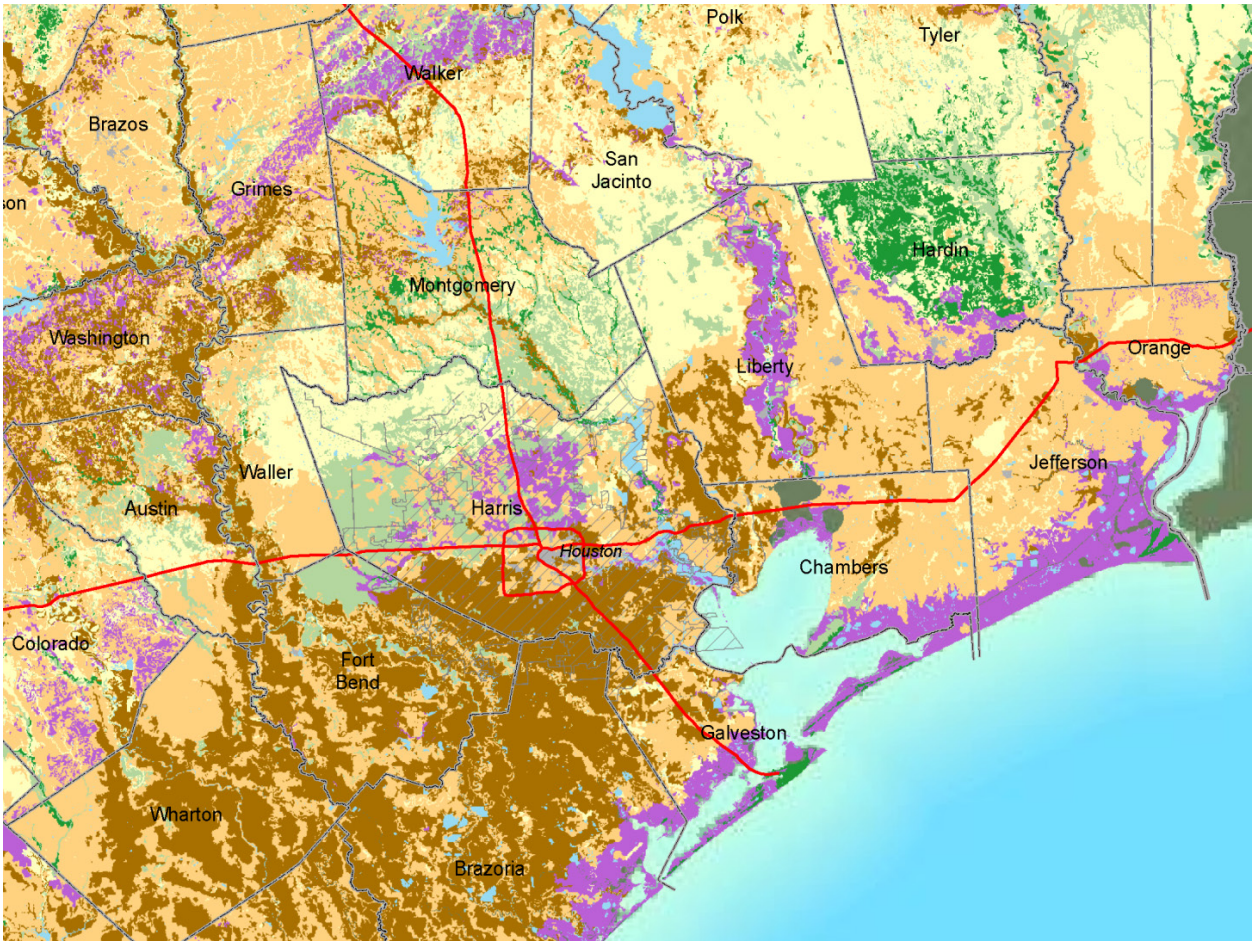
# Introduction to SUE and Utility Impact Analysis

# Workshop Materials




## Research Project 0-6631: Best Practices for Utility Investigations in the TxDOT Project Development Process

[Page is intentionally blank]

TEXAS A&M.TRANSPORTATION INSTITUTE

# Introduction to SUE & Utility Impact Analysis Workshop

## Best Practices in Utility Investigation in the TxDOT Project Development Process

Product: 0-6631-P1

Project: 0-6631

**November 2012**

PARTICIPANT GUIDE

[Page is intentionally blank]

## *Table of Contents*

Workshop Overview ..... 7
Workshop Agenda ..... 9
Participant Notes ..... 11
Handout No. 1 ..... 41
Handout No. 2 ..... 57
APPENDIX A ..... 63
Sample Data ..... 63
APPENDIX B ..... 75
Texas Utilities Code: Underground Facility Damage and Safety (One Call Law) ..... 75
APPENDIX C ..... 95
Sample Indefinite Delivery Contract ..... 95
APPENDIX D ..... 111
Feedback Form and Sign-In Sheet ..... 111

## *Table of Contents*

Workshop Overview ..... 7
Workshop Agenda ..... 9
Participant Notes ..... 11
Handout No. 1 ..... 41
Handout No. 2 ..... 57
APPENDIX A ..... 63
Sample Data ..... 63
APPENDIX B ..... 75
Texas Utilities Code: Underground Facility Damage and Safety (One Call Law) ..... 75
APPENDIX C ..... 95
Sample Indefinite Delivery Contract ..... 95
APPENDIX D ..... 111
Feedback Form and Sign-In Sheet ..... 111

# *Workshop Overview*

## Background

As part of TxDOT Research Project 0-6631, the Texas Transportation Institute (TTI) of the Texas A&M University System is conducting research to develop best practices for utility investigations in the TxDOT project development process. Workshops are being conducted at five locations around the state: Austin, Dallas, Houston, San Antonio, and Waco.

## Workshop Purpose

The purpose of the workshop is (a) to describe research results related to best practices for utility investigations and (b) to obtain feedback from stakeholders including representatives from TxDOT divisions, regions, and districts in design and utilities; subsurface utility engineering (SUE) providers; and utility company representatives.

## Workshop Outline

The length of the utility workshop is four hours, divided into the following four main sessions:

8:00 – 8:30 Session 1: Introduction and overview
8:30 – 10:00 Session 2: Overview of SUE and the project development process
10:00 – 10:15 Break
10:15 – 11:45 Session 3: Utility Impact Analysis
11:45 – 12:00 Session 4: Workshop review and summary

At the end of the workshop, participant should be able to:

- Describe SUE practices during the project development process.
- Identify opportunities to implement utility investigation best practices with regard to timing during the project development process.
- Conduct a project utility impact analysis.

**Contact and Additional Information**

For additional information about the project please contact:

Edgar Kraus, P.E., Texas Transportation Institute, Texas A&M University System
Phone: (210) 979-9411 x 17202
Email: e-kraus@tamu.edu

Stephen Stakemiller (Project Director), TxDOT Houston District
Phone: 713-802-5776
Email: Stephen.Stakemiller@txdot.gov

## *Workshop Agenda*

| | | | |
|---|---|---|---|
| **8:00-8:30** | **Session 1**<br>**Introduction and Overview** | Participant self-introductions<br>Review workshop objectives | 30 minutes |
| **8:30-10:00** | **Session 2**<br>**Overview of SUE and the PDP** | A brief overview of SUE technology and terminology.<br>Overview of TxDOT project development process and SUE. | 90 minutes |
| **10:00-10:15** | **Break** | | 15 minutes |
| **10:15-11:45** | **Session 3**<br>**Utility Impact Analysis** | Introduction to Utility Impact Analysis.<br>Discussion of UIA example in groups.<br>Discussion of work group results. | 90 minutes |
| **11:45-Noon** | **Session 4**<br>**Workshop Review and Summary** | A capstone and summary of the workshop. | 15 minutes |

[Page is intentionally blank]

# *Participant Notes*

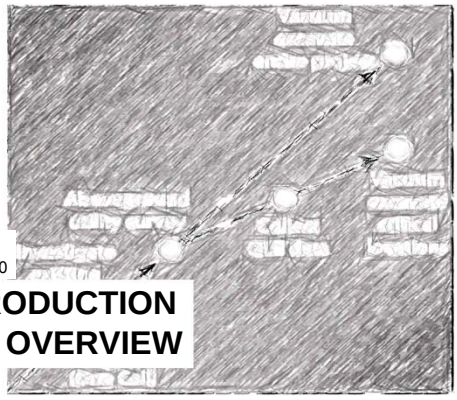
[Page is intentionally blank]

# Introduction to SUE and Utility Impact Analysis

Research Project 0-6631

"Best Practices for Utility Investigations in the TxDOT Project Development Process"





Lesson 1
8:00 – 8:30

## INTRODUCTION AND OVERVIEW



## Workshop Overview

| | |
|---|---|
| 8:00 – 8:30 | Welcome, introductions, and workshop objectives |
| 8:30 – 10:00 | Overview of SUE and the PDP |
| 10:00 – 10:15 | Break |
| 10:15 – 11:45 | Utility Impact Analysis |
| 11:45 – Noon | Workshop review and summary |

## Introduction & Overview

Introductions
Review learning objectives
Workshop materials



## Self Introductions

What is your name?
What is your position/role in design, utility investigations, etc.?
Do you have SUE experience?
What do you expect from this workshop?



## Workshop Learning Objectives

At the end of this workshop you should be able to:

- Describe SUE concepts and data quality levels
- Identify when SUE should occur in the project development process
- Perform a utility impact analysis

## Housekeeping

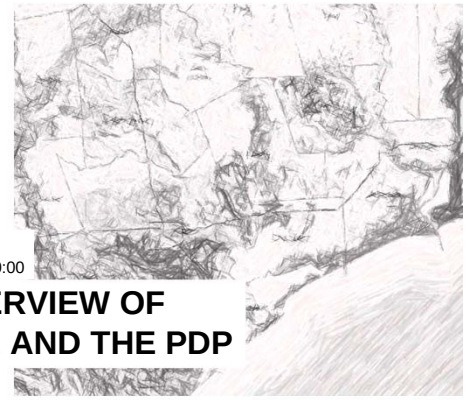
Participant workbook
- Slides
- Utility impact data & forms
- Examples

Sign-in sheet

Participant feedback form

Miscellaneous





Lesson 2
8:30 – 10:00

**OVERVIEW OF SUE AND THE PDP**



## Lesson 2 - Overview

Overview of Subsurface Utility Engineering (SUE) concepts and technologies

SUE in the project development process

Lesson review

## Learning Objectives

At the end of this lesson you should be able to:

- Describe what SUE is
- Describe what SUE quality levels are
- Describe how best to use SUE in the project development process
- Identify contracting options for QLB and QLA



Overview of SUE Concepts and Technologies

**2.1**



## What, Why, and When

What is SUE?

- What are common SUE technologies?
- Limitations, benefits, and best uses

Why conduct SUE?

SUE best practices

## What is SUE

A branch of engineering practice that involves **managing certain risks** associated with utility

- Mapping at appropriate **quality levels**
- Coordination, relocation design, and condition assessment
- Communication of utility data to concerned parties
- Relocation cost estimates
- Implementation of utility accommodation policies



## What Is a SUE Quality Level

A professional opinion of the **quality and reliability** of utility information.

- QLD (lowest reliability)
- QLC
- QLB
- QLA (highest reliability)



## Characteristics of Quality Level D (QLD) Data

**Existing records or oral recollections**

- Utility owner records (not signed and sealed)
- Visual site inspections
- One-call notification centers ground markings

Product/deliverable: Composite drawing depicting utility facilities at QLD

## Quality Level D – True/False

1. QLD is expensive and the information hard to find, I'll need to hire a contractor.

2. I've got my one-call markings, I won't need any additional information.

3. QLD is not needed because I'll end up relocating or needing QLA anyway.



## Limitations and Uses of QLD Data

Limitations
- Information can be unreliable
- Horizontal and vertical locations are not measured/surveyed

Uses
- Useful for early planning, route selection, preliminary design
- QLD can provide starting point for additional data collection



## Characteristics of Quality Level C (QLC) Data

**Surveying visible utility features** and inferences about underground utilities connected by visible appurtenances:
- Valve covers, junction boxes, manhole covers, aboveground utility lines

Data collection:
- Surveying of utility features and appurtenances
- Correlating utility records to surveyed features
- Resolving discrepancies

Product/deliverable: composite drawing (QLC and QLD)

## Limitations and Uses of QLC Data

Limitations
- Most underground utilities unknown
- Most vertical underground locations unknown
- Unresolved discrepancies with records

Uses
- Most useful before start of detailed design
- QLC can support QLB data collection



## Characteristics of Quality Level B (QLB) Data

**Surface geophysical methods** to determine the approximate horizontal position of subsurface utilities

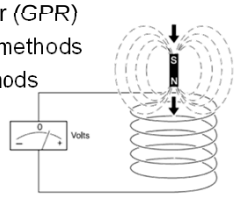
Data collection:
- Geophysical survey (mark indications of utilities on ground surface, survey markings)
- Correlating utility records to surveyed features
- Resolving discrepancies

Product/deliverable: composite drawing (QLB, QLC, QLD)



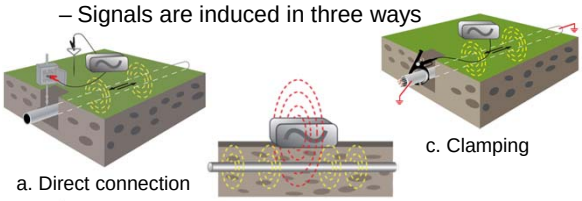
## QLB Techniques and Technologies

Methods based on electromagnetic induction (EMI)
- Pipe and cable locators
- Ground Penetrating Radar (GPR)
- Terrain conductivity (TC) methods
- Capacitive resistivity methods
- Infrared thermography (rarely used)



## Pipe and Cable Locators

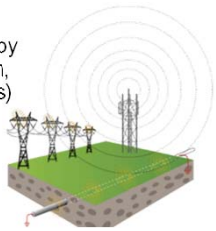
Active mode
- Requires a transmitter and a receiver
- Signals are induced in three ways






## Pipe and Cable Locators

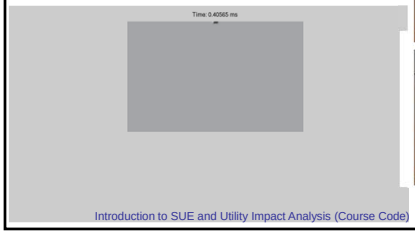
Passive mode
- Detects naturally occurring current in buried utilities
- Only requires a receiver
- But: current can be triggered by other sources (current in earth, long-wave radio transmissions)
- Not reliable, subject to change anytime, easily interfered by surrounding EM noises

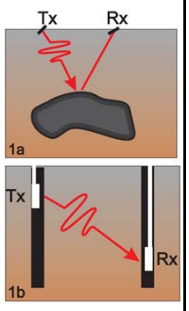




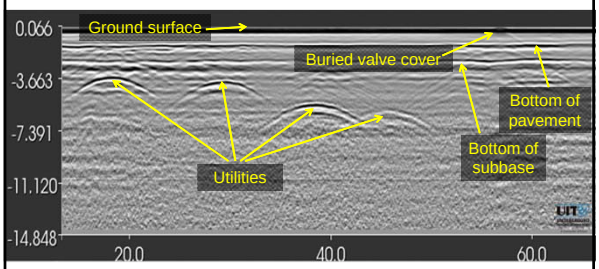
## Ground Penetrating Radar (GPR)

Transmit EM signal, receive and record signal reflection
- UHF/VHF range





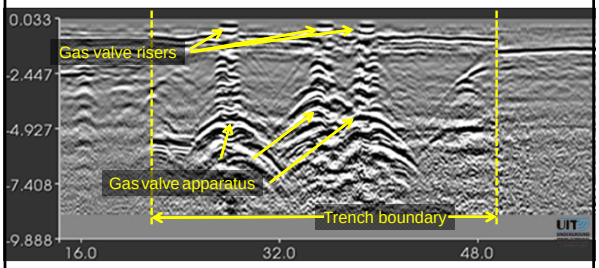
## GPR: Buried Valve Cover and Utility Pipes




Narcoossee Rd & Rummel Rd, St. Cloud, FL

Introduction to SUE and Utility Impact Analysis (Course Code) Ch 2-18

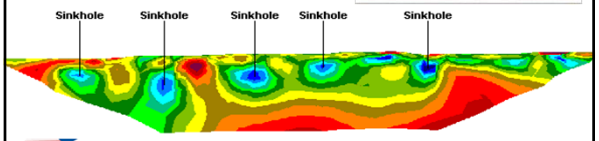
## GPR: Gas Valves and Risers




Introduction to SUE and Utility Impact Analysis (Course Code) Ch 2-19

## Other Geophysical Methods

Terrain conductivity
Magnetic methods
Resistivity measurements




Introduction to SUE and Utility Impact Analysis (Course Code) Ch 2-20

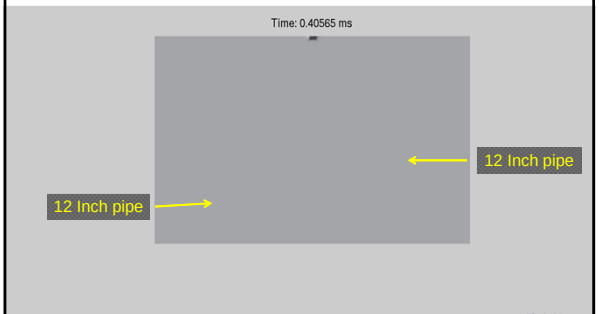
## Other Geophysical Methods (Less Commonly Used)

Methods based on mechanical waves
- Acoustic location
- Seismic location

Other techniques
- Infrared thermography
- Micro-gravitational methods
- Chemical methods



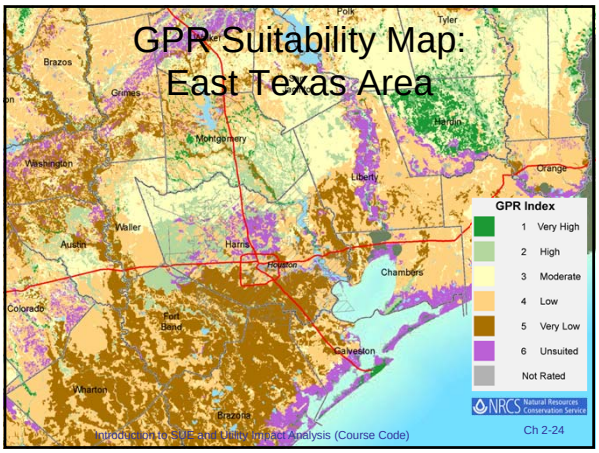
## Seismic Location: 1.5 KHz Pulse

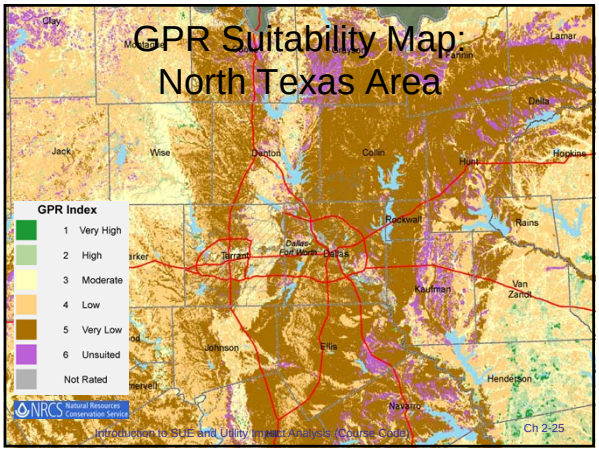





## Limitations and Uses of Quality Level B (QLB)

Limitations
- Requires professional experience, specialized equipment
- Field time intensive
  - Operator experience critical for good results
  - Limited next day delivery of results
- Depths unreliable, no elevations possible
- No guarantee all utilities will be detected
- Accuracy depends on method, soil conditions




