-aid participation would be sought, then the utility agreement must include the information required in 23 CFR 645.113. This includes three supporting documents:

- Utility relocation plans
- Utility relocation cost estimate
- Utility relocation schedule

Utility Relocation Plans

Utility Relocation Plans serve multiple purposes. First, they identify the location of existing utilities within the limits of construction, preferably in the x-y-z planes. On the same plans, the proposed design is overlaid, preferably in the x-y-z planes, and compared with the existing utilities; where these two elements, intersect a utility conflict exists. For each utility conflict Utility Coordinators and project designers should work with the utility owners to avoid, minimize, or mitigate it. If the conflict cannot be avoided, then a relocation is required. Plans should show where the utilities will be relocated to ensure no further conflicts exists with the proposed construction project or with other proposed utility relocations.

The utility relocation plans are then used as the foundation to identify the scope, schedule, and budget of the required relocation. The plans can then be used to communicate contractors during the project bidding process or at prec-construction what relocation work is required during the construction of the transportation improvement project.

Utility Relocation Estimate

The second important supporting document of a utility agreement is the utility relocation estimate. The estimate must reflect the utility work required for the relocation (23 CFR 645.113(c)). VDOT/Locality must verify the estimate's accuracy before approving the utility relocation. Without a detailed estimate, it is difficult—if not impossible—to verify the estimate's accuracy. After the utility relocation work is complete, the estimate is used as a baseline to compare the final relocation costs to the original estimate.

The purpose of the utility relocation cost estimate is to clearly define and establish the expected cost of the relocation to ensure adequate funding is available for the overall highway project. VDOT/Locality is then responsible to validate or verify that the estimated cost accurately reflects the agreed-upon utility relocation work.

Utility Relocation Schedule

- The third document of the agreement is the utility relocation schedule. When preparing the schedule, it is important to consider the following:
- What work is necessary to prepare the site for the utility relocation work to begin?
- How long the utility work will take place (duration can be date-specific or number of days)?
- What site access restrictions exist during the utility relocation work?
- What other requirements apply during construction?

Since utility schedules may vary from site to site (there may be several utility relocation areas throughout the project with differing requirements), a site-specific schedule might be warranted for each location. The schedule is important for prospective contractors during the bidding process because contractors need to integrate the utility relocation work into their master highway contract schedule.

The agreement serves as supporting documentation for the authorization of Federal funds to proceed with the utility relocation. State DOTs are only authorized to do the work in accordance with the relocation plans, cost estimates, and construction schedules defined in the approved utility agreement.

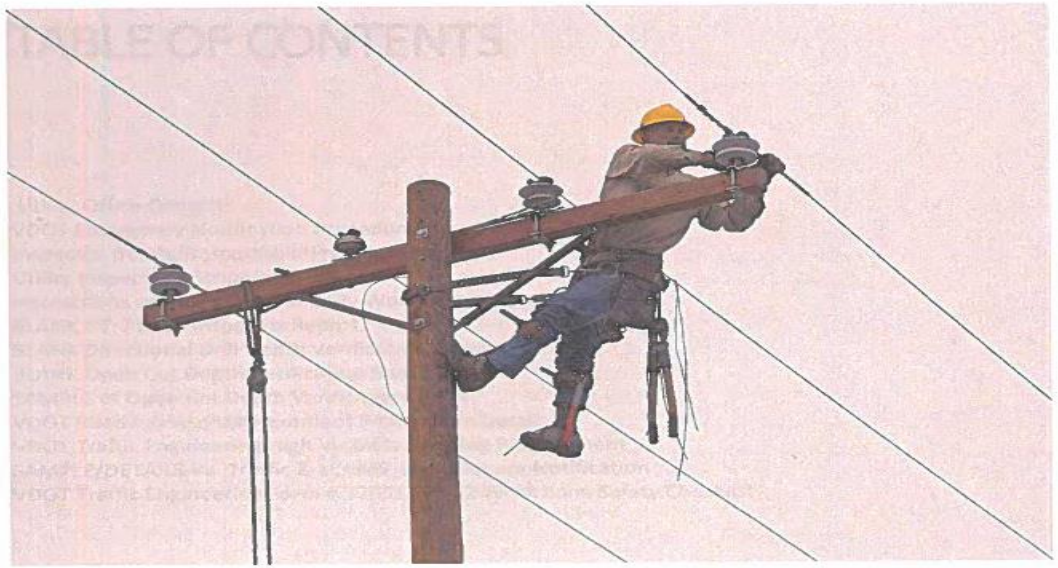
Commonwealth Transportation Board Resolution Recommendations Relating to Utility Relocations

