


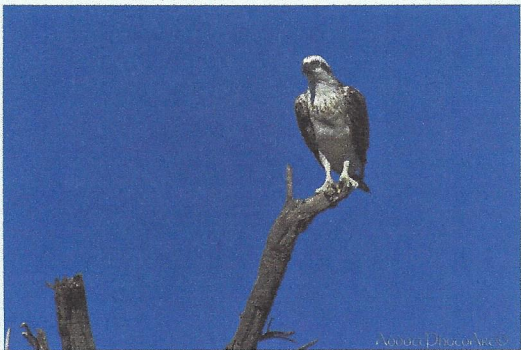
2019
Arizona
APWA
 Annual Statewide Conference

**What Lies
 Below
 is
 What We
 Know!**

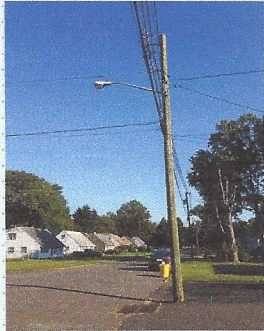


**What is the first thing a
 Project Manager/Engineer
 does (or should do)
 when reviewing a project
 for proposal, or to begin
 design?**

Looks Around ...



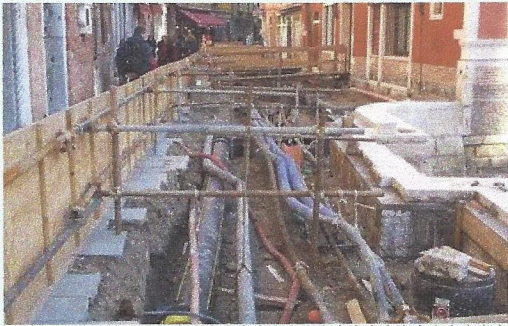
And What's Around?



- Powerlines
- Communication Lines
- Fire Hydrants
- Padmounted Equipment
- Valve Boxes
- Manholes
- Etc, Etc ...

But What Lies Below..?

Buried Utilities!!



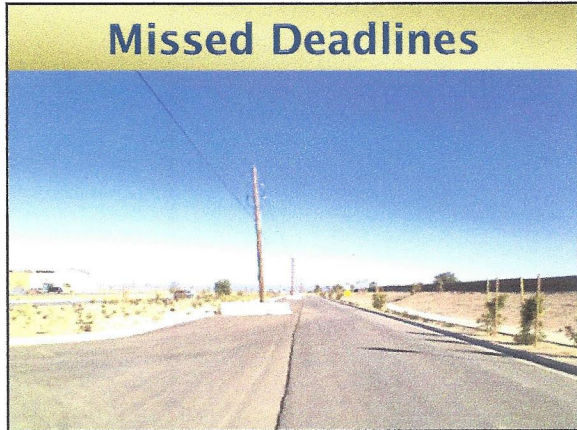
Utility Conflicts
 are a **leading cause** of
Project Delays
 &
Budget Over-runs
 before and during construction

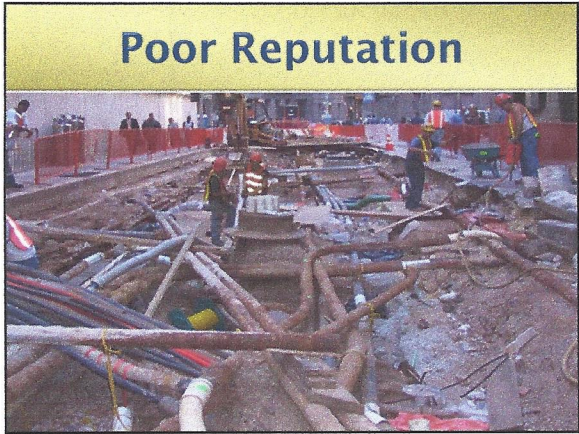
A study of **23,000**
 Projects reveals:
 for Project Delays:
 • **Utilities are #1**
 • Right-of-Way Issues
 • Environmental Issues
 • Public Resistance
 • Site Unknowns

