

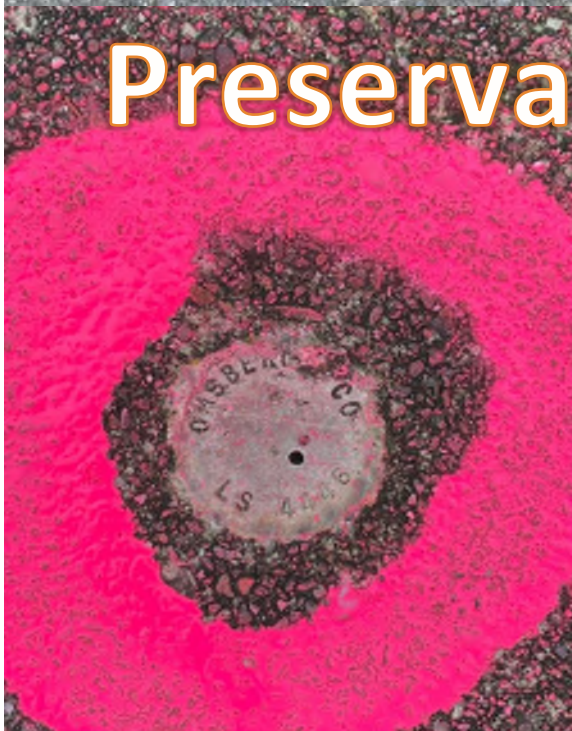


County Engineers Association of California



Survey Monument

Preservation Toolkit





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1.0 INTRODUCTION

1.1 FORWARD

By now most Public Works Departments are familiar with the need and legal obligation to protect and preserve survey monuments; as well as the need to replace monuments destroyed or disturbed during construction. However, many public works agencies struggle with how to comply with this legal obligation. The purpose of this document is to provide a ready-to-implement toolkit to help cities and counties develop their own Survey Monument Preservation Program.

This document was developed by the County Engineers Association of California and was authored by a group of municipal public works professionals who are all dually licensed as civil engineers and as land surveyors. These professionals provide a unique insight into survey monument preservation that a civil engineer, or a land surveyor doesn't have. These individuals understand the roles of municipal public works agencies as well as the need for survey monument preservation. These individuals are uniquely qualified to develop this Survey Monument Preservation Toolkit.

1.2 VERSION HISTORY

This document is a living document that is to be updated periodically. This version represents the first version of the Survey Monument Preservation Toolkit. As cities and counties adopt and implement the toolkit, the authors would greatly appreciate any feedback to assist with future versions of the toolkit. Tell us what works and what doesn't work. Contact: countysurveyor@co.humboldt.ca.us.

Check the CEAC [website](#) for the latest version:

1.3 THE AUTHORS

Version 1.0

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2.0 SURVEY MONUMENTS

2.1 WHAT ARE SURVEY MONUMENTS?

Survey monuments are objects placed to mark key points on the earth's surface. These points typically identify property boundaries, the centerline of roads. Some survey monuments are referenced to a vertical datum and are called benchmarks. Survey monuments come in a variety of sizes, shapes, and materials. Most survey monuments have some form of identifying tag on them; however, many do not. Tags are typically marked with the license number of the person who set the survey monument. In some areas the tag may include the land surveyor's last name. In the case of points set by a government agency, only the name of the agency is required. It can be difficult to spot some survey monuments. Some monuments are flush with the ground, others protrude from the ground, and some are buried. Buried monuments can be below the ground or below a layer of paving. Sometimes survey monuments are placed in monument well to protect the monument and to provide easy access. Monument wells are similar in size to water valve covers and have a cast iron lid. Often survey monuments are not easy to spot and require the expertise of a land surveyor to find them.