## Limitations and Uses of Quality Level B (QLB) (Ctd.)

Other Limitations

- Difficult to sweep in every direction
- Need separate survey to reference paint marks
- Can be expensive

Uses

- Most useful during detailed design phase
- QLB supports determination for test holes (QLA)

Texas Department of Transportation

Introduction to SUE and Utility Impact Analysis (Course Code) Ch 2-26

## Characteristics of Quality Level A (QLA) Data

**Accurate horizontal and vertical utility location** by exposing the utility at certain locations

Test hole (pothole) excavation
- Survey exposed facilities using project datum
- Resolve discrepancies

Product/deliverable: composite drawing (QLA, QLB, QLC, QLD), test hole reports



## QLA Test Hole Using Vacuum Excavation

## Limitations and Uses of QLA Data

Limitations
- Field time intensive
- (Minimally) invasive
- Provides only a single location per test hole
- Needs separate survey to reference location
- Relatively costly

Uses
- Most useful during detailed design phase
- Useful to verify potential utility conflicts

SUE in the Project Development Process

**2.2**



## Why Use SUE?

SUE can save project funds, avoid project delays

SUE can avoid or minimize utility impacts

- Avoid unnecessary utility relocations
- Evaluate design alternatives
- Facilitate utility conflict analysis



## Project Delays: TxDOT Perspective

Shortened timeframe for project development

Design changes

Environmental process

Inefficient utility coordination

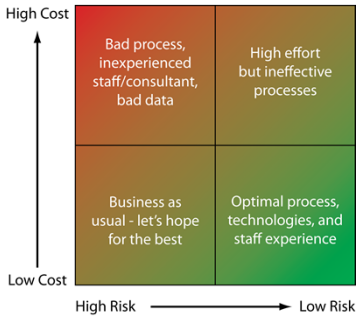
- Inaccurate location and marking
- Utility conflicts late in the design phase
- Unexpected utility relocation costs

## Project Delays: Utility Owner Perspective

- Limited resources (financial and personnel)
- TxDOT project uncertainties
  - Changes in design and schedules
- Unrealistic utility relocation schedule
  - Utility owner's project development process requirements
- Coordination with other stakeholders

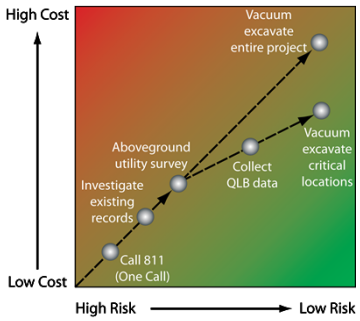


## Balancing Cost vs. Risk



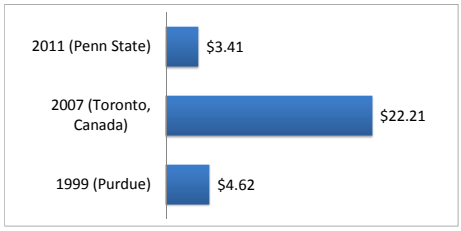



## Balancing Cost vs. Risk



# Estimated Project Cost Savings

Research Projects

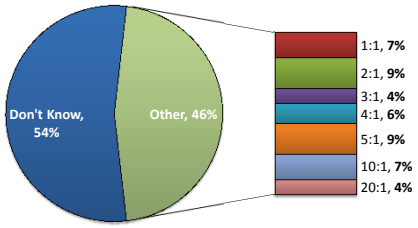



(Savings per $ spent on SUE QLA and QLB)



# Estimated Project Cost Savings

Survey of TxDOT Personnel 2011




(Savings per $ spent on SUE QLA and QLB)



# Benefits and Uses of Quality Level B (QLB)

Benefits

- Locate known and unknown utilities with high horizontal accuracy
- Risk reduction
- Non-invasive field operations
- Documented positive return on investment
- Reduced number of test holes

## Benefits and Uses of Quality Level A (QLA)

Benefits

- Locate utilities with high horizontal and vertical accuracy
- Risk reduction

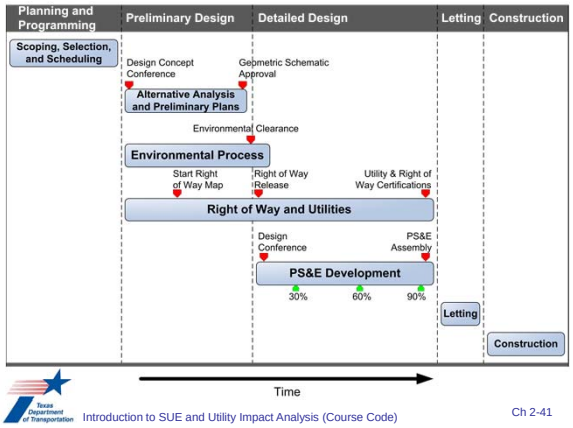


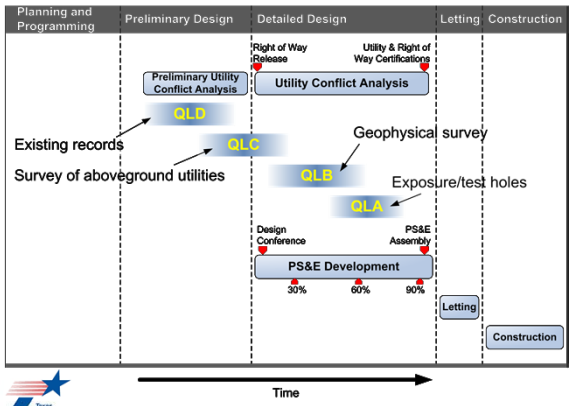
## When Should SUE Be Conducted?

Can you provide an example of when you have used SUE?

Can you provide an example of when you used QLA during the PDP?








Introduction to SUE and Utility Impact Analysis (Course Code) Ch 2-42

## Challenges with SUE QLB and QLA*

Time & budget constraints
- Funding & scheduling

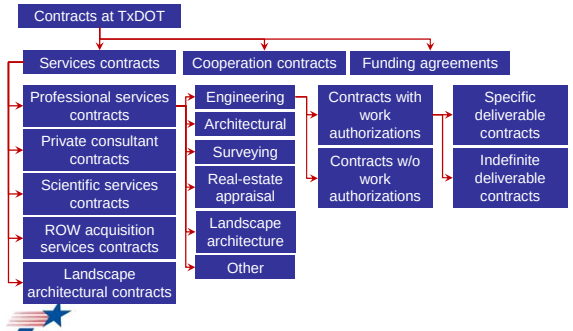
Technology
- How & where to use
- Expectations of quality and accuracy

SUE contracts
- Contract negotiation & approval time
- Contract amendments

*Survey of TxDOT personnel 2011

Introduction to SUE and Utility Impact Analysis (Course Code) Ch 2-43

## SUE Contracting Mechanisms




Introduction to SUE and Utility Impact Analysis (Course Code) Ch 2-44

## Contracts with Work Authorizations

**Specific deliverable**

Explicitly identified scope of work

Flexible on dollar and time limits

Ideal for projects that may take a long time or require additional funding

**Indefinite deliverable**

General scope of services

Work assignments with little delay

Ideal for limited projects that fit in applicable time/dollar limits



## SUE Contract Payment Methods

Lump sum basis
- A single dollar amount paid for deliverables

Cost plus fixed fee basis
- Direct/indirect costs plus a portion of the total estimated costs

Unit cost basis (less used)
- Dollar amount for a unit of production

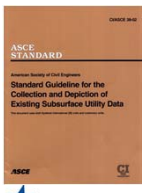
Specified rate basis (less used)
- Overall hourly rate including all cost elements



## SUE Guidelines and Further Reading

ASCE/CI 38-02: Guideline for the Collection and Depiction of Existing Subsurface Utility Data

SHRP2 (Strategic Highway Research Program 2)



Lesson Review

**2.3**



## Review: SUE QL Jeopardy

Surveyed location of exposed underground utility (signed and sealed)



## Review: SUE QL Jeopardy

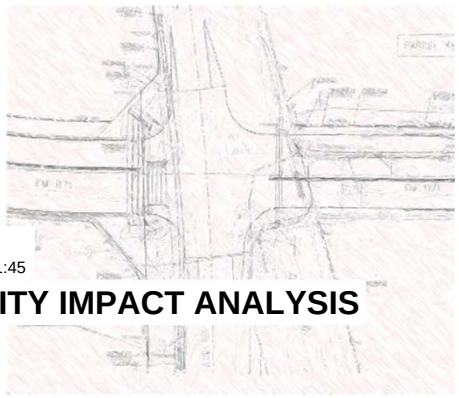
Electric transmission map

## Review: SUE Benefits

Give some examples of SUE benefits

Explain when to conduct what type of SUE





Lesson 3
10:45 – 11:45

## UTILITY IMPACT ANALYSIS



## Learning Objectives

At the end of this lesson you should be able to:

- Perform utility impact analysis
- Complete a utility impact form
- Describe example of when to use QLA

## Utility Impact Analysis

Look in your handouts. Find:

- Handout #1 *PennDOT UIA form*
- Handout #2 *GDOT UIA form*
- Handout #3 *FM 546 Example*
- Handout #4 *IH 35E Example*



## Example Best Practices

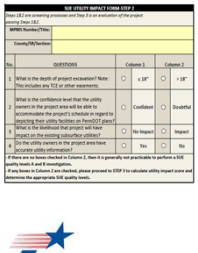
PennDOT SUE impact form

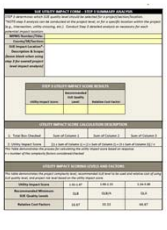
- 3-step screening process
- Utility impact score and SUE QL recommendation
- Mandatory use of SUE QLB or QLA on all excavation/demolition projects over $400k



## PennDOT UIA Demonstration Utility Impact Form (Excel)

Click to open PennDOT UIA





## Example Best Practice

Formalized GDOT utility impact avoidance process
- SUE request process
- Utility impact rating and score
- Utility impact analysis
- SUE deliverables review process



## GDOT Utility Impact Rating

GDOT utility impact rating form
- Determines estimated utility impact for project
- Minimally, moderately, or severely
- Excel macro
- Used to determine need for QLB or QLA



| Question | Rating | | |
|---|---|---|---|
| 1. How many utilities are expected to be encountered on this project? | **Low** ☐ 0-2 | **Med** ☐ 3-4 | **High** ☐ >4 |
| 2. Generally, for the type of work proposed, what is the probability for utility conflicts to be encountered on construction for this project? | **Low** ☐ | **Med** ☐ | **High** ☐ |
| 3. Which best describes the traffic volume (ADT) on this route? | **Low** ☐ ≤ 1500 | **Med** ☐ > 1500 and ≤ 6000 | **High** ☐ > 6000 |
| 4. How can the area where this project is proposed best be described? | **Low** ☐ Rural | **Med** ☐ Rural but Urbanizing | **High** ☐ Urban |
| 5. How would the number of parcels affected by this project, relative to the total project length, best be characterized? | **Low** ☐ Few | **Med** ☐ Average | **High** ☐ Numerous |
| 6. How often have the utility owners in this area provided timely/accurate information regarding their facilities on previous projects? | **Low** ☐ Almost Always | **Med** ☐ Occasionally | **High** ☐ Seldom |

## What Projects Are Good Candidates for SUE QLB and QLA?

High level of utility congestion
High probability for utility conflicts
Urban/suburban settings
High utility relocation costs
High probability existing facility can be saved



## Utility Impact Analysis Exercise #1

Use handout #3
- Review the project description
- Complete the GDOT UIA form
- Report back

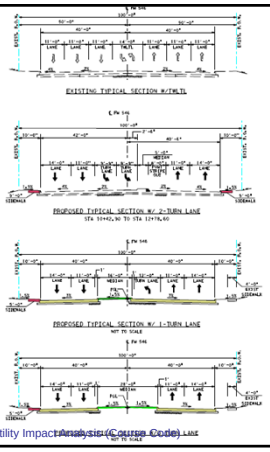


## Exercise #1 FM 546

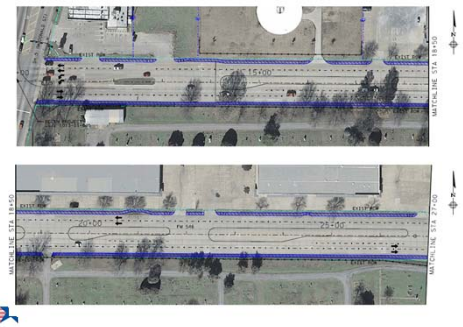
Suburban Setting
Reconstructing existing seven lane into four-lane divided urban highway
Adding turn-lanes and medians
Adding sidewalks
No new right of way

# Exercise #1 FM 546

# Exercise



# FM 546



# Complete form together

| Question | Rating | | |
|---|---|---|---|
| 1. How many utilities are expected to be encountered on this project? | Low ☐ 0-2 | Med ☐ 3-4 | High ☐ >4 |
| 2. Generally, for the type of work proposed, what is the probability for utility conflicts to be encountered on construction for this project? | Low ☐ | Med ☐ | High ☐ |
| 3. Which best describes the traffic volume (ADT) on this route? | Low ☐ ≤ 1500 | Med ☐ > 1500 and ≤ 6000 | High ☐ > 6000 |
| 4. How can the area where this project is proposed best be described? | Low ☐ Rural | Med ☐ Rural but Urbanizing | High ☐ Urban |
| 5. How would the number of parcels affected by this project, relative to the total project length, best be characterized? | Low ☐ Few | Med ☐ Average | High ☐ Numerous |
| 6. How often have the utility owners in this area provided timely/accurate information regarding their facilities on previous projects? | Low ☐ Almost Always | Med ☐ Occasionally | High ☐ Seldom |

Introduction to SUE and Utility Impact Analysis (Course Code) Ch 3-15

# Exercise #2 IH-35

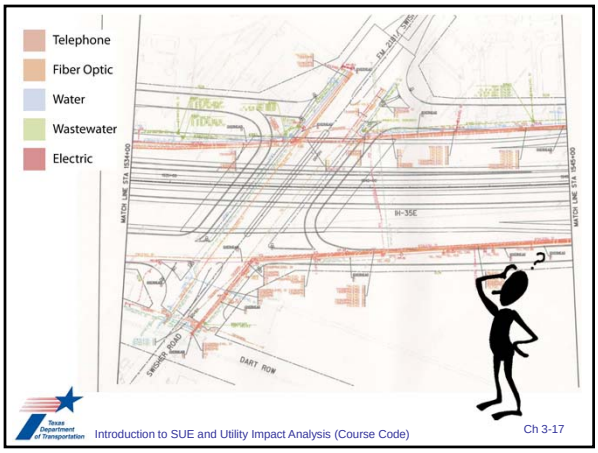
Go to handout #4 – IH 35E

Review plan sheet

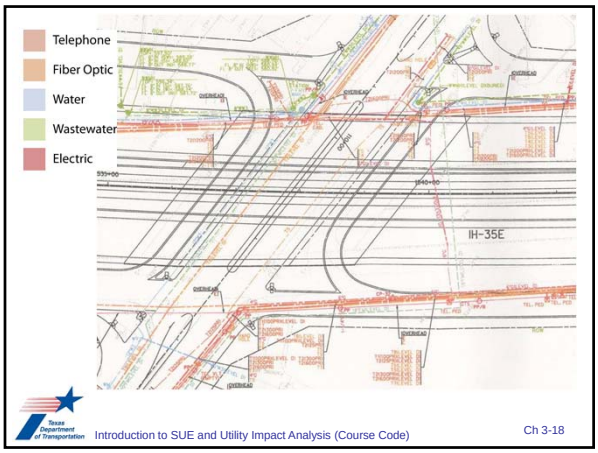
Work in groups to complete GDOT UIA form

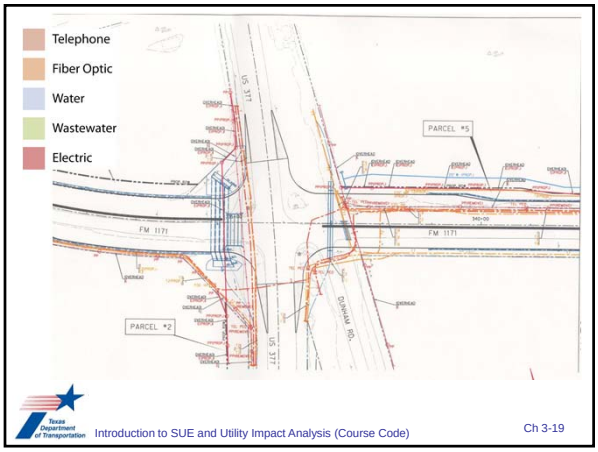
Report your findings

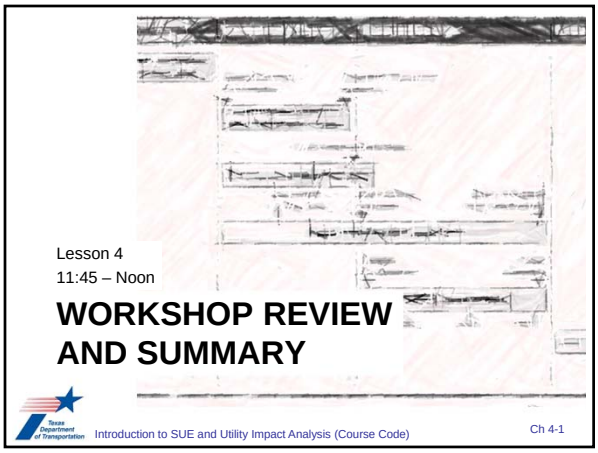
Introduction to SUE and Utility Impact Analysis (Course Code) Ch 3-16




Introduction to SUE and Utility Impact Analysis (Course Code) Ch 3-17


Telephone
Fiber Optic
Water
Wastewater
Electric
IH-35E
Introduction to SUE and Utility Impact Analysis (Course Code)
Ch 3-18


Telephone
Fiber Optic
Water
Wastewater
Electric
US 377
PARCEL #5
FM 1171
PARCEL #2
DUNHAM RD.
Introduction to SUE and Utility Impact Analysis (Course Code)
Ch 3-19


Lesson 4
11:45 – Noon
WORKSHOP REVIEW AND SUMMARY
Introduction to SUE and Utility Impact Analysis (Course Code)
Ch 4-1

## Workshop Objectives

Describe SUE concepts and Quality Levels

Identify when SUE occurs in the project development process

Perform a utility impact analysis



## Workshop Review

Why do we conduct SUE?
How and why does SUE save money?
When do you conduct SUE QLD?
When do you conduct SUE QLA?
What are some limitations of SUE?



## Workshop Evaluation

Please fill out feedback form

What will you do with the information when you return to your office?

