

If you live or work in Orange County and you are planning to dig, the question is not whether there is a buried gas line in your way. The question is where it is, how deep it sits, and what else is running next to it that you could hit by mistake.

I have been on sites where a homeowner put a post hole two inches from a gas service without ever knowing how close they came. I have also seen the other version of that story, where a small trench turns into a gas leak, an emergency shutdown, and a very expensive repair bill. The difference between those two outcomes is proper utility locating.

This is a practical guide to finding buried gas lines in Orange County without damaging them, and to understanding how public and private utility locating actually works here in California.

Why utility locating matters before you dig

Every time you put a shovel, auger, or excavator bucket into the ground, you are betting that there is nothing critical in your path. That is a bad bet in a dense county like Orange.

Residential properties often have:

- A gas service line from the street to the meter
- Electric, water, sewer, and telecom lines
- Irrigation pipes, sometimes with low voltage control wiring
- Old, abandoned utilities that never made it into a current map

Commercial sites layer on more: multiple conduits, larger gas mains, fire lines, data and fiber bundles, and private campus utilities that no public agency tracks.

Striking a buried gas line risks injury, fire, or explosion. Even a “minor” hit where the pipe only gets scratched can create a future leak point. On top of the safety issues, there is liability. In California, if you dig without calling 811 and you damage a line, you are almost always on the hook for the repair and any related costs.

That is why utility locating exists. It is cheaper and safer to find the lines first than to fix what you break later.

What is utility locating?

Utility locating is the process of finding and marking underground pipes, cables, and other infrastructure so you can dig around them safely. The work combines records research, field investigation, and specialized instruments that can detect buried materials or conductors.

At a basic level, utility locating answers three questions:

1. What is buried here?
2. Where does it run horizontally on the site?
3. How deep is it, within a reasonable tolerance?

Gas lines, water lines, sewers, electric, communication and fiber, and sometimes storm drains or irrigation pipes are all typical targets.

What does a utility locator do on site?

When a locator shows up, they do a lot more than wave a magic wand over the ground.

They usually start by reviewing maps or “as built” drawings if those are available. On a residential call, that may be as simple as reading the gas meter location, the electric meter, and any visible service boxes, then building a mental picture of likely routes.

In the field, a locator will:

- Identify access points such as meters, valves, manholes, cleanouts, and junction boxes
- Attach instruments to conductive lines when possible
- Use a receiver to trace those lines across the property
- Fill in gaps using ground penetrating radar where direct connection is not possible
- Mark the approximate alignment and sometimes depth on the surface with paint or flags

Locators spend a surprising amount of time interpreting partial signals and resolving conflicts. For example, two electric conduits might cross under a driveway. One will carry the signal strongly, the other may **Orange County Utility Potholing** re-radiate it, and the locator needs to sort out which is which.

Accuracy depends on soil, depth, installation quality, and how accessible the line is to instruments. A good locator will explain the confidence level of different marks and any areas of uncertainty.

Public vs private utility locating

Most Orange County property owners first hear about locating through the 811 system. That is where the difference between public and private utility locating becomes critical.

Is utility locating free in California?

Yes, public utility locating is free through 811 in California. When you call 811 or submit a DigAlert ticket online, the system notifies utility operators that have registered lines in that area. They either mark their lines on the ground or clear the ticket if they have nothing there.

This free service, however, only covers what are called “public utilities.”

What is the difference between public and private utility locating?

Public utility locating covers facilities that a utility company owns and maintains in public right of way or up to a defined point on private property. For example:

- Gas: typically from the main in the street up to the meter
- Electric: from the transformer or pole to the meter
- Water: from the water main to the meter
- Communications: from the provider’s network to the demarcation point

Private utility locating covers everything beyond those points that belongs to the property owner or another private party. On many properties, this includes:

- Gas lines from the meter to pool heaters, outdoor kitchens, or detached structures
- Electric conduits from the main panel to outbuildings, EV chargers, or landscape lighting
- Water and irrigation piping beyond the water meter
- Private sewer laterals and on-site collection systems

- Fire lines on private property
- Campus utilities in commercial or institutional complexes

Public utility locators will not mark these private lines unless that utility happens to own them, which is uncommon in residential settings.

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Does 811 locate private lines?

No, 811 does not locate most private lines. 811 coordinates the public utility operators. Once those utilities mark what they own, the rest is up to the property owner.

