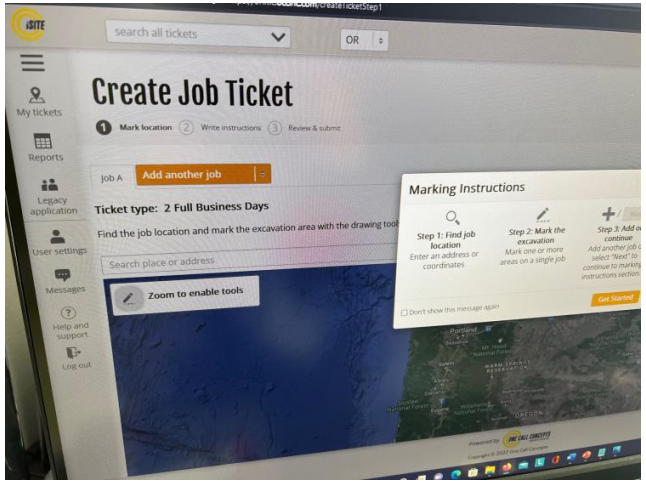

OREGON 811 EXCAVATION SAFETY TRAINING

Oregon 811
UTILITY NOTIFICATION CENTER

1

Opening

- Introductions
- Overview
- Takeaways

2

Importance of Prevention

- Case Study
- About OUNC
- By the numbers

3

Before You Dig

- Contact 811
- Allow time for marking utilities

4

When Digging

- Respect the marks
- Excavate carefully
- Scenarios

5

Closing

- Survey
- Q & A
- Additional resources

TRAINING COURSE OUTLINE

TODAY'S TAKEAWAYS

You can expect to leave this training with the following:

- Completion of training hours (CCB)
- Better understanding of OUNC and Oregon's Dig Laws
- Increased familiarity with 811 and the one-call system
- Best practices for excavation, tips to prevent problems
- Answers to your questions, additional resources

Oregon 811
UTILITY NOTIFICATION CENTER

IMPORTANCE OF PREVENTION

Portland case study:

- October 19, 2016
- Corner of 23rd and Glisan in downtown Portland
- 8:48 a.m. – Gas company notified of leak
- 9:10-9:20 a.m. - Residents and tenants evacuated
- 9:38 a.m. – Explosion

[Video - NBC Nightly News]

AMELIA TEMPLETON / OPB

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UTILITY NOTIFICATION CENTER

IMPACTS?

- What impacts were described in the news story?
- Any others you observed?

PORTLAND TRIBUNE

NBC NIGHTLY NEWS

KGW

Oregon 811
UTILITY NOTIFICATION CENTER

IMPACTS:

- Eight people injured - 4 hospitalized, 2 firefighters with broken legs
- Businesses destroyed, closed
- Residents displaced, damage and loss of property
- School evacuated
- Streets and utilities impacted
- Massive cleanup and repairs - $17 million
- Lawsuits, liability

PORTLAND TRIBUNE

NBC NIGHTLY NEWS

KGW

Oregon 811
UTILITY NOTIFICATION CENTER

OREGON UTILITY NOTIFICATION CENTER

Oregon Utility Notification Center (aka Oregon 811) is the state agency focused on damage prevention and public safety relating to underground utilities.

Mission

To operate and maintain a state-of-the-art one-call system for the State of Oregon to reduce damages to underground facilities and to promote public safety related to excavation issues.

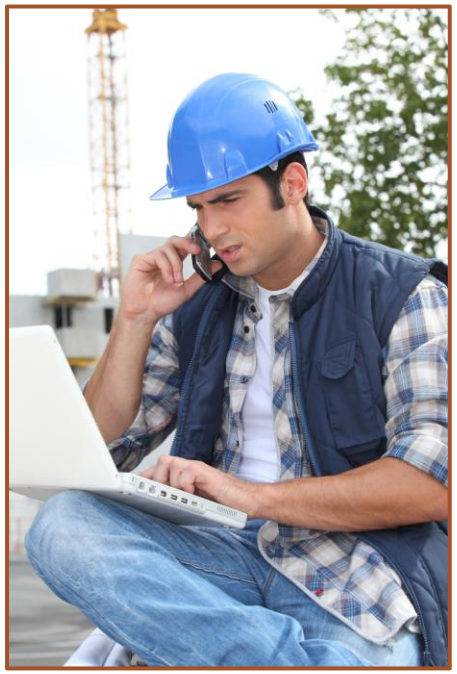
History

Created by the Oregon State Legislature in the 1995 session.

- Governed by a Board of Directors, 21 members representing utilities, excavators, locators, stakeholders; Staff of two
- Public benefit corporation with powers of a state agency
- No tax money from state or federal government
- Service is paid for by underground facility members
- Manages rules that administer state dig laws, standards
- Contracts with one-call center for Oregon 811 service
- Raises awareness through publicity, education and training

Oregon811 UTILITY NOTIFICATION CENTER

OREGON'S ONE CALL SERVICE



NW Natural

Oregon Department of Transportation

COMCAST

PACIFICORP

CITY OF PORTLAND, OREGON 1851

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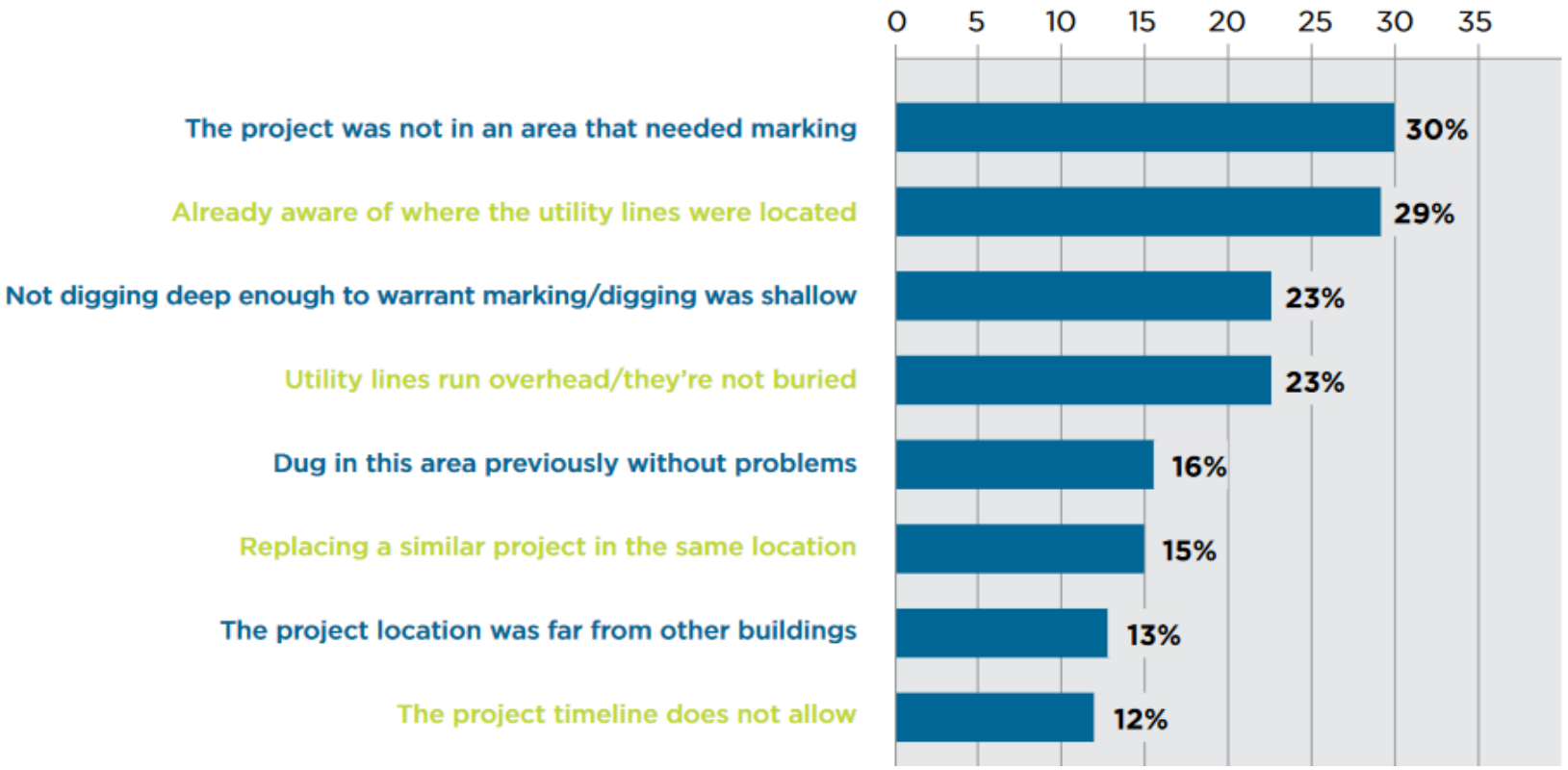
DIAGNOSING THE ROOT CAUSES

WHY DOES DAMAGE OCCUR?

Approximately 76-84 percent of professional excavators are familiar with 811 (64 percent for small companies).