# Thank You!

Edgar Kraus, P.E.
e-kraus@tamu.edu

John Overman, P.G., A.I.C.P.
joverman@tamu.edu

# *Handout No. 1*

PennDOT SUE Utility Impact Form

[Page is intentionally blank]

# SUE Utility Impact Form

**Instructions**

***-Steps 1 and 2 are screening processes and Step 3 is an evaluation of the project passing Steps 1 and 2.***

***- Step 1 determines whether SUE (quality levels A & B) should be utilized for a project or not.***

***- If Step 1 indicates further analysis is required, conduct Step 2.***

***- Step 2 will then determine whether SUE (quality levels A & B) should be utilized for a project or not.***

**Step 1**

Project information such as title, cost, description (general summary), and scope (actual work scope) should be filled out before beginning Step 1. If the scope of the project is changed, the utility impact rating analysis should be done again for that project. Step 1 determines whether SUE (Quality levels A & B) should be utilized for a project.

The questions in Step 1 can be answered with traditional utility information (Quality levels C & D) provided by a one-call system, utility companies, site visits, etc. If there are no boxes checked in Column 2, then it is generally not practical to perform a SUE Quality levels A & B investigation. If any boxes in Column 2 are checked, the utility impact rating analysis proceeds to Step 2 to conduct further

**Step 2**

Step 2 further analyzes and determines whether SUE (Quality levels A & B) should be utilized for a project. Table 2 shows five questions involved in Step 2. The questions can be answered with traditional utility information (Quality levels C & D) provided by a one-call system, utility companies, site visits, etc. If there are no boxes checked in Column 2, then it is generally not practical to perform a SUE Quality levels A and B investigation. If any boxes in Column 2 are checked, the utility impact rating analysis proceeds to Step 3 to calculate a utility impact score and determine the appropriate SUE

**Step 3**

Step 3 determines which SUE quality levels QLB or QLA should be selected for a project/section/location. Title, cost, description (general summary), and scope (actual work scope) should be filled out before answering the questions. The Step 3 questions are answered for a project, a section, or a location, while all questions in Step 1 and Step 2 are for a project. One project can have several sections or locations that have different utility impacts. Step 3 should be conducted for each section or location as necessary so that SUE quality levels can be selected for each section or location.

**Filing Procedure**

File a copy of the SUE Utility Impact Form in the project file and upload to UR-EDMS.

**NOTE:** When filling out the utility impact form electronically as a Microsoft Excel Spreadsheet:

| |
|---|
| ***Yellow shaded fields will be automatically completed.*** |
| ***Fields with no shading require input from the user.*** |

| SUE UTILITY IMPACT REPORT | | | | |
|---|---|---|---|---|
| **Project Information** | | | | |
| **MPMS Number/Title:** | | | | |
| **County/SR/Section:** | | | | |
| **Project Cost** | **Design Cost:** | | **Construction Cost:** | |
| **Project Description:** *(General Summary)* | | | | |
| **Project Scope:** *(Actual Work Scope Note: If the scope of the project changes, it is recommended that utility impact analysis be done again.)* | | | | |
| **DUA Approval:** | | | **Date:** | |
| **Project Mgr Approval:** | | | **Date:** | |

## SUE UTILITY IMPACT FORM – STEP 1

*Steps 1&2 are screening processes and Step 3 is an evaluation of the project passing Steps 1&2. STEP 1 determines whether SUE (quality levels A & B) should be utilized for a project or not.*

| | |
|---|---|
| **MPMS Number/Title:** | |
| **County/SR/Section:** | |

| No. | QUESTIONS | Column 1 | | Column 2 | |
|---|---|---|---|---|---|
| 1 | Is there evidence of underground utilities in the project area? (based on information from SUE quality level D&C) | ○ | **NO** | ○ | **YES or Unknown** |
| 2 | Does the project require any excavation "regardless of depth"? Note: This includes any temporary construction easements (TCE) or other easements. | ○ | **NO** | ○ | **YES or Unknown** |

**- For each question, check the box that best describes the project conditions.**
**- If there are no boxes in Column 2 checked, then it is generally not practicable to perform a SUE quality levels A and B investigation.**
**- If one or both boxes in Column 2 are checked, please proceed to STEP 2 to conduct further analysis.**

| SUE UTILITY IMPACT FORM-STEP 2 | | | | | |
|---|---|---|---|---|---|
| *Steps 1&2 are screening processes and Step 3 is an evaluation of the project passing Steps 1&2.* | | | | | |
| **MPMS Number/Title:** | | | | | |
| **County/SR/Section:** | | | | | |
| **No.** | **QUESTIONS** | **Column 1** | | **Column 2** | |
| **1** | What is the depth of project excavation? Note: This includes any TCE or other easements. | ○ | **≤ 18”** | ○ | **> 18”** |
| **2** | What is the confidence level that the utility owners in the project area will be able to accommodate the project’s schedule in regard to depicting their utility facilities on PennDOT plans? | ○ | **Confident** | ○ | **Doubtful** |
| **3** | What is the likelihood that project will have impact on the existing subsurface utilities? | ○ | **No Impact** | ○ | **Impact** |
| **4** | Do the utility owners in the project area have accurate utility information? | ○ | **Yes** | ○ | **No** |
| **- If there are no boxes checked in Column 2, then it is generally not practicable to perform a SUE quality levels A and B investigation.**<br>**- If any boxes in Column 2 are checked, please proceed to STEP 3 to calculate utility impact score and determine the appropriate SUE quality levels.** | | | | | |

## SUE UTILITY IMPACT FORM – STEP 3 SUMMARY ANALYSIS

*STEP 3 determines which SUE quality level should be selected for a project/section/location.*
**NOTE-step 3 analysis can be conducted at the project level, or for a specific location within the project (e.g., intersection, utility crossing, etc.). Conduct Step 3 detailed analysis as necessary for each potential impact location.*

| | |
|---|---|
| **MPMS Number/Title:** | |
| **County/SR/Section:** | |
| **SUE Impact Location*- Description & Scope:** ***(leave blank when using step 3 for overall project level impact analysis)*** | |

| STEP 3 UTILITY IMPACT SCORE RESULTS | | |
|---|---|---|
| **Utility Impact Score:** | **Recommended SUE Quality Level:** | **Relative Cost Factor:** |
| | | |

| UTILITY IMPACT SCORE CALCULATION DESCRIPTION | | | |
|---|---|---|---|
| 1: Total Box Checked | Sum of Column 1 | Sum of Column 2 | Sum of Column 3 |
| 2: Utility Impact Score | [(1 x Sum of Column 1) + (2 x Sum of Column 2) + (3 x Sum of Column 3)] / *n* | | |

*This Table demonstrates the process for calculating the utility impact score based on response.*
*n = Number of the complexity factors considered/checked*

## UTILITY IMPACT SCORING LEVELS AND FACTORS

*This table demonstrates the project complexity level, recommended SUE level to be used and relative cost of using SUE quality level, and project risk level based on the utility impact score.*

| **Utility Impact Score** | 1.01-1.67 | 1.68-2.33 | 2.34-3.00 |
|---|---|---|---|
| **Recommended Minimum SUE Quality Levels** | QLB | QLB/A | QLA |
| **Relative Cost Factors** | 16.67 | 33.33 | 66.67 |

## SUE UTILITY IMPACT FORM – STEP 3 DETAILED ANALYSIS

*-Check the utility impact rating to the right that best fits your opinion of the issue. If the answer for the complexity factor is unknown, always check Column 3.*
*-Refer to page 9 for a detailed description of the complexity factors.*
*-When using an electronic version for the Step 3 analysis, place cursor over the cell on the spread sheet for a detailed description of the complexity factor.*

| No. | Complexity Factors | Column 1 | | Column 2 | | Column 3 | |
|---|---|---|---|---|---|---|---|
| 1 | Density of Utilities (number) | ○ | Low | ○ | Medium | ○ | High |
| 2 | Type of Utilities | ○ | Less Critical | ○ | Sub Critical | ○ | Critical |
| 3 | Pattern of Utilities (number) | ○ | Simple | ○ | Medium | ○ | Complex |
| 4 | Material of Utilities | ○ | Rigid | ○ | Flexible | ○ | Brittle |
| 5 | Access to Utilities | ○ | Easy | ○ | Medium | ○ | Restricted |
| 6 | Age of Utilities (year) | ○ | New | ○ | Medium | ○ | Old |
| 7 | Estimated Utility Relocation Costs (% of total project cost) | ○ | Low | ○ | Medium | ○ | High |
| 8 | Estimated Project Traffic Volume (ADT per lane) | ○ | Low | ○ | Moderate | ○ | High |
| 9 | Project Time Sensitivity | ○ | Low | ○ | Medium | ○ | High |
| 10 | Project Area Description | ○ | Rural | ○ | Suburban | ○ | Urban |
| 11 | Type of Project/Section/Location | ○ | Simple | ○ | Moderate | ○ | Complicated |
| 12 | Quality of Utility Record | ○ | Good | ○ | Fair | ○ | Poor |
| 13 | Excavation Depth with Highway Right-of-Way, including Easement (inches) | ○ | Low | ○ | Medium | ○ | High |
| 14 | Estimated Business Impact | ○ | Low | ○ | Moderate | ○ | High |
| 15 | Estimated Environmental Impact | ○ | Low | ○ | Moderate | ○ | High |
| 16 | Estimated Safety Impact | ○ | Low | ○ | Moderate | ○ | High |
| 17 | Other Impact-Specify: | ○ | Low | ○ | Moderate | ○ | High |

# SUE UTILITY IMPACT FORM - STEP 3 COMPLEXITY FACTORS

***This section presents detailed descriptions of each complexity factor in order to properly evaluate the utility impact rating that best fits the opinion of the issue in STEP 3.***

## 1. Density of Utilities

Density of utilities indicates the number of buried utilities per roadway cross-section that can be expected to be encountered on the project. If there are many utilities expected to be buried within the project, more reliable data/information will be required to successfully locate the utilities. A higher density of utilities means more utility complexity, which requires getting better information related to underground utilities on the project.

| | |
|---|---|
| **Low** | One pipe/roadway cross-section |
| **Medium** | 2 or 3 pipes/roadway cross-section |
| **High** | More than 3 pipes/roadway cross-section and unknown pipes |

## 2. Type of Utilities

Type of utilities indicates service types of buried utilities that can be expected to be encountered on the project. Utilities can be broadly divided into three different categories: (1) municipal, (2) energy, and (3) communication. Critical utilities, such as fiber-optic lines, are buried at a more shallow depth than other types of utilities, so the possibility of accidentally hitting these lines is high. In addition, hitting gas or high voltage lines can have serious impacts. Therefore, critical utilities generally require a greater level of data/information than other underground utilities on the project site.

| | |
|---|---|
| **Less-Critical** | Water, forced sewer main, storm water |
| **Sub-Critical** | Telephone, electric, television cable, gravity sewer |
| **Critical** | Fiber-optic cable, gas, oil, petroleum, high-voltage line, unknowns |

## 3. Pattern of Utilities

Pattern of utilities indicates configuration of buried utilities that can be expected to be encountered on the project. Some areas may have a simple pattern that consists of a few parallel or crossing utilities, while some areas may have a complex pattern that consists of many parallel and crossing utilities. For instance, an intersection in a downtown area may have a more complex pattern of utilities than other areas. A more complex pattern of utilities requires more reliable information.

| | |
|---|---|
| **Simple** | One parallel and/or one crossing utility |
| **Medium** | 2 parallel and/or 2 crossing utilities |
| **Complex** | More than 2 parallel and/or crossing utilities |

# SUE UTILITY IMPACT FORM - STEP 3 COMPLEXITY FACTORS

## 4. Material of Utilities

Material of utilities indicates the material types of buried utilities that can be expected to be encountered on the project. This factor is separated into three different categories: (1) rigid, (2) flexible, and (3) brittle. Brittle material requires higher quality levels of SUE than other materials. Some utility materials are more susceptible to damage than others.

| | |
|---|---|
| **Rigid** | Concrete, cast iron, ductile iron |
| **Flexible** | PVC, HDPE |
| **Brittle** | Such as clay, brick, ceramic, etc., or unknown |

## 5. Access to Utilities

Access to utilities indicates the difficulty or ease of access to buried utilities that may be encountered on the project. If access to buried utilities is restricted, it will be more difficult to get accurate information on these buried utilities than in areas where access to utilities is easy. It is recommended that higher quality levels of SUE be used when access to utilities is more restricted.

| | |
|---|---|
| **Easy** | Open land |
| **Medium** | Few light structures, pavement, median |
| **Restricted** | Bridge pier, other big structures |

## 6. Age of Utilities

Age of utilities may reveal the type of utility material and the physical condition of the utility. Older pipes may have deteriorated extensively and become more easily damaged by an accidental hit during construction activity. In addition, existing records of old utilities may be less reliable.

| | |
|---|---|
| **New** | ≤ 10 years |
| **Medium** | > 10 and ≤ 25 years |
| **Old** | > 25 years |

## 7. Estimated Total Utility Relocation Costs

When higher utility relocation costs (including PennDOT and utilities costs) are expected for the project, more accurate underground information is required to reduce the risks of increased project cost or project schedule delays. SUE quality level A and B investigations can reduce project costs where wrong or poor utility information requires relocating some utilities on the project.

| | |
|---|---|
| **Low** | ≤ 2 % of total project cost (Design & Construction Cost) |
| **Medium** | > 2 and ≤ 5 % of total project cost (Design & Construction Cost) |
| **High** | > 5 % of total project cost (Design & Construction Cost) |

# SUE UTILITY IMPACT FORM - STEP 3 COMPLEXITY FACTORS

| **8. Estimated Project Traffic Volume** | |
|---|---|
| Project traffic volume is the Average Daily Traffic (ADT) volume for the project per lane. Any delay in the project in areas with higher traffic volume will result in greater travel delays to the public. Therefore, a higher level of SUE is required to minimize unnecessary project delays due to encountering unexpected buried utilities at the project site. | |
| **Low** | ≤ 1,500 ADT per lane |
| **Moderate** | > 1,500 and ≤ 6,000 ADT per lane |
| **High** | > 6,000 ADT per lane |

| **9. Project Time Sensitivity** | |
|---|---|
| Project time sensitivity indicates the project schedule. Accurate utility information can reduce unnecessary project delays that can result from inaccurate design; therefore, more reliable information is required in the design stage for projects that have tight schedules. Higher project time sensitivity means tighter schedules that require avoiding project delays. | |
| **Low** | Project is not time sensitive |
| **Medium** | Some flexibility in schedule |
| **High** | Very tight schedule – no time extension |

| **10. Project Area Description** | |
|---|---|
| Project area description indicates the location or nature of the project. This factor is separated into three different categories: (1) rural, (2) suburban, and (3) urban. In general, urban areas have more complex and congested utilities because of higher building and infrastructure density. Therefore, an urban area usually means more congested utilities, so higher quality levels are recommended. | |
| **Rural** | Rural areas with lots of open land |
| **Suburban** | Suburban areas with few businesses and residences |
| **Urban** | Urban areas with many businesses and residences |

# SUE UTILITY IMPACT FORM - STEP 3 COMPLEXITY FACTORS

**11. Type of Project/Section/Location**

Type of project quite often may indicate whether SUE is need. As an example, a pavement resurfacing project that generally requires work only on the pavement surface will not need SUE. Project location and, specifically, the section at which the construction work will take place may reveal traffic volume, accessibility, and potential consequences of accidentally damaging the buried utilities. This factor is separated into three different categories: (1) without excavation, (2) shallow excavation, and (3) deep excavation.

| | |
|---|---|
| **Simple** | Without excavation, i.e., widening, other minor construction work |
| **Moderate** | Shallow excavation, i.e., guide rail, low depth pipe replacement, traffic light post, shoulder cutting, minor drainage |
| **Complicated** | Deep excavation, i.e., new construction, full-depth reconstruction, bridge foundation, deep-depth pipe replacement, etc. |

**12. Quality of Utility Record**

Quality of utility record indicates the reliability of existing records on buried utilities. The availability of accurate historical utility records for the project will be able to reduce the potential for accidentally hitting unexpected underground utilities. This factor is separated into three different categories: (1) good, (2) fair, and (3) poor. A poor quality of utility records requires higher quality levels of SUE.

| | |
|---|---|
| **Good** | Very accurate record of utilities |
| **Fair** | Not very good record of utilities |
| **Poor** | Utilities information/data are not accurate |

**13. Depth of Excavation within Highway Right-of-Way**

Depth of excavation within a highway right-of-way often may indicate whether SUE quality level A or B is needed. Note: This includes TCE or other easements. The accurate location of buried utilities at the project site should be determined to save project costs and time together with associated benefits. This depth factor can be separated into three categories.

| | |
|---|---|
| **Low** | ≤ 18” |
| **Medium** | > 18” and < 24” |
| **High** | ≥ 24” |

**14. Estimated Business Impact**

Business impact is concerned with the income and property loss of local businesses resulting from accidents due to hitting unexpected buried utilities. At areas near or surrounding high business density, the quality level A of SUE is essential. User impact, access to business, and length of service interruption should also be taken into consideration.

| | |
|---|---|
| **Low** | Very low business impact in the project area |
| **Moderate** | Possibility of some business impact in the project area |
| **High** | Great business impact in the project area |

# SUE UTILITY IMPACT FORM - STEP 3 COMPLEXITY FACTORS

| **15. Estimated Environmental Impact** | |
|---|---|
| Potential environmental problems caused by accidentally hitting an in-service utility, such as a gas explosion, oil spill, and/or water flooding, need to be assessed. Project areas with a high potential of environmental impact require a high quality level of SUE. | |
| **Low** | Very low environmental impact in the project area |
| **Moderate** | Possibility of some environmental impact in the project area |
| **High** | Great environmental impact in the project area |

| **16. Estimated Safety Impact** | |
|---|---|
| Safety impact is concerned with possible injury to people caused by accidentally hitting an in-service utility. Projects located in densely populated areas require a high quality level of SUE to minimize the likelihood of such an impact. | |
| **Low** | Very low safety impact in the project area |
| **Moderate** | Possibility of some safety impact in the project area |
| **High** | Great safety impact in the project area |

| **17. Other Factors-Specify** | |
|---|---|
| Projects having a high potential of other impact factors require a high quality level of SUE to avoid or reduce project risks, i.e., blasting of rocks, relocation of other utilities, etc. | |
| **Low** | Very low impact in the project area |
| **Moderate** | Possibility of some impact in the project area |
| **High** | Greater impact in the project area |

# SUE UTILITY IMPACT REPORT

## Project Information

| | | | | |
|---|---|---|---|---|
| **MPMS Number/Title:** | | | | |
| **County/SR/Section:** | | | | |
| **Project Cost** | **Design Cost:** | | **Construction Cost:** | |
| **Project Description:** *(General Summary)* | | | | |
| **Project Scope:** *(Actual Work Scope Note: If the scope of the project changes, it is recommended that utility impact analysis be done again.)* | | | | |
| **DUA Approval:** | | | **Date:** | |
| **Project Manager Approval:** | | | **Date:** | |

## Step 1 and 2 Summary

| | |
|---|---|
| **Step 1 Analysis Recommendation:** | |
| | Generally not practicable to perform a SUE QLA or QLB investigation. |
| | Proceed to STEP 2 to conduct further analysis. |
| **Step 2 Analysis Recommendation:** | |
| | Generally not practicable to perform a SUE QLA or QLB investigation. |
| | Proceed to STEP 3 to calculate utility impact score and determine the appropriate SUE quality levels. |