That gap surprises a lot of people. They assume a yard covered in paint means every line is accounted for. In reality, the riser to your pool heater or the feeder to a detached garage may be completely unmarked unless you hire a private utility locator.

Do I need a private utility locator?

You should consider a private locator in Orange County if any of these are true:

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- You plan to dig deeper than a foot in an area where public marks are sparse or absent
- You have known private features like a pool, spa, outdoor kitchen, or detached building
- The property is older, has been remodeled or added onto several times, or has a history of undocumented work
- You are responsible for a commercial site, school, HOA, or industrial facility with complex utilities

On simple residential jobs, you might get by with 811 and very careful hand digging. On larger or higher risk work, hiring a private locator often saves both time and money.

Is calling 811 the law in California?

Yes. California law requires anyone who plans to excavate to contact the regional notification center before digging. In Southern California, that system is DigAlert, reached by dialing 811 or using their website.

If you dig without calling 811 and you damage a facility, you can face:

- Liability for repair costs
- Fines in some cases
- Delays while utilities are repaired and inspected
- Increased scrutiny or penalties for repeat offenses

On top of that, if you hit a gas line, you will have emergency responders and utility crews on site. They will ask for the DigAlert ticket. Without one, you are in a weak position.

Who do I call before digging in Orange County?

For public utilities: contact 811 / DigAlert.

For private utilities: hire a private locating company that works in Orange County. Some civil engineering firms and subsurface utility engineering (SUE) providers also offer this service, especially on larger projects.

How far in advance do you need to call before digging?

Typically you must contact 811 at least two working days before excavation, but no more than 14 days in advance. Weekends and holidays do not count as working days. Always verify the timing on the DigAlert website, since rules can be updated.

How does utility locating work in practice?

Modern locating relies on a few main categories of tools.

What equipment do utility locators use?

The core tools you will see on a professional locator's truck include:

- Electromagnetic (EM) locators: These use a transmitter to induce a signal on a conductive line and a receiver to trace it on the surface. They are the workhorse for metallic pipes and cables.
- Ground penetrating radar (GPR): Sends radar waves into the ground and reads reflections to identify changes in material or voids. GPR is often used when there is no conductive path, such as with plastic pipes or unknown objects.
- Radio frequency and passive locators: Used to pick up naturally occurring or stray signals from power lines or radio-frequency carrying cables.
- Tracer wires, sondes, and duct rods: Small transmitters that can be pushed through nonmetallic pipes so they can be located from above.

Each tool has strengths and limits. Good locators choose the right combination based on the site.

How does ground penetrating radar work, and what is it used for?

GPR sends short pulses of radar energy into the ground, then measures how long it takes for that energy to bounce back from buried objects or layers. Different materials reflect the signal in different ways, creating patterns that trained operators can interpret.

In utility locating, GPR is used to:

- Find nonmetallic pipes without tracer wire
- Verify or refine positions found by other methods
- Detect unknown utilities or structures under pavement or slabs
- Support subsurface utility engineering, where more detailed mapping is required

How accurate is ground penetrating radar? That depends heavily on soil type, moisture, and the skill of the operator. In Orange County's coastal areas with sandy, relatively dry soils, GPR can perform very well, sometimes locating features to within a few inches horizontally. In heavy clay or very wet conditions, depth accuracy can degrade and some targets become harder to see. As a rule, treat GPR depth estimates as ranges, not exact numbers, unless you have good local calibration.

How accurate is utility locating overall?

No technology can tell you with perfect certainty what is underground everywhere on a site. Utility locating is about reducing risk to a manageable level.

For lines that can be directly connected with an EM transmitter, run in reasonable soil, and not too deep, a skilled locator can often mark them within about a foot laterally. Depth estimates are normally less precise, especially as depth increases.

Complications arise when:

- Multiple lines occupy the same trench
- Lines are broken, poorly grounded, or have splices that interfere with signals
- Old utilities are abandoned in place
- Plastic pipes lack tracer wire

When I advise contractors, I usually recommend treating located utilities as “keep out” zones, not as perfectly known lines. Plan your work so that you expose utilities with hand digging or vacuum excavation at key crossings rather than trusting marks to the inch.

How deep can utility locators detect?

On typical utility frequencies, EM locators can often trace conductive lines 8 to 10 feet deep, sometimes more under ideal conditions. Depth readings above 10 feet should be treated cautiously unless supported by other information.

GPR can see deeper in dry, low conductivity soils and shallower in conductive, clay-heavy, or saturated soils. In many Orange County locations, practical GPR depth for utility-sized objects is in the range of 6 to 10 feet.

