

OHIO DEPARTMENT OF TRANSPORTATION SUBSURFACE UTILITY LOCATING SCOPE OF SERVICES

GENERAL

For the purposes of this scope of services, the following definitions apply:

DESIGNATE means to indicate the horizontal location of underground utilities by the application and interpretation of non-destructive surface geophysical techniques. This includes, but is not limited to, electromagnetic, magnetic and elastic wave methods.

LOCATE means to obtain precise horizontal and vertical position, material, condition, size and other data that may be obtainable about the utility facility and its surrounding environment through exposure by non-destructive excavation techniques that ensure the integrity of the utility facility.

UTILITY QUALITY LEVELS are defined as follows:

Quality Level D - Existing records: Utilities are plotted from review of available records.

Quality Level C - Surface Visible Feature Survey: Information obtained by surveying visible ground level utility features not collected as part of the survey and mapping operation. The utility feature data may be correlated with information obtained using Quality Level A or Quality Level B above or D below. The horizontal and vertical accuracy of the surveyed utility feature shall be 0.30 feet.

Quality Level B - Designate: Underground utility facility information and documentation obtained by performing research, site examination, identification of the utility facility path using geophysical techniques, placement of markings to indicate the path of the utility facility, and survey of the markings. Also included are CADD efforts, applicable reviews, and administration as well as any other work necessary to complete and deliver the work product consistent with these specifications. The horizontal accuracy of the markings (centerline of marking) to indicate the path of the utility facility shall be within the tolerance zone less 0.30 feet. The horizontal accuracy of the surveyed markings (centerline of marking) shall be 0.07 feet. The depth of the utility facility is to be shown on the plan sheets and provided in the Underground Utility Facility Matrix from the research, site investigation, and related work performed.

Quality Level A - Locate: Underground utility facility information and documentation obtained by performing research, site examination, excavation in a nondestructive manner, identification of the utility facility, and surveying (three-dimensional positioning) of the exposed utility at a specific point or points sufficient to define the characteristics and position of the utility facility. Also included are CADD efforts, applicable reviews, and administration as well as any other work necessary to complete and deliver the work product consistent with these specifications. The horizontal and vertical accuracy of the positioned utility facility shall be 0.07 feet.

The Consultant shall provide services at Quality Levels B and A as directed in writing by the District to aid in the development of right-of-way, preliminary engineering, and construction contract plans for projects selected by the District.

Once the notice to proceed is received naming a project for which the Consultant's services are requested, project coordination will be handled through the designated Subsurface Utility Engineering Coordinator in the District.

The final work product must be certified by a professional surveyor licensed in the State of Ohio, by placing their seal on the plans provided.

The Consultant shall provide all traffic control and maintenance of traffic operations as required by the Ohio Manual of Uniform Traffic Control Devices for Streets and Highways (OMUTCD) and local ordinances.

PROJECT INITIATION

The **Office of Real Estate, Utilities Unit** will provide a written work order that identifies the project designation, PID Number, and limits of the area to be designated. Upon receipt of such a work order, the consultant shall:

1. Meet with District personnel to review project limits, existing plans (if any), project horizontal and vertical control and other relevant information.
2. Provide the Department with a work plan including:
 - a. Proposal using the Fee Proposal Spreadsheet located on the Office of Consultant Services website
 - b. The milestone dates for completion of records research, field designating activities, and/or locating services, and submittal of drawings and electronic files.
 - c. Maintenance of traffic requirements and the consultant's plan to comply with the Ohio Manual of Uniform Traffic Control Devices for Streets and Highways (OMUTCD). Provide seven (7) day advance notification to the Department prior to the erection of any maintenance of traffic devices.

DESIGNATING SERVICES (HORIZONTAL MAPPING)

The Consultant shall perform designating services as directed by the Department, as follows:

1. Conduct appropriate records research, investigate site conditions and identify applicable project limits. In accordance with Section 153.64 of the Ohio revised Code (ORC), the Consultant shall contact the registered underground utility protection services and the owners of underground utility facilities that are not members of a registered underground utility protection service for the existence and location of all underground utility facilities within the project limits. The Consultant may provide plans to those utility owners contacted in which the existence and location of utilities over which they have ownership may be shown, as he deems necessary. The Consultant shall supplement this information through records research and site investigation to confirm the existence and location of the identified utilities.