# SUE UTILITY IMPACT REPORT

## Step 3 QL Recommendation and Selection

| SELECTED SUE QUALITY LEVEL(S): | |
|---|---|

***The Project Manager, along with the District Utility Administrator, must select the SUE Quality Level(s) intended for use on the project.***
***-The selection justification must be documented on the SUE Quality Level Justification.***
***-Site specific areas may require re-evaluation of Step 3 to determine appropriate SUE Quality Level.***

**Utility Impact Score Results:**

| Utility Impact Score: | Recommended Minimum SUE Quality Level: | Relative Cost Factor: |
|---|---|---|
| | | |

**SUE Impact Location-Description & Scope:**
***(blank for overall project level impact analysis)***

**Utility Impact Score Calculation Description**

*This Table demonstrates the process for calculating the utility impact score based on response.*
**n = Number of the complexity factors considered/checked*

| | | | |
|---|---|---|---|
| 1: Total Box Checked | Sum of Column 1 | Sum of Column 2 | Sum of Column 3 |
| 2: Utility Impact Score | [(1 x Sum of Column 1) + (2 x Sum of Column 2) + (3 x Sum of Column 3)] / *n** | | |

**Utility Impact Scoring Levels And Factors**

*All factors are based on the result utility impact score calculation.*

| **Utility Impact Score** | 1.01 – 1.67 | 1.68– 2.33 | 2.34 – 3.00 |
|---|---|---|---|
| **Recommended Minimum SUE Quality Levels** | QLB | QLB/A | QLA |
| **Relative Cost Factors** | 16.67 | 33.33 | 66.67 |

**Impact Levels and Factors Descriptions:**

| | |
|---|---|
| **Utility Impact Score** | Result of utility impact score calculation. |
| **Recommended Minimum** | The minimum SUE quality level recommended by the step 3 analysis. |
| **Relative Cost Factors** | Costs factors are relative to obtaining QLD&C (i.e., cost of obtaining QLA generally would cost 66 times the amount of obtaining QLD&C). |

| SUE UTILITY IMPACT REPORT |
|---|
| **Step 3-Selected SUE Quality Level Justification** |
| *-Include a justification of the SUE quality level selected. Include a discussion of the reasons why a SUE quality level chosen is different that the SUE quality level recommended in the Step 3 analysis.* |
| **QLB Selected Locations and/or Utilities and Justification** |
| |
| **QLA Recommended Test Hole Locations and Justification** |
| |

# *Handout No. 2*

GDOT Utility Impact Score

[Page is intentionally blank]

**GDOT Utility Impact Score**

To estimate the approximate impact of utilities on project delivery time and costs, GDOT has developed a utility impact score system. To determine the utility impact score of a project, GDOT has a list of 10 questions that can be answered on a scale of 1 to 3 indicating an impact of low to high. GDOT developed the list of questions for the utility impact scores based on past project experience. Project characteristics where SUE services provided a good return on investment include the following:

- Projects in urban or suburban areas.
- Projects with a high expected level of utility congestion.
- Projects with anticipated issues due to previous poor experience with utility owners to provide timely and accurate information.
- Projects with a high estimated utility relocation cost.
- Projects with a high probability to retain utility installations in place.

Upon answering these questions, a simple utility impact score (UIS) is calculated by weighing the frequency of each type of answer using the following equation:

$$\mathrm{UIS} = \frac{(\mathrm{L} \cdot 1 + \mathrm{M} \cdot 2 + \mathrm{H} \cdot 3)}{10}$$

where

L = Number of "low" responses,
M = Number of "medium" responses, and
H = Number of "high" responses.

GDOT takes the utility impact score into consideration when making a determination on whether to approve a request for SUE services. Table 1 provides a description of the Utility Impact Score.

**Table 1. GDOT Utility Impact Score.**

| Utility Impact Score | Utility Impact Description |
|---|---|
| 1 | Project minimally impacted by utility issues. |
| 2 | Project moderately impacted by utility issues. |
| 3 | Project severely impacted by utility issues. |

**Table 2. GDOT Utility Impact Rating Form**

| Question | Rating | | |
|---|---|---|---|
| 1. How many utilities are expected to be encountered on this project? | **Low** ☐ 0-2 | **Med** ☐ 3-4 | **High** ☐ >4 |
| 2. Generally, for the type of work proposed, what is the probability for utility conflicts to be encountered on construction for this project? | **Low** ☐ | **Med** ☐ | **High** ☐ |
| 3. Which best describes the traffic volume (ADT) on this route? | **Low** ☐ ≤ 1500 | **Med** ☐ > 1500 and ≤ 6000 | **High** ☐ > 6000 |
| 4. How can the area where this project is proposed best be described? | **Low** ☐ Rural | **Med** ☐ Rural but Urbanizing | **High** ☐ Urban |
| 5. How would the number of parcels affected by this project, relative to the total project length, best be characterized? | **Low** ☐ Few | **Med** ☐ Average | **High** ☐ Numerous |
| 6. How often have the utility owners in this area provided timely/accurate information regarding their facilities on previous projects? | **Low** ☐ Almost Always | **Med** ☐ Occasionally | **High** ☐ Seldom |
| 7. Do you feel that the utility owners in this area will be able to accommodate the project's schedule in regards to accurately showing the location of their utility facilities on our plans (First submission)? | **Low** ☐ Pretty Confident | **Med** ☐ Unsure | **High** ☐ Doubtful |
| 8. Which best describes the utility relocation costs that are estimated for this project? | **Low** ☐ < $100,000 | **Med** ☐ > $100,000 and < $500,000 | **High** ☐ > $500,000 |
| 9. What is the probability that existing utility installations can be retained to save relocation costs on this project? | **Low** ☐ | **Med** ☐ | **High** ☐ |
| 10. Please list any other special considerations below and provide an associated utility impact rating (i.e. major energy pipelines, fiber optic cables exist within the project's limits). | **Low** ☐ | **Med** ☐ | **High** ☐ |

Version 09/17/2008.

**Double click' the chart below and manually input the total number of boxes checked for each rating. The Utility Impact Score will be automatically totaled.**

| Utility Impact Score | | | |
|---|---|---|---|
| **Total Boxes Checked:** | | | |
| **Utility Impact Score:** | | | |

**Match the Utility Impact Score from above with the corresponding Utility Impact Rating shown below and use the results to check the correct "Project's Utility Impact Rating" box on the "SUE Request Form".**

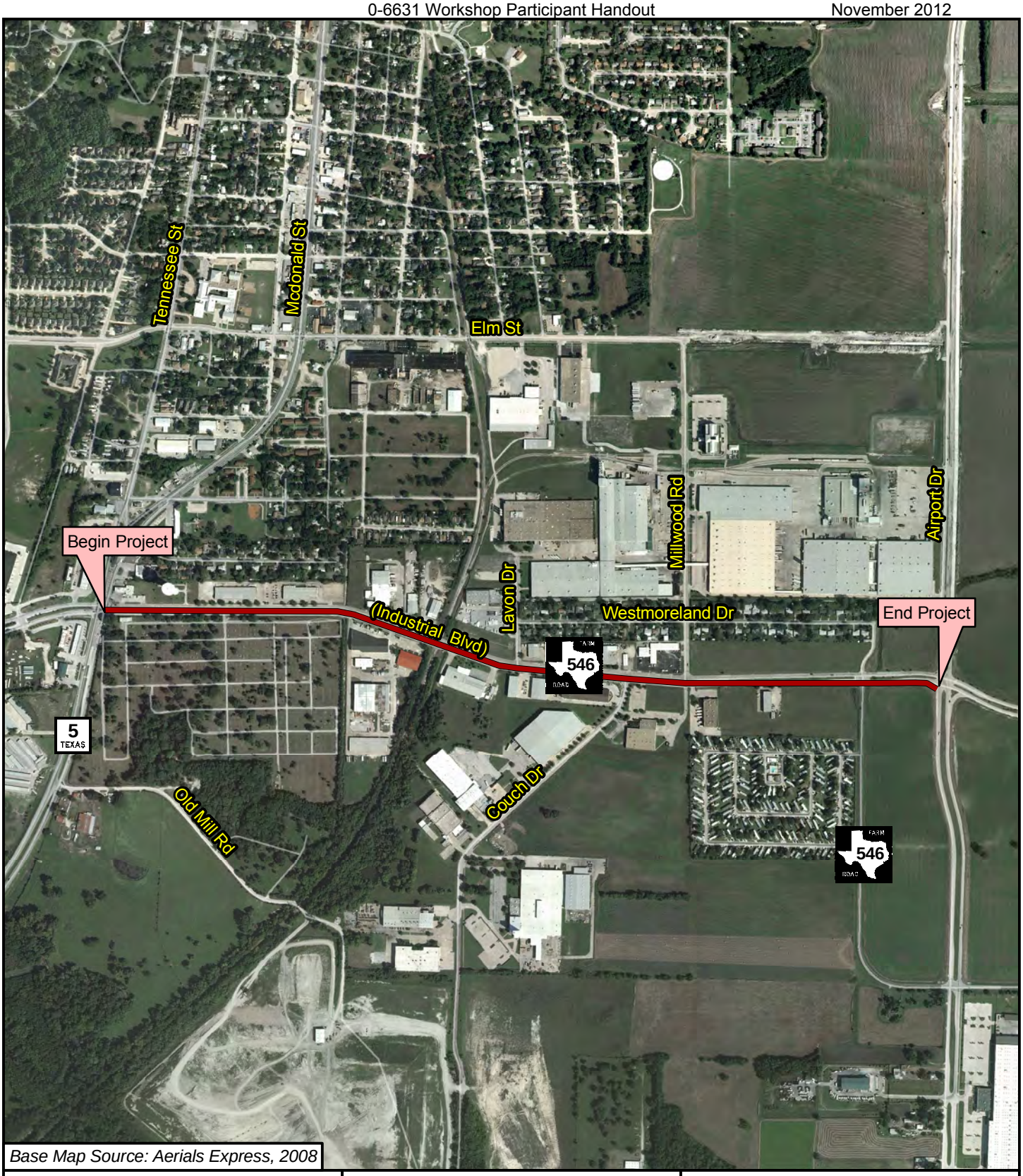
| | |
|---|---|
| **1- Low** | **Project minimally impacted by utility issues** |
| **2- Med** | **Project moderately impacted by utility issues** |
| **3- High** | **Project severely impacted by utility issues** |

[Page is intentionally blank]

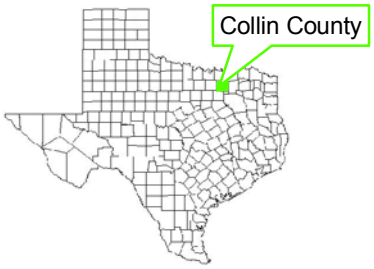
# *APPENDIX A*

## Sample Data

[Page is intentionally blank]




*Base Map Source: Aerials Express, 2008*




N
W E
S

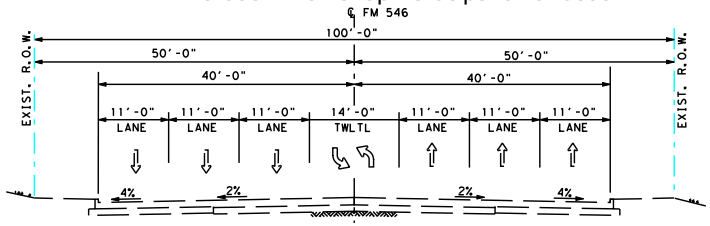
0 1,000
Feet

**FIGURE 3**
**AERIAL MAP**

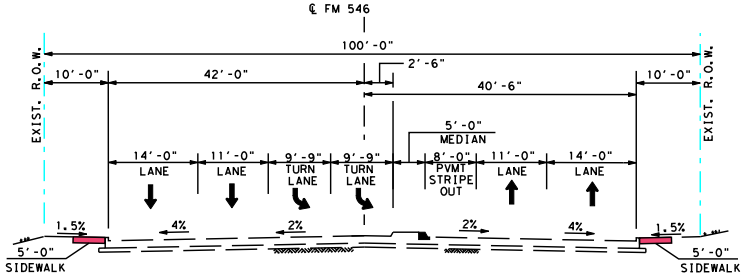
FM 546
FROM SH 5 TO AIRPORT RD

CSJ: 1013-01-025

[Page is intentionally blank]

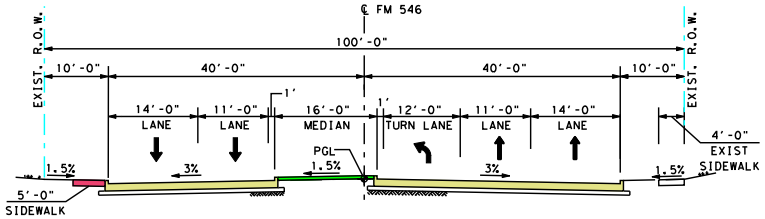



EXISTING TYPICAL SECTION W/TWLTL



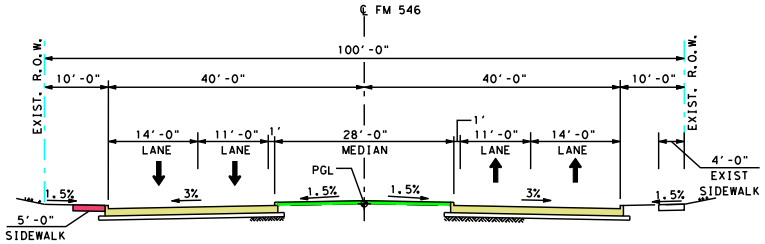

PROPOSED TYPICAL SECTION W/ 2-TURN LANE

STA 10+42.90 TO STA 12+78.60




PROPOSED TYPICAL SECTION W/ 1-TURN LANE

NOT TO SCALE



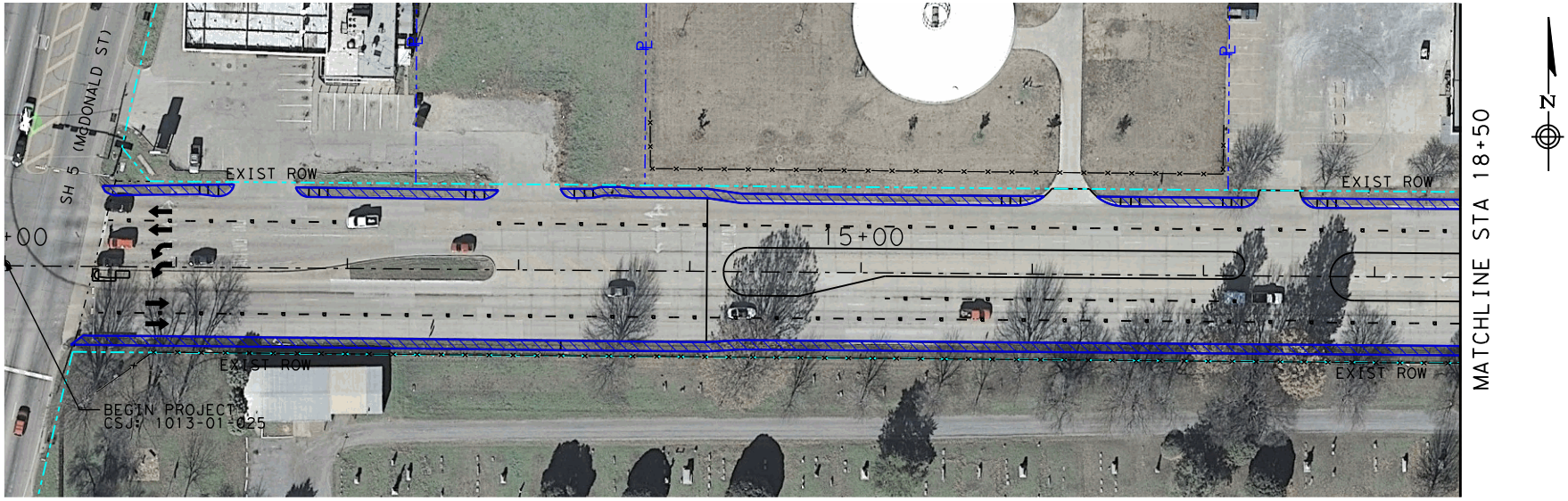

PROPOSED TYPICAL SECTION W/O TURN LANE

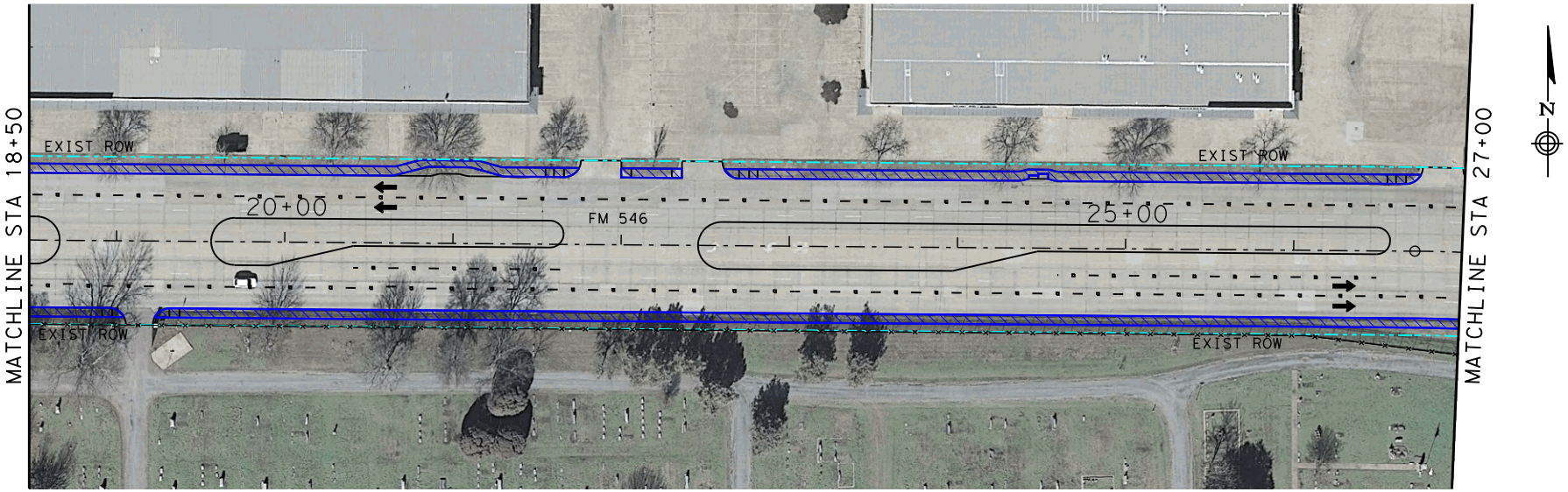
NOT TO SCALE

SOURCE: TXDOT

| | |
|---|---|
| FOR REPORT PURPOSES ONLY<br><br>Not for construction, bidding, or permit purposes. | FIGURE 4<br>TYPICAL SECTIONS<br><br>FM 546<br>FROM SH 5 TO AIRPORT RD<br>67<br>CSJ: 1013-01-025 |

[Page intentionally blank]




SOURCE: TXDOT

LEGEND

EXISTING SIDEWALK

PROPOSED SIDEWALK

0 50 100 150 200

SCALE IN FEET

FOR REPORT PURPOSES ONLY

Not for construction, bidding, or permit purposes.

