

If you spend any time around construction sites, road work, or even simple landscaping in Orange County, you have probably seen splashes of colored paint on sidewalks, driveways, and dirt. Those markings are not graffiti. They are a language, and reading that language correctly can be the difference between a safe project and a very expensive or dangerous mistake.

The color that tends to worry people most is red. That concern is justified.

In utility marking, red paint on the ground means electric power. It can indicate underground electric lines, street lighting cables, or traffic signal power. Whenever you see red, you are looking at a warning about energized infrastructure.

Before we dig deeper into the color code, it helps to understand how utility locating works in Orange County, who does what, and when you need more than a free 811 markout.

The color code: what each paint color means

In the United States, including Orange County, most locators follow the APWA (American Public Works Association) uniform color code. This standard keeps everyone on the same page, from public utilities to private locating companies and contractors.

Here is how the colors translate:

Color	What it marks	----- -----	Red	Electric power lines, cables, conduit, and lighting cables	
Orange	Communication, alarm or signal lines, cable TV, fiber optic	Yellow	Gas, oil, steam, petroleum, or other gaseous materials	Blue	Potable (drinking) water lines
Green	Sewer and drain lines	Purple	Reclaimed water, irrigation, or slurry lines	Pink	Temporary survey markings
White	Proposed excavation limits or work area				

So when you ask, “What does red paint mean on the ground?” the short, serious answer is: stay alert. Someone has identified an underground electric line, and you should not disturb the area without understanding exactly what is there and how deep it is.

Orange markings raise a different set of issues. When you see orange utility flags or paint, you are likely dealing with telecommunications: fiber optic cables, cable TV, or communication lines for signals and alarms. Fiber in particular can be deceptively fragile and expensive to repair, and it often runs at shallow depths.

White paint is another common one people notice around homes and small jobs. White simply means “We plan to dig here.” In California, excavators are supposed to pre-mark the dig area in white so locators know where to focus their work.

What is utility locating and why it matters before you dig

Utility locating is the process of finding and marking buried pipes and cables before any excavation, drilling, or trenching. That can include:

- Public utilities like water, sewer trunks, gas mains, and power feeds in the public right of way
- Private utilities on private property, such as electrical conduits from a house to a detached garage, private fire lines, irrigation, or site lighting

Ask anyone who has had a backhoe bucket light up after snagging a live electrical duct, and you will hear the same thing: good utility locating is much cheaper than a bad surprise.

On a typical project in Orange County, you will see two tiers of locating:

First, public utility locating through the 811 system, paid for by the utility owners.

Second, private utility locating, hired directly by the property owner, contractor, or engineer.

Both matter. They serve different purposes and have different limits.

Public vs private utility locating in Orange County

A lot of confusion comes from assuming 811 marks everything. It does not.

When you call 811 in Orange County, your request is routed to Underground Service Alert of Southern California, also known as DigAlert. The affected public utilities send their locators to mark the lines they own and maintain.

Public utility locating typically includes:

- Electric company facilities up to the meter or service point
- Gas company lines up to the meter
- Public water mains and usually the service up to the meter
- Public sewer mains
- Telecom or cable providers' main lines and connections they own

What 811 does not locate are private lines. Examples of private lines include:

Detached garage or guest house electrical feeds after the meter.

Private parking lot lighting. Irrigation and landscape lighting. Private sewer laterals on the property side of the right of way, depending on ownership rules. Fire lines and private water loops inside commercial sites. Gas lines running from a meter to a pool heater or outdoor kitchen. Campus-style fiber networks on a business or school campus.

This is where a private utility locator comes in.

What does a utility locator do?

A professional utility locator, especially in the private sector, spends most of the day tracking the invisible.

On a typical Orange County residential or commercial project, a locator might:

Walk the site and review any as-built drawings, utility bills, or previous surveys.

Identify public utility marks from 811 and note gaps or conflicts.

ORANGE COUNTY UNDERGROUND UTILITY LOCATING

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Use electronic locating equipment to trace metallic pipes and cables. Deploy ground penetrating radar (GPR) to find non-metallic utilities, unknown structures, or abandoned lines. Mark the ground with paint and flags following the color code. Provide a sketch, CAD file, or report that documents what was found, where, and sometimes estimated depths.

Good locators also act as advisors. They explain how accurate the marks are likely to be, where the information is weak, and when to pothole (vacuum excavate or hand dig) to confirm a critical utility before heavy excavation.

Is utility locating free in California?

Public utility locating through 811 is free for the caller. In California, that is by design, because state law requires you to notify the regional notification center before excavating.

Private utility locating is not free. It is a service you hire, just like survey work or geotechnical investigation. Who pays for utility locating on the private side is usually a contractual issue:

On a home project, the homeowner or general contractor typically pays the private locator.

On commercial sites, it might fall under the civil engineer's pre-construction services, the general contractor's scope, or the owner's direct contracts.

From a risk standpoint, the cost of private locating is low compared with the potential consequences of a hit.

How much does utility locating cost in Orange County?

Prices vary by site complexity, size, and how detailed you need the results to be.