- VDOT should identify an overall champion to continue and enhance the implementation of improvements developed and recommended through the Utility Relocation Working Group.
- VDOT should develop a policy whereby early phase project drawings with basic project details would be provided to utility companies earlier in the project development process. These early drawings will provide utilities, with early notice of the project in a standard format, the opportunity to provide a standard set of responses to potential design-build contractors in advance of the project's procurement.
- VDOT should develop common templates for use by utilities, contractors, VDOT and local partners in the planning and relocation processes for utilities on VDOT funded projects. These templates will list information, documentation and protocols for each phase of the utility relocation process to be followed by all involved.
- VDOT should develop a policy requiring that trained and certified utility coordinators and trained utility inspectors be utilized on VDOT funded projects based upon project size and complexity criteria
- VDOT should develop a policy that would provide for a stipend to utility companies under certain conditions and circumstances. This stipend could be offered to utility companies to facilitate their efforts in the early phases of project development to reduce their risks of designing utility relocations which may later change. This policy should consider project size and complexity criteria.

Commonwealth Transportation Board Resolution Recommendations Relating to Utility Relocations

- VDOT should incorporate any approved policy improvements in its Utility and Locally Administered Program Manuals, and related documents, to provide clear direction to all utility companies, local partners, VDOT staff, and contractors.
- VDOT should develop a policy regarding allowances for time-only contract extensions for design-build projects based upon utility delays outside of the contractor's control, provided strict criteria are met.
- VDOT should implement additional utility relocation training for all involved parties. This training will enhance understanding of utility relocation requirements and will assist key project delivery personnel in obtaining training and/or certifications as utility relocations specialists and/or utility inspectors.
- VDOT should add language to the agency's Land Use Permit Manual to solicit reviews and comments from local jurisdictions as part of the permitting process for the placement of utilities in the rights of ways for roadways planned for widening as part of the local jurisdiction's comprehensive plan.
- VDOT should establish best practices and timelines for the relocation of private fiber companies' infrastructure within established timeframes.

RESOURCES – Utility Inspection

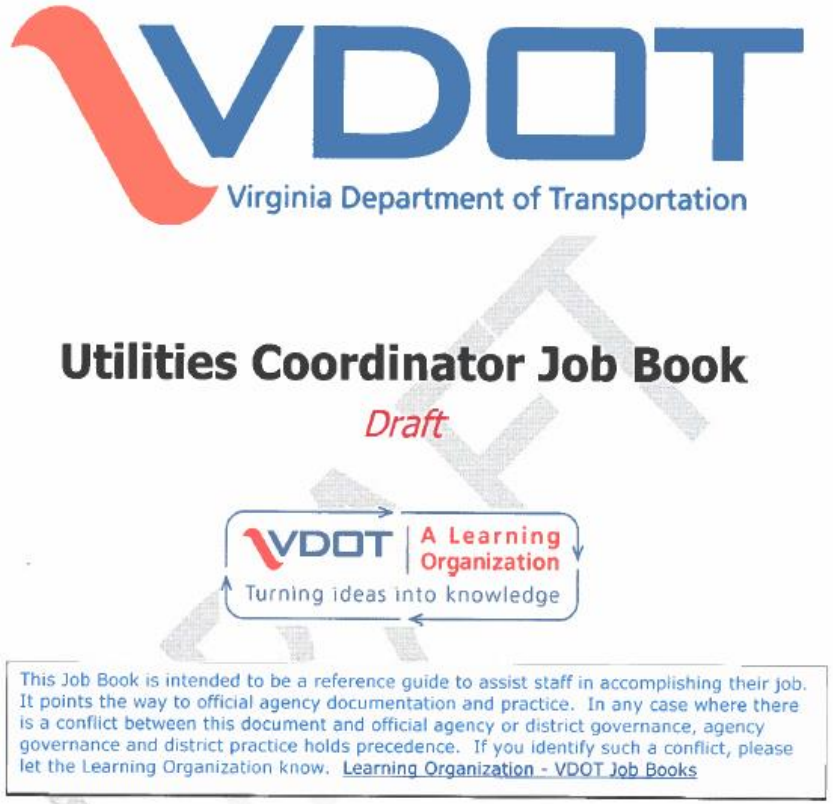


VDOT UTILITY INSPECTOR GUIDE

TABLE OF CONTENTS

Utility Office Contacts
VDOT Emergency Notification Procedure
Inspector Duties/Responsibilities
Utility Inspector's Scope of Work
Instructions on Filling out the Daily Work Report UT-7
BLANK UT-7 Daily Inspector Report
BLANK Directional Drill Depth Verification Sheet
BLANK Open Cut Depth Verification Sheet
SAMPLE of Open Cut Depth Verification Sheet
VDOT Roadway Asphalt Pavement Restoration Detail
VDOT Traffic Engineering High Visibility Clothing Requirement
SAMPLE/DETAILS VA. Traffic & LCAMS Lane Closure Notification
VDOT Traffic Engineering Form #97001/97002 Work Zone Safety Checklist

RESOURCES – Utilities Coordinator Job Book



Introduction

This Utilities Coordinator Job Book references existing resources that a Utilities Coordinator needs to be successful. The contents of this Job Book were developed by subject matter experts—experienced Utilities Coordinators who are currently in the position and are best situated to understand job-specific needs. The Job Book is focused primarily on serving new and less experienced practitioners but also contains information of use to all Utilities Coordinators.