In a survey of those who did not call 811, these are the reasons they cited:



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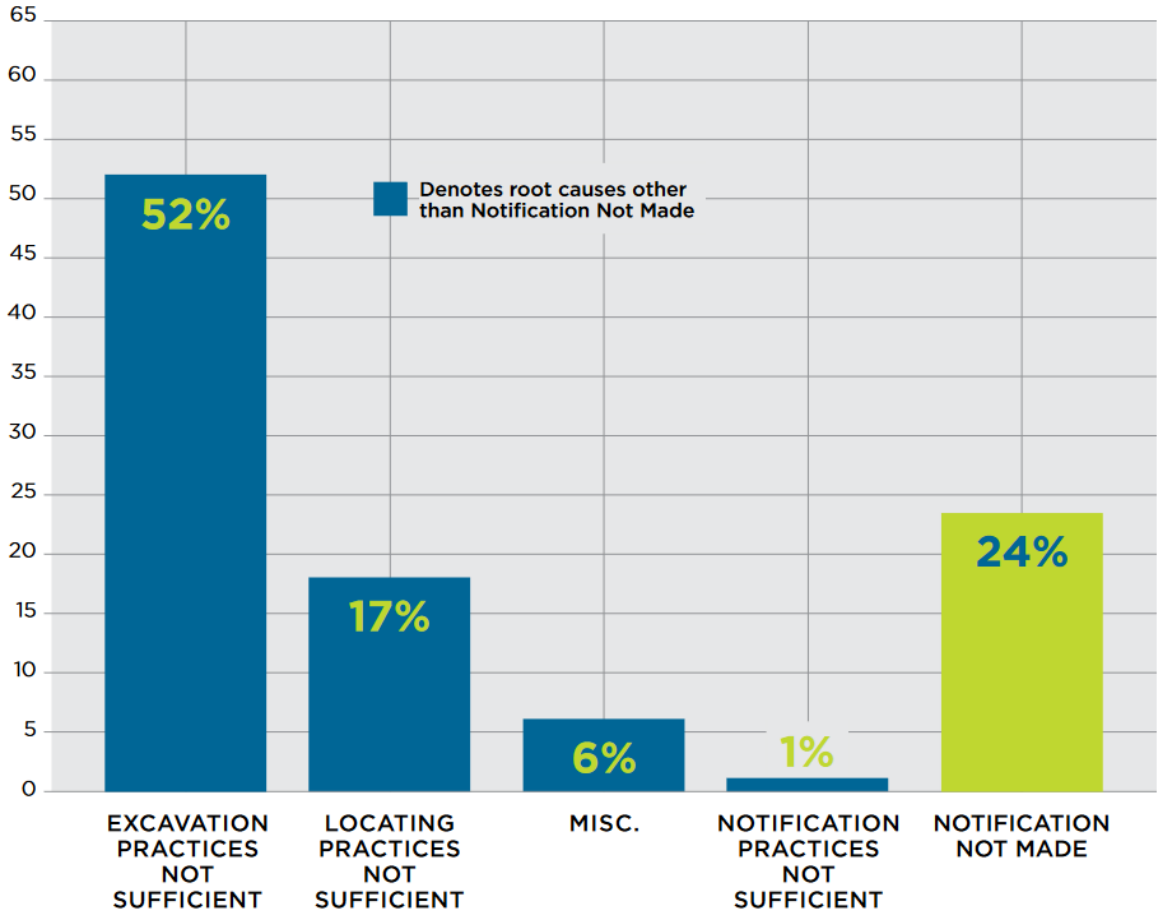
UTILITY NOTIFICATION CENTER

WHY DOES DAMAGE OCCUR?

Insufficient excavation practices persist as the primary root cause of damages in the U.S.



Oregon 811 UTILITY NOTIFICATION CENTER

WHY DOES DAMAGE OCCUR?

Excavators are making decisions on the jobsite that may be contributing to damages. Time is cited as a factor.

Insufficient excavation practices include:

- Failure to confirm the **location of marked facilities**. Only 42% verify the accuracy of marks on jobsites via potholing or test-pitting.
- Continuing to work without a re-mark when **marks are no longer visible**. Fewer than half of excavators reported always renewing tickets when marks are no longer present.
- Working on an **expired ticket**. Just 52 percent reported always renewing a ticket if work will be continuing past the expiration date.

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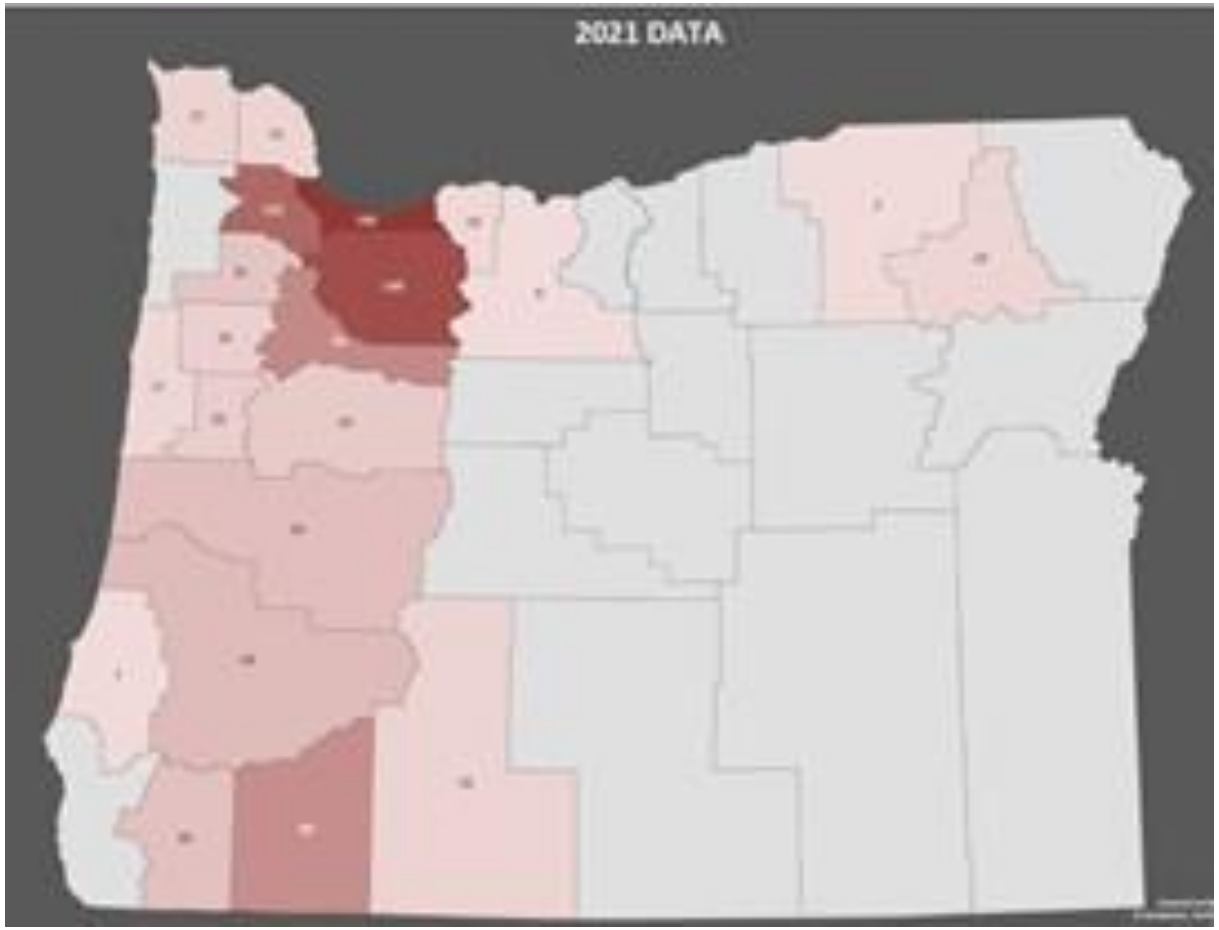
WHERE DOES DAMAGE OCCUR?

OUNC tracks damage throughout the state. Almost 80% of our damages occur in just 8 counties, with the tri-county area topping the list. Those top three are followed by Marion, Jackson, Douglas, Lane and Josephine counties.



Oregon 811
UTILITY NOTIFICATION CENTER

SAFE EXCAVATION TAKES CARE

C

CONTACT 811 before you dig.

A

ALLOW the required time for marking the utilities.

R

RESPECT and protect the marks.

E

EXCAVATE carefully.