FIGURE 5
PROJECT LAYOUT

FM 546
FROM SH 5 TO AIRPORT RD

CSJ: 1013-01-025

SHEET 1 OF 4

[Page intentionally blank]

| SURVEY CONTROL | | | | | |
|---|---|---|---|---|---|
| C.P. No. | NORTHING | EASTING | ELEVATION | DESC. | SHT No. |
| 21 | 7088525.32 | 2419761.72 | 538.56 | SIRTP | 8 OF 23 |
| 22 | 7089430.66 | 2419831.70 | 538.76 | SIRTP | 9 OF 23 |
| 23 | 7090454.37 | 2419904.86 | 544.62 | SIRTP | 10 OF 23 |
| 24 | 7091673.26 | 2419827.10 | 566.89 | XCUT | 11 OF 23 |
| 25 | 7092499.04 | 2419471.01 | 572.31 | SIRTP | 12 OF 23 |
| 26 | 7093426.43 | 2418919.99 | 580.80 | SIRTP | 13 OF 23 |
| 27 | 7094261.73 | 2418380.95 | 590.64 | SIRTP | 14 OF 23 |
| 28 | 7095044.57 | 2417950.23 | 596.80 | SIRTP | 15 OF 23 |
| 29 | 7096010.08 | 2417408.28 | 598.87 | SIRTP | 16 OF 23 |
| 30 | 7096866.67 | 2417000.78 | 595.76 | XCUT | 17 OF 23 |
| 31 | 7097736.46 | 2416427.84 | 587.08 | SIRTP | 18 OF 23 |
| 32 | 7098418.74 | 2415916.63 | 577.78 | SIRTP | 19 OF 23 |
| 33 | 7099295.16 | 2415159.43 | 570.72 | SIRTP | 20 OF 23 |
| 34 | 7099998.86 | 2414563.57 | 569.39 | SIRTP | 21 OF 23 |
| 35 | 7100827.59 | 2413840.87 | 585.68 | SIRTP | 22 OF 23 |

⚠ THE ATMOS ENERGY 16-INCH GAS LINE FROM STATION 1373+81 TO 1379+41 WAS LOCATED BY CRA, INC. THE ATMOS ENERGY 16-INCH GAS LINE FROM STATION 1413+25 TO 1441+05 WAS LOCATED BY ORION DIVING AND SALVAGE. HALFF ASSOCIATES EXPRESSLY DISCLAIMS RESPONSIBILITY FOR THE ACCURACY OR RELIABILITY OF THE UTILITY INFORMATION LOCATED BY OTHERS.

FIELD WORK BEGAN ON SEPTEMBER 10, 2007 AND WAS COMPLETED OCTOBER 22, 2007. HALFF ASSOCIATES EXPRESSLY DISCLAIMS RESPONSIBILITY FOR NEW UTILITY INSTALLATIONS OR MODIFICATIONS OR ADJUSTMENTS TO EXISTING UTILITIES AFTER OCTOBER 22, 2007.

ALL UTILITY INFORMATION HERE IS DEPICTED TO QUALITY LEVEL "B" UNLESS OTHERWISE NOTED.

SIZE INFORMATION SHOWN HEREON IS TAKEN FROM AVAILABLE UTILITY RECORDS:

LEVEL "B" INFORMATION OBTAINED THROUGH THE APPLICATION OF APPROPRIATE SURFACE GEOPHYSICAL METHODS TO DETERMINE THE EXISTENCE AND APPROXIMATE HORIZONTAL POSITION OF UTILITIES.

LEVEL "C" DEPICTED ACCORDING TO RECORD INFORMATION AND EXISTING ASSOCIATED UTILITY STRUCTURES. NO ELECTRONIC INFORMATION WAS OBTAINED

LEVEL "D" DEPICTED ACCORDING TO RECORD INFORMATION. NO ELECTRONIC INFORMATION WAS OBTAINED.

UNLESS OTHERWISE NOTED, UTILITY LINE LIMITS DEPICTED REPRESENT FIELD DESIGNATING LIMITS AND NOT END POINTS OF UTILITIES.

UTILITY INFORMATION LABELED LEVEL "C" OR "D" IS DERIVED FROM FURNISHED RECORDS. SUCH INFORMATION MAY NOT BE ACCURATE OR RELIABLE. HALFF ASSOCIATES EXPRESSLY DISCLAIMS RESPONSIBILITY FOR THE ACCURACY OR RELIABILITY OF UTILITY INFORMATION DEPICTED ACCORDING TO RECORDS.

LEGEND:

| LEVEL "A" | LEVEL "B" | LEVEL "C" & "D" |
|---|---|---|
| | | TEST HOLE |
| | T | TELEPHONE LINE |
| | T1 | FIBER OPTIC LINE |
| | C | CABLE TELEVISION LINE |
| | W | WATER LINE |
| | WW | WASTEWATER LINE |
| | FM | FORCE MAIN LINE |
| | G | GAS LINE |
| | E | ELECTRIC LINE |
| | | OVERHEAD UTILITY LINE |
| TEL. PED | TELEPHONE PEDESTAL | FM VLT FORCE MAIN VAULT |
| TEL. MH | TELEPHONE MANHOLE | FMVP FORCE MAIN VENT PIPE |
| TEL. CAB. | TELEPHONE CABINET | G REG GAS REGULATOR |
| TEL VLT | TELEPHONE VAULT | GM GAS METER |
| HAND HOLE | TELEPHONE HAND HOLE | GV GAS VALVE |
| HAND HOLE | FIBER OPTIC HAND HOLE | GTS GAS TEST STATION |
| F.O. MH | FIBER OPTIC MANHOLE | GMH GAS MANHOLE |
| FIBER VLT | FIBER OPTIC VAULT | GVP GAS VENT PIPE |
| CATV. PED | TELEVISION PEDESTAL | PP POWER POLE |
| FH | FIRE HYDRANT | PP/R POWER POLE W/RISER |
| WV | WATER VALVE | EB ELECTRIC BOX |
| WM | WATER METER | EMH ELECTRIC MANHOLE |
| WMH | WATER MANHOLE | EM ELECTRIC METER |
| WTR VLT | WATER VAULT | LP LIGHT POLE |
| FSC | FIRE SPRINKLER CONTROL | UTILITY CONTINUATION |
| WWMH | WASTEWATER MANHOLE | UTILITY END POINT |
| CO | WASTEWATER CLEAN OUT | ABN. ABANDONED UTILITY |
| LIFT STATION | WASTEWATER LIFT STATION | CP CONTROL POINT |
| FMV | FORCE MAIN VALVE | |

| OWNERSHIP LEGEND: | OWNER: | CONTACT: | PHONE: |
|---|---|---|---|
| TELEPHONE(T1) | = VERIZON | JOE TOMPSON | 214-869-4256 |
| TELEPHONE(T2) | = CENTURYTEL | JIM TANKERSLEY | 940-321-1945 |
| FIBER OPTIC CABLE(T3) | = AT&T | TAMPEE SANTIAGO | 214-658-1017 |
| FIBER OPTIC CABLE(T4) | = LEVEL 3 | KEN BUCKABEE | 469-426-4005 |
| FIBER OPTIC CABLE(T5) | = GRANDE COMMUNICATIONS | IKE BUTLER | 972-410-0584 |
| FIBER OPTIC CABLE(T6) | = MCI | DEAN BOYERS | 972-729-6322 |
| FIBER OPTIC CABLE(T7) | = CENTURYTEL | JIM TANKERSLEY | 940-321-1945 |
| FIBER OPTIC CABLE(T8) | = VERIZON | GLEN STEEL | 972-318-5260 |
| CABLE TELEVISION(C) | = CHARTER | JIM FRISKE | 817-922-8745 |
| CABLE TELEVISION(C1) | = TIME WARNER | MIKE RASSMUSEN | 214-320-5455 |
| WATER(W) | = CITY OF CORINTH | DON LOCKE | 940-498-3250 |
| WATER(W1) | = CITY OF DENTON | KELVIN PRYOR | 940-349-7181 |
| WATER(W2) | = CITY OF HIGHLAND VILLAGE | SCOTT KRISTON | 972-317-2989 |
| WATER(W3) | = LAKE CITIES MUNICIPAL UTILITY AUTHORITY | JEFF KNIGHT | 972-877-5692 |
| WATER(W4) | = UPPER TRINITY REGIONAL WATER DISTRICT | MIKE PARSLEY | 972-219-1228 |
| WATER(W5) | = CITY OF HICKORY CREEK | JEFFREY McSPEDDEN | 940-497-2524 |
| WASTEWATER(WW) | = CITY OF CORINTH | DON LOCKE | 940-498-3250 |
| WASTEWATER(WW1) | = CITY OF DENTON | KELVIN PRYOR | 940-349-7181 |
| WASTEWATER(WW2) | = CITY OF HIGHLAND VILLAGE | SCOTT KRISTON | 972-317-2989 |
| WASTEWATER(WW3) | = LAKE CITIES MUNICIPAL UTILITY AUTHORITY | JEFF KNIGHT | 972-877-5692 |
| WASTEWATER(WW4) | = UPPER TRINITY REGIONAL WATER DISTRICT | MIKE PARSLEY | 972-219-1228 |
| WASTEWATER(WW5) | = CITY OF HICKORY CREEK | JEFFREY McSPEDDEN | 940-497-2524 |
| FORCE MAIN(FM) | = UPPER TRINITY REGIONAL WATER DISTRICT | MIKE PARSLEY | 972-219-1228 |
| FORCE MAIN(FM1) | = LAKE CITIES MUNICIPAL UTILITY AUTHORITY | JEFF KNIGHT | 972-877-5692 |
| GAS(G) | = ATMOS ENERGY | GARY WOOLSEY | 214-206-2717 |
| ELECTRIC(E) | = ONCOR ELECTRIC DELIVERY | MARK HINDS | 940-497-7535 |
| ELECTRIC(E1) | = COSERV | LONI WOODS | 940-321-7874 |

STATE OF TEXAS
RYAN D. LEWIS
95767
LICENSED
PROFESSIONAL ENGINEER
7/2/08

| NO. | REVISION | BY | DATE |
|---|---|---|---|
| 1 | REVISED AS NOTED | HA | 7-02-08 |

HALFF
1201 NORTH BOWSER ROAD
RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200

Texas Department of Transportation
© 2008

IH 35E

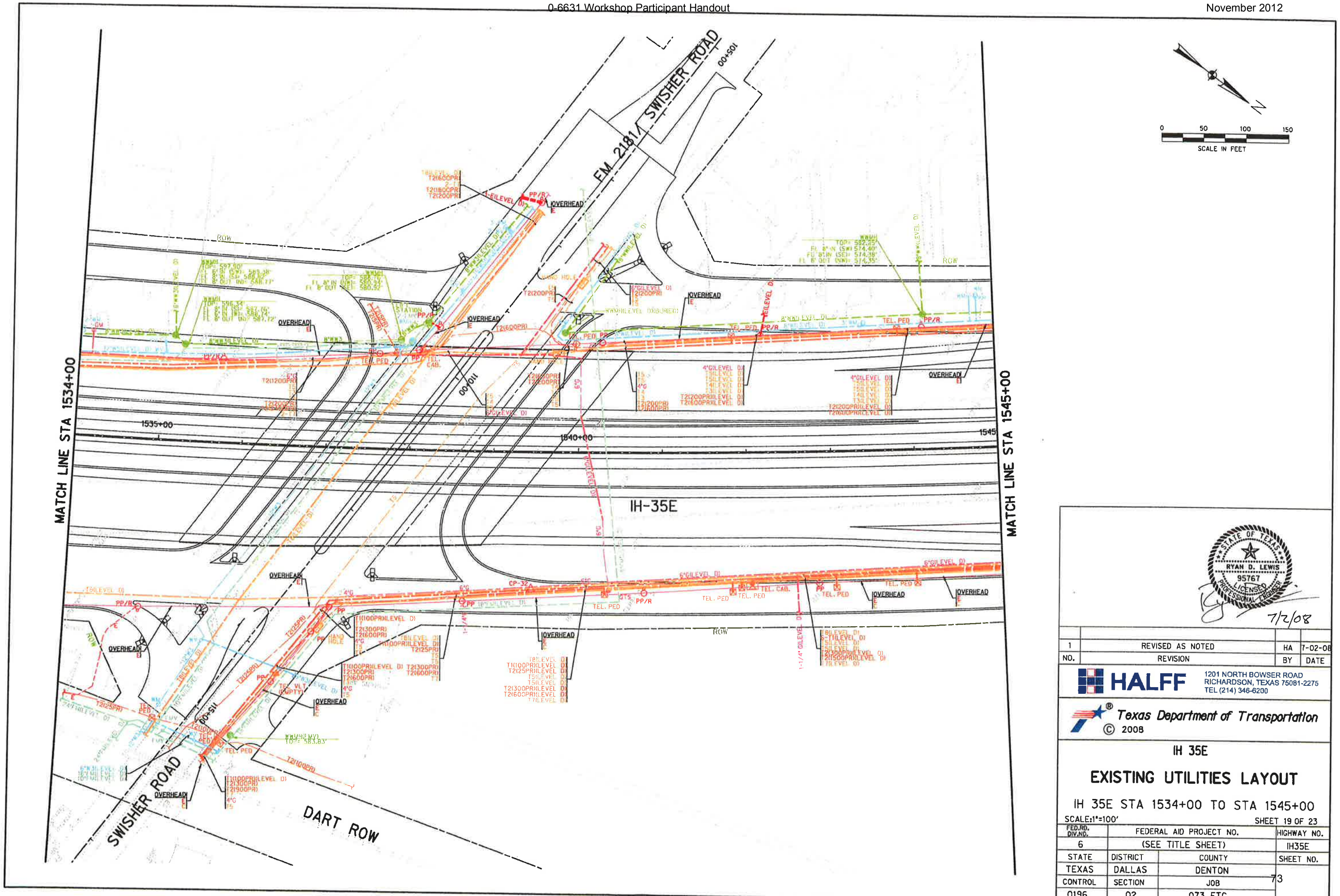
# EXISTING UTILITIES LAYOUT

## GENERAL NOTES

SCALE:1"=100' SHEET 1 OF 1

| FED.RD. DIV.NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
|---|---|---|---|
| 6 | (SEE TITLE SHEET) | | IH35E |
| STATE | DISTRICT | COUNTY | SHEET NO. |
| TEXAS | DALLAS | DENTON | 71 |
| CONTROL | SECTION | JOB | |
| 0196 | 02 | 073, ETC. | |

[Page intentionally blank]




STATE OF TEXAS
RYAN D. LEWIS
95767
LICENSED
PROFESSIONAL ENGINEER

7/2/08

| NO. | REVISION | BY | DATE |
|---|---|---|---|
| 1 | REVISED AS NOTED | HA | 7-02-08 |

HALFF
1201 NORTH BOWSER ROAD
RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200

Texas Department of Transportation
© 2008

IH 35E

# EXISTING UTILITIES LAYOUT

IH 35E STA 1534+00 TO STA 1545+00

SCALE:1"=100'

SHEET 19 OF 23

| FED.RD. DIV.NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
|---|---|---|---|
| 6 | (SEE TITLE SHEET) | | IH35E |
| STATE | DISTRICT | COUNTY | SHEET NO. |
| TEXAS | DALLAS | DENTON | 73 |
| CONTROL | SECTION | JOB | |
| 0196 | 02 | 073, ETC. | |

[Page intentionally blank]

# *APPENDIX B*

## Texas Utilities Code: Underground Facility Damage and Safety (One Call Law)

Note: The following is a copy of Title 5, Section 251 of the Texas Utilities Code, downloaded July 1st, 2012. For an up-to-date version check the Texas Constitution and Statutes website at

http://www.statutes.legis.state.tx.us

[Page is intentionally blank]

UTILITIES CODE

TITLE 5. PROVISIONS AFFECTING THE OPERATION OF UTILITY FACILITIES

CHAPTER 251. UNDERGROUND FACILITY DAMAGE PREVENTION AND SAFETY

SUBCHAPTER A. GENERAL PROVISIONS

Sec. 251.001. SHORT TITLE. This chapter may be cited as the Underground Facility Damage Prevention and Safety Act.

Added by Acts 1999, 76th Leg., ch. 62, Sec. 18.17(a), eff. Sept. 1, 1999.

Sec. 251.002. DEFINITIONS. In this chapter:

(1) "Class A underground facility" means an underground facility that is used to produce, store, convey, transmit, or distribute:

(A) electrical energy;

(B) natural or synthetic gas;

(C) petroleum or petroleum products;

(D) steam;

(E) any form of telecommunications service, including voice, data, video, or optical transmission, or cable television service; or

(F) any other liquid, material, or product not defined as a Class B underground facility.

(2) "Class B underground facility" means an underground facility that is used to produce, store, convey, transmit, or distribute:

(A) water;

(B) slurry; or

(C) sewage.

(3) "Corporation" means the Texas Underground Facility Notification Corporation.

(4) "Damage" means:

(A) the defacing, scraping, displacement, penetration, destruction, or partial or complete severance of an underground facility or of any protective coating, housing, or other protective device of an underground facility;

(B) the weakening of structural or lateral support of an underground facility; or

(C) the failure to properly replace the backfill covering an underground facility.

(5) "Excavate" means to use explosives or a motor, engine, hydraulic or pneumatically powered tool, or other mechanized equipment of any kind and includes auguring, backfilling, boring, compressing, digging, ditching, drilling, dragging, dredging, grading, mechanical probing, plowing-in,

pulling-in, ripping, scraping, trenching, and tunneling to remove or otherwise disturb soil to a depth of 16 or more inches.

(6) "Excavator" means a person that excavates or intends to excavate in this state.

(7) "Exploration and production underground facility" means an underground facility used by a person producing gas or oil, or both, for the production of that gas or oil, including facilities used for field separation, treatment, gathering, or storage of gas or oil.

(8) "High speed data transmission" means a method of data transmission that does not include facsimile or voice transmission.

(9) "Legal holiday" means a holiday specified as a legal holiday by Subchapter B, Chapter 662, Government Code.

(10) "Mechanized equipment" means equipment operated by mechanical power, including a trencher, bulldozer, power shovel, auger, backhoe, scraper, drill, cable or pipe plow, and other equipment used to plow in or pull in cable or pipe.

(11) "Operator" means a person that operates an underground facility.

(12) "Secured facility" means a parcel of land used for commercial or industrial purposes that is surrounded entirely by a fence or other means of preventing access, including a fence with one or more gates that are locked at all times or monitored by an individual who can prevent unauthorized access.

(13) "Underground facility" means a line, cable, pipeline system, conduit, or structure that is located partially or totally underground and that is used to produce, store, convey, transmit, or distribute telecommunications, electricity, gas, water, sewage, steam, or liquids such as petroleum, petroleum products, or hazardous liquids.

(14) "Saturday notification" means a notice of intent to excavate provided by an excavator to a notification center on a Saturday before 11:59 a.m.

(15) "Violation" means a violation of Section 251.151, 251.152, or 251.159.

Added by Acts 1999, 76th Leg., ch. 62, Sec. 18.17(a), eff. Sept. 1, 1999.

Sec. 251.003. EXEMPTIONS. The following are not subject to this chapter as underground facilities:

(1) an aboveground or underground storage tank, sump, or impoundment or piping connected to an aboveground or underground storage tank, sump, or impoundment located in the same tract of land as the storage tank, sump, or impoundment;

(2) an underground facility operated by the owner of a secured facility and located entirely within the secured facility;

(3) an underground facility that serves only the owner of the underground facility or the owner's tenant and that is located solely on the owner's property;

(4) piping within a well bore;

(5) the portion of an exploration and production underground facility that is located within the boundaries of the oil or gas field from which the oil and gas is produced and that is not located in the boundaries of an established easement or right-of-way granted for the benefit of a governmental entity or a private entity if the easement or right-of-way is granted for a public purpose; or

(6) an underground facility that serves a cemetery and is located solely on the cemetery's property.