For basic private utility locating on a typical single-family residential lot in Orange County, you might see:

- Simple one- or two-utility locate in a small area: roughly \$250 to \$400
- Full-yard sweep including GPR for unknowns: often in the \$400 to \$800 range

For commercial or industrial sites, costs scale with acreage and complexity. A half-day visit with multiple technologies on a small commercial pad might run \$800 to \$1,500. Full subsurface utility engineering (SUE) on a multi-acre development can move into the multiple thousands, especially when tied to surveying and CAD deliverables.

Travel, emergency response, night work, and tight schedules can also affect price.

The important point is that “How much does private utility locating cost?” should be weighed against “How much could a hit cost?”

What happens if you cut a utility line?

Every locator I know has stories of lines that got hit anyway. [Orange County Utility Potholing](#) Sometimes the line was deeper or shallower than the records showed. Sometimes someone skipped a step. Sometimes someone chose to trust an old drawing rather than marks on the ground.

Consequences depend on what you hit:

Electric: cutting a live electrical line can arc, injure or kill workers, start a fire, and knock out power to homes or businesses. Repairs can range from a few thousand dollars for a small service to tens of thousands for a primary feed.

Gas: striking a gas line is extremely serious. Even if there is no ignition, you can expect evacuations, emergency response, and significant repair costs. Liability can be high if it is found you did not follow 811 requirements.

Fiber/communications: damage here can disrupt businesses, schools, and public services. Fiber repairs often start in the thousands and climb quickly if splicing is complex or access is difficult. Water or sewer: a broken main or lateral can flood property, undermine pavement, and shut down operations. Costs vary but easily push into the thousands when you include restoration.

Liability usually rests on the excavator if they did not follow the law or standard of care: calling 811, waiting the required time, respecting marks, and using reasonable care around marked lines. In some cases, if the utility failed to locate correctly, liability can be shared or shift. It often takes lawyers and claims adjusters to sort it out.

Is calling 811 the law in California?

Yes. California Government Code 4216 requires excavators to notify the regional notification center before digging. In Orange County, that means contacting DigAlert at 811 or using their online system.

The typical timeline is:

Request the locate at least 2 working days before excavation but not more than 14 calendar days before.

Wait for all responding utilities to mark their facilities or clear the ticket. Keep documentation that you made the request and who responded.

If you dig without calling 811, you are not only taking on avoidable risk, you are also violating state law. If there is a hit, that violation will be part of the investigation.

Does 811 locate private lines?

No. 811 only coordinates member utilities marking the portions of their systems that they own and maintain. Private lines are out of scope.

That means if your question is “How do I find underground utilities on my property?” and you have already called 811, the honest answer is: you probably still do not have the whole picture.

If you have any of these, you likely need a private utility locator:

- Detached buildings with power, gas, or water
- Large, complex irrigation systems
- Private fire loops and hydrants on commercial property
- On-site fiber between buildings
- Older properties that have been remodeled or expanded multiple times

What is subsurface utility engineering (SUE)?

Subsurface utility engineering is a more formal, engineering-grade approach to utility locating. It combines:

Records research.

Geophysical locating methods (EM, GPR). Surveying of utility marks into a coordinate system. Sometimes vacuum excavation to expose key utilities and measure depth and size.



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SUE is commonly used on road projects, large developments, and municipal work in Orange County because it significantly reduces change orders and surprises during construction. It also helps designers avoid conflicts in the

first place.

For a homeowner planting a tree, SUE is overkill. For a city rebuilding an intersection full of red, orange, yellow, and blue marks, it is standard practice.

How does utility locating work in practice?

Different tools work in different conditions. A skilled locator picks the right combination.

Electromagnetic (EM) locators: These are the workhorses. The locator induces a signal onto a metallic line, then uses a receiver to track that signal along the ground. This works well on copper, steel, and tracer wires. It does not work on untraced plastic or concrete.

Ground penetrating radar (GPR): GPR sends radar pulses into the ground and measures reflections from changes in material. This is what most people mean when they ask, "What is ground penetrating radar used for?" In utility work, it helps locate non-metallic pipes, voids, tanks, and unknown structures. GPR does not show you a pretty pipe image in real time; it shows hyperbolas and patterns that an experienced operator interprets.

Sondes and camera systems: For sewer lines and conduits, locators can push a small transmitter (sonde) or sewer camera through the pipe, then track the transmitter from the surface. That is one way to locate a buried sewer line or even find a septic tank.

Metal detectors and magnetometers: Useful for finding valve boxes, manhole lids, and other buried metallic objects.

On depth: How deep can utility locators detect? With EM, depth is often limited by the strength of the signal, soil conditions, and line configuration, but utilities at 10 to 15 feet are commonly locatable if conditions are favorable. GPR can see deeper in dry, sandy soils than in wet clays. In parts of Orange County with sandy or alluvial soils, GPR can be effective to 8 feet or more, while in tighter, wet soils the practical depth may be less.

Accuracy is another common question. "How accurate is utility locating?" and "How accurate is ground penetrating radar?" have similar answers: it depends on conditions. Under good conditions, a locator might reasonably expect horizontal accuracy within a few inches to a foot. Depth estimates are usually less precise and often given with a tolerance range. Seasoned locators are careful not to oversell precision, especially in congested areas.

Can utility locators find plastic pipes? Yes, but with caveats. If the plastic pipe has a tracer wire, EM locating works well. Without tracer wire, GPR and probing techniques become important, and results depend on soil and pipe size. Small plastic irrigation laterals can be difficult to see unless special techniques or as-built records are available.

How do you locate specific buried lines?

People often come with very focused questions:

How do you locate a buried water line? Public water mains and metallic services are usually found with EM locating. Plastic services with tracer wire can be located the same way. Without tracer wire, GPR or carefully connecting to accessible portions of the line might help.

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How do you locate a buried gas line? Public gas utilities will locate their lines through 811. Private gas lines from the meter onward can be traced with EM if they are metallic. For plastic gas lines, tracer wire is the key. If no tracer wire exists, the job gets more delicate, and potholing may be necessary.

How do you locate a sewer line or septic tank? Many sewer laterals are non-metallic. A common method is to send a camera or sonde through a cleanout, then track it via EM from the surface. Septic tanks can sometimes be picked up with GPR based on their size and shape, combined with surface clues like vent pipes and historical knowledge.

How do you find a buried electrical line? Electrical lines are usually very cooperative with EM locators, provided you have a way to connect a transmitter or induce a signal. Red paint on the ground shows where previous locators found those paths.

How do you locate a fiber optic cable? Fiber itself is glass and not conductive, but nearly all modern fiber is buried in conduit with a tracer wire or metallic element. Locators energize that metallic component with EM equipment. In rare cases without tracer, GPR may help, but results are less reliable.

Should homeowners hire a private utility locator?

For small, shallow projects like hand-digging a few fence post holes far from any marked utilities, many homeowners proceed after calling 811 and visually assessing the site.

Once projects get deeper, closer to the house, or involve machinery, the risk changes. You should seriously consider hiring a private locator when:

- You see red, orange, or yellow paint in or near your planned excavation

- You know or suspect private lines such as pool equipment gas lines, yard lighting, or old repairs
- You are trenching for new utilities or drains across existing lines
- You are building additions, ADUs, or major hardscape

The cost of a locator visit is usually a fraction of what a single mishit can cost, even on a residential job.

Can I locate my own underground utilities?

There are consumer-grade locators and metal detectors on the market, and some homeowners experiment with them. They can sometimes find simple, shallow metallic lines, but there are risks:

Home units are limited in power, selectivity, and filtering.

Interpreting signals in a congested area is not straightforward. It is easy [Orange County Utility Locating](#) to lock onto the wrong line or miss a non-metallic utility entirely.

For very simple tasks, a cautious, technically inclined person might get some value from DIY tools. For anything involving machinery, deeper excavation, or complex sites, relying on a professional is far safer.

What to do before digging in Orange County

Here is a simple sequence that fits most projects, from new landscaping to major construction:

1. Define your work area clearly and mark it in white paint or flags.
2. Contact 811 (DigAlert) at least 2 working days before digging and get a ticket number.
3. Wait for all utilities to respond, and read the field marks so you understand which colors and codes are present.
4. If your work area includes unmarked zones that may contain private utilities, hire a private utility locator.
5. When digging within the tolerance zone of marked utilities, use hand tools or vacuum excavation to verify depth and location before using machinery.

If you are unsure whether you need a permit to dig in Orange County, check both city and county requirements. Many simple residential projects do not require a grading permit if you are not changing drainage significantly, but utility trenches, retaining walls, and structure foundations often do. When in doubt, call the local building department or consult your contractor or engineer.

How long does utility locating take?

On site, a straightforward residential locate might take one to two hours. More complex or congested sites can take half a day or more. The schedule you experience also depends on:

Lead time: Many private locating companies in Orange County can respond within a few business days, but peak seasons get busier.

Scope: SUE-level work with survey deliverables naturally takes longer. Coordination: Large projects with many stakeholders may require scheduling around other trades.

Plan utility locating early, particularly if your schedule is tight. It is one of the first field tasks that should occur after design reaches a certain point.

Why red paint deserves extra respect

Each color on the ground tells part of the story, but red and yellow deserve special attention. They represent systems that can injure or kill very quickly if mishandled.

When you see red paint on the ground:

Treat the corridor as containing energized conductors until proven otherwise.

Assume the depth is uncertain unless it has been verified by potholing or as-built data. Coordinate with the utility owner or a qualified electrician if you must work very close to the line. Make sure everyone on site understands what the red markings mean.

In Orange County, with dense development, undergrounding of utilities, and frequent remodels, it is common to find complex webs of red and orange lines in surprisingly small areas. Careful utility locating, thoughtful interpretation, and disciplined excavation practices are what keep that complexity from turning into incidents.

If there is one habit worth building, it is this: any time you see fresh paint on the ground, especially red, stop and read it before you touch a shovel or start a machine. Those markings are not random. They are a warning written in color, and they are there to keep you, your project, and your community safe.