Oregon 811
UTILITY NOTIFICATION CENTER

CONTACT 811 BEFORE YOU DIG

- Plan ahead: Excavator to give notice of proposed work
  - At least two (2) full business days
  - Not more than ten (10) full business days
    - Does not include weekends or federal or Oregon legal holidays.
    - Requests received after 5 p.m. will be treated as if after midnight.
  - Ticket life is 45 days

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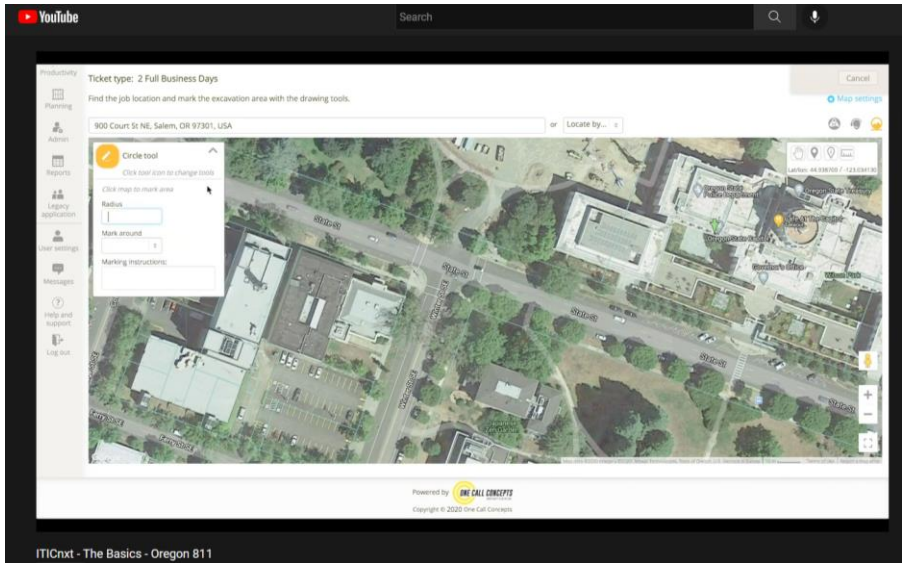
UTILITY NOTIFICATION CENTER

CONTACT 811 BEFORE YOU DIG

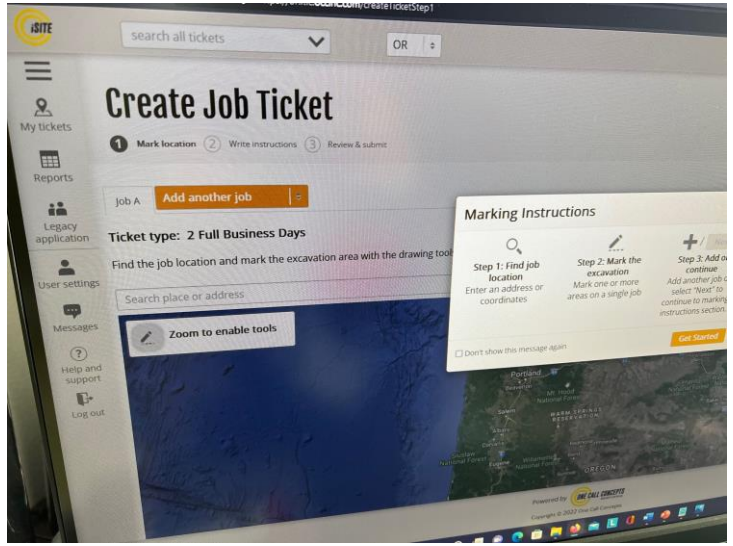
- ITIC = internet ticketing; ITICnxt is the newest version
- Enhanced tools to boost efficiency and accuracy
- Easy to use and free
- Learning tools, videos and training support available at Oregon811.com
- Overview video



CONTACT 811 BEFORE YOU DIG

Information needed for locate:

- State
- County
- City (Based on Postal Code Boundary)
- Street or Road
- House Number
- Nearest Intersecting Street/Road
- Distance and Direction from that Intersection
- Township, Range, Section or also Quarter-Section
- Geographic Coordinates (Latitude/Longitude)



Still need a clear narrative describing your location and excavation area.

Oregon 811 UTILITY NOTIFICATION CENTER

CONTACT 811 BEFORE YOU DIG

White Lining

- Pre-mark the immediate area of the proposed excavation with the color **white** within:
  - Public rights-of-way
  - Underground easements

OR

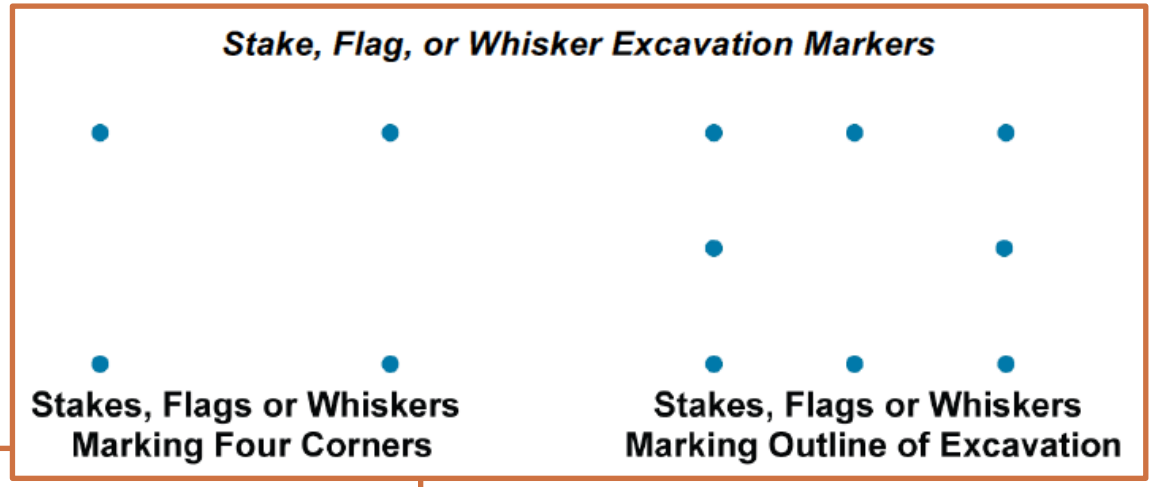
- Precisely describe the direction, length and location of the proposed excavation

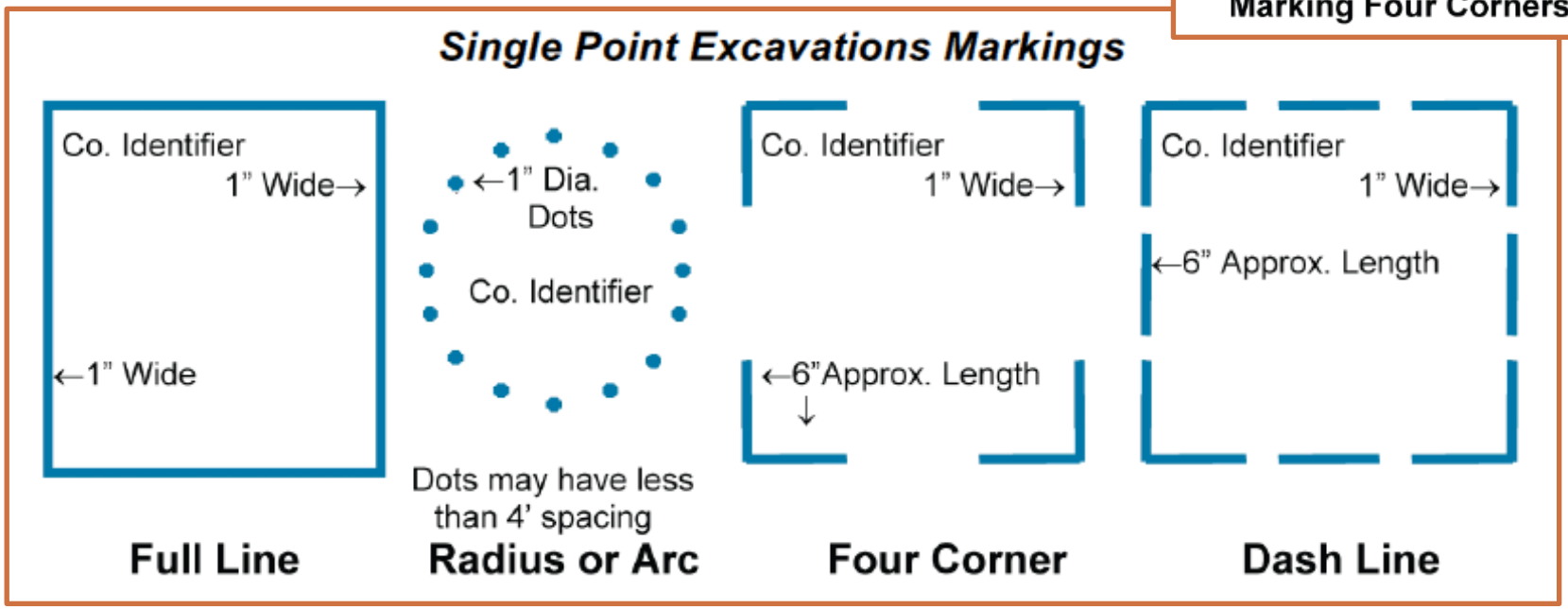
OR

- Meet on site with facility owners

CONTACT 811 BEFORE YOU DIG

White Lining Your Dig Area





CONTACT 811 BEFORE YOU DIG

- Excavator/Operator On-Site Meeting
  - If work takes place at multiple sites or over a large area.
  - Take reasonable steps to work with facility operators.
  - Meet prior to beginning of proposed project.
  - Preconstruction meetings.
  - Operators locate their facilities before actual start of excavation in each phase of work.
  - Written agreement.