Key Roles and Responsibilities

The primary role of the Utilities Coordinator is to evaluate, coordinate, and arrange for the relocation and adjustment of utilities in conjunction with highway construction or maintenance projects to ensure that adjustments are properly performed in accordance with state and federal requirements and project schedules. The Utilities Coordinator Job Book starts with the following key roles and responsibilities, which are consistent with the position description in HR Works!:

- Planning and Scheduling
- Utility Field Inspection
- Physical Utility Relocation/Construction
- Consultant Coordination
- Special Projects
- Tracking
- Legal
- Communication/Customer Service

Key Resources

This Job Book includes links and systems a Utilities Coordinator will use to fulfill key responsibilities. If a Utilities Coordinator does not have access to systems, he or she can request access through System Access Request Application (SARA).

Key Deliverables/Actions/Practices

Each key role and responsibility is broken into more specific actions with information about where to obtain information. This Job Book is a reference to important aspects of the job and useful resources; however, it does not replace official governance or documentation.

A Living Document

The Utilities Coordinator Job Book is a living document and will continue to evolve to reflect needs identified by practicing subject matter experts—the Utilities Coordinators. Utilities Coordinators will manage and maintain the content of this book. If any other topics should be considered for inclusion, please send suggestions to Learning Organization—VDOT Job Books.

RESOURCES - Utilities Coordinator Job Book

Utilities Coordinator Job Book

Table of Contents

Introduction 4
Planning and Scheduling 5
Utility Field Inspection 7
UFI Meeting 7
Right of Way 8
Plan and Estimate (P&E) 8
Physical Utility Relocation/Construction 10
Consultant Coordination 12
Special Projects 13
Tracking 14
Legal 15
Communication/Customer Service 16
Appendix: Resource List 17

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Legal

Relocation of utilities involves work performed by non-VDOT entities and impacts to land owned by private citizens and businesses. This work is governed by laws, policies and regulations.

Responsibilities

- Conduct all utilities relocation activities in accordance with laws, policies and regulations of the Code of Virginia, the Federal Highway Administration (CFR Title 23 Part 645) and the Commonwealth Transportation Board (e.g., agreements; cost responsibilities; authorizations)
  - Resources:
    - Code of Virginia, Chapter 33.2 Highways and Other Transportation Systems
    - Code of Federal Regulations (CFR), Title 23, Part 645 -- Utilities

Actions

- Determine utility conflicts and cost responsibilities
- Review or create as needed Agreements with Utility Owners for project-specific relocations
- Process utility plan and estimates for authorization
- Verify the need for permits as applicable
  - Communicate with appropriate utility representatives during UFI

General Resources

- There are resources that are not VDOT-based but may be of help:
  - Locality policies and procedures
  - Utility company policies and procedures
  - Any applicable specific agreements (e.g., resource sharing)
  - Recorded land rights (prior rights)
  - Various types of easements (company recorded, prescriptive easements)
- Virginia 811 (a.k.a. "Miss Utility of Virginia")
- VDOT Utility Manual of Instructions, Chapter 2, Legal
  - See Section 2.9 for Court rulings (e.g., Stuarts Draft Water Company)

General Contacts

- Regional Utilities Manager
- Right of Way Acquisitions Manager
- Assistant Attorney General (based within VDOT region) – if you have questions about legality

Guidance and Helpful Hints

- If you aren't sure, be sure to ask questions
- Become familiar with Code of Virginia, Chapter 33.2, and other resources listed above
- Utilize historical data (e.g., project plans, existing permits, etc.) to inform decision making

VDOT UTILITY RELOCATION BEST PRACTICES

- Practice the 3 C's partnering with utility owners: Coordination, Cooperation, Communication
- Utilize and follow procedures detailed in the "VDOT Utility Manual" (VDOT Utilities Relocation Policies and Procedures) – correct utility conflict/cost responsibility determination (UT-9)
- Request guidance/assistance in a timely manner from VDOT if necessary or issues arise
- Utilize Subsurface Utility Engineering (SUE) to determine exact underground locations of utilities for correct conflict determination and possible avoidance through design alternatives
- Monthly (or as appropriate for magnitude of your program) utility coordination/status meetings. Discuss all projects / issues / plans or relocation status with all utility owners
- Utilize quality Plans that do not significantly change provided to utility owners with reasonable schedules for all milestones / activities
- Participation in Utility Committees/Organizations (VUCC –state/local committees, AASHTO sub-committees, Technical Councils, etc.) SHRP R01-A, SHRP R01-B Transportation Research Board (TRB) projects w/ VDOT participation.