2. Obtain necessary permits from city, county, or other municipal jurisdictions or railroads to allow the Consultant to work in the existing streets, roads and rights-of-way.
3. Designate the existing utilities and their major laterals to existing buildings that are within project limits utilizing visual inspection, field survey, radio frequency electromagnetic, magnetic, and acoustic emission techniques. The Department will direct the Consultant to designate other lateral services if so required. Unless expressly requested, utilities designated will not include (a) vault or manhole limits or dimensions, (b) lawn irrigation or sprinkler systems, (c) underground storage tanks, or (d) gravity storm drainage systems and gravity sanitary sewers, unless specifically requested in the work order. Physical evidence of all utilities (manhole covers, above-ground pipes, etc.) shall be recorded. The Consultant shall perform all reasonable and necessary services to designate and map all utilities within project limits and capable of designation and mapping in accordance with applicable professional standards, but excluding technologies described in Subparagraph 4 below.
4. Other geophysical prospecting techniques and energies, such as terrain conductivity, April 14, 2005 point source transmitters, thermal and ground penetrating radar may be used as appropriate upon approval by the Department to discriminate between and detect specific underground facilities. The Consultant will recommend appropriate techniques on a case-by-case basis. A separate cost will be negotiated for each use of the above named specialized prospecting techniques, in accordance with Subsections 1.02, 1.03 and 1.09 of the Specifications.
5. Prepare appropriate field sketches of marked utilities and survey designating marks, which shall be referenced to project control provided by the Department.
6. Translate survey data and drafting codes to an electronic file to allow direct incorporation of the Consultant's digital survey information into the Department's design file, in accordance with the Ohio Department of Transportation Location and Design Manual, Volume Three, Plan Preparation. Unless otherwise indicated, the electronic file consists of CADD data that is to be submitted and exchanged with ODOT and shall conform to the CADD requirements as set forth in the CADD Engineering Standards Manual. Particularly, ensure that the file:
 - Uses correct symbology.
 - Is based on the same control points as the Department's design file.
 - Is set up as a base map with references to sheet files.
 - All cells are placed at a scale to such that they can be used with the plan and profile sheets provided to the SUL contractor.
7. Verify that the plan locations are in accordance with the submitted project deliverables once the locations are shown on Stage 1 plans by the design agency.
8. Work shall commence not more than five working days after receipt of a written notice-to-proceed from the Department to the Consultant.

LOCATING (TEST HOLE) SERVICES

In performing location (test hole) services hereunder, the Consultant shall:

1. Conduct appropriate records research and investigate site conditions. If not previously performed, the Consultant shall make all necessary contacts with utility owners as defined under "Designating Services (Horizontal Mapping)", Subparagraph 1.

2. Obtain necessary permits from city, county or other municipal jurisdictions to allow the Consultant to work in existing streets, roads, and rights-of-way. The Consultant shall not be responsible to obtain permits for boring or other excavating work that is not performed by the Consultant pursuant to this Agreement.
3. Sweep proposed crossings and perform necessary procedures to “set-up” test holes.
4. Excavate test holes to expose the utility to be measured in such a manner that insures the safety of the excavation and the integrity of the utility to be measured. In performing such excavations, the Consultant shall comply with applicable utility damage prevention laws and coordinate with utility inspectors, as required.
5. Investigate, evaluate, measure and record:
 - (a) Horizontal and vertical location of top and/or bottom of utility referenced to project datum
 - (b) Elevation of existing grade over utility at test hole referenced to project datum
 - (c) Outside diameter of utility and configuration of non-encased, multi-conduit systems
 - (d) Utility structure material composition, when reasonably ascertainable
 - (e) Benchmarks and/or project control used to determine elevations
 - (f) Paving thickness and type, where applicable
 - (g) General soil type and site conditions
 - (h) Such other pertinent information as is reasonably ascertainable from test hole site. References to project datum shall maintain vertical tolerance to plus or minus 0.05' based on benchmarks shown on the Consultant's deliverables and horizontal tolerance to applicable surveying standards.
6. Furnish and install permanent markers directly above centerline of utility structure (i.e., P.K. nail, steel pin, or hub). Install a color coded ribbon in the test hole extending from the utility to the surface prior to backfilling.
7. Provide permanent restoration of pavement within limits of original cut. When test holes are excavated in areas other than roadway pavement, these disturbed areas shall be restored as nearly as reasonably possible to the condition that existed prior to excavation.
8. Evaluate and compare obtained information with utility information described in utility company records and note discrepancies on project deliverables. Advise utility companies of discrepancies and resolve such discrepancies to the extent possible. Document the resolution of such conflicts.