**Utility
 Conflicts
 Cause
 Numerous
 Issues**



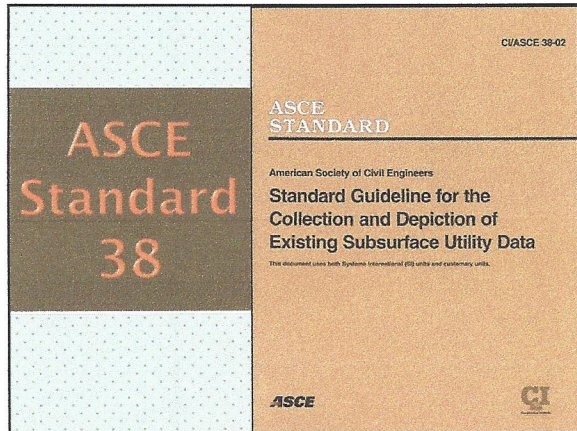


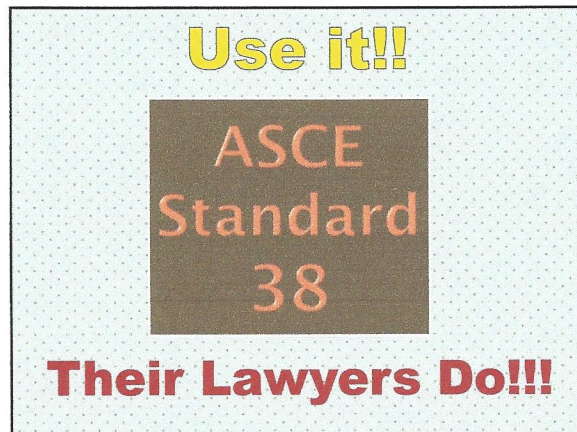


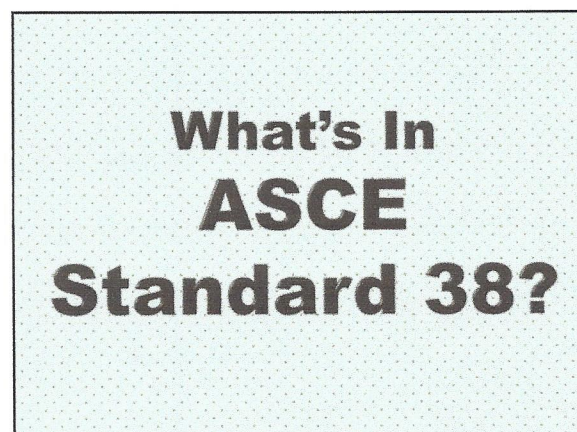


**Unless
You're
Prepared**

**How Can
YOU
Avoid These
Issues??**







Benefits

\$1.00 spent

=

\$4.62 savings

The study, performed by Purdue University, was the result of analyzing 71 projects over a four state area.
<http://www.fhwa.dot.gov/programadmin/sueindex.htm>

**Subsurface
Utility
Engineering
and
Utility
Coordination**

SUE Process

There Are FOUR SUE Process Quality Levels

Level D	Research Existing Records
Level C	Survey Surface Features
Level B	Geophysical Field Designating
Level A	Locating with Test Holes (Potholing)

ASCE Quality Level

D

Utility Records

- Research utility records
- Research agency permits

ASCE Quality Level

C

Field Survey

- Survey surface (valves, manholes, etc.)



ASCE Quality Level

B

Utility Designating

- Use of *geophysical* technologies to locate and mark utilities' horizontal location also called "*Designation*".
- Plot QL-B location data on base mapping.

Multiple Technologies Utility Designating (Locating)



Electromagnetic Ground Penetrating Radar Acoustic

Following **all** the Steps PAYS DIVIDENDS

- **Level B** data presumes Test Holes will be dug **only where utilities exist**
- Prohibits wasting money on "Dry Holes" where outdated AZ811 marks or incomplete mapping info indicate utilities may exist
- Reduces the number of Test Holes needed locating parallel utilities
- Ensures **all** utilities are found during design stage so there are no surprises

ASCE Quality Level

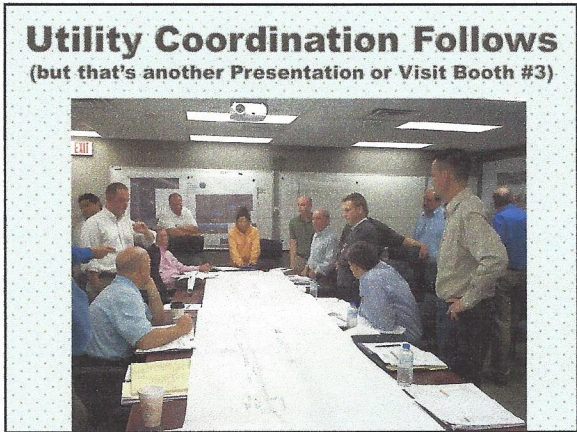
A

Utility Locating Test Holes / Potholes

- Uses **Vacuum Excavation** equipment to safely expose utilities with minimal impact
- Obtain utility **X-Y-Z** details

**Helps Your
Design Team
Avoid
Utilities Where
Possible!**

**(Kinda like avoiding
taking your Ex ...
... on you honeymoon!!)**



Discussion



Questions?

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