VDOT UTILITY RELOCATION BEST PRACTICES

- Utility conflict avoidance through design alternatives. Close Coordination with project Mangers/Roadway Designers
- Prioritization of acquisitions for utility relocations –easements/row
- Utility Relocation Inspection/As-Built utility plans development/Inspection logs/reports (UT-7)
- Staking of right of way, easements, drainage features, pole locations, underground running lines and depth verifications (every 25’) for utility relocation construction
- Utility Relocation Agreements- Master or project specific. Drafted/Furnished by the administering organization of the transportation project. Coordinate with Utility owners accordingly.
- Certificate of Take (COT) - rights of utility company need to be addressed
- Right of Entry (ROE) – streamlining when necessary
- Underground Utility Damage Prevention Act (VA 811/Miss Utility law): Do not place roadway contractors in a position to be in violation of this by lack of utility coordination/efforts/relocation

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VDOT Virginia Department of Transportation

Successful Utility Coordination

Jesse Smith, Chesterfield County
Mike Ziegler, Verizon
Bill Swann, Verizon

Utility Coordination: Best Practices and Lessons Learned

Communication is Key

- County sends quarterly project updates to all utility companies
- County recently initiated monthly conference calls with utilities
- Utility companies are included in the initial scoping meeting
- Plan updates are sent to utilities as soon as possible (most of the time)

The Project

- Widening of Woolridge Road in Chesterfield County, from 2 lanes to 4 lanes, for approximately 2.5 miles
- $27M project funded through a Community Development Authority (no state funds)
- Acquired right-of-way from 40+ parcels

The area is one of the most affluent in the county. The neighborhoods all have elaborate entrance features, for example.