Survey monuments consist of many different materials and settings and may not be readily visible to the un-trained observer. Generally, a property corner may be marked with steel rebars or iron pipes of various diameters and lengths, railroad spikes, wood hubs, lead & discs, stakes, or fence posts. Typically, but not always, the survey monuments may be identified with a brass tag, plastic cap, or aluminum/brass cap with the land surveyor's license number. Survey monuments may be found on the sidewalk, top of curb, in the street, or at the actual front and rear property corners. In some urban or agricultural areas, survey monuments may be set below the surface of the ground for their protection. In rural areas, a portion of the survey monument may remain above the surface.

Areas throughout the state sometimes use different terminology to describe the same type of survey monuments. (This is like the word "soda" is used in the western states and "pop" is used in the mid-west.) This toolkit aims to list different terminology.

The following are examples of survey monuments:



Above: Survey equipment set up over a monument well. The lid is approximately 11.5 inches in diameter; the same size as a water valve cover.

Notice that the monument well is flush to the surface of the road; unlike the picture to the right.



Above: A monument well that was buried beneath an asphalt overlay.

Notice that when the road was overlaid, the monument well was supposed to be raised to the surface of the new asphalt; just like manholes and water valve covers. Raising monument wells to grade is part of survey monument preservation.



Above: A monument well (now exposed) buried by an asphalt overlay on the road. The monument is located beneath the lid. The lid is approximately 11.5 inches in diameter.

Notice that when the road was overlaid, the monument well was supposed to be raised to the surface of the new asphalt; just like manholes and water valve covers. Raising monument wells to grade is part of survey monument preservation.

Note: covering a monument well with two-tenths of hotmix is not "protecting" the survey monument. It simply creates a "pothole" after a surveyor uncovers the well.



Above: 1" diameter Iron Pipe buried below the surface. Iron Pipe is often abbreviated as *IP*



Above: Close-up.



Above: Example of a *Nail and Tin* set in concrete sidewalk. Also referred to as a *Nail and Tag*. Often abbreviated as *N&T*.



Above: Close-up. Approximately $\frac{3}{4}$ inch diameter



Above: Example of a *Nail and Tin* set in asphalt. Also referred to as a *Nail and Tag*. Often abbreviated as *N&T*.



Above: 5/8" rebar with 1-1/2" diameter aluminum cap monument near a fence corner.



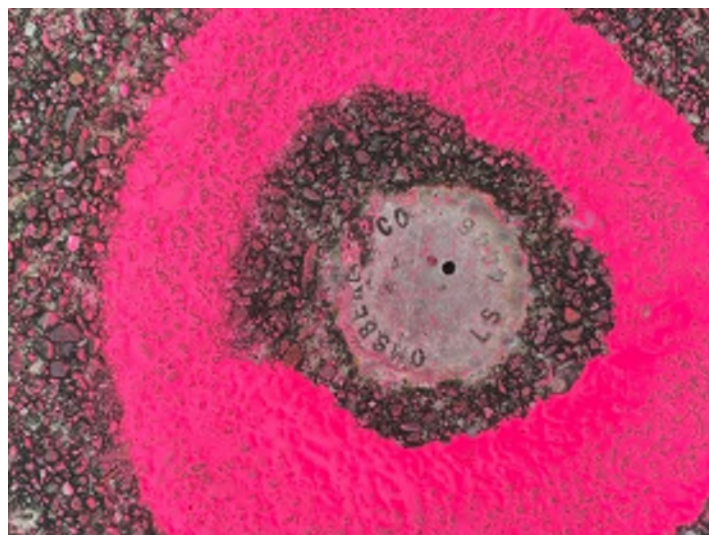
Above: close-up.



Above: Example of USA markings on a construction site. Notice the survey monument at the top of the picture.



Above: The survey monument was identified with paint as to be saved. This monument is located just outside of the proposed limits of work but was flagged "SAVE" just in case the limits of construction expanded. Diameter is approximately 1 inch.



Above: Close-up.



Above: A survey monument buried deep in the ground.



Above: Example of a 3" diameter brass benchmark set flush in concrete. Note the inscription "\$250 fine or imprisonment for disturbing this mark".