Added by Acts 1999, 76th Leg., ch. 62, Sec. 18.17(a), eff. Sept. 1, 1999.

Sec. 251.004. APPLICATION TO CERTAIN CONTRACTORS AND STATE EMPLOYEES. (a) This chapter does not apply to a contractor working in the public right-of-way under a contract with the Texas Department of Transportation.

(b) Excavation by an employee of the Texas Department of Transportation on a segment of the state highway system is not subject to this chapter if the excavation is more than 10 feet from the right-of-way line.

Added by Acts 1999, 76th Leg., ch. 62, Sec. 18.17(a), eff. Sept. 1, 1999.
Amended by Acts 2003, 78th Leg., ch. 1276, Sec. 17.004(a), eff. Sept. 1, 2003.

Sec. 251.005. CONVERSION OF FACILITY OR OPERATOR. (a) An operator of an underground facility that is exempted under this subchapter may voluntarily convert that facility to a Class A underground facility by sending written communication from a competent authority of the operator to the corporation advising of the status change.

(b) An operator of a Class B underground facility may voluntarily convert to a Class A underground facility operator by sending written communication from a competent authority of the operator to the corporation advising of the status change.

Added by Acts 1999, 76th Leg., ch. 62, Sec. 18.17(a), eff. Sept. 1, 1999.

Sec. 251.006. COMPLIANCE BY PERMIT HOLDERS. (a) The fact that a person has a legal permit, permission from the owner of the property or the owner's licensee, or an easement to conduct excavation operations does not affect the person's duty to comply with this chapter.

(b) Compliance with this chapter does not affect a person's responsibility to obtain a permit required by law.

Added by Acts 1999, 76th Leg., ch. 62, Sec. 18.17(a), eff. Sept. 1, 1999.

Sec. 251.007. FACILITY ON COUNTY OR MUNICIPAL ROAD. This chapter does not affect a contractual or statutory right of a county or municipality to

require an operator to relocate, replace, or repair its underground facility.

Added by Acts 1999, 76th Leg., ch. 62, Sec. 18.17(a), eff. Sept. 1, 1999.

Sec. 251.008. EFFECT ON CIVIL REMEDIES. Except as otherwise specifically provided by this chapter, this chapter, including Section 251.201, does not affect any civil remedy for personal injury or for property damage, including any damage to an underground facility.

Added by Acts 1999, 76th Leg., ch. 62, Sec. 18.17(a), eff. Sept. 1, 1999.

Sec. 251.009. PROVISION OF GENERAL INFORMATION. At least once each calendar year, at intervals not exceeding 15 months, each Class A underground facility operator who conveys, transmits, or distributes by means of its underground facilities service directly to more than one million residential customers within this state shall provide all of its residential customers in this state general information about excavation activities covered by this chapter and the statewide toll-free telephone number established by the corporation.

Added by Acts 1999, 76th Leg., ch. 62, Sec. 18.17(a), eff. Sept. 1, 1999.

SUBCHAPTER B. TEXAS UNDERGROUND FACILITY NOTIFICATION CORPORATION

Sec. 251.051. PURPOSE. The Texas Underground Facility Notification Corporation provides statewide notification services under this chapter.

Added by Acts 1999, 76th Leg., ch. 62, Sec. 18.17(a), eff. Sept. 1, 1999.

Sec. 251.052. NONPROFIT CORPORATION. The corporation is a public nonprofit corporation and has all the powers and duties incident to a nonprofit corporation under the Texas Non-Profit Corporation Act (Article 1396-1.01 et seq., Vernon's Texas Civil Statutes), except that the corporation:

(1) may not make donations for the public welfare or for charitable, scientific, or educational purposes or in aid of war activities;

(2) may not merge or consolidate with another corporation;

(3) is not subject to voluntary or involuntary dissolution; and

(4) may not be placed in receivership.

Added by Acts 1999, 76th Leg., ch. 62, Sec. 18.17(a), eff. Sept. 1, 1999.

Sec. 251.053. APPLICATION OF OPEN MEETINGS AND OPEN RECORDS LAWS. The corporation is subject to Chapters 551 and 552, Government Code, except that the corporation may not disseminate, make available, or otherwise distribute service area map data or information provided by an operator unless that

action is necessary to perform the corporation's specific obligations under this chapter.

Added by Acts 1999, 76th Leg., ch. 62, Sec. 18.17(a), eff. Sept. 1, 1999.

Sec. 251.054. EXPENSES AND LIABILITIES OF CORPORATION. (a) All expenses of the corporation shall be paid from income of the corporation.

(b) A liability created by the corporation is not a debt of this state, and the corporation may not secure a liability with funds or assets of this state.

Added by Acts 1999, 76th Leg., ch. 62, Sec. 18.17(a), eff. Sept. 1, 1999.

Sec. 251.055. BOARD OF DIRECTORS. (a) The board of directors of the corporation is composed of the following 12 members appointed by the governor:

(1) six representatives of the general public;

(2) one representative of the gas industry;

(3) one representative of the telecommunications industry;

(4) one representative of the electric industry;

(5) one representative of cable television companies;

(6) one representative of municipalities; and

(7) one representative of persons who engage in excavation operations who are not also facility operators.

(b) Board membership is voluntary and a director is not entitled to receive compensation for serving on the board.

Added by Acts 1999, 76th Leg., ch. 62, Sec. 18.17(a), eff. Sept. 1, 1999.

Sec. 251.056. TERMS. (a) Directors serve staggered three-year terms, with the terms of four directors expiring each August 31.

(b) A director serves until the director's successor is appointed by the governor and assumes office.

Added by Acts 1999, 76th Leg., ch. 62, Sec. 18.17(a), eff. Sept. 1, 1999.

Sec. 251.057. DECLARATION OF BOARD VACANCY. (a) The board may declare a director's office vacant if the director ceases to be associated with the industry or an operator the director represents.

(b) Not later than the 60th day after the date a vacancy on the board is declared, the governor shall appoint a person to fill the vacancy for the remainder of the unexpired term.

Added by Acts 1999, 76th Leg., ch. 62, Sec. 18.17(a), eff. Sept. 1, 1999.

Sec. 251.058. OFFICERS. (a) The board shall elect from among its

directors a chair and vice chair.

(b) The chair and vice chair serve for a term of one year and may be reelected.

Added by Acts 1999, 76th Leg., ch. 62, Sec. 18.17(a), eff. Sept. 1, 1999.

Sec. 251.059. ENTITLEMENT TO VOTE. The corporation's bylaws must provide that each director is entitled to one vote.

Added by Acts 1999, 76th Leg., ch. 62, Sec. 18.17(a), eff. Sept. 1, 1999.

Sec. 251.060. DUTIES OF CORPORATION. The corporation shall develop and implement processes to:

(1) maintain a registration of:

(A) notification centers as provided by Section 251.101(a)(3);

(B) operators who elect to convert facilities to Class A facilities under Section 251.005(a); or

(C) operators who elect to become Class A underground facility operators under Section 251.005(b);

(2) establish minimum technical standards used by notification centers;

(3) establish a statewide toll-free telephone number to be used by excavators that incorporates the use of a call router system that routes calls to the notification centers on a pro rata basis;

(4) oversee the bid process and select the vendor for the statewide toll-free telephone number;

(5) oversee the bid process and select the vendor for the call router system;

(6) determine before May 1 of each year the cost-sharing between the notification centers of:

(A) the toll-free telephone number; and

(B) the call router system prescribed by Section 251.102(4);

(7) develop public service announcements to educate the public about statewide one-call notification and its availability;

(8) establish a format for information transfer among notification centers other than high speed data transmission, if appropriate;

(9) on a complaint concerning charges, investigate and determine appropriate charges;

(10) recommend a civil penalty against a notification center that does not meet the requirements of this chapter of not less than $1,000 or more than $5,000 for each violation;

(11) refer the recommended penalty to the attorney general, who shall institute a suit in a court of competent jurisdiction to recover the penalty;

(12) assist in dispute resolution among notification centers or

between a notification center and an operator;

(13) assist any operator who encounters difficulty in joining a notification center; and

(14) review and study design standards for the placement of underground facilities throughout this state.

Added by Acts 1999, 76th Leg., ch. 62, Sec. 18.17(a), eff. Sept. 1, 1999.

Sec. 251.061. CONTRACT FOR STATEWIDE TOLL-FREE NUMBER AND CALL ROUTER SYSTEM. (a) The corporation shall solicit proposals for the contract to establish and operate the statewide toll-free telephone number and the call router system by using a request for proposals process that includes specifications that have been approved by the board of directors in accordance with this chapter.

(b) The corporation is not required to award the contract to the lowest offeror if the terms of another proposal would result in a lower annual cost and are more advantageous to the corporation and its members. The corporation may reject all proposals if the corporation finds that none of the proposals is acceptable.

(c) After the proposals are opened, each document relating to the consideration of a proposal or the award of a contract and the text of the contract are considered books and records of the corporation for the purposes of Article 2.23, Texas Non-Profit Corporation Act (Article 1396-2.23, Vernon's Texas Civil Statutes).

Added by Acts 1999, 76th Leg., ch. 62, Sec. 18.17(a), eff. Sept. 1, 1999.

Sec. 251.062. FEES AND RATES. (a) Except as provided by this section, the corporation may not, for any reason, impose an assessment, fee, or other charge, including a charge for inputting data, against an operator.

(b) Before January 15 of each year, a Class A facility operator shall pay to the corporation a fee of $50 for services to be performed by the corporation during that calendar year. A fee for a part of a year may not be prorated.

Added by Acts 1999, 76th Leg., ch. 62, Sec. 18.17(a), eff. Sept. 1, 1999.

SUBCHAPTER C. NOTIFICATION CENTERS

Sec. 251.101. NOTIFICATION CENTER. (a) A notification center is a legal entity that:

(1) operates a notification system capable of serving excavators and operators statewide;

(2) is created to:

(A) receive notification of an intent to excavate and of damage

to an underground facility and disseminate that information to member operators that may be affected by the excavation or damage and to other notification centers operating in this state; and

(B) receive notification of an extraordinary circumstance and disseminate that information to member operators and to other notification centers operating in this state; and

(3) registers the following information with the corporation:

(A) its name, address, and telephone number;

(B) the name of a contact person;

(C) a statement of compliance with Section 251.104; and

(D) a listing of the counties in which it operates.

(b) A notification center operating on September 1, 1997, may continue to operate if the notification center complies with this chapter.

Added by Acts 1999, 76th Leg., ch. 62, Sec. 18.17(a), eff. Sept. 1, 1999.

Sec. 251.102. GENERAL DUTIES OF NOTIFICATION CENTER. A notification center shall:

(1) operate 24 hours a day every day of the year;

(2) have the capability to receive emergency information 24 hours a day from excavators and disseminate the information as soon as it is received to the appropriate operators and to all registered and affected notification centers operating in this state;

(3) have the capacity to receive extraordinary circumstance information 24 hours a day from operators and disseminate the information as soon as it is received to all registered and affected notification centers;

(4) submit to the corporation, not later than May 15 of each year, a pro rata share of the expense, as established by the corporation, of the statewide toll-free telephone number and the call router;

(5) provide, on request of an excavator, a contact name and telephone number of a representative of the operator for special circumstances; and

(6) have personnel capable of assisting Spanish-speaking customers.

Added by Acts 1999, 76th Leg., ch. 62, Sec. 18.17(a), eff. Sept. 1, 1999.

Sec. 251.103. RECORDS. (a) A notification center shall maintain for not less than four years a record to document:

(1) the receipt of a notice of:

(A) intent to excavate;

(B) damage to an underground facility;

(C) an emergency excavation; and

(D) an extraordinary circumstance;

(2) the information the excavator is required to provide to the notification center under this chapter;

(3) contact with operators and other notification centers; and

(4) the information the notification center provided to the excavator.

(b) A notification center may not destroy records that relate to any matter that is involved in litigation if the notification center is placed on notice that the litigation has not been finally resolved.

Added by Acts 1999, 76th Leg., ch. 62, Sec. 18.17(a), eff. Sept. 1, 1999.

Sec. 251.104. INSURANCE. A notification center shall, at all times, maintain a minimum of $5 million professional liability and errors and omissions insurance to cover duties prescribed by this chapter.

Added by Acts 1999, 76th Leg., ch. 62, Sec. 18.17(a), eff. Sept. 1, 1999.

Sec. 251.105. FEES AND CHARGES. (a) A notification center that notifies another notification center under Section 251.102(2) or (3) or Section 251.153(b) shall recover an amount not exceeding the actual cost of providing the notice from the notification center receiving the notice.

(b) The notification center shall charge a Class A underground facility operator not more than $1.25 for a call made to the system that affects the operator. The board may increase or decrease the maximum charge only on an affirmative vote of at least two-thirds of the total number of votes entitled to be cast. A notification center may petition the corporation for an increase in the maximum charge and is entitled to the increase on proof that costs exceed the maximum charge.

(c) The notification center may not charge an operator any additional fee such as an initiation fee, a membership fee, or a set-up fee.

Added by Acts 1999, 76th Leg., ch. 62, Sec. 18.17(a), eff. Sept. 1, 1999.

Sec. 251.106. PAYMENTS TO CORPORATION. Each time a notification center receives a call from an excavator under Section 251.151, the notification center shall pay the corporation five cents. The corporation shall waive this charge for the remainder of any year in which the corporation receives $250,000 under this section.

Added by Acts 1999, 76th Leg., ch. 62, Sec. 18.17(a), eff. Sept. 1, 1999.
Amended by Acts 2001, 77th Leg., ch. 652, Sec. 1, eff. Sept. 1, 2001.

Sec. 251.107. DUTY TO PARTICIPATE IN NOTIFICATION CENTER. (a) Each operator of a Class A underground facility, including a political subdivision of this state, shall participate in a notification center as a condition of doing business in this state.

(b) Each operator of a Class A underground facility shall provide to the

notification center:

(1) maps or grid locations or other identifiers determined by the operator indicating the location of the operator's underground facilities;

(2) the name and telephone number of a contact person or persons; and

(3) at least quarterly but, if possible, as those changes occur, information relating to each change in the operator's maps or grid locations or other identifiers or in the person or persons designated as the operator's contact person or persons.

(c) The notification center may not require an operator to conduct a survey of the operator's underground facilities or alter the operator's existing signage.

(d) A notification center may not disseminate, make available, or otherwise distribute maps or information provided by an operator unless that action is necessary to perform the notification center's specific obligations under this chapter.

Added by Acts 1999, 76th Leg., ch. 62, Sec. 18.17(a), eff. Sept. 1, 1999.

SUBCHAPTER D. REQUIREMENTS RELATING TO EXCAVATION

Sec. 251.151. DUTY OF AN EXCAVATOR. (a) Except as provided by Sections 251.155 and 251.156, a person who intends to excavate shall notify a notification center not earlier than the 14th day before the date the excavation is to begin or later than the 48th hour before the time the excavation is to begin, excluding Saturdays, Sundays, and legal holidays.

(b) Notwithstanding Subsection (a), if an excavator makes a Saturday notification, the excavator may begin the excavation the following Tuesday at 11:59 a.m. unless the intervening Monday is a holiday. If the intervening Monday is a holiday, the excavator may begin the excavation the following Wednesday at 11:59 a.m.

(c) To have a representative present during the excavation, the operator shall contact the excavator and advise the excavator of the operator's intent to be present during excavation and confirm the start time of the excavation. If the excavator wants to change the start time, the excavator shall notify the operator to set a mutually agreed-to time to begin the excavation.

Added by Acts 1999, 76th Leg., ch. 62, Sec. 18.17(a), eff. Sept. 1, 1999.

Sec. 251.152. INFORMATION INCLUDED IN NOTICE. The excavator shall include in the notice required under Section 251.151:

(1) the name of the person serving the notice;

(2) the location of the proposed area of excavation, including:

(A) the street address, if available, and the location of the excavation at the street address; or

(B) if there is no street address, an accurate description of the excavation area using any available designations such as the closest street, road, or intersection;

(3) the name, address, and telephone number of the excavator or the excavator's company;

(4) the excavator's field telephone number, if one is available;

(5) a telephone facsimile number, e-mail address, or another electronic number or address approved by the board to which an operator may send the notification required by Section 251.157(d);

(6) the starting date and time and the anticipated completion date of excavation; and

(7) a statement as to whether explosives will be used.

Added by Acts 1999, 76th Leg., ch. 62, Sec. 18.17(a), eff. Sept. 1, 1999.
Amended by Acts 2001, 77th Leg., ch. 858, Sec. 1, eff. Nov. 1, 2001.

Sec. 251.153. DUTY OF NOTIFICATION CENTER. (a) At the time an excavator provides a notification center with the excavator's intent to excavate, the notification center shall advise the excavator that water, slurry, and sewage underground facilities in the area of the proposed excavation may not receive information concerning the excavator's proposed excavation.

(b) Not later than two hours after the time the notification center receives a notice of intent to excavate from an excavator, the notification center shall provide to every other affected notification center operating in this state the information required by Section 251.152 and received from the excavator. The notification center shall provide the information by the use of high speed data transmission.

(c) Not later than two hours after the time the notification center receives a notice of intent to excavate from an excavator or from a different notification center, the notification center shall notify each member operator that may have an underground facility in the vicinity of the proposed excavation operation.

Added by Acts 1999, 76th Leg., ch. 62, Sec. 18.17(a), eff. Sept. 1, 1999.

Sec. 251.154. NOTIFICATION BY AN EXCAVATOR. (a) A person required to provide notice under this chapter is considered to have provided the notice when the person delivers the required information and a notification center receives that information within the time limits prescribed by this chapter.

(b) A person may deliver information required under this chapter by any appropriate method, including the use of any electronic means of data transfer.

Added by Acts 1999, 76th Leg., ch. 62, Sec. 18.17(a), eff. Sept. 1, 1999.

Sec. 251.155. EXCEPTION IN CASE OF EMERGENCY; OFFENSE. (a) Section 251.151 does not apply to an emergency excavation that is necessary to respond to a situation that endangers life, health, or property or a situation in which the public need for uninterrupted service and immediate reestablishment of service if service is interrupted compels immediate action.

(b) The excavator may begin emergency excavation under Subsection (a) immediately and shall take reasonable care to protect underground facilities.

(c) When an emergency exists, the excavator shall notify a notification center as promptly as practicably possible.

(d) An excavator may not misrepresent a fact or circumstance used in the determination of an emergency excavation under Subsection (a). A person that violates this subsection is subject to a penalty under:

(1) Section 251.201;

(2) Section 251.203; or

(3) both Section 251.201 and Section 251.203.

Added by Acts 1999, 76th Leg., ch. 62, Sec. 18.17(a), eff. Sept. 1, 1999.
Amended by:

Acts 2011, 82nd Leg., R.S., Ch. 184, Sec. 1, eff. September 1, 2011.