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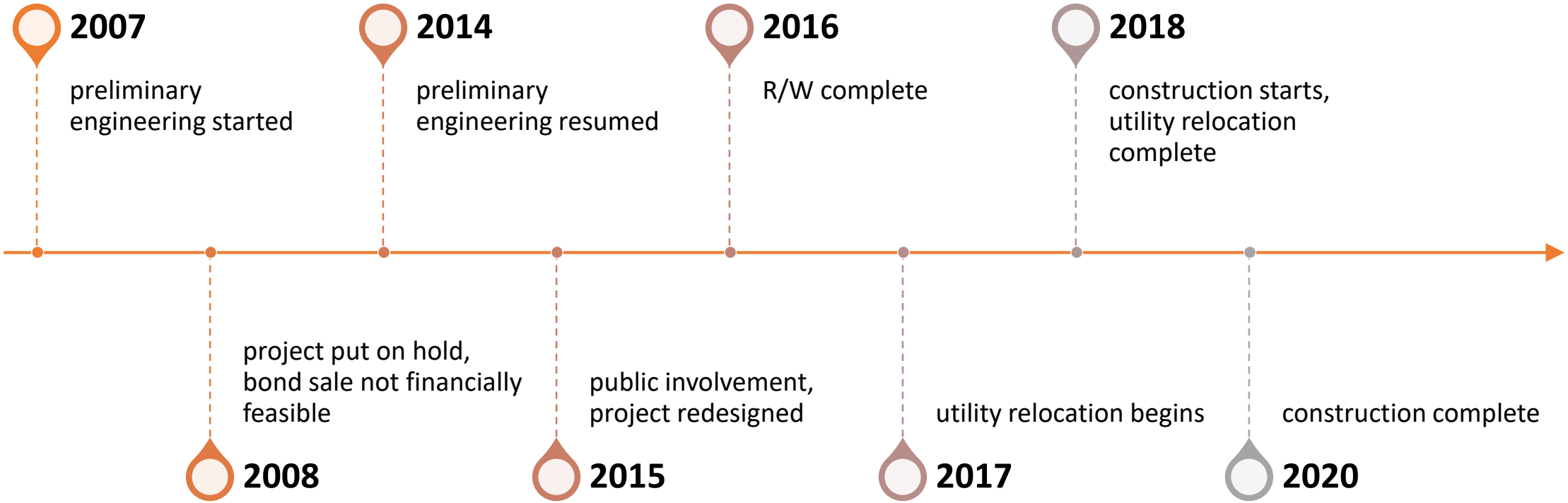
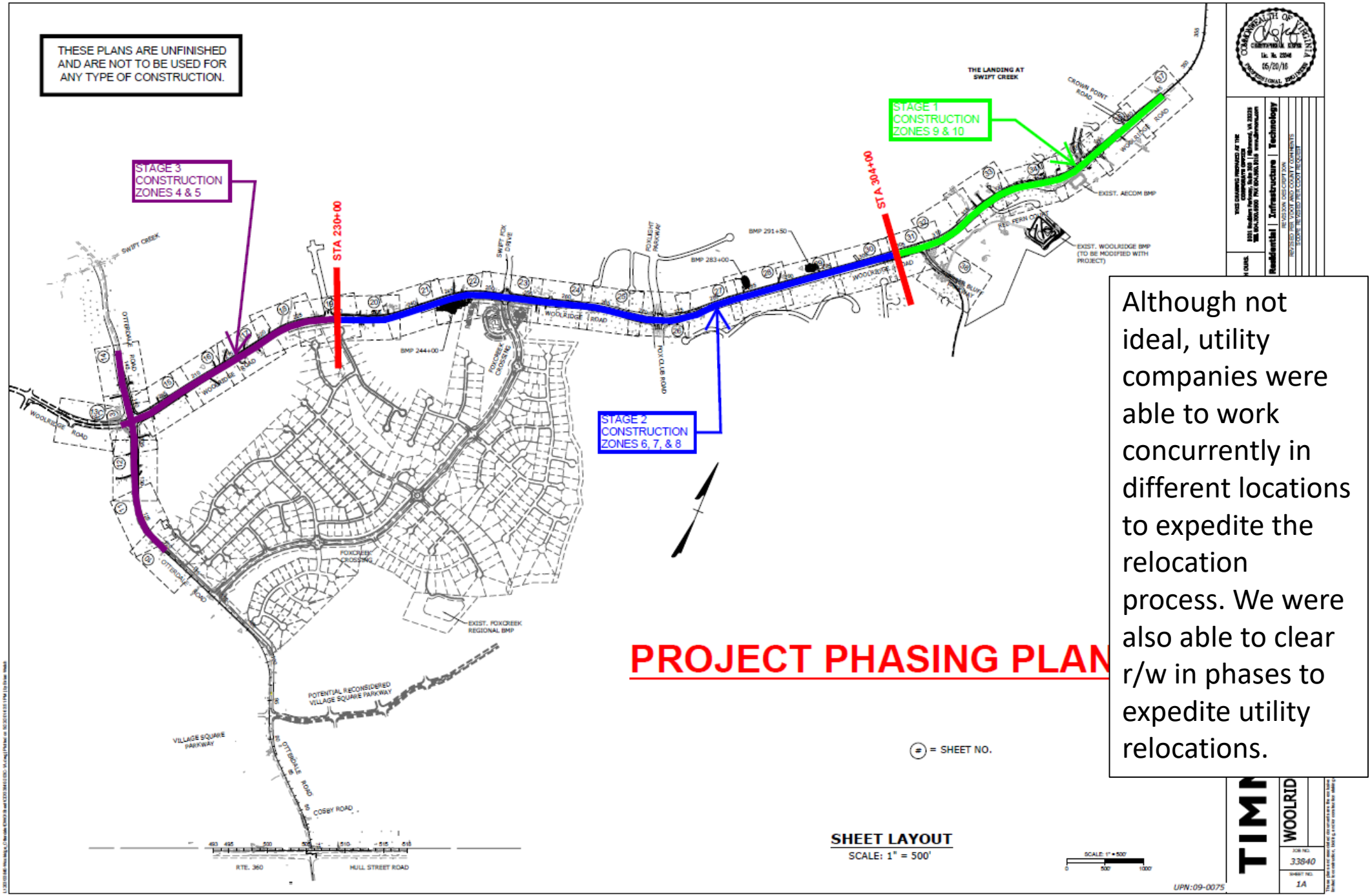
The area that was cleared for utility relocation; you can barely see the existing road on the right.

Project History



None of these delays were caused by a utility company!



Although not ideal, utility companies were able to work concurrently in different locations to expedite the relocation process. We were also able to clear r/w in phases to expedite utility relocations.

Relocation costs were reduced by $600k after coordination and communication with Verizon.

verizon

Network ENGINEERING & PLANNING

Verizon Virginia, LLC
3011 Hungary Spring Rd.
Richmond, Virginia 23228

DATE: **09/15/2017**
VERIZON PROJECT NO: **CC-020-0667/0668**
VERIZON WORK ORDER NO: **4A0AP1H**
CDOT PROJECT NO: **33840**
COUNTY/CITY: **Chesterfield**

TO: **Jesse Smith, Director of Transportation**

General P&E Comments:
1) Prorate estimated cost in accordance with the policies and procedures of the VDOT Utility Manual of Instructions for county funded transportation projects.
2) Provide prior rights documentation for aerial facilities riding DVP poles identified as "UT" (Utility Cost) on the attached UT-9. Adjust/prorate cost to transfer to new DVP poles accordingly.
3) Indicate size, number, depth, etc. of all proposed buried cable and/or conduit to be active underground during construction.
4) Provide legend on design showing what lines are OH vs. UG and provide "X" markings over lines to be abandoned within project limits (so contractor knows what lines are no longer active in the ground).
5) Identify pole numbers on estimate that match plans.
6) Include proposed storm drainage (pipes, inlets, ditches, etc.) or other pipes requiring excavation on the P&E plans/design so that UG conflicts can be verified/resolved.