For locating buried gas services in residential yards, the lines are usually much shallower, often 12 to 36 inches deep. Never assume, though. I have seen gas lines at 6 inches in old neighborhoods and at more than 4 feet where grading has changed.

Can utility locators find plastic pipes?

Yes, but not as easily as metallic ones.

For gas, modern services are often plastic. If they were installed with tracer wire, the locator can connect to that and trace the line with EM equipment. If there is no tracer wire, options include:

- Using GPR to pick up the pipe as a void or density contrast
- Inserting a small transmitter (sonde) into the pipe, if there is an access point
- Correlating from known entry and exit points, such as the route from a meter to a known appliance

Locating plastic without tracer wire is where experience and judgment matter. The results are more interpretive, and a responsible locator will explain the limitations to you.

What do the utility marking colors mean?

When public or private locators mark your property, they follow a standard color code. This is not decoration. It tells you what you are dealing with.

Here is a quick reference in plain language:

- Red: electric power lines, cables, conduit, lighting
- Yellow: gas, oil, steam, petroleum, or other gaseous materials
- Orange: communications, telephone, fiber optics, signal lines
- Blue: potable water
- Green: sewers and drain lines
- Purple: reclaimed water, irrigation, slurry
- White: proposed excavation area

If you see red paint or flags, that means there is an electric line nearby. Yellow means a gas line or similar. Orange utility flags usually mark communications or fiber optic cable.

White paint is the one color that belongs to you or your contractor. It outlines where you plan to dig so the locators can focus their efforts on the relevant area.

How do you locate a buried gas line specifically?

Locating a buried gas line safely is a combination of preparation, records, instrument work, and cautious excavation.

Here is the basic, safe sequence I recommend for property owners and contractors in Orange County:

- Call 811 and get a DigAlert ticket for your project area.
- Once the public gas utility marks their line to the meter, walk the site and identify all gas appliances and likely routes.
- If any gas-fed equipment or structures sit beyond the meter, hire a private utility locator to find and mark those private gas lines.
- Respect the tolerance zone around all marks, typically 24 inches on each side in California, and expose the gas line by careful hand digging or vacuum excavation where your work crosses it.
- Only after you visually confirm the gas line's exact location and depth should you bring in power equipment near that line.

On the technical side, a locator finding a gas line will usually use the meter set as a connection point, attach a transmitter to tracer wire or metallic components, and trace the line across the ground. If that is not possible, they may use GPR to scan the route.

How accurate is locating gas lines?

Public gas utilities are usually very good about installing tracer wire with plastic gas mains and services. That makes them easier to trace. However, private gas lines, especially older ones, may be a mix of steel and plastic, with or without tracer wire.

Expect good accuracy where the locator can connect directly to a line or tracer. Where they rely mainly on GPR or inferred routes, treat the marks as approximate and proceed with even more caution when exposing.

What about other buried utilities on the property?

Many of the same methods used for gas apply to other utilities. It helps to think of them one by one.

How do you locate a buried water line?

Public water from the main to the meter is located by the water utility after your 811 call. Beyond the meter, the building water service, irrigation mains, and hose bib lines on private property are your responsibility.

Water lines can be copper, galvanized steel, PVC, PEX, or other plastics. Metallic water lines can be traced with EM locators. Plastic water lines often require GPR or, if possible, insertion of a traceable rod through a service line.

Because water lines sometimes leak, you can also listen for them with acoustic tools or even a mechanic's stethoscope on suspect spots. But for planning excavation, stick to professional locating and exposed verification.

How do you locate a sewer line or septic tank?

Sewer lines are usually cast iron, clay, ABS, or PVC. The public portion in the street gets marked by the sewer agency after 811 notification. Your private lateral from the building to the main is often unmarked unless you hire a private locator.

A common technique is to send a locating sonde or camera head with a built-in transmitter down the cleanout, then track it on the surface as it moves along the pipe. That method can also help locate a septic tank. If there is no accessible cleanout, sometimes a locator has to expose one or work from a roof vent in some residential cases.

Septic tanks can often be found by a combination of as built records, probing, GPR, and following the sewer line from the structure.

How do you find a buried electrical line or fiber optic cable?

Electric lines and metallic conduits are straightforward EM targets if you can access a panel or junction box. Fiber optic cables themselves are nonconductive, but they are almost always installed with a metallic tracer or within a metallic or traceable conduit. Locators connect to that metallic component, not the glass fiber.

Cutting a fiber optic cable can cause major service outages. The repair costs for high-count or backbone fiber can easily go into tens of thousands of dollars. That is why orange marks and flags deserve as much respect as yellow and red.

Who is liable if you hit a utility line?

Liability questions get complicated, but a few principles are consistent in California.

If you:

- Fail to call 811 and damage a public utility
- Ignore marks or dig without respecting tolerance zones
- Use mechanical excavation where hand exposing is required

You will almost certainly be held liable for the cost to repair the damage. Those repairs can include emergency calls, replacement materials, inspection, relining or re-pulling cables, and surface restoration.

How much does it cost to repair a damaged utility line? Minor residential damages can still run several hundred to a few thousand dollars. Large commercial hits, especially on bundled electric or critical fiber, can go far higher and may involve claims for service interruption.

If a locator significantly mis-marks a line, there may be shared liability between the excavator and the locator, but this often depends on whether the excavator followed best practices, including verifying utilities by exposure in key areas.

From a practical standpoint, hiring a reputable private locating company is much cheaper than any significant repair, particularly on more complex sites.

Can you locate your own underground utilities?

Homeowners sometimes ask if they can buy a “stud finder for the ground” and avoid hiring a pro. There are consumer grade locators and metal detectors, and they can be useful for simple tasks, like finding a shallow irrigation valve or a known metallic pipe.

The problem is that consumer tools do not interpret conflicting signals well, and they rarely measure depth accurately. Without training, it is easy to misread what you see and, for example, follow the wrong line.

For low risk, shallow work, some DIY locating paired with a proper 811 ticket and extra caution may be acceptable. For anything near gas, electric, or fiber, a professional locator is not a luxury. It is part of doing the job responsibly.

How long does utility locating take?

On a typical single family lot in Orange County, public utility locating through 811 usually happens within a couple of business days, and the locator is on site for less than an hour.

Private locating timelines depend on the company’s schedule and the complexity of the property. A straightforward residential private locate may take an hour or two on site. Larger commercial properties, industrial yards, or sites requiring detailed subsurface utility engineering can take a day or more.

Start the process early. Waiting until your excavator is idling in the driveway is the most expensive time to discover you need private locating.

How much does utility locating cost in Orange County?

Public utility locating through 811 is free to the excavator. The utilities and ratepayers fund that work.

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Private utility locating is paid for by the property owner, contractor, or project owner. For a basic residential locate, you might see prices in the low hundreds of dollars. Larger and more complex sites, or those requiring GPR mapping and SUE-grade deliverables, can run into the low thousands and beyond.

When you weigh that against the potential cost of a hit, plus schedule disruptions and safety risks, the economics usually favor doing thorough locating, especially for commercial and repeat work.

Do you need a permit to dig in Orange County?

Many kinds of excavation, especially in the public right of way or for structural work, do require permits from the city or county. Even when no permit is required for a small garden project, the obligation to call 811 still applies if you are excavating.

Always check your local city or county building and public works departments for permit requirements. Permits and utility locating are separate obligations, and you generally need to satisfy both.

Why subsurface utility engineering matters on larger projects

On larger projects in Orange County, utility locating becomes part of a broader practice called subsurface utility engineering, or SUE. SUE goes beyond marking lines in the field. It organizes utility information into quality levels, from record research and visual observation up to test holes that physically expose and precisely survey lines.

SUE reduces surprises during construction, aids in design, and supports safer, more efficient excavation. On complex streetscapes, utility corridors, and redevelopment sites, SUE is often the only realistic way to manage the tangle of existing infrastructure.

If you are an engineer or project owner, engaging a firm that offers SUE instead of piecemeal locating often pays off in fewer change orders and design revisions.

Putting it all together for Orange County diggers

If you remember nothing else, keep these practical points in mind:

Call 811 before you dig, every time, even for small projects. Understand that 811 marks public utilities only, not your private gas, electric, water, and sewer beyond meters and demarcation points. On any project where you might encounter those private lines, especially gas services beyond the meter, hire a competent private utility locator.

Respect the colors on the ground. Red means power, yellow means gas, orange means communications. White outlines where you intend to work. Treat all marks as approximate, expose critical utilities carefully before digging near them, and adjust your plan if you find something unexpected.

Done right, locating a buried gas line in Orange County is not guesswork or luck. It is a disciplined process that combines common sense, legal requirements, and specialized tools. When you follow that process, you protect people, property, and your own bottom line.