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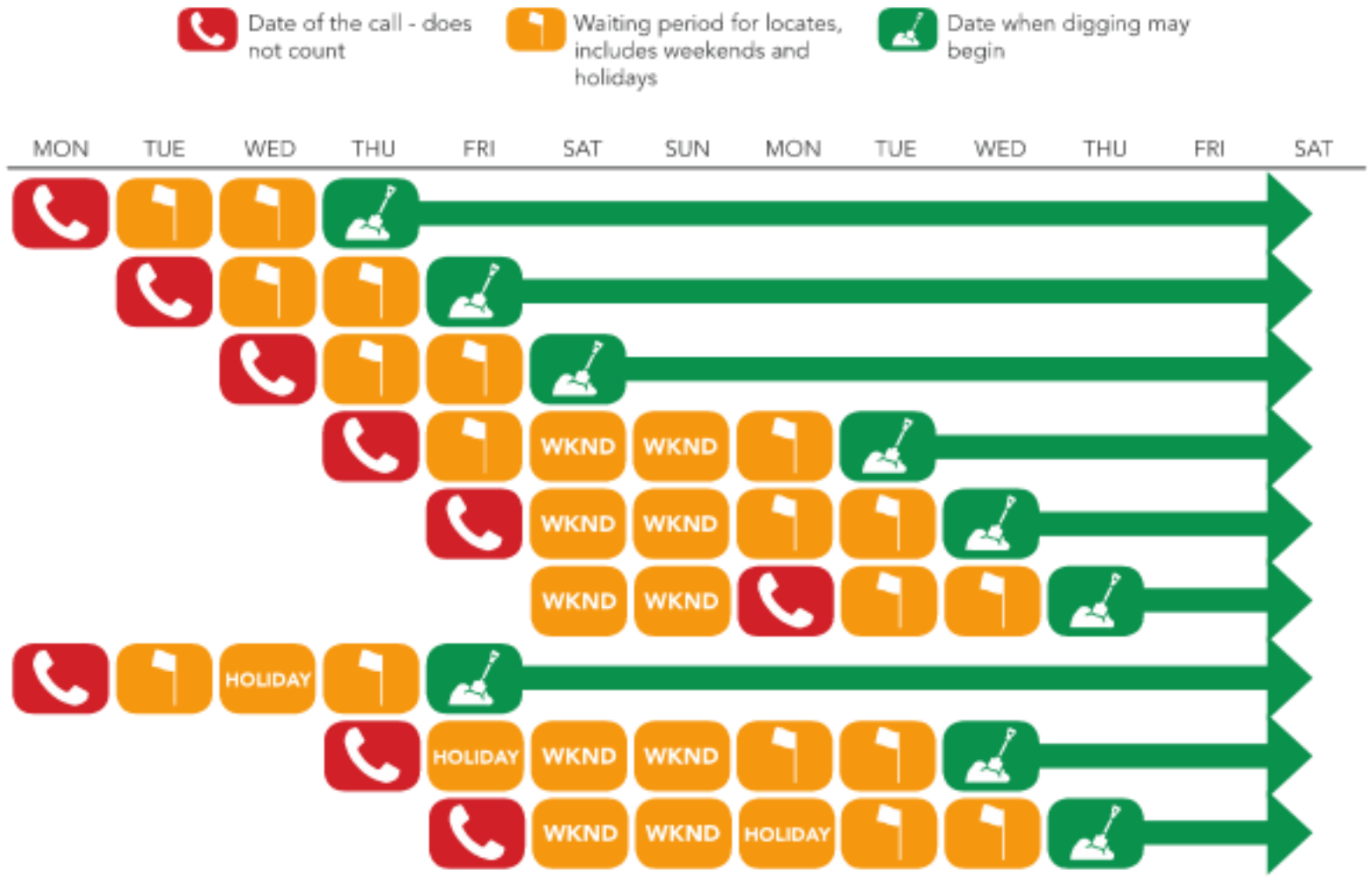
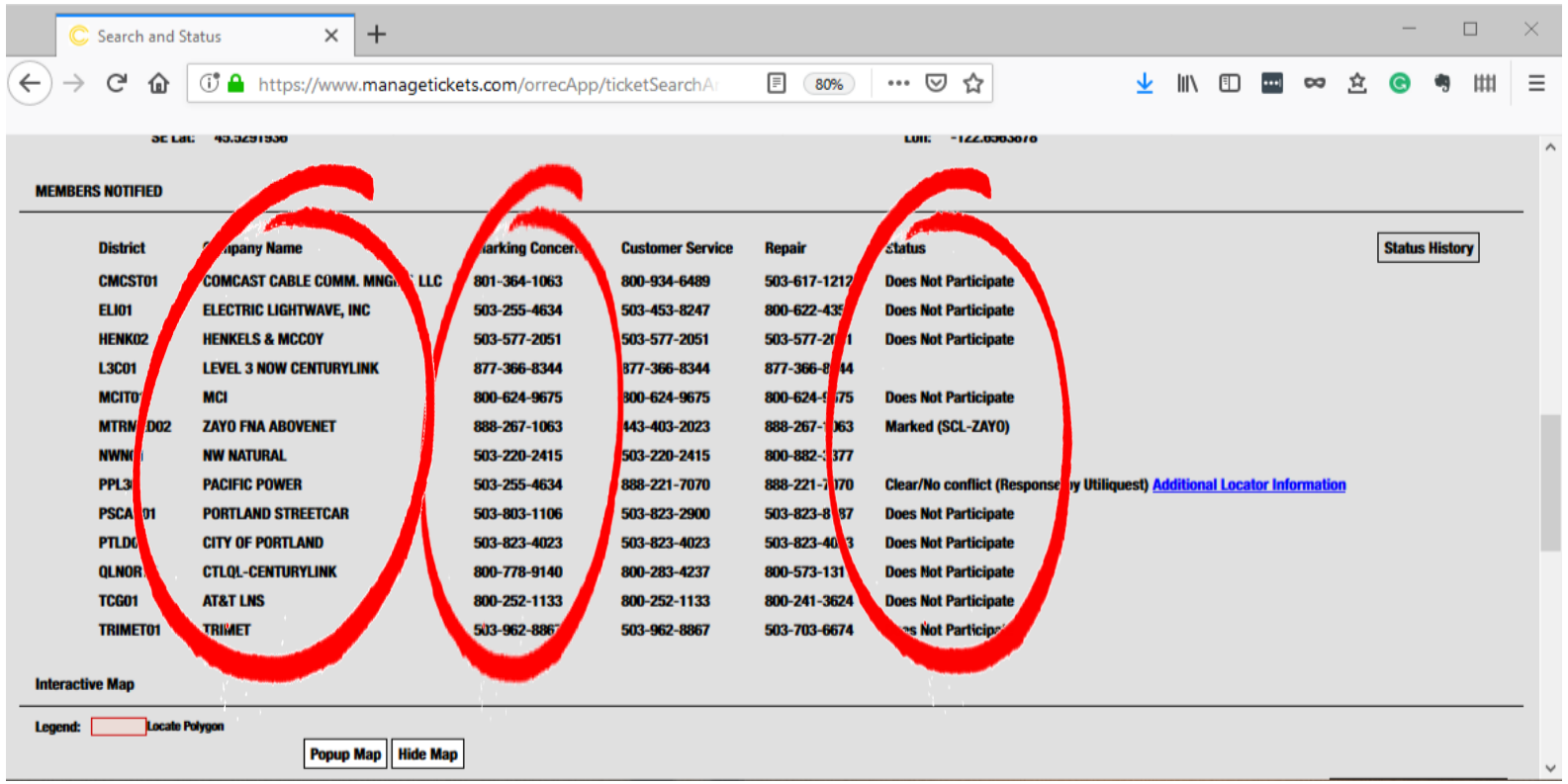
ALLOW THE REQUIRED TIME



ALLOW THE REQUIRED TIME



ALLOW THE REQUIRED TIME

- Emergency locates are an exception
  - Immediate danger, demanding prompt action to prevent loss of life
  - Mitigate damage to property
  - Prevent interruption of essential public service
- Underground facility operators are required to respond as **quickly as possible**.

Oregon 811 UTILITY NOTIFICATION CENTER

ALLOW THE REQUIRED TIME

- If responding to an emergency, an excavator can begin excavation if they:
  - Notify Oregon Utility Notification Center (OUNC).
  - Take reasonable care to protect underground facilities.
  - Marks are provided.
- Questions before break?

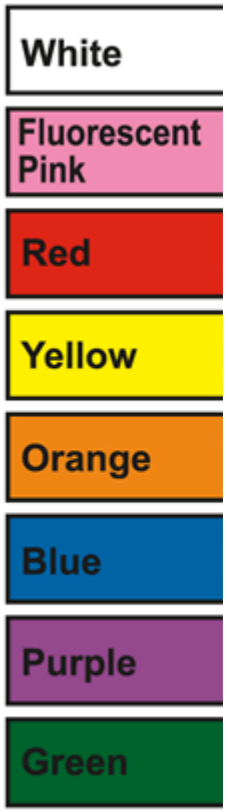
Oregon 811
UTILITY NOTIFICATION CENTER

BREAK

TRAINING COURSE PROGRESS

- Opening
- Importance of Prevention
- Before You Dig (Contact, Allow)
- When Digging (Respect, Excavate)
- Closing

RESPECT THE MARKS



Do you know what utilities match these colors?