In connection with the relocation of utility facilities for the above referenced project, we are submitting for your approval, a plan and estimate and associated attachments and remarks as checked below:

☐ Real property interest documentation and copies of existing easement forms.

☒ Unit Cost Analysis

☒ Work schedule to begin **120** days after approval of estimate, and/or receipt of easements ~~and permits as well as notification that the respective Power Company has completed their work~~. Please be advised, a new updated survey file (SUE) is needed to determin location of buried cables currently omitted from existing survey files. This survey information is required to intercept and connect existing laterals to the new aerial facilities.

PLEASE PROVIDE EVIDENCE OF MISSING SUE DATA REQUIRED TO COMPLETE P&E. UNAWARE OF MISSING INFORMATION.

☒ Completion will require approximately **6** months after beginning.

☒ Request to use contract forces for cable and conduit placement, and right-of-way clearing. Verizon is not staffed to do work of this nature.

For specific pole placement location and offsets, please contact Dominion Power.
The relocation is **100%** CDOT expense. (See attached Unit Cost Analysis worksheet)

The estimated non-betterment CDOT cost is **$1,251,604.23**

PRORATE COST IN ACCORDANCE WITH VDOT UTILITY MANUAL OF INSTRUCTIONS (SEE GENERAL COMMENTS ABOVE.)

Sincerely,

Michael T Ziegler.
Supervisor Network Engineering and Operations
Verizon Virginia, LLC

verizon

Network ENGINEERING & PLANNING

Verizon Virginia, LLC
3011 Hungary Spring Rd.
Richmond, Virginia 23228

DATE: 11/**15/2017**
VERIZON PROJECT NO: **CC-020-0667/0668**
VERIZON WORK ORDER NO: **4A0AP1H**
CDOT PROJECT NO: **33840**
COUNTY/CITY: **Chesterfield**

TO: **Jesse Smith, Director of Transportation**

In connection with the relocation of utility facilities for the above referenced project, we are submitting for your approval, a plan and estimate and associated attachments and remarks as checked below:

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☒ Work schedule to begin **120** days after approval of estimate, and/or receipt of easements and permits as well as notification that the respective Power Company has completed their work. Please be advised, a new updated survey file (SUE) is needed to determine the location of buried cables currently omitted from existing survey files. This survey information is required to intercept and connect existing laterals to the new aerial facilities.

☒ Completion will require approximately **4** months after beginning.

☒ Request to use contract forces for cable and conduit placement, and right-of-way clearing. Verizon is not staffed to do work of this nature.