Sec. 251.156. OTHER EXCEPTIONS TO DUTY OF EXCAVATORS. (a) Section 251.151 does not apply to:

(1) interment operations of a cemetery;

(2) operations at a secured facility if:

(A) the excavator operates each underground facility at the secured facility, other than those within a third-party underground facility easement or right-of-way; and

(B) the excavation activity is not within a third-party underground facility or right-of-way;

(3) routine railroad maintenance within 15 feet of either side of the midline of the track if the maintenance will not disturb the ground at a depth of more than 18 inches;

(4) activities performed on private property in connection with agricultural operations;

(5) operations associated with the exploration or production of oil or gas if the operations are not conducted within an underground facility easement or right-of-way;

(6) excavations by or for a person that:

(A) owns, leases, or owns a mineral leasehold interest in the real property on which the excavation occurs; and

(B) operates all underground facilities located at the excavation site; or

(7) routine maintenance by a county employee on a county road right-of-way to a depth of not more than 24 inches.

(b) If a person excepted under Subsection (a)(4) elects to comply with

this chapter and the operator fails to comply with this chapter, the person is not liable to the underground facility owner for damages to the underground facility.

(c) In this section:

(1) "Agricultural operations" means activities performed on land and described by Section 23.51(2), Tax Code.

(2) "Routine maintenance" means operations, not to exceed 24 inches in depth, within a road or drainage ditch involving grading and removal or replacement of pavement and structures.

Added by Acts 1999, 76th Leg., ch. 62, Sec. 18.17(a), eff. Sept. 1, 1999.

Sec. 251.157. DUTY OF OPERATOR TO PERSON EXCAVATING. (a) Each Class A underground facility operator contacted by the notification system shall mark the approximate location of its underground facilities at or near the site of the proposed excavation if the operator believes that marking the location is necessary. The operator shall mark the location not later than:

(1) the 48th hour after the time the excavator gives to the notification system notice of intent to excavate, excluding Saturdays, Sundays, and legal holidays;

(2) 11:59 a.m. on the Tuesday following a Saturday notification unless the intervening Monday is a holiday;

(3) 11:59 a.m. on the Wednesday following a Saturday notification if the intervening Monday is a holiday; or

(4) a time agreed to by the operator and the excavator.

(b) An operator shall refer to the American Public Works Association color coding standards when marking.

(c) An excavator who has fully complied with this chapter may not be liable for damage to an underground facility that was not marked in accordance with this chapter.

(d) Not later than the 48th hour after the time the excavator gives to the notification center notice of intent to excavate, an operator contacted by the notification center shall notify the excavator of the operator's plans to not mark the proximate location of an underground facility at or near the site of the proposed excavation. The operator must provide the notification by e-mail or facsimile or by another verifiable electronic method approved by the board.

Added by Acts 1999, 76th Leg., ch. 62, Sec. 18.17(a), eff. Sept. 1, 1999.
Amended by Acts 2001, 77th Leg., ch. 858, Sec. 2, eff. Nov. 1, 2001.

Sec. 251.158. DUTY OF OPERATOR IN EVENT OF AN EXTRAORDINARY CIRCUMSTANCE. (a) The deadline prescribed by Section 251.157(a) does not apply if the operator experiences an extraordinary circumstance due to an act of God, including a tornado, a hurricane, an ice storm, or a severe flood, or

a war, riot, work stoppage, or strike that limits personnel or resources needed to fulfill the operator's obligations under this chapter.

(b) The operator shall notify a notification center of the extraordinary circumstance and shall include in the notification:

(1) the nature and location of the extraordinary circumstance;

(2) the expected duration of the situation and the approximate time at which the operator will be able to resume location request activities; and

(3) the name and telephone number of the individual that the notification system can contact if there is an emergency that requires the operator's immediate attention.

(c) In addition to the notification required by Subsection (b), the operator shall also notify each excavator that has a pending location request in the location where an extraordinary circumstance is being experienced and shall include in the notification:

(1) the fact that the operator is experiencing an extraordinary circumstance; and

(2) the approximate time at which the operator will mark the requested location.

(d) A notification center shall inform each excavator notifying the system under Section 251.151 that the operator's location request activities are suspended until the extraordinary circumstance has discontinued or has been corrected within the affected location.

(e) An excavator is relieved from all provisions of this chapter until the operator notifies the notification center that the operator has resumed location request activities within the affected location.

Added by Acts 1999, 76th Leg., ch. 62, Sec. 18.17(a), eff. Sept. 1, 1999.

Sec. 251.159. EXCAVATION DAMAGE. (a) If an excavation operation results in damage to an underground facility, the excavator shall immediately contact the underground facility operator to report the damage.

(b) If the excavator is not certain of the operator's identity, the excavator shall contact a notification center to report the damage, and the notification center shall immediately notify all other affected notification centers. Immediately on receiving notification, each notification center shall contact each member operator that has underground facilities in or near the area in which the damage occurred.

(c) Only the operator or a person authorized by the operator may perform repairs, and the repairs must be made in an expeditious manner.

(d) An excavator shall delay backfilling in the immediate area of the damage until the damage is reported to the operator and a repair schedule is mutually agreed to by the excavator and the operator.

(e) If damage endangers life, health, or property because of the presence of flammable material, the excavator shall keep sources of ignition away.

Added by Acts 1999, 76th Leg., ch. 62, Sec. 18.17(a), eff. Sept. 1, 1999.

SUBCHAPTER E. PENALTIES

Sec. 251.201. CIVIL PENALTY OR WARNING LETTER. (a) An excavator that violates Section 251.151, 251.152, or 251.159 is liable for a civil penalty of not less than $500 or more than $1,000. If a county attorney or district attorney decides not to bring an action to recover the civil penalty, the board of directors of the corporation may, in accordance with Section 251.2011, give the excavator a warning letter and require the excavator to attend a safety training course approved by the board. The county attorney or district attorney shall notify the board of its decision.

(a-1) An excavator that violates Section 251.155(d) is liable for a civil penalty of not less than $1,000 or more than $2,000. If a county attorney or district attorney decides not to bring an action to recover the civil penalty, the board of directors of the corporation may, in accordance with Section 251.2011, give the excavator a warning letter and require the excavator to attend a safety training course approved by the board. The county attorney or district attorney shall notify the board of its decision.

(b) Except as provided by Subsection (b-1), if it is found at the trial on a civil penalty that the excavator has violated this chapter and has been assessed a penalty under this section or has received a warning letter from the board one other time before the first anniversary of the date of the most recent violation, the excavator is liable for a civil penalty of not less than $1,000 or more than $2,000.

(b-1) If it is found at the trial on a civil penalty that the excavator has violated Section 251.155(d) and has been assessed a penalty under this section or has received a warning letter from the board one other time before the first anniversary of the date of the most recent violation, the excavator is liable for a civil penalty of not less than $2,000 or more than $5,000.

(c) Except as provided by Subsection (c-1), if it is found at the trial on a civil penalty that the excavator has violated this chapter and has been assessed a penalty under this section at least two other times before the first anniversary of the date of the most recent violation, or has been assessed a penalty at least one other time before the first anniversary of the date of the most recent violation and has received a warning letter from the board during that period, the excavator is liable for a civil penalty of not less than $2,000 or more than $5,000.

(c-1) If it is found at the trial on a civil penalty that the excavator has violated Section 251.155(d) and has been assessed a penalty under this section at least two other times before the first anniversary of the date of the most recent violation, or has been assessed a penalty at least one other time before the first anniversary of the date of the most recent violation and has received a warning letter from the board during that period, the excavator

is liable for a civil penalty of not less than $5,000 or more than $10,000.

(d) In assessing the civil penalty the court shall consider the actual damage to the facility, the effect of the excavator's actions on the public health and safety, whether the violation was a wilful act, and any good faith of the excavator in attempting to achieve compliance.

(e) Venue for a proceeding to collect a civil penalty under this section is in the county in which:

(1) all or part of the alleged violation occurred;

(2) the defendant has its principal place of business in this state; or

(3) the defendant resides, if in this state.

(f) The appropriate county attorney or criminal district attorney shall bring the action to recover the civil penalty.

(g) This section does not apply to a residential property owner excavating on the property owner's own residential lot.

Added by Acts 1999, 76th Leg., ch. 62, Sec. 18.17(a), eff. Sept. 1, 1999.
Amended by Acts 2001, 77th Leg., ch. 652, Sec. 2, eff. Sept. 1, 2001.
Amended by:

Acts 2011, 82nd Leg., R.S., Ch. 184, Sec. 2, eff. September 1, 2011.

Sec. 251.2011. WARNING LETTER AND SAFETY TRAINING COURSE. (a) The board of directors of the corporation shall establish a procedure to ensure that the board verifies that an excavator has violated Section 251.151, 251.152, or 251.159 before giving the excavator a warning letter and requiring the excavator to attend a safety training course under Section 251.201.

(b) The board shall solicit and consider advice and recommendations from excavators in establishing or approving a safety training course that an excavator may be required to attend under Section 251.201.

Added by Acts 2001, 77th Leg., ch. 652, Sec. 3, eff. Sept. 1, 2001.

Sec. 251.202. ALLOCATION OF CIVIL PENALTY. (a) Fifty percent of the civil penalty collected under Section 251.201 shall be transferred to the county treasurer of the county prosecuting the action and 50 percent of the civil penalty collected under Section 251.201 shall be transferred to the corporation.

(b) The county treasurer shall deposit all money received under this section in the county road and bridge fund.

(c) The corporation shall use the money received under this section to develop public service announcements to educate the public about the statewide one-call notification system and its availability as prescribed by Section 251.060(7).

Added by Acts 1999, 76th Leg., ch. 62, Sec. 18.17(a), eff. Sept. 1, 1999.

Sec. 251.203. CRIMINAL PENALTY. (a) A person commits an offense if:

(1) the person without authorization from the owner or operator of the facility intentionally removes, damages, or conceals a marker or sign giving information about the location of a Class A underground facility; and

(2) the marker or sign gives notice of the penalty for intentional removal, damage, or concealment of the marker or sign.

(a-1) A person commits an offense if the person intentionally or recklessly violates Section 251.155(d).

(b) An offense under this section is a Class B misdemeanor.

Added by Acts 1999, 76th Leg., ch. 62, Sec. 18.17(a), eff. Sept. 1, 1999.
Amended by:

Acts 2011, 82nd Leg., R.S., Ch. 184, Sec. 3, eff. September 1, 2011.

Acts 2011, 82nd Leg., R.S., Ch. 184, Sec. 4, eff. September 1, 2011.

[Page is intentionally blank]

# *APPENDIX C*

## Sample Indefinite Delivery Contract

Sample contract document includes the following:

- Attachment B: Services to be Provided by the State (Revision 09/2011)
- Attachment C: Services to be Provided by the Engineer (Revision 04/2012)

[Page is intentionally blank]

**CONTRACT NO. _____**

## ATTACHMENT B
## Services To Be Provided By the State

The Texas Department of Transportation (hereinafter to be referred to as the State) has commissioned the services of _____ to serve as the Engineer (hereinafter to be referred to as the Engineer) under an indefinite deliverable contract to perform utility adjustment monitoring and verification, utility engineering investigation, utility adjustment coordination, and utility engineering services on various projects located within the _____ Region(s)/District(s).

If available, the State will assist the Engineer by providing assistance, service, or data items as required to advance the completion of assigned work authorizations.

1. Schematic designs and approved environmental documents, when available;
2. Assistance in determining roadway/utility design related requirements;
3. Provide existing data files, when available, to include but not limited to:
    a. Survey data, graphic files, roadway design/geometry;
    b. Roadway construction plans, documents for current and/or past projects;
    c. Right-of-Way mapping;
    d. Available interface data for any projects adjacent to, crossing, and/or within the immediate area of the defined project limits;
    e. If available, Subsurface Utility Engineering (SUE) data and utility ownership/facility data; and
    f. Planimetric layouts and/or related information;
4. Applicable special specifications, special provisions, and the latest statewide unit price bid tabulation date. This information will be available electronically on the State's web site;
5. Approved State design standard drawings, standard summary and borders sheets (i.e., blank summary tables, blank plans, and profile sheets with title blocks, etc. All design standards are available on the State's web site;
6. In situations beyond the control of the Engineer, provide assistance in obtaining required data/information from other local, regional, State and federal agencies;
7. Provide timely review, comment or direction, as required, to aid the Engineer in completing an assigned task or maintaining the established project schedule;
8. Electronic Files: If not readily available online, the State may, at the discretion of the State's Project Manager, provide graphic file data,

## *Table of Contents*

Workshop Overview ..... 7
Workshop Agenda ..... 9
Participant Notes ..... 11
Handout No. 1 ..... 41
Handout No. 2 ..... 57
APPENDIX A ..... 63
Sample Data ..... 63
APPENDIX B ..... 75
Texas Utilities Code: Underground Facility Damage and Safety (One Call Law) ..... 75
APPENDIX C ..... 95
Sample Indefinite Delivery Contract ..... 95
APPENDIX D ..... 111
Feedback Form and Sign-In Sheet ..... 111

**CONTRACT NO. _____**

# ATTACHMENT C
## SERVICES TO BE PROVIDED BY ENGINEER

1. Responsible Parties:
   1.1. **Utility Coordinator:** Herein referred to as the provider performing services in a non-engineering capacity.
   1.2. **Utility Engineer:** Herein referred to as the registered Professional Engineer, who is an employee of the Engineer, performing services in a professional engineering capacity.

2. **Function Code 163: Utility Engineering Investigation (currently Subsurface Utility Engineering)** including utility investigations subsurface and above ground prepared in accordance with AASHTO standards [ASCE C-1 38-02 (http://www.fhwa.dot.gov/programadmin/asce.cfm)] and Utility Quality Levels as follows.
   2.1. Utility Quality Levels are defined in cumulative order (least to greatest) as follows:
      2.1.1. Quality Level D - Existing Records: Utilities are plotted from review of available existing records.
      2.1.2. Quality Level C - Surface Visible Feature Survey: Quality level "D" information from existing records is correlated with surveyed surface-visible features. Includes Quality Level D information. If there are variances in the designated work area of Level D, a new schematic or plan layout will be necessary to identify the limits of the proposed project and the limits of the work area required for the work authorization; including highway stations, limits within existing or proposed right of way, additional areas outside the proposed right of way, and distances or areas to be included along existing intersecting roadways.
      2.1.3. Quality Level B - Designate: Two-dimensional horizontal mapping. This information is obtained through the application and interpretation of appropriate non-destructive surface geophysical methods. Utility indications are referenced to established survey control. Incorporates quality levels C and D information to produce Quality Level B. If there are variances in the designated work area of Level D, a new schematic or plan layout will be necessary to identify the limits of the proposed project and the limits of the work area required for the work authorization; including highway stations, limits within existing or proposed right of way, additional areas outside the proposed right of way, and distances or areas to be included along existing intersecting roadways.

2.1.4. Quality Level A - Locate (Test Hole): Three-dimensional mapping and other characterization data. This information is obtained through exposing utility facilities through test holes and measuring and recording (to appropriate survey control) utility/environment data. Incorporates quality levels B, C and D information to produce Quality Level A.

2.2. Designate (Quality Level B), Designate means to indicate the horizontal location of underground utilities by the application and interpretation of appropriate non-destructive surface geophysical techniques and reference to established survey control. Designate (Quality Level B) Services are inclusive of Quality levels C and D.

2.2.1. The Engineer shall:

2.2.1.1. As requested by the State compile "As Built" information from plans, plats and other location data as provided by the utility owners.

2.2.1.2. Coordinate with utility owner when utility owner's policy is to designate their own facilities at no cost for preliminary survey purposes. The Engineer shall examine utility owner's work to ensure accuracy and completeness.

2.2.1.3. Designate, record, and mark the horizontal location of the existing utility facilities and their service laterals to existing buildings using non-destructive surface geophysical techniques. No storm sewer facilities are to be designated unless authorized by the State. A non-water base paint, utilizing the APWA color code scheme, must be used on all surface markings of underground utilities.

2.2.1.4. Correlate utility owner records with designating data and resolve discrepancies using professional judgment. A color-coded composite utility facility plan with utility owner names, quality levels, line sizes and subsurface utility locate (test hole) locations, shall be prepared and delivered to the State. It is understood by both the Engineer and the State that the line sizes of designated utility facilities detailed on the deliverable are from the best available records and that an actual line size is normally determined from a test hole vacuum excavation. A note must be placed on the designate deliverable only that states "lines sizes are from best available records". All above ground appurtenance locations must be included in the deliverable to the State. This information shall be provided in the latest version of Micro Station or Geopak used by the State. The electronic file will be delivered on CD or DVD, as required by the State. A hard copy is required and must be signed, sealed, and dated by the Engineer. When requested by the State, the designated utility information must be over laid on the State's design plans.

2.2.1.5. Determine and inform the State of the approximate utility depths at critical locations as determined by the State. This depth indication is understood by both the Engineer and the State to be approximate only and is not intended to be used preparing the right of way and construction plans.

2.2.1.6. Provide a monthly summary of work completed and in process with adequate detail to verify compliance with agreed work schedule.

2.2.1.7. Close-out permits as required.

2.2.1.8. Clearly identify all utilities that were discovered from quality levels C and D investigation, but can not be depicted in quality level B standards. These utilities must have a unique line style and symbology in the designate (Quality Level B) deliverable.

2.2.1.9. Comply with all applicable State policy and procedural manuals.

2.3. Subsurface Utility Locate (Test Hole) Service (Quality Level A), Locate means to obtain precise horizontal and vertical position, material type, 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 ensures the integrity of the utility facility. Subsurface Utility Locate (Test Hole) Services (Quality Level A) are inclusive of Quality Levels B, C, and D.

2.3.1. The Engineer shall:

2.3.1.1. Review requested test hole locations and advise the State in the development of an appropriate locate (test hole) work plan relative to the existing utility infrastructure and proposed highway design elements.

2.3.1.2. Coordinate with utility owner inspectors as may be required by law or utility owner policy.

2.3.1.3. Neatly cut and remove existing pavement material, such that the cut not to exceed 0.10 square meters (1.076 square feet) unless unusual circumstances exist.

2.3.1.4. Measure and record the following data on an appropriately formatted test hole data sheet that has been sealed and dated by the Engineer:

2.3.1.4.1. Elevation of top and/or bottom of utility tied to the datum of the furnished plan.

2.3.1.4.2. Identify a minimum of two benchmarks utilized. Elevations shall be within an accuracy of 15mm (.591 inches) of utilized benchmarks.

2.3.1.4.3. Elevation of existing grade over utility at test hole location.

2.3.1.4.4. Horizontal location referenced to project coordinate datum.

2.3.1.4.5. Outside diameter of pipe or width of duct banks and configuration of non-encased multi-conduit systems.
2.3.1.4.6. Utility facility material(s).
2.3.1.4.7. Utility facility condition.
2.3.1.4.8. Pavement thickness and type.
2.3.1.4.9. Coating/Wrapping information and condition.
2.3.1.4.10. Unusual circumstances or field conditions.

2.3.1.5. Excavate test holes in such a manner as to prevent any damage to wrappings, coatings, cathodic protection or other protective coverings and features. Water excavation can only be utilized with written approval from the appropriate State District Office.

2.3.1.6. Be responsible for any damage to the utility during the locating process. In the event of damage, the Engineer shall stop work, notify the appropriate utility facility owner, the State and appropriate regulatory agencies. The regulatory agencies include, but are not limited to the Railroad Commission of Texas and the Texas Commission on Environmental Quality. The Engineer shall not resume work until the utility facility owner has determined the corrective action to be taken. The Engineer shall be liable for all costs involved in the repair or replacement of the utility facility.