Above: A chisel cross (circa early 1970s) in a top of curb likely set to denote the boundaries of lots in a subdivision. For perspective the curb is 6 inches wide.



Above: A scribed cross used as a temporary reference during field work. Both this and the adjacent are evidence of survey. This cross is approximately 1.25 inches.



Above: A chewed up plastic cap on a rebar after 18 years in place. In March 2025 a Los Angeles County Public Works survey crew replaced it with a durable monument and DPW tag per 8771.6 of the PLS Act.



Above: A gear spike and washer set in asphalt. These spikes are hard and brittle so care must be used when driving them into hard surfaces as they can break leaving the broken shaft in place.



Above: A 3" diameter bronze disk was set in the base of the pillar at the Oaklawn Pedestrian Overcrossing in South Pasadena, CA. The bridge was designed by the famous architects Green & Green.



Above: It is noteworthy that, "\$250 FINE OR IMPRISONMENT FOR DISTURBING THIS MONUMENT" appears on this monument.

2.2 WHY DO SURVEY MONUMENTS NEED TO BE PRESERVED?

Survey monuments control the location of property boundaries and the location of the road or flood control right of way, trails and various types of easements. When survey monuments are destroyed, it makes it difficult for land surveyors to establish property boundaries, the right of way for roads and other easements. Trying to locate these boundaries on a computer screen provides their position that is only as accurate as the survey control used in the computer model, which may be off by many feet. This is why survey monuments in the field are needed to obtain the positional accuracy needed to determine the boundaries in their actual location. Further, trying to locate boundaries using GPS coordinates requires the known datum, which is time dependent with adjustments needed for movement due to plate tectonic shifts and crustal movement (on the order of 1 foot over ten years). Remember that objects on the face of the earth move over time. The survey monuments move with the property boundaries, while GPS coordinates are fixed in time. Another reason for preserving survey monuments is it's the law: Section 6730.2(c) of the California Professional Engineers Act indicates a designated person in responsible charge of professional civil engineering work of any department or agency or the state, city, county, city and county, district or special district is responsible for survey monument preservation.

Consider that monuments have historically been set to locate ownership boundaries. An early example is a stone, often with markings chiseled in its surface. The Biblical importance of monuments is recognized in several verses in Deuteronomy by: "Thou shalt not remove thy neighbor's landmark, which they in old times have set" (per 19:14) and "Cursed be he that removeth his neighbor's landmark" (per 27:17). In monarchies all land were initially owned in total by the king. Over the years the reigning kings made conditional land grants to his certain individuals, typically for military service or heroic acts. For example, King Kamehameha I in 1819 owned all lands in Hawaii. He divided certain parcels with his warrior chief, and a very few select others. Also consider when prospectors staked their claims, they would set stones in each corner, draw a map and register the map with the local authority. Today, the land value to properties in California, including rights for use of the land and property improvements, is huge. With this said, it is crucial for survey monuments along with maps and title documents to be protected by agencies.

It is particularly important for County and City Engineers to ensure their staff and contractors do their part in arranging with a land surveyor to tie the monuments out before they are disturbed or destroyed. It is fruitless to hand over the brass disk or pipe to the land surveyor saying, "We saved the monument for you."; however, saving the monument can help the land surveyor determine which monument was removed. The location of the survey monument is of utmost importance, not the removed monument.

MYTH: Monument preservation is not setting aside a survey monument from the construction rubble and presenting it to the city or county official and saying "here you go. I preserved this monument for you."



Above: A bronze control point set in new concrete. Approximately 3/4" in diameter.



Above: A new tag and tack set in lead on the top of a concrete curb. Approximately 3/4" in diameter.

FACT: Monument preservation means not destroying or disturbing the location of monuments identified as "protect in place". Monument Preservation means that when survey monuments will be or are likely to be destroyed or moved by construction, that their locations are tied out so that the monuments can be replaced in the original location after construction is complete.

MYTH: Land surveyors can easily put monuments back in with little to no cost.

FACT: Partially true. When survey monuments are tied out prior to construction it is easy to replace those monuments. However, when the monuments are not tied out by a surveyor before construction begins, the time and cost increase dramatically. The cost to tie out survey monuments ahead of construction and then replace them is in the hundreds of dollars. The cost to replace a survey monument that was not tied out ahead of construction may cost thousands of dollars or more to replace.

MYTH: Covering the monuments with 2 to 3 inches of hotmix "protects" the survey monument.

FACT: False. The overlay simply means that a land surveyor will later dig through the asphalt to uncover the survey monument and leave a pothole. In addition, this violates Business & Professions code 8771 and subjects the civil engineer responsible for the work to fines and penalties. In 2016, a city engineer was investigated by the licensing board for professional engineers, land surveyors, and geologists. The investigation found that the civil engineer was guilty of not replacing survey monuments destroyed during road improvement projects. The civil engineer was fined \$5000 and ordered to pay \$5000 in investigative costs. **That's \$10,000.** Another incident illustrating costs is when asphalt wasn't replaced after taking measurements, an agency paid a settlement of \$6 million after a 26-year-old motorcyclist hit the pothole and crashed with extensive injuries that required live-long care.

2.3 LEGAL RESPONSIBILITY

California Business & Professions Code Section [8771](#)

- (a) Monuments set shall be sufficient in number and durability and efficiently placed so as not to be readily disturbed, to assure, together with monuments already existing, the perpetuation or facile reestablishment of any point or line of the survey.

- (b) When monuments exist that control the location of subdivisions, tracts, boundaries, roads, streets, or highways, or provide horizontal or vertical survey control, the monuments shall be located and referenced by or under the direction of a licensed land surveyor or [PRE-1982] registered civil engineer prior to the time when any streets, highways, other rights-of-way, or easements are improved, constructed, **reconstructed, maintain, resurfaced¹**, or relocated and a corner record or record of survey of the references shall be filed with the county surveyor. **They shall be reset in the surface of the new construction, a suitable monument box placed thereon, or permanent witness monuments set to perpetuate their location if any monument could be destroyed, damaged, covered, or otherwise obliterated, and a corner record or record of survey filed with the county surveyor prior to the recording of a certificate of completion for the project.** Sufficient controlling monuments shall be retained or replaced in their original positions to enable property, right-of-way and easement lines, property corners, and subdivision and tract boundaries to be reestablished without devious surveys necessarily originating on monuments differing from those that currently control the area. **It shall be the responsibility of the governmental agency or others performing construction work to provide for the monumentation required by this section.** It shall be the duty of every land surveyor or [PRE-1982] civil engineer to cooperate with the governmental agency in matters of maps, field notes, and other pertinent records. Monuments set to mark the limiting lines of highways, roads, streets or right-of-way or easement lines shall not be deemed adequate for this purpose unless specifically noted on the corner record or record of survey of the improvement works with direct ties in bearing or azimuth and distance between these and other monuments of record.
- (c) The decision to file either the required corner record or a record of survey pursuant to subdivision (b) shall be at the election of the licensed land surveyor or [PRE-1982]² registered civil engineer³ submitting the document.

California Code of Regulations, Title 16, Division 5, Article 4 (Board Rules) Section [464\(e\)](#)

A Corner Record may be filed for any property corner, property controlling corner, reference monument, or accessory to a property corner, together with reference to record information. Such corner record may show one or more property corners, property controlling corners, reference monuments, or accessories to property corners.

California Penal Code Section [605](#)

Every person who either:

1. Maliciously removes any monument erected for the purpose of designating any point in the boundary of any lot or tract of land, or a place where a subaqueous telegraph cable lies; or,
2. Maliciously defaces or alters the marks upon any such monument; or,

¹ Red colored bold text added for emphasis.

² text in brackets [] added for clarity.