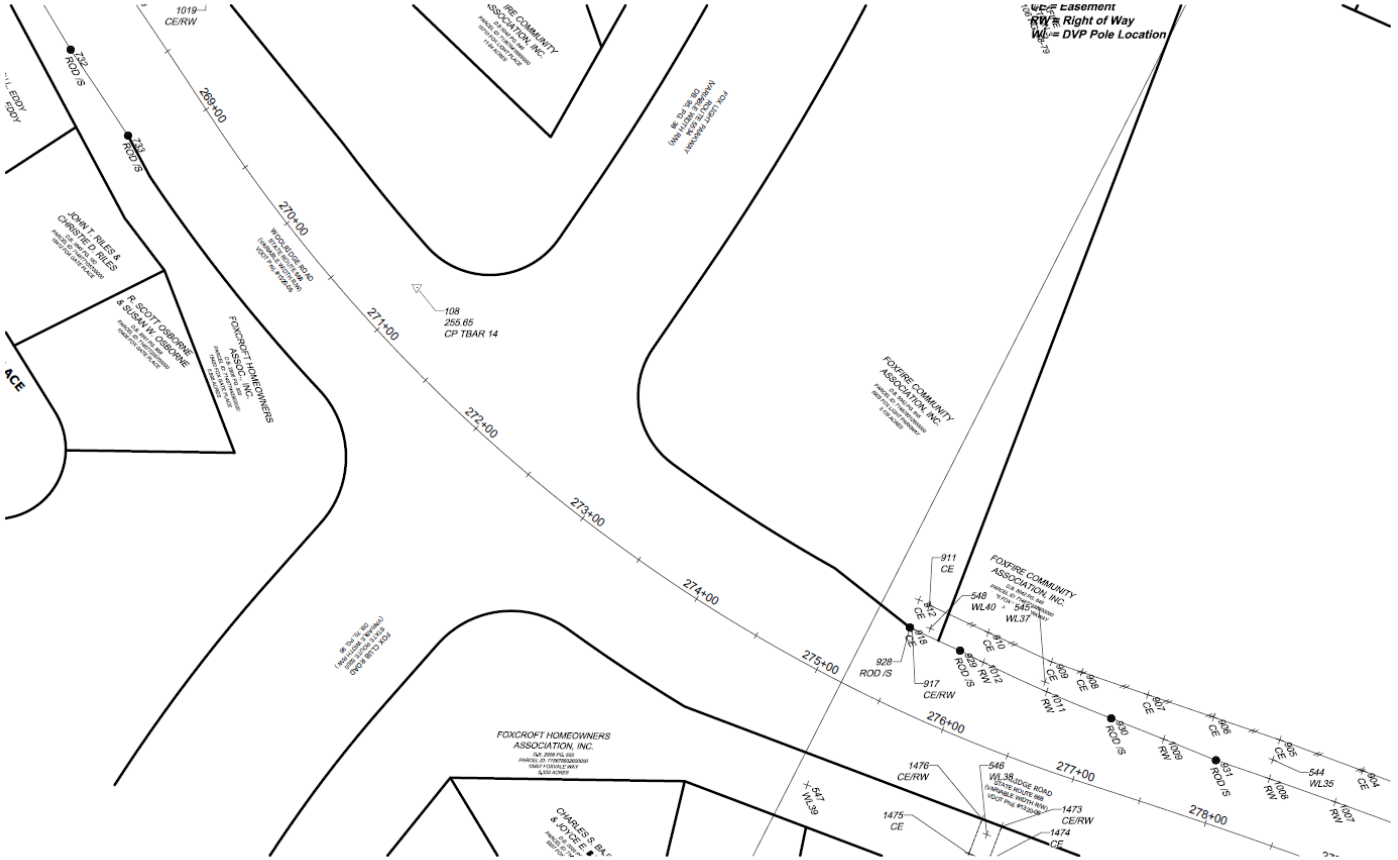
For specific pole placement location and offsets, please contact Dominion Power.
The relocation is **54.6%** CDOT expense. (See attached Unit Cost Analysis worksheet)

The estimated non-betterment CDOT cost is **$614,747.34**

Sincerely,

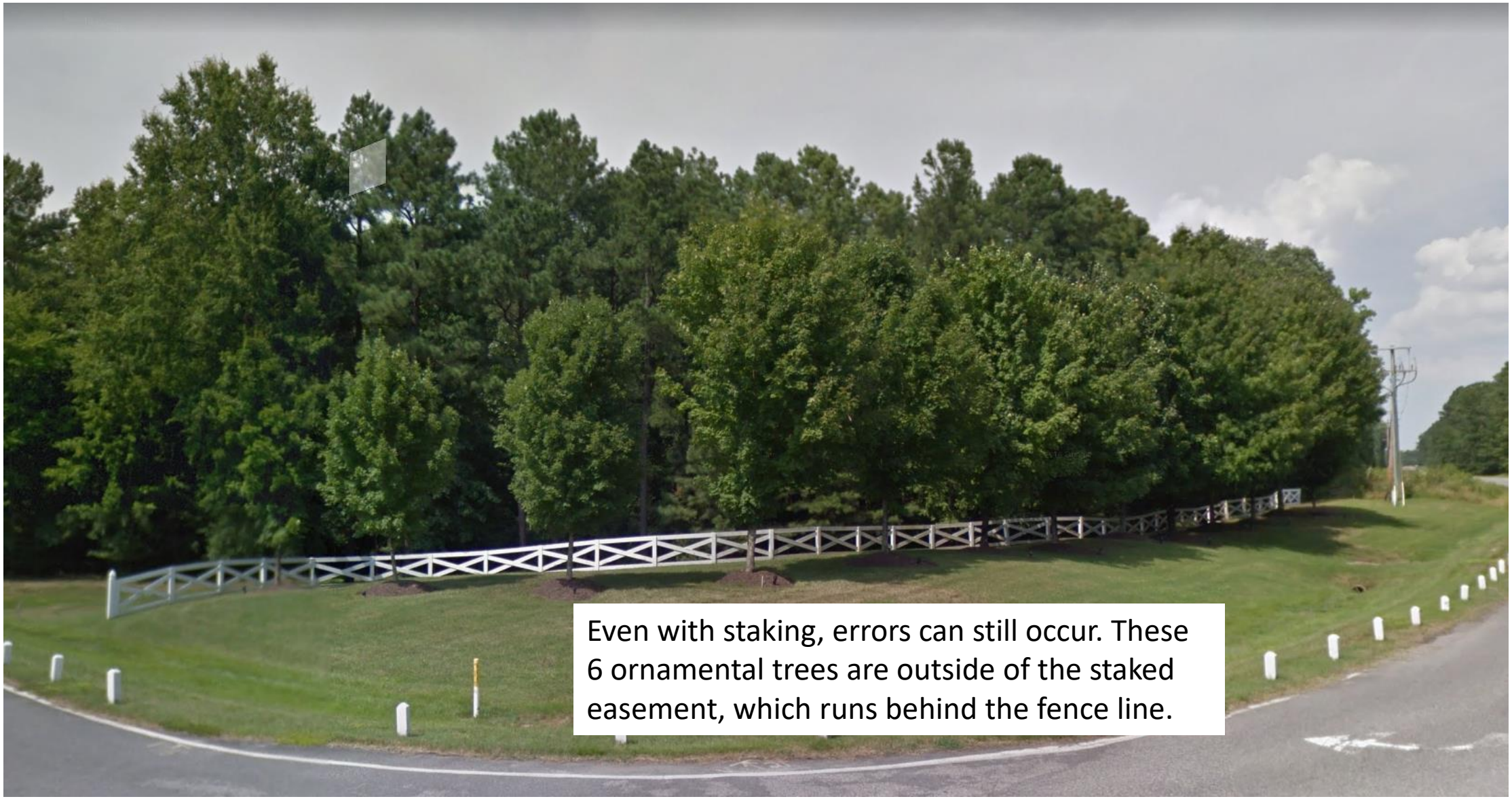
Michael T Ziegler.
Supervisor Network Engineering and Operations
Verizon Virginia, LLC