Oregon 811 UTILITY NOTIFICATION CENTER

RESPECT THE MARKS

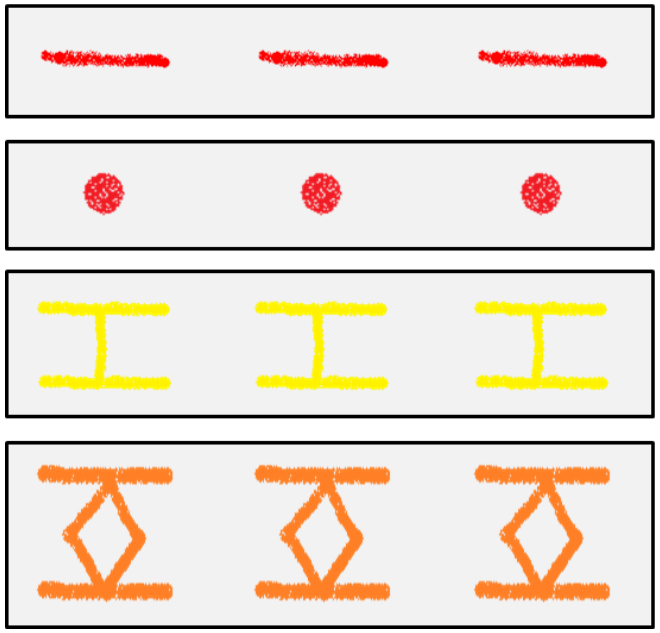
White	PROPOSED EXCAVATION
Fluorescent Pink	TEMPORARY SURVEY MARKINGS
Red	ELECTRIC POWER LINES, CABLES, CONDUIT AND LIGHTING CABLES
Yellow	GAS, OIL, STEAM, PETROLEUM OR GASEOUS MATERIALS
Orange	COMMUNICATION, ALARM OR SIGNAL LINES, CABLES OR CONDUIT
Blue	POTABLE WATER
Purple	RECLAIMED WATER, IRRIGATION AND SLURRY LINES
Green	SEWERS AND DRAIN LINES

- Uniform colors and symbols (American Public Works Association)
- Operator name/logo
- Offsets/obstructions
- No digging is to take place until all markings are completed.
- Do not use others' marks

Oregon 811 UTILITY NOTIFICATION CENTER

RESPECT THE MARKS

Common Paint Marks



Stripe – used to mark smaller sized cables & pipes. Marks should be approximately 18 inches long and 2 inches wide.

Dots – used to mark cables & pipes in decorative, landscaped areas & sidewalks. Dots should be approximately the size of a grapefruit or softball.

Lazy "H" – Not used everywhere
used to mark larger sized pipes, usually 4 inches in diameter or larger. Width of "H" should match diameter of pipe. Sometimes used to mark an "unknown" number of cables, or ducts.

Duct – Marks can vary regionally
used to mark multiple cables which are buried together and placed in conduit. Width of marks should correspond to number and arrangement of conduit.

← 12" to 18" →

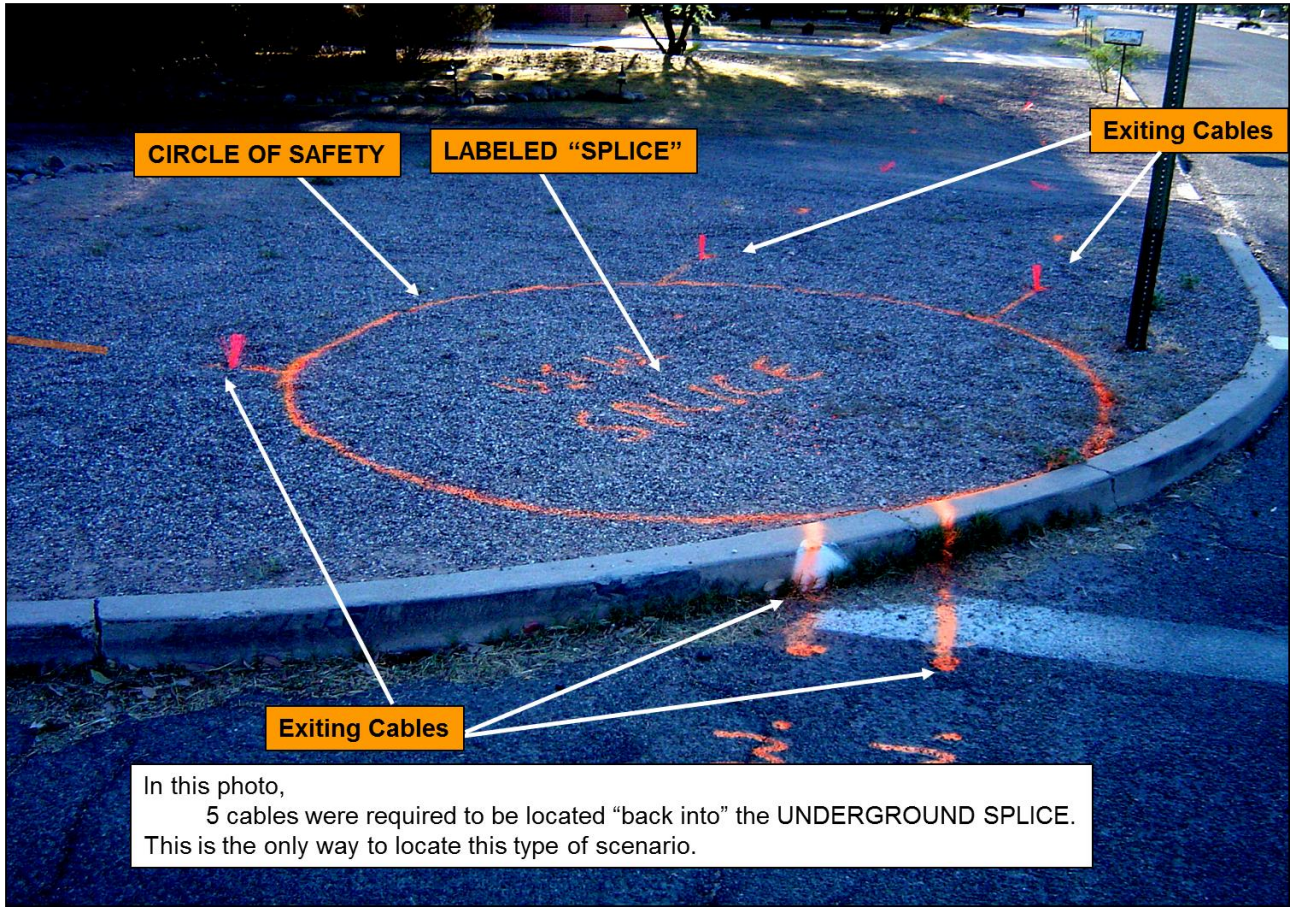
← 4' to 50' in distance between marks →

↑ 1" Wide

Oregon 811 UTILITY NOTIFICATION CENTER

RESPECT THE MARKS

MARKING UNDERGROUND SPLICES

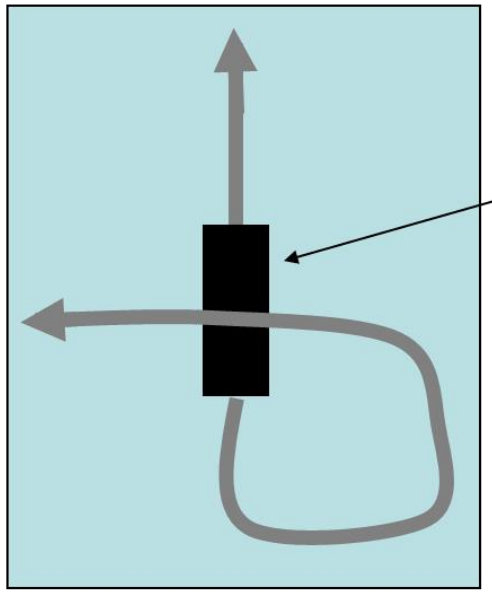


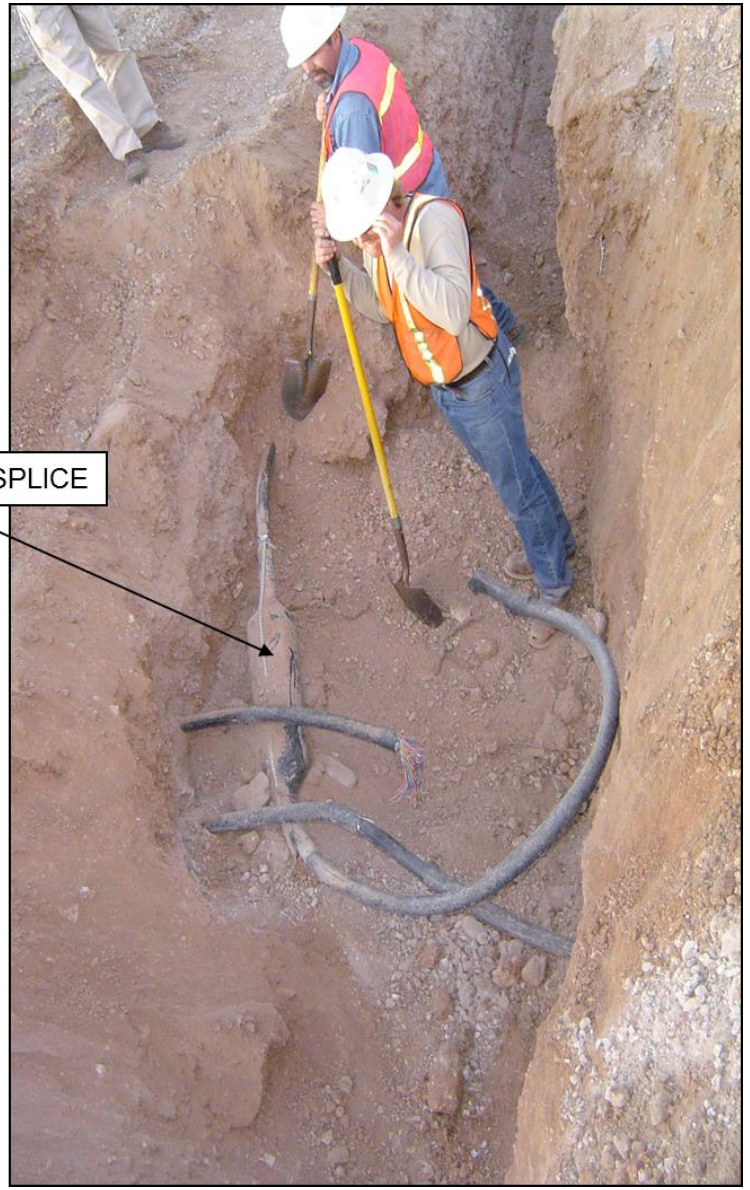
Oregon 811
UTILITY NOTIFICATION CENTER

RESPECT THE MARKS

Here is a photo of an UNDERGROUND SPLICE which was damaged.