2.3.1.7. Back fill all excavations with appropriate material, compact backfill by mechanical means, and restore pavement and surface material. The Engineer shall be responsible for the integrity of the backfill and surface restoration for a period of three years. Install a marker ribbon throughout the backfill.

2.3.1.8. Furnish and install a permanent above ground marker (as specified by the State, directly above center line of the utility facility.

2.3.1.9. Provide complete restoration of work site and landscape to equal or better condition than before excavation. If a work site and landscape is not appropriately restored, the Engineer shall return to correct the condition at no extra charge to the State.

2.3.1.10. Plot utility location position information to scale and provide a comprehensive utility plan sign and sealed by the responsible Engineer. This information shall be provided in the latest version of Micro Station or Geopak format used by the State. The electronic file will be delivered on C.D or DVD. When requested by the State, the Locate information must be over laid on the State's design plans.

2.3.1.11. Return plans, profiles, and test hole data sheets to the State. If requested, conduct a review of the findings with the State.

2.3.1.12. Close-out permits as required.

3. **<u>Function Code 130: Utility Adjustment Coordination</u>** including utility coordination meetings with individual utility companies, communication and coordination with utilities, and preparation of utility agreement assemblies including utility agreements, joint use agreements, and advanced funding agreements.

3.1. The Utility Coordinator shall perform utility coordination and liaison activities with involved utility owners, their consultants, and the State to achieve timely project notifications, formal coordination meetings, conflict analysis and resolution. The Utility Coordinator shall act as the "Responsible Party" as indicated in the State's– Utility Cooperative Management Process (See the State's ROW Utility Manual, chapter 2).

3.1.1. The Utility Coordinator shall coordinate all activities with the State, or their designee, to facilitate the orderly progress and timely completion of the State design phase. The Utility Coordinator shall be responsible for the following:

3.1.1.1. Work Plan. Coordinate a work plan including a list of the proposed meetings and coordination activities, and related tasks to be performed, a schedule and an estimate. The work plan must satisfy the requirements of the project and must be approved by the State prior to commencing work.

3.1.1.2. Orientation. Prepare and present, in collaboration with State staff, instruction and orientation sessions as required by the State. The instruction shall introduce the subsurface utility engineering process, demonstrate the technology and facilitate the preparation of work orders, billings, and contract related documentation.

3.1.1.3. Initial Project Meeting. Attend an initial meeting and an on-site inspection (when appropriate) to ensure familiarity with existing conditions, project requirements and prepare a written report of the meeting.

3.1.1.4. External Communications. The Utility Coordinator shall coordinate all activities with the State and its consultants or other contractors or representatives, as authorized by the State. Also, the Utility Coordinator shall provide the State copies of diaries, correspondence and other documentation of work-related communications between the Utility Coordinator, utility owners and other outside entities when requested by the State.

3.1.1.5. Permits and rights of entry. Obtain all necessary permits from city, county, municipality, railroad or other jurisdiction to allow the Engineer to work within existing streets, roads or private property for additional designating and/or subsurface utility locating.

3.1.1.6. Progress Meetings. The Utility Coordinator shall implement a schedule of periodic meetings with each utility company and owner or owner's representatives for coordination purposes. Such meetings shall commence as early as possible in the

design process and shall continue until completion of the project. The Utility Coordinator shall notify the State at least two (2) business days in advance of each meeting to allow the State the opportunity to participate in the meeting. The Utility Coordinator shall provide and produce meeting minutes of all meetings with said utility companies, owners or owners' representatives within seven (7) business days. The frequency of such meetings shall be appropriate to the matters under discussion with each utility owner.

3.1.2 As required the Utility Coordinator shall coordinate with the local utilities committees to present a foot print of the State's projects with represented utility companies and owners. The Utility Coordinator shall also coordinate with any other utility committees which may include county, city, or other officials, if needed.

3.1.3 The Utility Coordinator shall provide initial project notification letters to all affected utility companies, owners, and other concerned parties, if needed.

3.1.4 The Utility Coordinator shall provide the State and all affected utility companies and owners a Utility Contact List for each project with all information such as: (a) Owner's Name; (b) Contact Person; (c) Telephone Numbers; (d) Emergency Contact Number; (e) E-mail addresses; (f) as well as all pertinent information concerning their respective affected utilities and facilities, including but not limited to: size, number of poles, material, and other information which readily identifies the utilities companies' facilities.

3.1.5 The Utility Coordinator shall advise utility companies and owners of the general characteristics of the Project and provide an illustration of the project footprint for mark-up of the utility facility locations that occupy the project area.

3.2. The Utility Coordinator shall coordinate which utilities will conflict with highway construction or the "Utility Accommodation Rules" (UAR), and make the utility company aware of these conflicts. The Utility Coordinator shall assist the utility companies in the preparation of required agreements associated with the funding of adjustments and the occupation of state right of way;

3.2.1. Utility Agreement Assemblies: A packaged agreement consisting of a Utility Joint Use Acknowledgement, Standard Utility Agreements, Plans on 11x17 sheets, Statement of contract work form, Affidavit form and copy of recorded easement, schedule of work and various attachments as detailed in the UAR and the State's Utility Manual.

3.2.1.1. Utility Agreements: If a utility is located within an easement, the utility company may have a compensable interest. The utility company must furnish a copy of their easement to the Utility Coordinator. The Utility Coordinator shall determine whether or not a compensable interest exists and the owner's degree of eligibility. The Utility Coordinator shall assist the utility company

with adjustment plans and cost estimate for these adjustments. The Utility Coordinator shall review plans to ensure compliance with UAR and ensure the proposal will not conflict with highway construction. The Utility Coordinator shall submit a copy of the easement, plans, and estimate to the State by letter recommending approval (6 copies of each). The utility should be reimbursed all cost incurred within their easement limits for replacement in kind.

3.2.1.2. Utility Acknowledgement: For this project, all Non-Reimbursable Utility Adjustments shall be submitted with the form ROW-U-JUAB "Utility Joint Use Acknowledgement, Non-Reimbursable Utility Adjustment. This form replaces the Notice of Proposed Installation" (Form 1082). The term permit refers to form 1082 or form ROW-U-JUAB. The Utility Coordinator shall furnish the appropriate form to the utility company and assist them with adjustment plan preparation. The utility company should submit the Utility Joint Use Acknowledgement and adjustment plans to the Utility Coordinator for review. The Utility Coordinator shall review plans to ensure compliance with UAR and ensure the proposal will not conflict with highway construction. The Utility Coordinator shall submit the Utility Joint Use Acknowledgement to the State by letter recommending approval (6 copies).

3.2.1.3. Escrow Agreements: If it is determined that the utility will be adjusted as part of the highway contract; the State's project manager must be notified immediately. The Utility Coordinator shall determine what funding amount is required based upon the applicable betterment or eligibility ratio. The State shall be notified immediately of the need for an Advanced Funding Agreement (AFA) by the Utility Coordinator. The Engineer shall coordinate the development of the required AFA with the utility owner and the State in accordance with established procedures of the State's Contracts Services Section. Procure or verify all AFA payments have been submitted to the State.

3.2.1.4. Federal Utility Procedures, . Where there is Federal-Aid in the right of way, inclusive of utility costs, the Federal Utility Procedures (FUP) Approval is Federal Highway Administration (FHWA) authorization for TxDOT to assume total oversight of the utility adjustment process. Necessary information for the FUP approval shall include the utility name(s), location(s) of existing facilities by station number and estimated cost of adjustment(s) by utility

3.2.1.5. State Utility Procedures.

3.2.1.6. Local Utility Procedures.

3.2.2. The Utility Coordinator shall submit the required number of executed copies of the Utility Agreement assemblies, which include

the appropriate Forms as detailed in the UAR and supplied by the State, a copy of the recorded easement Deed, plans, and estimate to the State by letter recommending approval (6 copies of each). The utility should be reimbursed eligible costs incurred within their easement limits for replacement in kind." The transmittal should also provide a description of the work being done as well as the estimated cost and schedule of work. The Utility Coordinator shall not perform engineering of relocation plans relative to a particular Utility Agreement under this supplemental as this is a cost of Right of Way that is subsidiary to the specific Utility Agreement.

3.2.3. The Utility Coordinator shall be solely responsible for determining which utilities will be installed by "ROW-U-JUAB", or by "Agreement". The Utility Coordinator shall Process all ROW-U-JUAB requests, Utility Agreements and determine necessity of any Escrow Agreements and forward to the State for final approval;

3.2.4. The Engineer with the assistance of the Utility Coordinator shall be responsible for the timely coordination, review and submittal of all documentation to be included in all the Utility Agreements with such documents conforming to the requirements of 23 C.F.R. Section 645A. The Engineer with the assistance of the Utility Coordinator shall assist in the preparation, compilation, gathering, and collection of all required and supporting documents to be included with the Utility Agreements.

3.2.5. For each Utility, the records for all utility owners' costs shall be in accordance with the requirements of 23 C.F.R. Section 645A, in a format that is compatible with the estimate attached to the Utility Adjustment Agreement and insufficient detail for analysis. The totals for labor, overhead, construction costs, travel, transportation, equipment, materials, supplies and other services shall be shown in such a manner as to permit comparison with the approved estimate.

3.2.6. The Engineer shall maintain a complete set of records for all Utility Adjustment Costs for each Utility for a period of time sufficient to complete all final payments to the utility companies or owners.

4. **Function Code 163: Utility Engineering** including the identification of utility conflicts, coordination, compliance with the UAR, and resolution of utility conflicts. The Engineer shall coordinate all activities with the State, or their designee, to facilitate the orderly progress and timely completion of the State's design phase.

4.1. Coordination of engineering activities include:

4.1.1. Utility Layout: The Engineer shall maintain a utility layout in the latest version of Micro Station used by the State. This layout shall include all existing utilities which are to remain in place or be abandoned, and all adjusted utilities. This layout shall be utilized to monitor the necessity and evaluate alternatives. The Utility Engineer shall utilize the layout of existing utilities as prepared, if available, and

make a determination of the following;

4.1.1.1. Facilities in conflict with the proposed project that are to be relocated.

4.1.1.2. Facilities to be abandoned in place.

4.1.1.3. Facilities to remain in service and in place as a result roadway design adjustments and meeting the current UAR.

4.1.1.4. The Utility Engineer shall be responsible for determining if there are additional facilities, not shown in the Subsurface Utility Engineering (SUE) documents, which require relocation. The Engineer shall coordinate this information with the State immediately upon discovery.

4.2. Public & Individual Meetings with Utility Companies, as required, to facilitate utility conflict identification and resolution.

4.2.1. Establish contact with all existing utilities within and adjacent to the project limits and set up utility coordination meetings to discuss concepts and options for construction.

4.2.2. Schedule all utility coordination meetings and ensure compatibility with the schedule of the State.

4.2.3. Set agenda for all coordination meetings as directed by the State.

4.2.4. Establish and promote the desired agenda and methodologies for utility construction within the project limits. The agenda and methodologies will consist primarily of promoting the construction of utilities as a part of the Highway Contract.

4.2.5. Orientation: Prepare and present, in collaboration with the State, instruction and orientation sessions as required. The instruction shall introduce the SUE Plans, the proposed utility layout, processes, demonstrate the technology and facilitate the preparation of work orders, billings, and contract related documentation as it pertains to utility adjustment work.

4.2.6. Initial Project Meeting: Attend an initial meeting and an on-site inspection (when appropriate) to ensure familiarity with existing conditions, project requirements and prepare a written report of the meeting.

4.2.7. Work Plan: Develop a work plan including a list of the tasks to be performed, a schedule and an estimate. The work plan must satisfy the requirements of the project and must be approved by the State prior to commencing work.

4.2.8. Progress Meetings: Meet with the State periodically to coordinate the work effort and resolve problems and prepare a written report of such meetings. The meetings shall review:

4.2.8.1. Activities completed since the last meeting

4.2.8.2. Problems encountered.

4.2.8.3. Late activities.

4.2.8.4. Activities required by the next progress meeting.

4.2.8.5. Solutions for unresolved and/or anticipated problems.

4.2.8.6. Information or items required from other

agencies/consultants.

4.3. Review of Utility's Proposed Adjustments

4.3.1. Evaluate Alternatives: The Utility Engineer shall evaluate alternatives in the adjustment of utilities balancing the needs of both the State and the Utility.

4.3.2. Review Estimates and Schedules: The Utility Engineer shall review the utility adjustment estimates for reasonableness of cost and the timely scheduling of the adjustment.

4.3.3. Review Plans for compliance with Utility Accommodation Rules and proposed location data. The responsibility for quality and accuracy of Utility adjustment plans will remain with the Utility Company.

4.3.4. Inspect Traffic control setup. Ensure necessary traffic control, labor and equipment is utilized where applicable during the utility relocation process. The Utility Engineer shall ensure compliance with the regulations of the most recent edition of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD). The Utility Engineer must obtain approval from the State concerning the proposed method of handling traffic prior to allowing commencement of work.

4.4. The Engineer shall not provide services for the sole benefit of third parties.

4.5. The Engineer shall prepare a Signed and Sealed Proposed Utility Layout in the latest version of Micro Station used by the State that can be overlaid on the base file with drainage. The Engineer shall;

4.5.1. Ensure all facilities conflicts have been resolved.

4.5.2. Ensure all stakeholders have concurred with the various alignments.

4.5.3. Establish the sequence of construction for all utility relocation work whether it is included as a part of the Highway Construction or not.

4.5.4. Determine which utilities will be built as part of the contract.

4.5.5. Determine which facilities will be relocated prior to construction.

4.6. The Engineer shall coordinate, develop and or review PS&E for all utilities included in the construction contract.

4.7. Utility Certification/Special Provisions: The Utility Engineer shall submit upon request from the State, a Utility Certification or a Special Provisions report. The Utility Certification or Special Provisions report will certify that all utilities are clear for highway construction. However, if the utility adjustments are not complete prior to highway project letting, a Special Provision shall be required outlining all outstanding utility conflicts and their affects on highway construction. Furthermore, a Utility Clearance schedule, signed by the utility owner shall be provided with the certification as noted above. The formats for the Certification and the Clearance schedule will be provided by the State.

4.8. The Utility Coordinator shall submit the required number of executed copies of the Utility Agreement assemblies, which include the appropriate Forms as detailed in the UAR and supplied by the State, a copy of the recorded easement Deed, plans, and estimate to the State by letter

recommending approval (6 copies of each). The Transmittal letter should include the following statement "The proposed utility adjustment will not conflict with proposed highway construction and will comply with UAR. The utility should be reimbursed eligible costs incurred within their easement limits for replacement in kind." The transmittal should also provide a description of the work being done as well as the estimated cost and schedule of work. The Engineer shall not perform engineering of relocation plans relative to a particular Utility Agreement under this contract as this is a cost of Right of Way that is subsidiary to the specific Utility Agreement.

5. **Function Code 130: Utility Adjustment Monitoring and Verification**, including the utility location installation verification, compliance with Utility Accommodation Rules, monitoring, reporting, and as-built surveying as required for the State.
   - 5.1. The Engineer shall schedule a Pre-Construction meeting for each utility adjustment for which they are required to perform field verification and inspection duties. The Engineer is responsible for ensuring the necessary State representatives are present.
   - 5.2. Verification:
     - 5.2.1. The Utility Engineer shall field verify all utility adjustments to ensure that the new facilities are located according to plans, specifications, and the Proposed Utility Layout. This shall include all surveying and right of way staking as needed to clear the proposed construction.
     - 5.2.2. The Utility Engineer shall insure that the utility is in compliance with the TMUTCD, "Storm Water Pollution Prevention Plan" (SW3P), backfill specifications, and restoration of right of way upon completion of work.
   - 5.3. Status Reports: The Engineer shall provide the State with a status report for all utility adjustments on a monthly basis. The State will provide the status report format to the Engineer.
   - 5.4. Review Payment Request: The Engineer shall review all payment requests for conformance with the utility estimate and verify the work has been performed.
   - 5.5. Notification. The Engineer shall notify the State if demobilizing occurs before the approved scope of services is completed. This notification must occur before the demobilization process begins. This requirement may only entail documentation into diaries.
   - 5.6. As-Built Drawings and GPS File: The Engineer shall, per work authorization, provide a GPS file showing all bends, installation types, casings, and above ground appurtenances and shall be supplied upon completion of the utility work in a format specified by the State. The drawings and GPS files shall also include all utility adjustments and installations that are not to be constructed as a part of the Highway Project. A set of 11" x 17" as built drawings, signed and sealed by the

Engineer along with a CD containing electronic files shall be submitted prior to final payment and acceptance of all Utility Coordination activities.-

5.7. The Utility Company retains all responsibility for all inspections related to compliance with Utility Codes, Industry standards, and design of the Utility Facility.

5.8. The Engineer shall not provide services for the sole benefit of third parties.

# *APPENDIX D*

## Feedback Form and Sign-In Sheet

[Page is intentionally blank]

# INTRODUCTION TO SUE AND UTILITY IMPACT ANALYSIS

## PARTICIPANT FEEDBACK FORM

**Instructor(s)**:

**Location**:

**Date**:

| **Lesson 1: Introductions and Overview** | | | | | |
|---|---|---|---|---|---|
| | **Excellent** | **Good** | **Acceptable** | **Needs Some Improvement** | **Needs Urgent Improvement** |
| **Presentation Materials** | ○ | ○ | ○ | ○ | ○ |
| **Handout Materials** | ○ | ○ | ○ | ○ | ○ |
| **Time Allocation** | ○ | ○ | ○ | ○ | ○ |
| **Comments** | | | | | |

| **Lesson 2: Overview of SUE and the PDP** | | | | | |
|---|---|---|---|---|---|
| | **Excellent** | **Good** | **Acceptable** | **Needs Some Improvement** | **Needs Urgent Improvement** |
| **Presentation Materials** | ○ | ○ | ○ | ○ | ○ |
| **Handout Materials** | ○ | ○ | ○ | ○ | ○ |
| **Time Allocation** | ○ | ○ | ○ | ○ | ○ |
| **Comments** | | | | | |

| **Lesson 3: Utility Impact Analysis** | | | | | |
|---|---|---|---|---|---|
| | **Excellent** | **Good** | **Acceptable** | **Needs Some Improvement** | **Needs Urgent Improvement** |
| **Presentation Materials** | ○ | ○ | ○ | ○ | ○ |
| **Handout Materials** | ○ | ○ | ○ | ○ | ○ |
| **Time Allocation** | ○ | ○ | ○ | ○ | ○ |
| **Comments** | | | | | |

| **Lesson 4: Workshop Review and Summary** | | | | | |
|---|---|---|---|---|---|
| | **Excellent** | **Good** | **Acceptable** | **Needs Some Improvement** | **Needs Urgent Improvement** |
| **Presentation Materials** | ○ | ○ | ○ | ○ | ○ |
| **Handout Materials** | ○ | ○ | ○ | ○ | ○ |
| **Time Allocation** | ○ | ○ | ○ | ○ | ○ |
| **Comments** | | | | | |

| **Additional Comments** (e.g., what other topics should we include in future workshops?) |
|---|
| |

# INTRODUCTION TO SUE AND UTILITY IMPACT ANALYSIS

## SIGN-IN SHEET

**Instructor(s)**:

**Location**:

**Date**:

| Name | Affiliation | Phone | Email Address |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |