

Vacuum excavation has gone from a niche option to the default choice near utilities in much of Sacramento. If you are working around fiber, PG&E lines, SMUD facilities, or aging water mains, someone on the project will ask whether you can bring in a vac truck instead of a backhoe.

Then the next question hits: how much does vacuum excavation cost?

I work with contractors, utilities, and facility owners across Northern California, and the same pattern shows up every time. People underestimate the hourly rate, but they also underestimate how much risk and rework they avoid. Getting a realistic cost picture means looking at more than a single “dollars per hour” number.

This guide walks through real-world ranges for the Sacramento market, explains what drives the price, and shows how to do quick back-of-the-napkin estimates for specific jobs.

What vacuum excavation actually is (and what it is not)

At its core, vacuum excavation uses high pressure water or compressed air plus a powerful vacuum to break up soil and suck it into a debris tank. Instead of teeth and a bucket, you are cutting with a wand and cleaning with a hose.

Contractors use two main approaches:

Hydro excavation: High pressure water cuts and liquefies the soil, and the vacuum removes the slurry into a debris tank. It is faster in tight or heavy soils, especially the compacted clays and mixed fill you see all over Sacramento older neighborhoods.

Air vacuum excavation: Compressed air fractures the soil, and the vacuum pulls out dry spoils. It is slower but keeps materials dry, which can matter for disposal, environmental rules, or when you want to reuse the backfill.

People often ask, what is the difference between hydro excavation and vacuum excavation? In day to day language, “vacuum excavation” is the broad category, and “hydro excavation” is a specific type of vacuum excavation that uses water as the cutting media.

When someone quotes you a “vac truck” or “vac ex” price in Sacramento, they almost always mean a hydro vac truck with an onboard boiler, water tank, debris tank, vacuum blower, and a trained crew.

Typical cost ranges in Sacramento

Rates always depend on company, season, and scope, but for Sacramento and the surrounding counties, most reputable operators fall into these brackets:

1. Hourly rate for hydrovac with crew

For a full size vacuum excavation truck with a two person crew, expect roughly 350 to 550 dollars per hour, portal to portal. Higher rates typically reflect union labor, night work, or specialized confined space or industrial cleaning capabilities.

2. Minimum charges

Common minimums are 4 to 8 billable hours per mobilization. On small pothole work, it is very normal to see a 1,800 to 3,200 dollar total just to get the truck out, even if you only need a half day.

3. Day rates

A full 10 to 12 hour day in Sacramento usually lands in the 3,800 to 6,000 dollar range, depending on disposal, traffic control, and whether you are inside Caltrans right of way or a busy urban street.

4. Unit pricing per pothole

For utility locating, some contractors prefer a per-hole price. A typical 12 by 12 inch, up to 5 feet deep pothole might run 350 to 700 dollars in quantity, assuming accessible locations and standard soils.

5. Unit pricing per cubic yard

On bulk daylighting or slot trenching, you may see 80 to 180 dollars per cubic yard, depending on soil type, disposal, access, and required restoration.

Those are broad averages. On public works jobs, you sometimes see lower bid rates, but they usually come with tight production requirements and clear separation of what is and is not included.

How much does vacuum excavation cost for specific jobs?

The better question than "How much does it cost for a vac excavation?" is "How much for my specific volume, depth, and site conditions?" Here is how contractors usually think about it in this region.

How much can a vac ex excavate in a day?

Under decent conditions in the Sacramento Valley:

- Tight, congested utility potholing: 15 to 30 test holes per day, each roughly 1 by 1 foot, 4 to 6 feet deep. That works out to maybe 7 to 12 cubic yards of material.
- Slot trenching in softer soils: 20 to 40 cubic yards per day is common for continuous trench work, assuming access is good and traffic control is not eating the schedule.
- Heavy clay or cobble: Productivity can drop to 10 to 20 cubic yards per day when you are chewing through hardpan or river rock.

So when you ask, how much does an excavator excavate in one hour compared with a vac truck, a tracked excavator will always move more cubic yards per hour in open ground. The reason you bring the vac truck is not speed, it is control and safety near buried assets.

How long does it take to dig a 100 ft trench with a vac truck?

For a 100 foot trench that is 12 inches wide and 4 feet deep:

- Volume is $100 \text{ ft} \times 1 \text{ ft} \times 4 \text{ ft} = 400$ cubic feet.
- You divide by 27 for cubic yards because there are 27 cubic feet in 1 cubic yard: $3 \text{ ft} \times 3 \text{ ft} \times 3 \text{ ft}$.
- $400 \text{ cubic feet} \div 27 \approx 14.8$ cubic yards.

If the truck is averaging 15 to 25 cubic yards per 10 hour day in that soil, your 100 foot trench is essentially a 1 day task, plus time for setup, traffic control, and restoration. If you are in rocky fill, tree roots, or extremely sensitive utility corridors, plan for 1.5 days to give yourself a margin.

How much to excavate 200 cubic yards with vacuum excavation?

Let us use a realistic production rate for mixed Sacramento soils, say 20 cubic yards per day on larger work.

- $200 \text{ cubic yards} \div 20 \text{ cubic yards per day} = 10$ productive days.

- If your day rate is 4,500 dollars with disposal included, that is about 45,000 dollars in vac excavation costs.

A strong crew in soft soils with minimal moves might push 30 yards per day and bring that down to 7 days. Conversely, if you are in tight alleys, on night shifts, or dealing with constant relocations, you can easily add 20 to 30 percent more time.

For many projects, contractors will not run that entire 200 cubic yards by hydrovac. They vac around the utilities for, say, the top 2 to 4 feet and the first couple of feet horizontally, then switch to a conventional excavator for bulk excavation. That blended approach can cut costs dramatically.

What does excavation cost per hour compared with traditional methods?

On paper, a mini excavator at 150 to 220 dollars per hour, or a 20 ton excavator like a Cat 320 at 200 to 300 dollars per hour with operator, looks cheaper than a 450 dollar per hour hydrovac. That is accurate if you are in open space, far from utilities, shoring, or tight tolerances.

Once you factor in the risk of a utility strike, liability, delays, and the inevitable potholing that must happen anyway, vacuum excavation often becomes cost competitive. A single hit on a fiber backbone or gas main will wipe out the "savings" from running a bucket instead of a vac.

How deep can vacuum excavation go?

Most hydrovac trucks can work safely to 20 to 30 feet deep with standard hose and tooling. Going deeper is possible with extensions, but production drops and safety requirements increase.

Two practical limits control depth:

First, access. To pull spoils from 20 feet down, you need a relatively straight path for the vac hose and good staging for the truck. Urban Sacramento alleys and backyards can be challenging.

Second, soil stability. Questions like how deep can you excavate without shoring or what is the 4 foot rule in excavation matter more than the truck's mechanical ability. OSHA generally requires protective systems such as sloping, shoring, or shielding at 5 feet deep or more, unless the excavation is in stable rock. Many owners and contractors adopt internal rules at 4 feet to trigger ladder access and additional inspections, and that is often what people mean by the "4 foot rule".

In other words, the vac truck can go to 20 plus feet, but your shoring plan, ladder spacing, and safe access rules will usually govern how that work is done.

Safety rules that quietly drive cost

If you want to understand why vacuum excavation costs what it does, you need to look at the safety and compliance burden that a legitimate contractor carries.

OSHA rules and common excavation standards

A few of the phrases you hear on site are shorthand for regulatory requirements and company policies:

- How deep can you dig without shoring? Under federal OSHA 1926 Subpart P, any trench or excavation 5 feet deep or more must have a protective system unless in stable rock. Many Sacramento contractors treat 4 feet as the point where they review a shoring plan.

- Ladder access and spacing. The “4 foot rule” often refers to providing safe access (like ladders) to excavations 4 feet deep or more. Ladders must be located so workers do not have to travel more than 25 feet laterally.
- Setback and spoil pile limits. Concepts like the 19 inch rule or the 35 foot rule usually come from local or company specific standards on separation between utilities, or distances to egress, rather than from a single OSHA citation, so always confirm what your particular spec is really saying.

When people ask what is OSHA's 3 most cited violation, they are usually talking about overall construction: fall protection, hazard communication, and ladders or scaffolding are often at the top. For excavation specifically, common citations are inadequate cave-in protection, lack of safe access and egress, and failure to locate or support adjacent structures and utilities.

None of this is free. A contractor that respects these rules has to staff a competent person, invest in training, buy and maintain shoring or shielding, and lose some production to inspections and setups. That overhead is baked into your hourly hydrovac rate.

The “rule” numbers you hear on jobs

You will sometimes hear people ask about things like the 5 4 3 2 1 rule for excavation, the 3/4/5 rule for excavation, or “rule 1413”. In practice, these are usually either:

- Internal company shorthand for soil classification and allowable slopes.
- Localized rules of thumb for how far from the trench to place spoils, equipment, or barriers.
- References to specific sections in Cal/OSHA or safety manuals.

If you have a spec that references those numbers, read the underlying section. Do not rely on somebody's memory of what “5 4 3 2 1” used to mean on another job.

Key cost drivers for vacuum excavation in Sacramento

Two projects can be the same length and depth on paper and bill out completely differently. These are the factors that move the needle most in this market:

- Soil type and moisture: Sandy loams and backfill move fast. Sacramento's hardpan clay, gravelly fills, and tree root zones slow production and increase wear on tools. If the soil is saturated, hydro excavation moves it, but disposal and cleanup get harder.
- Access and setup: A clean industrial yard with plenty of room for the truck is one thing. Downtown alleys, hospital campuses, and tight neighborhoods are another. Extra hose, traffic control, matting, and hand work all cost time.
- Utilities and risk profile: Working around known gas, communication, or critical water mains justifies slower, more controlled excavation. Owners who want specific offsets, photos, and survey shots are paying for precision, not just holes.
- Disposal and backfill: If spoils are non hazardous and can be dumped locally, your rate is lower. If you need manifesting, lined boxes, or long hauls to a specific facility, that shows up in the day rate. Backfilling with imported sand or slurry is a completely different line item than “vac only, spoils left on site”.
- Schedule, travel, and crew mix: Night work, premium hours, long travel from the yard, or a three person crew to meet site rules all push the number up compared with a basic two person, straight time day shift.

Once you know your soil, access, and risk, you can usually get a reasonably tight quote by giving a contractor good information up front.

Buying the equipment vs hiring a contractor

Contractors sometimes look at their vac excavation spend and ask how much is a vac ex to buy.

Rough ranges:

- Trailer vac units suitable for smaller utility work: 80,000 to 200,000 dollars, depending on capacity and options.
- Mid size hydrovac trucks: 350,000 to 600,000 dollars for a new build.
- Large, high capacity industrial or combination units: 600,000 to 900,000 dollars or more.

Used equipment exists, but you inherit whatever maintenance and abuse the last owner left behind. Life cycle cost is not just the sticker price. You need to factor in:

- CDL drivers and benefits.
- Mechanic time and specialized parts.
- Insurance and registrations.
- Yard space and wash facilities.
- Training and compliance.

For many small to mid size contractors, hiring a hydrovac subcontractor at 400 to 500 dollars per hour is cheaper and less distracting than trying to run one or two trucks in house.

CDL, endorsements, and operator training

Operating a hydrovac is not just about figuring out which lever does what. There are legal and practical requirements in play.

Is a CDL required for hydrovac jobs?

Almost always, yes. Most hydrovac trucks on the road in Sacramento are well over 26,001 pounds gross vehicle weight rating, so the driver needs a Class B or Class A CDL.

Do you need a tanker endorsement for a hydrovac truck?

In many cases, yes. A hydrovac often carries several thousand gallons of water or slurry in a tank. Whether you need the N (tank) or X (tank plus hazmat) endorsement depends on the specific configuration and materials. Many companies simply require the tanker endorsement for any driver who will move a hydrovac to stay on the safe side.

What kind of training is required for vacuum excavation?

There is no single national "vacuum excavation license", but most serious employers expect:

- OSHA 10 or OSHA 30 for construction.
- Task specific training on the truck, hose handling, high pressure water safety, and lockout/tagout.
- Utility locating basics, hand digging around marks, and understanding of tolerance zones.
- Confined space, traffic control, or site specific training where applicable.

Technically speaking, when people ask what certifications do you need to run an excavator, the answer is similar. OSHA requires that you be competent and trained, and certain federal or state projects require documented operator qualification, but there is no universal single excavator license like a CDL. Hydrovac falls into that same category: you need documented training, and the employer is on the hook if the operator is not properly qualified.

Is a CDL required for the swamper or helper?

No, the second person on the crew handling the hose typically does not need a CDL, unless they are also driving the truck. They do, however, need the same safety and task training.

Productivity, age, and career questions around heavy equipment

Vacuum excavation often lives in the same company or crew as dozers, excavators, and other iron, so some of the common career questions come up.



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What are the three types of excavators?

From a practical hiring perspective, contractors usually talk about mini excavators, standard crawler excavators, and wheeled excavators. There are also specialty variants like long reach, knuckle boom, and zero tail swing machines, but for vacuum excavation planning, the main concern is size and access: can you get a mini in the easement, or do you need to vac the whole thing.

Is a Cat 320 a 20 ton excavator?

Roughly, yes. A Cat 320 typically falls around the 20 to 22 metric ton class depending on configuration, which is why it is a common “standard” excavator on commercial jobs.

What is the highest salary for an excavator operator or hydrovac operator?

In California markets, a highly experienced operator working union or on specialized industrial jobs can see total compensation that clears six figures, especially when you account for overtime and benefits. Typical non union pay in Sacramento for a competent hydrovac operator is lower but still well above general labor wages.

Is 50 too old to become a heavy equipment operator?

No. Many excellent operators pivoted into equipment in their 30s, 40s, or 50s. The work can be physically demanding when you are on the ground handling hose or rigging, but the core skills are judgment, coordination, and patience, not raw strength. For hydrovac in particular, a steady temperament and respect for utilities matter more than how many years you have been in [Sacramento Vacuum Excavation](#) the trade.

Limitations of vacuum excavation

Vacuum excavation is not magic. There are clear limitations, and honest contractors will tell you when it is the wrong tool.

What are the limitations of vacuum excavation?

- Production on bulk cuts. If you are clearing 10 acres of raw land, a dozer and large excavator are far more economical. You might still use vac trucks around known crossings, but not for the entire footprint.
- Extremely hard material. Caliche, solid rock, or very thick concrete will not come up with a vac truck, at least not at any reasonable speed. You may need saws, breakers, or drilling first.



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- Long carries and bad access. If the truck cannot get reasonably close to the work, hose runs become impractical, and production collapses.

- Weather. Hydrovac can run in cold or rain, but extreme conditions, especially freezing temperatures, can limit or complicate operations. Sacramento does not see the worst of that, but overnight winter work still needs planning.

When you hear people ask, can I dig a trench with a pressure washer, they are usually trying to replicate hydro excavation with household tools. That is not only slow, it is unsafe around utilities. Professional hydrovac equipment has engineered controls, reliefs, and training behind it.

Is it better to dig a hole when the ground is wet or dry?

For hydro excavation, slightly moist or moderately wet soils usually cut easier than bone dry hardpan, but heavy saturation can create mess, sloughing, and disposal headaches. Traditional excavation often prefers drier conditions for stability. The right answer depends on the soil and your support systems.

How to price out excavating jobs that include vacuum work

If you are a GC or small contractor building estimates, the simplest approach around Sacramento is:

- Gather good information: existing utility maps, soil type, access constraints, traffic control, and restoration requirements.
- Call at least two vacuum excavation providers: give them footage, expected depths, and sample locations. Ask for both hourly rates and any unit pricing they are comfortable with.
- Decide on a blended approach: use vacuum excavation where you genuinely need daylighting or controlled digging around utilities, and use a conventional excavator for bulk.
- Add realistic overhead: remember supervision, traffic control, survey, and any specialized shoring or safety personnel. Vacuum excavation makes the actual digging safer but does not remove your need for proper trench protection.

For owners who want a quick sense of what a project might cost before involving contractors, starting with a per day vac budget of 4,000 to 5,000 dollars for utility heavy work, then scaling by the rough production rates in this article, usually puts you in the right ballpark.

A brief word on unrelated “vacuum” and “labor” questions

Occasionally people search for hydrovac topics and stumble into unrelated questions like is vacuum delivery painful, how risky is vacuum delivery, what is the rarest hour to be born, or what is the 5 3 1 rule for labor. Those all relate to childbirth and obstetrics, not construction. They have nothing to do with vacuum excavation trucks, and you should treat them as totally separate fields of expertise.

Where vacuum excavation fits in your Sacramento projects

Vacuum excavation costs more per hour than a mini excavator, but it costs less than a utility strike, schedule slip, or serious injury. In Sacramento, with aging utility infrastructure, dense urban corridors, and a lot of mixed fill soils, that tradeoff tends to favor bringing in a vac truck whenever you are anywhere near live services.

If you are [Sacramento Vacuum Excavation Bess Utility Solutions Sacramento](#) considering it for a specific project, focus on three things: how much material truly needs careful daylighting, how good or bad the access is, and what risk you are willing to carry. With those answers in hand, local hydrovac providers can usually give you a quote that reflects the realities of your site, not just a generic “per hour” number.