Examine it closely to see why these splices can be difficult to locate.





Notice how the cable "LOOPS" back around the SPLICE, before continuing on its path.
This is extremely common with UNDERGROUND SPLICES.
These LOOPS are impossible to locate accurately and therefore, a CIRCLE OF SAFETY is necessary.

Oregon 811 UTILITY NOTIFICATION CENTER

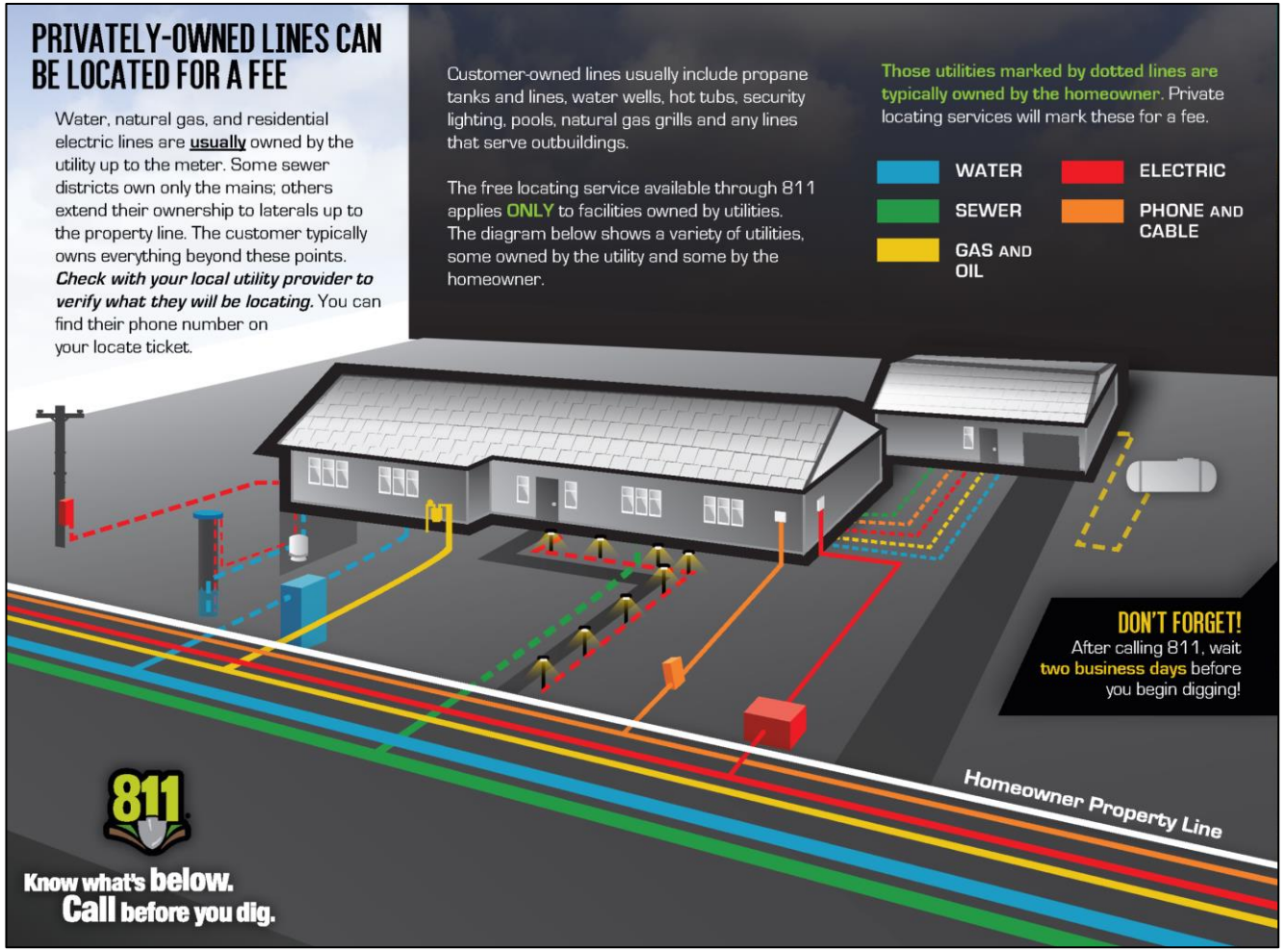
RESPECT THE MARKS

Are all underground facilities located through 811?

RESPECT THE MARKS

- Most operators* will locate to:
  - Meter, or
  - Meter base, or
  - Connection point of the private service.
- Sewer laterals will be marked within <u>public right of way</u> and easements.

* (gas, electric, water, telephone and CATV)



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UTILITY NOTIFICATION CENTER

RESPECT THE MARKS

- Excavator has responsibility to maintain accuracy of marks for life of ticket or project.
  - Stakes, offsets
  - Flags
  - Whiskers/feathers
  - Bracketing with white paint
  - Digital photos
- Do not paint over marks
- Work must stop if marks are no longer visible

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UTILITY NOTIFICATION CENTER

EXCAVATE CAREFULLY

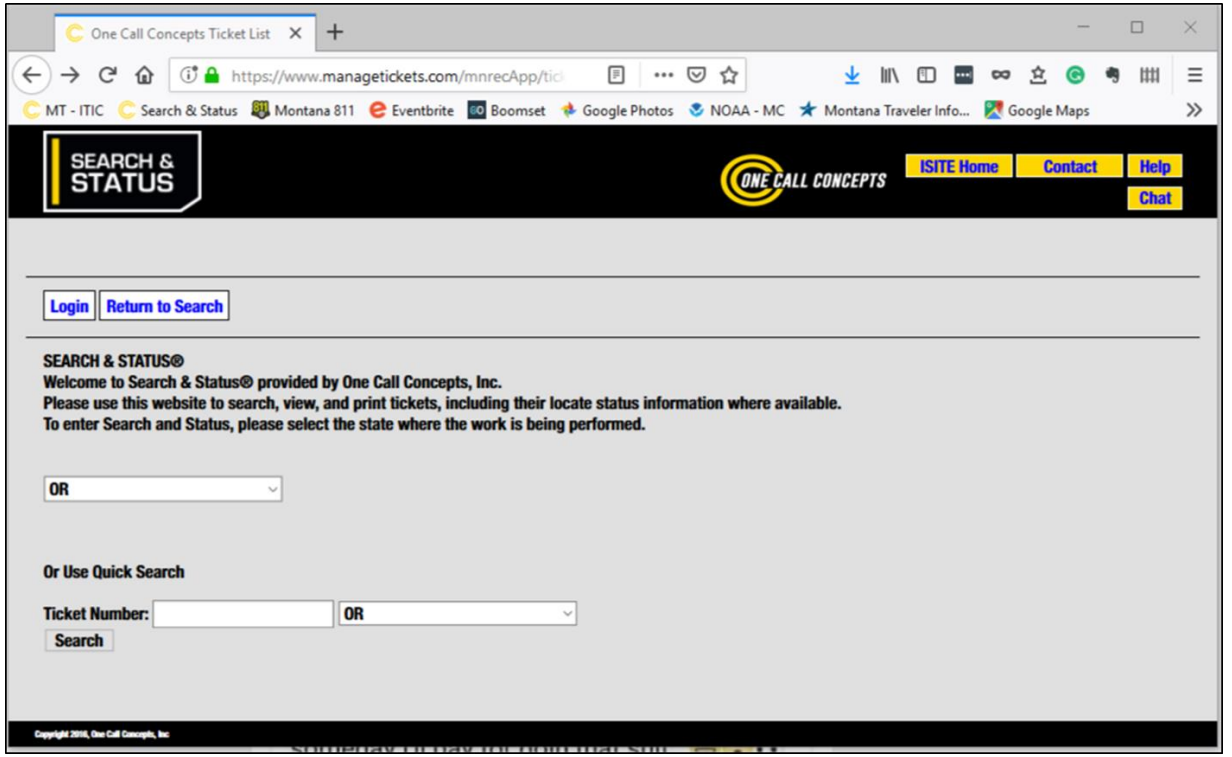
Best Practices

- Do you have a copy of the locate ticket for verification?
- Look at the excavation area – do the locates make sense?
- Pre-job walk – do you understand the extent of work, plan, potential hazards, safety precautions?
- Does your crew know what safe excavation techniques are?
- Does your crew have the appropriate PPE/tools to excavate safely?
- Inspect tools and equipment – are they in proper working order?
- Do you have a spotter/shovel person (excavation observer)?
- Do you have an emergency plan?