³ Business and Professions Code Section 8731 allows Civil Engineers licensed prior to 1982 to practice land surveying (RCE 33965 and below).

3. Maliciously cuts down or removes any tree upon which any such marks have been made for such purpose, with intent to destroy such marks;
--Is guilty of a misdemeanor.

California Penal Code Section [615](#)

Every person who willfully injures, defaces, or removes any signal, monument, building, or appurtenance thereto, placed, erected, or used by persons engaged in the United States Coast Survey, is guilty of a misdemeanor.

California Penal Code Section [622](#)

Every person, not the owner thereof who willfully injures, disfigures, or destroys any monument, work of art, or useful or ornamental improvement within the limits of any village, town, or city, or any shade tree or ornamental plant growing therein, whether situated upon private ground or on any street, sidewalk, or public park or place, is guilty of a misdemeanor.

Streets & Highways Code Section [732](#)

Any person who willfully injures, defaces, breaks down or removes any monument or stake placed, erected or used by the department to designate any point in the boundary or survey of any State highway or proposed State highway is guilty of a misdemeanor.

Streets & Highways Code Section [732.5](#)

Survey monuments shall be preserved, referenced, or replaced pursuant to Section [8771](#) of the Business and Professions Code.

2.4 CALTRANS STANDARD SPECIFICATIONS

Caltrans standard specifications address protecting survey monuments. The specifications place responsibility on the contractor for damaging/ destroying survey monuments that are not within an area on the construction documents that is not scheduled to be disturbed by construction.

5-1.36A General Preserve and protect:

1. Highway improvements and facilities
2. Adjacent property
3. Waterways
4. ESAs
5. Lands administered by other agencies
6. Railroads and railroad equipment
7. Nonhighway facilities, including utilities
8. Survey monuments
9. Department's instrumentation

10. Temporary work

11. Roadside vegetation not to be removed Comply with Govt Code § 4216 et seq.

Notify the Engineer at least 3 business days before you contact the regional notification center. Failure to contact the notification center prohibits excavation.

Immediately report damage to the Engineer.

If you cause damage, you are responsible.

The Department may make a temporary repair to restore service to a damaged facility.

Install suitable safeguards to preserve and protect facilities from damage.

Install temporary facilities, such as sheet piling, cribbing, bulkheads, shores, or other supports, necessary to support existing facilities or to support material carrying the facilities

5-1.36D Survey Monuments

Protect survey monuments on and off the highway. Upon discovery of a survey monument not identified and located by the Department, immediately:

1. Stop work near the monument
2. Notify the Engineer

Do not resume work near the monument until authorized.

2.5 FINES

In 2016, a city engineer was investigated by the licensing board for professional engineers, land surveyors, and geologists. The investigation found that the civil engineer was guilty of not replacing survey monuments destroyed during road improvement projects. The civil engineer was fined \$5,000 and ordered to pay \$5,000 in investigative costs. **That's \$10,000.** Did that capture your attention? It is hard to imagine a City or a County would be willing to pay the fines and costs associated with the negligence of their officials.

3.0 STAKEHOLDER ROLES AND RESPONSIBILITIES

3.1 COUNTY & CITY ENGINEERING AND CAPITAL IMPROVEMENTS DIVISIONS

Larger cities and counties have in-house engineering and capital improvement divisions. Smaller organizations farm this work out to consultants.

It is not appropriate for surveying services, such as monument preservation, to be included as a bid item in a road improvement contract. It would be synonymous with having the fox guard the henhouse. Although the land surveyors hired by the contractors are licensed professionals, their compensation is determined by the contractors and there is a financial incentive to reduce weigh profits over costs. The hiring of a land surveyor for monument preservation services must be through the RFQ process; just like for any other design professional.

3.2 COUNTY & CITY CONSTRUCTION INSPECTION DIVISIONS

Construction contractors will readily remove survey monuments that are in their way. "Time is money and there is a schedule to be maintained!" Agency inspectors are needed to assure there is due diligence in having the survey markers tied out prior to construction and reset after the completion of work.

3.3 COUNTY & CITY ENCROACHMENT PERMIT OFFICE

The Encroachment Permit Office issues permits to allow others to perform work in the road. When an encroachment permit is issued for work that requires a contractor to call Underground Service Alert (USA)/Dig-Alert, the permittee must comply with survey monument preservation by a person licensed to practice surveying. The governmental agency performing or permitting construction or maintenance work is responsible for ensuring that either the governmental agency or landowner performing the construction or maintenance work provides for monument perpetuation. Simply placing passive boiler plate notes in the permit forms is not "ensuring". Further, at least one person authorized to practice land surveying must be designated as the person in responsible charge of professional land surveying work.

3.4 COUNTY & CITY MAINTENANCE DIVISION

When road maintenance activities occur, an engineer or other person in charge is responsible for scheduling in advance with the land surveyors to tie out survey monuments prior to their removal as part of road or parkway improvements. After construction, the engineer or other person in charge is responsible for scheduling in advance with the land surveyors to reset the monuments to secure the location of street centerlines, centerline ties (at each corner of an intersection) and property corners.

There have been cases in which maintenance workers have saved old survey tags and reset them in new concrete curb and sidewalks. The low number and patina on old tags becomes obvious concerns to land surveyors who encounter them. Though the intentions by the maintenance staff are well meaning, the original location of the tags are compromised when untrained workers use best-eyeball placement methods for resetting old tags in wet concrete. Only land surveyors can set survey monuments.

3.5 COUNTY & CITY SURVEYORS

City Surveyors and County Surveyors have two important roles:

- ensuring the City or County is compliant with survey monument preservation for the various programs of the City or County.
- being a spokesperson for survey monument preservation; conducting outreach to educate stakeholders about the importance of monument preservation.

County and City Surveyors should have good communication with their staff and contract land surveyors to ensure they use good judgement when marking monuments with spray paint to avoid complaints from constituents (see photos on page 21).

COMPLIANCE

Ensuring the City or County is compliant with survey monument preservation for the various programs of the City or County is done by working with the Engineering and Capital Improvement Projects Divisions, Encroachment Permit Offices, and Road Maintenance Divisions to educate them on the importance of survey monument preservation. To show them check lists that can be used to help them comply. It includes proactively working with them in adapting the checklists as may be necessary for their unique workflow processes.

This is done by reminding the affected City or County divisions about their legal obligation in the California Professional Engineer's Act to provide for survey monument preservation.

Spokesperson & Outreach

Outreach and notification are not a one-time exercise. As time goes on, there are staff changes and new staff may likely not be aware of monument preservation laws. Periodic reminders to staff that make them remain aware of monument preservation helps drive home the point that monument preservation is something that must be done. City and County Public Works Directors, Engineers and Land Surveyors must maintain a constant and steady drumbeat to educate stakeholders. Below are photos of a survey monument and a bronze plaque set by the City of Los Angeles at the summit of Mt. Hollywood. A strategically placed survey marker at a well-traveled hiking lookout provides good public awareness. The plaque on the pedestal beyond the survey marker commemorates a beloved city leader, Tom LaBonge. Both complement each other.



3.6 Surveyors

Public Works Directors, Engineers and property owners rely heavily on the land surveyors to play a major role in survey monument preservation by selecting appropriate locations and type of material for durable survey monuments. It's important for the land surveyor to discuss with their clients the different options for monumenting property lines; discuss the pros and cons of

the options; learn what their client intends to do with their property; and advise their client of what option is likely the best choice for their needs.

In areas where fences are commonly constructed along property lines, it does not make sense to mark the corners of angle points, as that location is a prime location for fence post. Setting offset monuments to mark the property corner or angle point allows for fences to be constructed without destroying the survey monument.

Alternatives should be considered when setting property boundary survey monuments within the road right of way, as they are subject to removal by road maintenance workers. Front property corners could be set on a 2-foot offset behind the right of way line. This allows fence posts to be constructed and allows front yard setbacks to be easily measured. The drawback with this is landscapers and gardeners may be unaware of markers and inadvertently remove them. Further, Road Maintenance Engineers may demand that all property monuments be moved out of the road right-of-way to lessen their obligations.

Road centerline monuments should be limited to radius points, beginning/end of curve and centerline intersections.

Setting ties to the road centerline monuments can aid in the reestablishment of the road centerline. For most subdivisions, the centerline of the road right of way is the property line. Therefore, it is important that the centerline of the road right of way can be easily reestablished. Care should be made in selecting location for ties so that they will be less likely in the way of future improvements or routine maintenance.

In some areas monuments of significant nature, such as public land system monuments, are placed in monument wells. This also includes centerline intersections of major roads.

Last, survey monuments must be durable per Business & Professions Code Section 8771(a). There is no standard for durable monuments. A land surveyor must consider the setting in which monuments are set. In areas prone to wildfires, a plastic cap is not durable - the plastic can easily melt, be chewed by animals, and damaged by UV light. In marine environments, iron pipes are not durable. A redwood hub in corrosive soils may likely last longer than metal pipes. Road maintenance workers and contractors can easily dislodge or destroy survey monuments at or near the road surfaces. Subsurface monuments in protected by cast iron lids have protection against cold mill grinder but are no match for a backhoe. There have been complaints about rebar monuments easily bending with moderate lateral pressure by a shoe or boot, compromising the location of the monument. Land surveyors should check with their local CLSA chapter for what types of monuments are considered durable for the part of the state that they are working in. The County Surveyor may also be able to provide advice concerning durable monuments.

Land surveyors often use spray paint to denote the location of survey monuments (see photos on page 10) and can be unsightly when there are many in a location. County and City Engineers should have good communication with their staff and contract land surveyors to ensure they use good judgement when marking monuments with spray paint to avoid complaints from constituents (see photos on page 10). However, the use of spray paint is a great way to identify survey monuments that are to be protected in place within a project's work zone. Marking such monuments as "protect in place" at the same time as utilities are marked by Underground Service Alert/811 brings general awareness to the contractor of what must be protected.

Panels in the shape of crosses are commonly used as horizontal and vertical survey control when performing aerial survey work by unmanned aerial vehicles (UAVs, also known as drones) or by airplanes. Some are painted on asphalt or concrete, while others have been made using two rectangular pieces of white foam board nailed to the soil. Black paint has been used with the white cross painted on top so the image will be better distinguished in the aerial imagery. The land surveyor should be prudent not paint a conspicuous cross on a sidewalk in front of a church, as complaints would likely be lodged with the city engineer about the unsightliness.



Above: Example of a large cross painted on the sidewalk in front a church, near the entrance.

3.7 ARCHITECTS AND CIVIL ENGINEERS

Architects and civil engineers often design improvements that are to be built along a property line or in other areas where survey monuments exist. When obtaining the topographic survey for a project, the designer should request that pre-construction corner records be filed for all monuments found within the area covered by the topographic survey.

Architects and Civil Engineers need to flag survey monuments as "protect in place" for all survey monuments that are in the work zone, but do not need to be destroyed in order to construct the project.

Construction notes on the plans need to require the replacement of all survey monuments destroyed (planned or unplanned) during construction. Construction notes also need to require the filing of pre- and post-construction corner records for all survey monuments located within the work zone.

3.8 COUNTY & CITY BUILDING OFFICIALS

Building Officials are strongly encouraged to require survey monuments be shown on site plans and other building plans. There have been topographic survey maps submitted to Building Officials with property lines and dimensions from the building to property lines, but the location of the survey monuments at the property corners are missing. This proves to be problematic since prior to construction of the building foundations, the monumented property corners on site and shown on the map are crucial for the building inspector to confirm setback requirements are being met. Building Officials can help ensure that survey monuments are protected by requiring a note to be added on each plan with a survey monument(s):

Survey Monument - Protect in Place. No excavation within 2 feet. Contact the [City][County] Surveyor at [Telephone] for assistance.

