

If you live or work in Orange County and you see bright paint on the sidewalk or a row of colored flags in a lawn, you are looking at the language of underground utilities. Those marks are not random. They are a safety system that tells excavators where it is safe to dig and where a single shovel strike could shut down power, flood a street, or rupture a gas main.

I have walked job sites in Irvine, Anaheim, and Mission Viejo where the only thing standing between a backhoe and a high voltage line was a thin red paint mark. When people understand what those colors mean and how utility locating works, the work goes faster, the risk drops, and everyone sleeps better at night.

This guide focuses on Orange County and California rules, but the color code is national. Whether you are a homeowner planting trees, a contractor trenching for a new service, or a property manager planning a remodel, the principles are the same.

What utility locating is and why it matters

Utility locating is the process of finding and marking buried pipes, cables, and other infrastructure before anyone digs. The goal is simple: avoid striking something you cannot see.

When people ask, "What is utility locating?" I describe it as mapping what is underground without actually uncovering it. Technicians use electronic equipment and ground penetrating radar to trace the path of utilities, then mark those paths on the surface with colored paint or flags.

That leads to the next question: "What does a utility locator do?" A good locator does far more than wave a wand over the ground. On a typical Orange County job, the locator will:

- review utility maps and records for the address,
- identify which facilities are public utilities and which are private,
- choose the right equipment and frequencies for the soil and utility types,
- trace and confirm each line, then mark alignment, estimated edges, and sometimes depth,
- explain findings and limitations so the excavator knows where to be cautious.

The locator is both technician and interpreter, translating weak signals and imperfect records into something an excavator can rely on.

Utility locating is not just a best practice. It is a legal and financial shield. Striking a buried line can trigger emergency response, project shutdowns, repair invoices, and, in the worst cases, injuries or fatalities. I have seen minor-looking hits turn into five figure repair bills, and gas hits that evacuated entire blocks.

Calling 811 in Orange County: what it covers and what it does not

In California, 811 is the statewide "Call Before You Dig" system. If you are asking, "Who do I call before digging in Orange County?" the answer is 811, also branded as DigAlert in our region.

Is calling 811 the law in California?

Yes. California law requires anyone who plans to dig to notify the regional notification center, which is 811, before excavation. This includes homeowners digging for fence posts or trees, not just contractors.

Starting work without a ticket is risky. If you ask, "Is it illegal to dig without calling 811 in California?" the practical answer is yes, because you can be held liable for any damages and may face regulatory penalties if a hit occurs.

Is utility locating free in California?

Public utility locating through 811 is free. When you contact 811:

- The notification center alerts member utilities with facilities in the area.
- Each utility sends its own locator or contractor to mark its publicly owned lines at no charge to you.

The question "Who pays for utility locating?" is answered this way: for public utilities within their service responsibility, the utility companies absorb the cost as part of their operating expenses. For private lines, the property owner or project owner pays.

What 811 does not locate

A key misconception is that one call to 811 means every underground line will be marked. That is not true.

"What does 811 not locate?" In short, it does not cover privately owned facilities. Typical examples include:

- Power, water, and telecom lines on the customer side of the meter or service point.
- Most lines inside commercial sites, apartment complexes, HOAs, hospitals, and campuses, especially when they are owned by the property, not by the public utility.
- Private sewer laterals beyond the main cleanout or in large complexes.
- Landscape lighting, irrigation control wires, and private well or pump power.

So, "Does 811 locate private lines?" Generally no. The difference between public and private utility locating is ownership and responsibility. Public locates cover the utility company's infrastructure up to an agreed demarcation point. Private utility locating fills the gap on the customer side.

If you are wondering, "Do I need a private utility locator?" the answer is yes whenever you are working inside a property where there may be unmarked private lines, especially commercial sites, large residences, or older properties with undocumented work.

What do the utility marking colors mean?

The color system is standardized across the United States by the American Public Works Association. Whether you are in Santa Ana or San Juan Capistrano, the meaning is the same.

Here is the core utility marking color code you will see in Orange County:

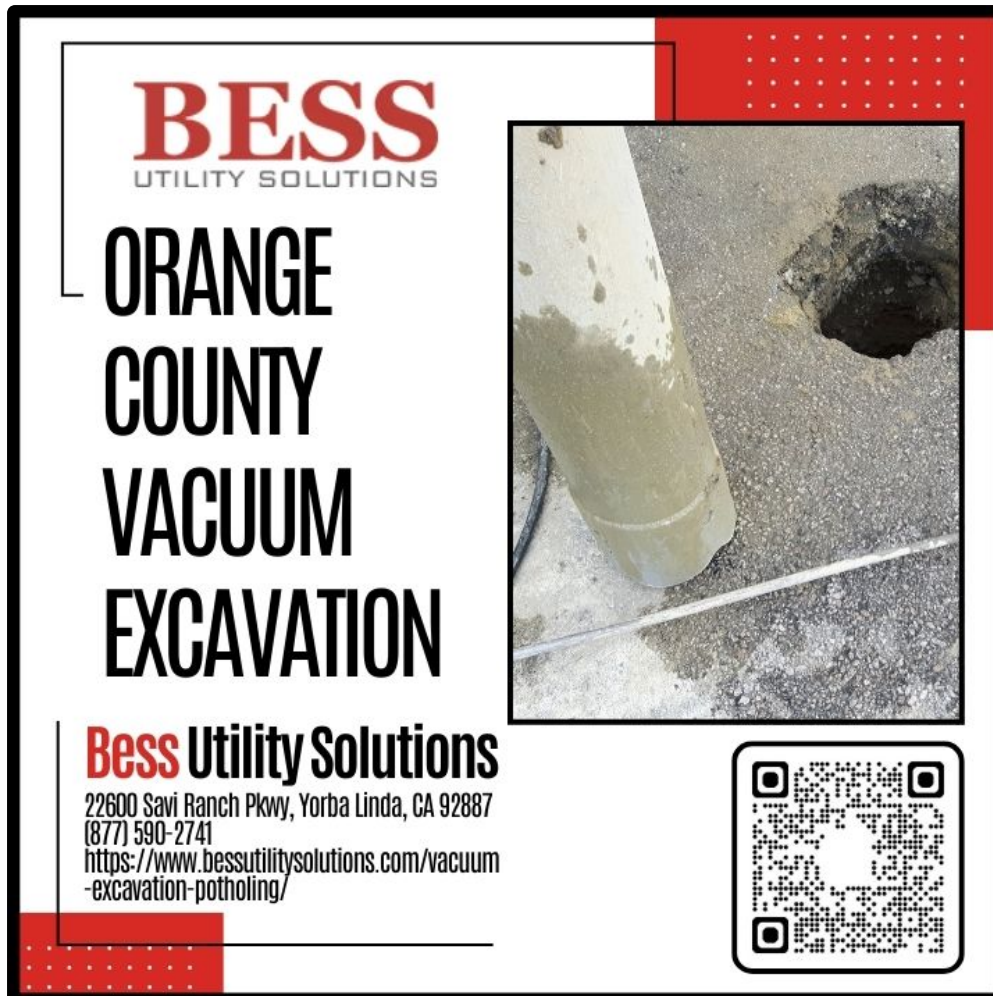
Color	Meaning	Typical use in Orange County
White	Proposed excavation	Contractor or homeowner marks where they plan to dig
Pink	Temporary survey markings	Survey control, boundaries, construction layout
Red	Electric power lines, cables, conduit	Overhead-to-underground drops, primary and secondary power
Orange	Communication, alarm, signal lines	Fiber optic, telephone, cable TV, data
Yellow	Gas, oil, steam, petroleum products	Natural gas lines, sometimes fuel lines
Green	Sewer and drain lines	Sanitary sewer, storm drains, structure laterals
Blue	Potable water	Domestic water services and mains
Purple	Reclaimed water, irrigation, slurry	Non-potable water, recycled irrigation systems

What is the white paint on the ground for?

White markings are not utilities at all. They show the proposed excavation area. California law expects excavators to "white line" the dig area before requesting locates so that utilities know where to focus their work.

On a residential project, you might see white paint outlining a proposed pool or trench path. On a street job, white lines might bracket the area where a contractor plans to sawcut pavement.

If you only see white paint and nothing else, do not assume there are no utilities. It may mean locates have not been done yet or tickets are still pending.



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What does red paint mean on the ground?

Red is electric. In Orange County, that usually means:

- primary power lines feeding a neighborhood or commercial site,
- secondary power from the transformer to individual meters,
- service drops to houses or buildings,
- street lighting circuits, if owned by the utility.

Electric hits are among the most dangerous. When I see red paint hugging a curb in a residential tract, I remind crews that many secondary services are surprisingly shallow, sometimes in the 18 to 24 inch range. A careless auger can find those quickly.

What do orange utility flags mean?

Orange marks communications. Orange flags and paint can indicate:

- fiber optic trunk lines,

- coaxial cable for TV and internet,
- buried telephone or data lines,
- signal and communication cables for traffic systems.

Fiber optic strikes are uniquely painful. There may be no immediate visible damage like water gushing or gas hissing, but service outages can affect thousands of customers and the repair cost can rival or exceed a gas hit. It is not unusual for a cut major fiber to result in repair invoices in the tens of thousands of dollars.

Other colors you will see in Orange County

Yellow identifies gas. SoCalGas lines, high pressure and low pressure, are typically marked in yellow. In some industrial settings you might also see yellow on fuel lines or similar products. Any digging near yellow should proceed slowly, often with vacuum excavation rather than direct mechanical digging.

Blue indicates potable water, whether a city main in the street or a service line running from the meter to a building. A backhoe can break a three quarter inch service line in a fraction of a second, and that can flood trenches and undermine asphalt.

Green is sewer and storm drain. Sewer markings often show the main line in the street and sometimes laterals heading to buildings. Many laterals are unrecorded or inaccurately mapped, so an experienced utility locator is valuable when tying into existing sewer systems.

Purple is becoming more common in Orange County as recycled and reclaimed water systems expand, especially in master planned communities and public landscapes. Those pipes carry non potable water that must stay separate from drinking water.

Pink belongs mostly to surveyors, not utilities. If you see pink, it usually ties to control points, easements, or construction layout features rather than buried lines.

How utility locating actually works

On site, utility locating is a mix of electronics, physics, record research, and experience. When someone asks, "How does utility locating work?" I break it into two main technologies and one essential ingredient: good judgment.

Electromagnetic locating

For conductive utilities such as metallic pipes and power or communication cables, locators often use electromagnetic (EM) locating equipment.

The process usually goes like this. The locator connects a transmitter to a line at an accessible point such as a valve, meter, pedestal, or tracer wire. The transmitter sends a signal along the line. A handheld receiver then detects that signal on the surface, allowing the locator to trace alignment and, in some cases, estimate depth.

When you ask, "What equipment do utility locators use?" EM locators are at the top of the list, often paired with signal clamps, sondes, and other accessories.

Ground penetrating radar

"What is ground penetrating radar used for?" GPR steps in where EM struggles, especially on non conductive utilities such as plastic pipes without tracer wire, unknown structures, or congested areas.

A GPR unit looks like a small cart. It sends high frequency radar pulses into the ground and reads the reflections as they bounce off buried objects or changes between soil layers. The result is a radargram, which an experienced

operator interprets to distinguish possible utilities from rocks, voids, or other features.

As to "How accurate is ground penetrating radar?" the answer is, it depends. In Orange County, sandy or well graded soils with modest moisture respond well, and depth estimations can be within inches. Highly clayey, saline, or saturated soils can reduce penetration depth and clarity. Heavy reinforcement in concrete can mask features beneath.

How deep can utility locators detect?

With EM locating, practical depth in typical Orange County soil is often up to 10 to 15 feet for strong signals on clear lines. Beyond that, signal strength and resolution drop, and accuracy becomes more uncertain.

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With GPR, effective depth varies from a few feet in wet, clay heavy conditions to 10 feet or more in dry, clean sands. Shallow utilities in the 1 to 5 foot range are usually within the sweet spot.

When someone asks, "How accurate is utility locating?" I tell them this. For well designed, well installed utilities in cooperative conditions, horizontal accuracy of a few inches to a foot is realistic. In complex or older settings with poor records or non conductive materials, locates may only be accurate within a couple of feet and should be treated as approximate.

That is why many specifications and standards talk about tolerance zones, not precise lines. Excavators are expected to hand dig or pothole within that zone to expose the utility before heavy equipment comes in.

Can utility locators find plastic pipes?

Yes, but with caveats. If the plastic line has a tracer wire or a conductive tape, EM locating can pick it up. Many gas and water services are buried this way.

For unmarked plastic, GPR and indirect methods are often needed. For example, water lines can sometimes be traced from acoustic or pressure testing, sewer lines from camera inspections, or by correlating fixture locations with known main lines.

So to the specific questions: "How do you locate a buried water line?" and "How do you locate a buried gas line?" the toolbox often includes EM locators on tracer wires, GPR surveys, and sometimes test pits when the technology hits limits.

Public vs private utility locating in practice

On a typical Orange County project, you might see colorful marks from 811 locators on the street and sidewalks, then a very different situation inside the property lines.

The key phrase in many of the questions is "What is the difference between public and private utility locating?" Public locating is done by or for the utility owners in their right of way and up to their demarcation. Private locating is done by hired specialists, paid directly by the property owner or contractor, to identify everything else.

Does 811 locate private lines?

No, except in rare cases where a utility has chosen to take responsibility for lines on private property. That is unusual. In most commercial complexes in Orange County, private electric, water, sewer, fire service, irrigation, and telecom all crisscross the site without any legal obligation for 811 to mark them.

That is where private utility locators come in. If you are trenching through a shopping center parking lot, adding a new EV charging bank, or installing a playground in an HOA greenbelt, you should not rely solely on 811. The question "Should homeowners hire a utility locator?" becomes even more pressing on custom homes and older properties, where undocumented work is common.

Costs, timing, and who pays in Orange County

People planning projects often ask two things early: "How much does utility locating cost in Orange County?" and "How long does utility locating take?"

Cost ranges for private utility locating

Rates vary by company, technology, and project complexity, but for planning purposes in Orange County, you might see:

- simple residential private locates on a small lot starting in the 300 to 600 dollar range,
- moderate commercial projects charged hourly, often between 175 and 275 dollars per hour, with minimums,
- more complex surveys with extensive GPR work, records research, and reporting going into the low thousands of dollars.

"What is subsurface utility engineering?" is an important part of this [Orange County Utility Locating](#) discussion. SUE is a more formal process, often following ASCE 38 or similar standards, where utilities are located and assigned quality levels from D (records only) up to A (precisely located via test holes). Full SUE services, with detailed CAD deliverables and coordination, cost more than a basic mark out, but they pay for themselves on larger or sensitive projects by reducing redesigns and change orders.

Timeframes and scheduling

"How far in advance do you need to call before digging?" For 811 in California, the standard is at least two working days and no more than 14 calendar days before excavation starts. That gives utilities time to respond and mark. In practice, many contractors call a week in advance to keep some schedule flexibility.

"How long does utility locating take?" for public locates under 811 depends on workload, but most are completed within that two day window. For private locates, a typical residential job can be done in a few hours on site. Larger commercial or institutional jobs may require several site days and advance coordination.

What happens if you hit or cut a utility line?

Despite best efforts, hits sometimes occur. When someone calls me asking, "What happens if you cut a utility line?" the first answer is safety, the second is legal and financial.

For electric hits, the priority is to stop work, secure the [Orange County Utility Potholing **bessutility.com**](https://www.bessutility.com) area, and contact the utility immediately. No one should attempt to handle or repair a damaged electric line. For gas lines, evacuate the immediate area, avoid any ignition sources, and call 911 and the gas company. Water and sewer hits may not be as immediately dangerous, but they can cause flooding, contamination, and property damage.

"Who is liable if I hit a utility line?" often comes down to whether the excavator followed required procedures: calling 811, respecting tolerance zones, and using reasonable care. In many cases, if a contractor digs without an 811 ticket or ignores marks, they end up bearing the repair costs and associated claims.

"How much does it cost to repair a damaged utility line?" can range widely. A simple residential water service repair may cost a few hundred to a couple of thousand dollars. A cut fiber backbone, especially if it serves multiple customers or critical facilities, can lead to repair costs and damage claims in the tens of thousands. Major gas or electric hits can escalate further, particularly if there are injuries or regulatory penalties.

"What happens if I dig without calling 811?" is straightforward. If nothing goes wrong, you might think you got away with it. If something does go wrong, you are exposed. Insurance carriers and investigators look hard at whether 811 was contacted, and failure to call often weakens your position significantly.

Locating specific utilities on your property

Homeowners and small contractors often ask how to find particular lines.

"How do you locate a buried water line?" Many residential water services are blue marked by the water utility up to the meter. Beyond that, a private locator can often trace from the meter using EM equipment, assuming some conductivity, or GPR if not. Depth is commonly between 18 inches and 4 feet for residential services, but older work can be shallower.

"How do you find a buried electrical line?" depends on access. If there is a panel, transformer, or junction where a locator can attach a transmitter, EM locating works well. Secondary electric services to homes often run from transformers in front yards across lawns or driveways. We frequently find surprises where homeowners assume power runs in a straight line but the installer took a different route.

"How do you locate a sewer line?" The preferred method is often to use a drain camera with a transmitter head. The camera is pushed down the line, and a locator follows the signal on the surface. That provides both alignment and depth to key features. For mains and larger structures, records and traditional utility locating also play a role.

"Can you locate a septic tank?" Yes, in many cases. Locators may combine record research, probing, GPR, and camera work. Septic systems around older Orange County properties, especially in less urbanized areas or older

canyons, are sometimes poorly documented, so expect some exploratory work.

"How do you locate a fiber optic cable?" depends on how it was installed. If the cable has a metallic sheath or a tracer wire, EM will detect it. Many modern fiber installations include dedicated tracer lines for this reason. In their absence, GPR and good record research help, but the locates are more interpretive and less certain.

Can you locate your own underground utilities?

"Can I locate my own underground utilities?" is a reasonable question, especially from technically inclined homeowners. Handheld "stud finder" style locators from big box stores can sometimes detect very shallow metallic lines or wires, but they are limited and often misleading.

If you are doing minor gardening, keeping your work within the top foot of soil, and away from any known service corridors, you may decide to rely on 811 plus common sense. However, if you are installing fences, digging deeper holes, trenching, or doing any mechanical excavation, professional locating is far more reliable.

There are a few situations in which hiring a private locator is particularly important:

1. You did not receive marks from all expected utilities after calling 811, and you suspect more infrastructure exists.
2. You are working inside a commercial site, HOA, school, hospital, or industrial property with complex private networks.
3. You are cutting or trenching near known power, gas, or fiber routes where tolerances are tight.
4. You are planning a significant investment in landscaping, pools, or additions, where relocating utilities later would be costly.
5. You need documentation or maps, not just paint on the ground, for design and permitting.

When people ask, "What is the best utility locating company in Orange County?" I tell them to look less at the logo and more at the track record. Ask about the types of projects they handle, what equipment they use, whether they provide sketches or CAD files, and how they handle ambiguous findings. Good locators are transparent about limitations and will not promise certainty where the physics does not allow it.

Permits, local rules, and practical steps before you dig

"Do I need a permit to dig in Orange County?" depends on where and what you are doing. Work in public streets and rights of way almost always requires permits from the city or county, and often traffic control plans. On private property, building permits may be needed for structural work, pools, or major utilities.

Before any significant excavation, especially in developed parts of the county, a basic sequence keeps you out of trouble:

- White line your proposed excavation so that everyone knows where work is planned.
- Call 811 and obtain a valid ticket, then wait for marks to be completed.
- Walk the site, compare marks to visible features and plans, and note any gaps or inconsistencies.
- Bring in a private utility locator where 811 coverage ends or where private networks are likely.
- Plan to pothole or vacuum excavate within tolerance zones to expose critical utilities before heavy equipment digs.

"Why is utility locating important before excavation?" is answered by every crew that has watched a near miss. Underground utilities in Orange County are dense, especially in older neighborhoods and along major corridors.

Thoughtful locating, combined with cautious digging, makes the difference between a smooth project and a very long day.