Oregon 811 UTILITY NOTIFICATION CENTER

EXCAVATE CAREFULLY

- Access your tickets on Search and Status: www.searchandstatus.com
- Have your ticket on the job site for verification
- Double check that the locates make sense



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EXCAVATE CAREFULLY

Tolerance Zones

- Locating is not an exact science. This zone allows for variances in locating, or a "margin of error."
- **24" surrounding the outside dimensions of all sides of an underground facility**
- A Tolerance Zone is a fixed distance on each side of the marks.
- An excavator SHOULD NOT dig with power equipment in this area before potholing the utility.

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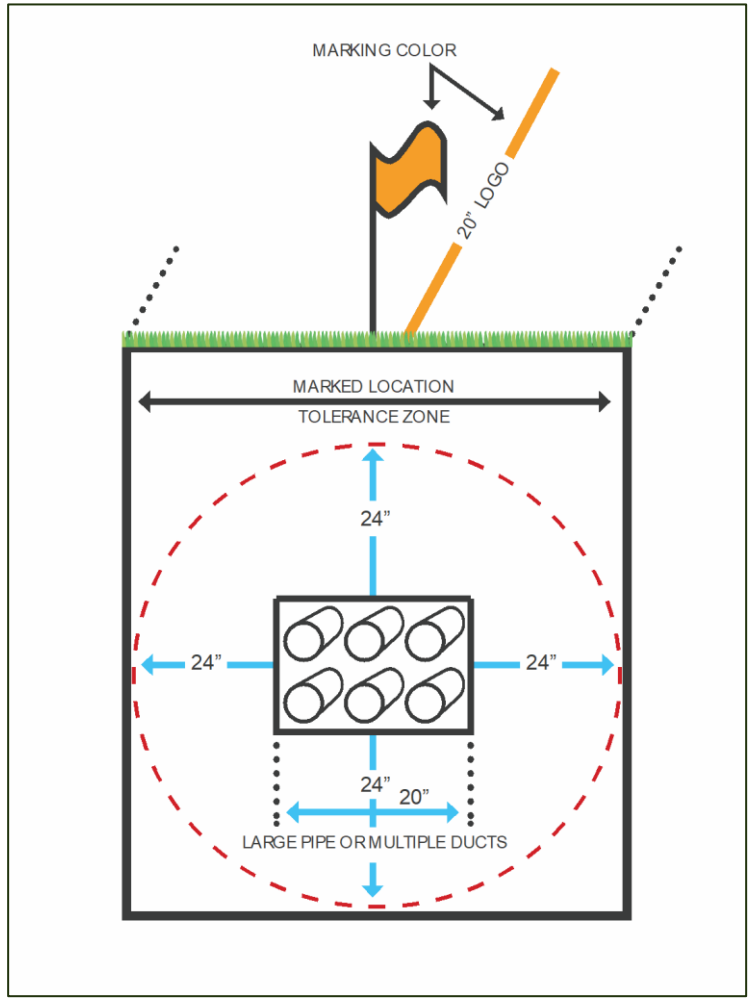
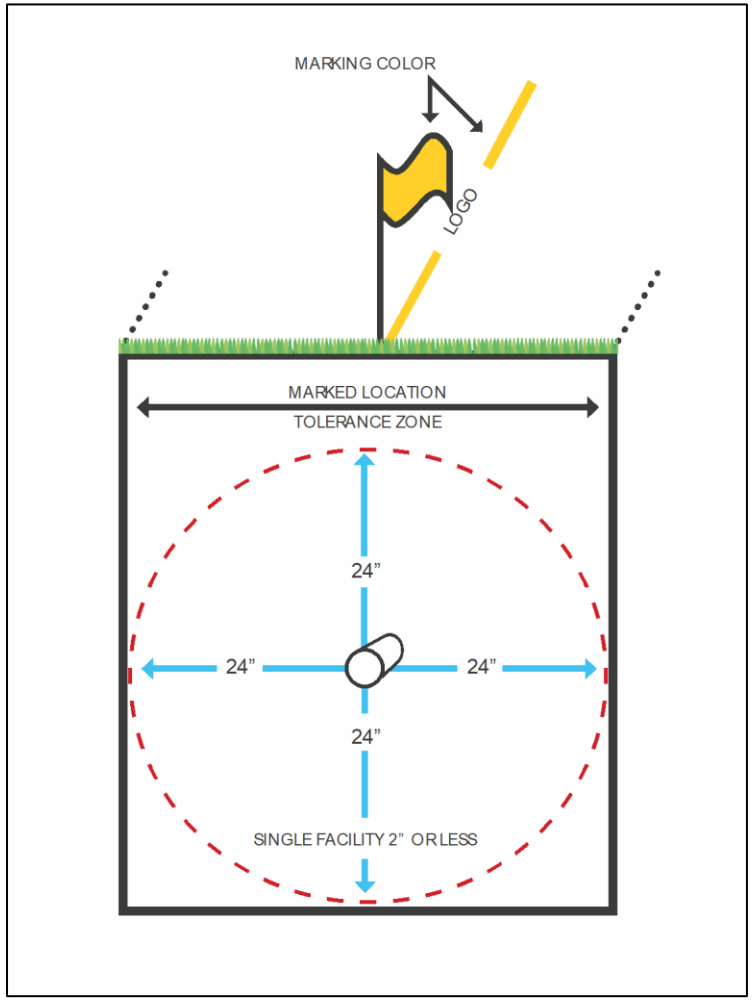
EXCAVATE CAREFULLY





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UTILITY NOTIFICATION CENTER

EXCAVATE CAREFULLY

Unmarked lines

- Missed, unlocatable, abandoned, out of service, new
- What to do?
  - Notify the Oregon Utility Notification Center, operator
  - Use extreme care when continuing to excavate in the vicinity

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EXCAVATE CAREFULLY

EXCAVATE CAREFULLY

Directional drilling and boring

- Pothole the existing facility where crossing.
- Visually monitor the drill head and back reamer pass safely through tolerance zone.

EXCAVATE CAREFULLY

Support or brace the facility

- Protecting exposed underground facilities is as important as preventing damage when digging around the utility.
- Keep workers from climbing or walking on facility.
- Don't move the facility.

Oregon 811 UTILITY NOTIFICATION CENTER

EXCAVATE CAREFULLY

In Case of Damage

- Call 911 if a gas line is hit and then call the utility owner
- Evacuate/keep clear
- Bring it to the foreman's attention if you even nick a line
- Don't bury it or try to fix it
- Notify, document, photograph

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UTILITY NOTIFICATION CENTER

EXCAVATE CAREFULLY

Complaint Process

- For reporting possible violations of Oregon's excavation laws
- Administered by Oregon Public Utility Commission
  - Submit online via QR code or link from Oregon811.com
  - You may also submit a complaint by calling 503-378-6600, or 800-522-2404
- Provide full details, photos, maps and documentation
- Staff may contact you or your company's designated contact for follow-up information

SCENARIO #1: ELECTRIC

- Crew grading site in preparation for a new parking lot
- Client requested a stormwater catch basin to be added in the middle of the site – it was not part of the original plan
- Supervisor decided to have crew proceed with excavation of the basin and trench during grading
- Live power line struck, causing arcing and sparks

Question 1: What should be done immediately?

Question 2: Why did this happen? How could it have been prevented?

SCENARIO #1: ELECTRIC

Question 1: What should be done immediately?

- Stop digging, back away, ensure there are no injuries
- Secure the work zone, evacuate employees/public from area
- Notify operator, facilities manager, emergency services if applicable
- Document incident, photograph, determine cause

Question 2: Why did this happen? How could it be prevented?

- Call (and wait) for locates, properly identify possible hazards
- Combine with facility records, historical knowledge if available
- Catch basin was not part of the plan, beware field revisions
- Learn from past projects/incidents