Staking Plan



Staking right-of-way and easements can help utility companies locate where they should place their facilities in the field.

Staking is key in locations such as this, where the impacts are extremely close to existing structures. It can also be helpful during r/w negotiations, so landowners can visualize the extent of the project.


Even with staking, errors can still occur. These 6 ornamental trees are outside of the staked easement, which runs behind the fence line.


“I demand an apology, an explanation and compensation.”
HOA President

Know who and what is included in your permit! If it includes utility work, then you are potentially responsible for their violations.

Site Inspection Photo Log

Site Name: Woolridge – Otterdale Road Improvements (WP3-17-0301) Date: 2/15/2017

Photo 1 Utility clearing within wetland limits and disturbance within stream bed at proposed impact areas 27 and 28; looking downstream.
Orientation North
Date 2/15/2017

Photo 2 Utility clearing within wetland limits at proposed impact area 23; looking downstream.
Orientation Northwest
Date 2/15/2017

Photo 3 Utility clearing within wetland limits at proposed impact area 20.
Orientation Northeast
Date 2/15/2017

Photo 4 Utility clearing within wetland limits at proposed impact area 18; looking downstream.
Orientation Northwest
Date 2/15/2017

Utility Inspection

Chesterfield County
Transportation
Department

Weekly Report

INSPECTOR: Robert Salzman
PROJECT NAME: Woolridge Road Widening (Utility Relocation)
JOB NUMBER:
DATE: 04/01/2018 to 04/07/2018
WEATHER: Clear/ Rain
PRECIPITATION AMOUNT: 0.18"

CONTRACTOR:
C.W. Wright.

MEN & EQUIPMENT:
1 – Foremen, 6 – Lineman, 2 – Operator, 1 – Ground man.

4x4 Bucket Truck – C-1436	Puller – X-241	4x4 Bucket Truck- C-1391
4x4 Bucket Truck – C-1389	Tensioner – X-283	4x4 Bucket truck- C-1324
Digger Truck – C-2072	Pickup – C-9033	Digger Truck- C-2023
Pole Truck – X-535	Logging Mats – 8 Total	Pole Truck- X698
MILLER PIPELINE	1-foreman 5-labors	
Ford E350 #4385		
Ford F550 #5572	Mack #3981	John Deere 310SK #251180
Ford F150 #3994	International #5414	Vermeer #432181

OVERVIEW OF WORK PERFORMED:

Maintenance of Traffic: Flagger Force utilized a flagging operation as per the WAPM

Environmental:
Crane mats were placed for work areas in/around wetlands.

Drainage: N/A

Issues and Resolution:

General Construction Operation: Dominion contractor worked in phase I connecting boxes.
Columbia Gas/Miller Pipeline started connecting and placing gas lines from beginning of project south Otterdale working towards Woolridge Rd.
Comcast contractor has completed all overhead wires in Phase III and should be done with Phase II by early next week. Fiber still needs to be bored in Phase III on the northside Otterdale.

NO Verizon on project this week

PHOTOS of Work in Progress

CW Wright adding support cable near Swift Creek church

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QUESTIONS???