9. Plot horizontal location and, if applicable, profile view of utility on work prints provided by the Department, if requested. Paper and electronic copies should both be provided.
10. Compile information described in Subparagraph 5 using the Consultant's automated systems and quality assurance procedures. Such information shall be formatted and presented on the consultant's certification form.
11. Return and review certification forms, project plans and drafted locations.
12. Work shall commence within five working days after receipt of a written notice-to-proceed from the Department to the Consultant.

PROJECT DELIVERABLES

A subsurface utility facility matrix shall be provided by the consultant. This matrix is to include the utility facility owner, utility facility type, positioning method, source of utility facility depth information, approximate distances per segment and applicable comments. All utility data provided by the consultant shall be associated with one of the four identification/positioning methods. The Matrix should be generated after preliminary design and updated at final plan deliverable. An example matrix is provided in Appendix A.

A Professional Surveyor registered in the State of Ohio (in good standing) shall provide a signed and sealed statement indicating that the utility data provided met the requirements of these specifications for the Quality Level requested by ODOT and as noted in the utility facility matrix. See Appendix B.

The Consultant shall, upon completion of designating and/or locating services, provide plan drawings of utilities on vellum in English units at a scale determined by the Department, and a duplicate electronic file transmitted in a manner acceptable to the District. All submittals shall conform to the CADD Engineering Standards Manual and The Location and Design Manual, Volume 3, Highway Plans, and include the following information:

1. The project designation, PID, consultant name, work order number, and limits of the area designated.
2. All horizontal and vertical control furnished by the Department.
3. A listing of utility owners.
4. All utilities designated.
5. All depth and elevation information furnished by utility owners.
6. A listing of all test holes and the following information for each:
 - (a) Horizontal and vertical location of top and/or bottom of utility referenced to project datum
 - (b) elevation of existing grade over utility at test hole referenced to project datum
 - (c) outside diameter of utility and configuration of non-encased, multi-conduit systems
 - (d) utility structure material composition, when reasonably ascertainable

- (e) benchmarks and/or project control used to determine elevations
- (f) paving thickness and type, where applicable
- (g) general soil type and site conditions
- (h) such other pertinent information as is reasonably ascertainable from test hole site. References to project datum shall maintain vertical tolerance to plus or minus 0.05' based on benchmarks shown on the Consultant's deliverables and horizontal tolerance to applicable surveying standards.

PROJECT MEETINGS

The Consultant shall meet with the District as requested in writing to review the status of the work, coordinate with utility owners or other purposes as required.

RESPONSIBILITIES OF THE DISTRICT

The District shall provide the following information and services relative to the work to be performed by the Consultant.

1. Highway plans showing alignment, profile, and horizontal and vertical control.
2. Limits of the area to be designated and test hole locations.
3. Test hole locations.
4. Provide notification to adjacent property owners, if required.
5. CADD files showing existing topographic information.

PROJECT SCHEDULE

The District will determine the required completion time for each work order, measured from authorization to proceed to receipt of deliverables. The District will advise the Consultant of the required completion time for each work order in the work order request.

REFERENCE DOCUMENTS

The following documents shall be included in this scope of services by reference:

Ohio Department of Transportation Location and Design Manual, Volume Three: Plan Preparation, CADD Engineering Standards Manual and Ohio Manual on Uniform Traffic Control Devices.

Appendix A

Subsurface Utility Facility Matrix

PID: 12345

Agreement Number: 14256

Co/Rt/Sect: FRA-70-0.00

Utility Owner	Utility Facility	Positioning Quality Level	Depth/ Elevation Source	Depth/ Elev.	Location		Approx. Distance	Comments
					From:	To:		
AT&T	Telephone	B	Records	30"	Sta 1+50	4+00	250'	Rt.
AT&T	Telephone	A	Surveyed	924.25'	Sta 4+00	N/A	N/A	Rt., At new light pole
AT&T	Telephone	B	Records	30"	Sta 4+00	12+55	855'	Rt.
AEP	Electric	B	Records	36"	Sta 5+25	7+80	255'	Lt.
AEP	Electric	A	Surveyed	923.74'	Sta 7+80	N/A	N/A	Lt, At new abutment
AEP	Electric	B	Records	36"	Sta 7+80	11+45	365'	Lt.