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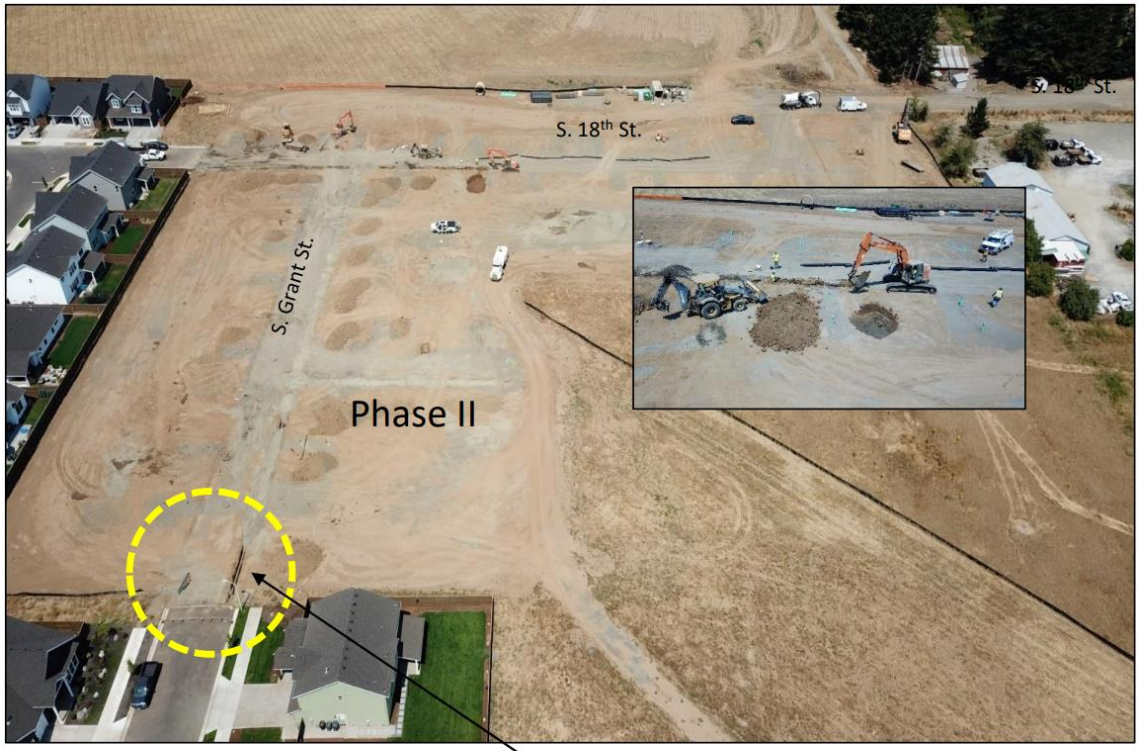
SCENARIO #2: GAS

- Excavator working on next phase of housing development
- Crew instructed to expose the end of a 2” gas line for tie-in at a later date
- Line was struck while using Hitachi backhoe at approximately 24” down
- Punctured the poly-vinyl gas line in the ground



2” Gas line service struck and damaged

Question 1: What should be done immediately?

Question 2: Why did this happen? How could it have been prevented?

Oregon 811 UTILITY NOTIFICATION CENTER

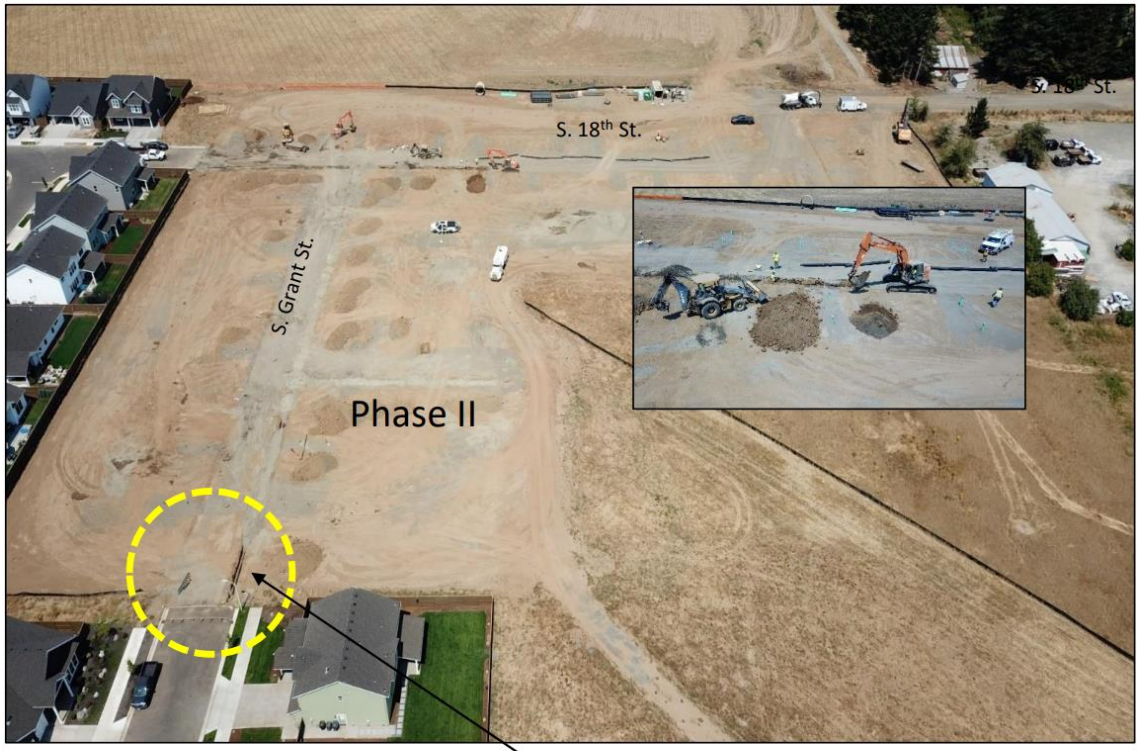
SCENARIO #2: GAS

Question 1: What should be done immediately?

- Turn off equipment, clear the area
- Evacuate nearby workers and contact utility operator emergency line, 911
- Do not cover the line – let it vent
- Let gas company experts respond, repair

Question 2: Why did this happen? How could it have been prevented?

- Site was properly marked, but should have started by potholing with hand tools.
- Observe tolerance zone.
- Train all employees on proper excavating techniques.



2" Gas line service struck and damaged

Oregon 811 UTILITY NOTIFICATION CENTER

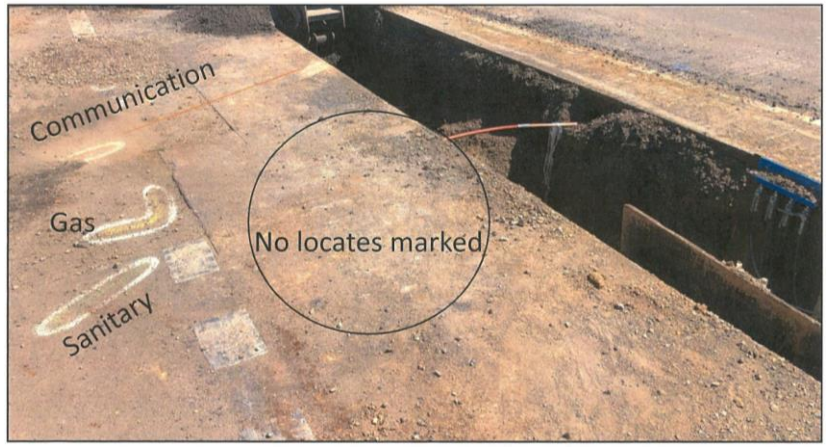
SCENARIO #3: FIBER/CABLE

These are two separate incidents that resulted in a similar outcome:

- Incident 1 - While installing a new sanitary sewer line, the crew severed a cable line that was over four feet from the located marks, buried directly beneath the 6" asphalt.
- Incident 2 – While installing underground pipe, the crew struck an unmarked fiber line (despite having facilities located in that dig area).

Question 1: What should be done immediately?

Question 2: Why did this happen? How could it have been prevented?



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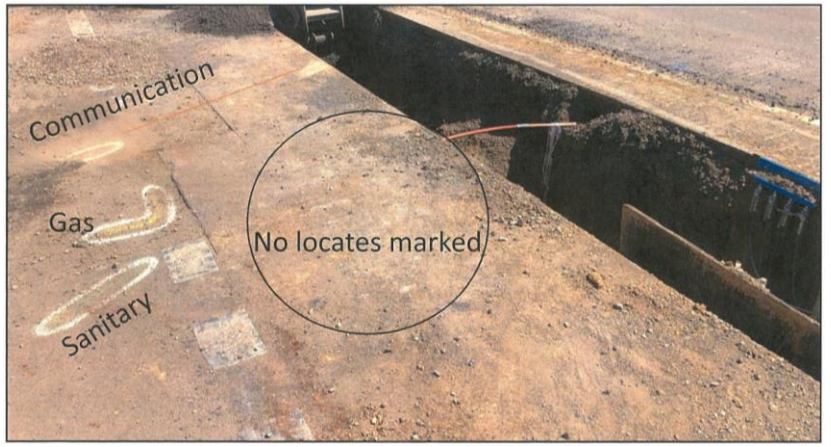
UTILITY NOTIFICATION CENTER

SCENARIO #3: FIBER/CABLE



Question 1: What should be done immediately?

- Identify the utility that has been struck/severed, notify the operator so repairs can be completed.
- Document the situation.

Question 2: Why did this happen? How could it have been prevented?

- Damage can still occur even while following proper procedures/best practices. There are instances in which the locate marks will be incomplete, so the excavator must always be vigilant and expect the unexpected.
- A spotter might be able to help in this situation but likely would not have prevented the damage in time.

Oregon 811
UTILITY NOTIFICATION CENTER

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- Survey
- Q & A
- Additional resources

RECAP

Q & A

ADDITIONAL RESOURCES

- Oregon Standards Manual, Oregon 811 website
- Online Excavation Training, Oregon 811
- Locator Training Classes, Oregon 811
- Common Ground Alliance - Best Practices
- Infrastructure Resources - Excavation Safety Guide and Directory
- National Excavator Initiative – Mike Rowe PSAs

Josh Thomas, Executive Director
Oregon Utility Notification Center
503-317-5007
josh.thomas@digsafelyoregon.com

THANK YOU!

ON BEHALF OF THE OREGON UTILITY NOTIFICATION CENTER, THANK YOU FOR YOUR COMMITMENT TO DAMAGE PREVENTION.

Oregon 811
UTILITY NOTIFICATION CENTER