As part of a pre-site inspection, Building Officials can require that property corners be found and flagged so that setbacks can be measured. Stakes could be set between property corners by persons qualified to perform surveying so setbacks can be easily measured. It is important to have this done prior to any clearing and grubbing or excavation. Sample code language to adopt:

Prior to clearing and grubbing or excavation, the property owner shall locate and flag all property corners and angle points from which building setbacks are to be measured from. If a property corner or angle point is missing, the applicant shall have a licensed land surveyor set a monument and file a corner record or record of survey with the County Surveyor.

3.9 FENCE CONTRACTORS

Owners frequently hire fence contractors to install fencing around the perimeter of their property. Survey monuments are typically set at property corners, property line angle points, and elsewhere along a property line. It is not uncommon for survey monuments to be destroyed by contractors or homeowners constructing a fence.

Public outreach to fence contractors and owners is an important component of a survey monument preservation program. Once a survey monument is destroyed, it can be costly to replace it.

What can a city or county do? Encourage the homeowner to have survey monuments placed on a set offset to fences to be constructed along property lines. Update handouts and webpages about fence construction. Many cities and counties have handouts regarding general information about fences. This is a great location to add information about the need to protect property corners when installing a fence.

3.10 CONTRACTORS

Contractors involved with the normal "design" "bid" "build" process do not need to worry about monument preservation as the engineer in charge of the project is required by State Law to ensure that monument preservation work is done before and after the project is constructed. Contractors should still have a general awareness of what a survey monument is and ask the

construction engineer about any survey monument found this is not shown on the improvement plans.

However, contractors need to be educated about monument preservation. Not all contractors will be involved with projects where monument preservation has been addresses by others. Many times contractors work directly for the public in which no one has taken responsibility for monument preservation.

The best example is a fence contractor. Most fences do not require a building permit, so there is no oversight by the county or city. Second, fence contractors install fencing along property lines. Survey markers are most likely placed in the same place that a fence contractor wants to install a fence post. Contractors often perform work for parties where there are no engineered plans. An example of this is a homeowner's association who reaches out to a paving contractor to get a bid to have some roads overlaid. When a contractor is working without engineered plans, it is the responsibility of the contractor to hire a person qualified to perform monument preservation.

When a contractor marks an area for USA / Dig Alert, only utilities are marked. The location of Survey monuments is not part of the USA / Dig Alert service. Contractors need to hire a person qualified to perform surveying to identify any monuments in the limits of the project worksite.

3.11 PROPERTY OWNERS

It behooves property owners to know the location of their property boundaries and any easements on their property. When hiring contractors to work on your property that disturb the ground, such as fence contractors, monument preservation should be considered. Find and flag the property corners where the proposed fence is to be constructed. If monuments would be destroyed during construction of the fence, hire a land surveyor to set offset monuments in locations they won't be disturbed. Document with photographs. Show the fence contractor the survey monuments that are to be protected in place. After the fence is constructed, verify that all the survey monuments are in place before paying the contractor. If a survey monument has been destroyed or damaged by the fence contractor, insist that the fence contractor hire a licensed land surveyor at their expense to replace the destroyed or damaged survey monument. Pursuant to Civil Code Section [841\(a\)](#), adjoining landowners shall share equally in the responsibility for maintaining the boundaries and monuments between them.

3.12 CALFIRE

When not responding to incidents, CalFire works on wildfire prevention projects. When these projects involve the use of heavy equipment to create fire roads and fuel breaks, monument preservation work needs to be performed. These activities are conducting in a non-emergency setting where time can be allowed for monument preservation work to be done before heavy equipment hits the ground.

Monument Preservation for Fuel Reduction and Fuel Break Projects

Fuel Reduction – Fuel Break Projects around wildfire vulnerable communities will be used more frequently in the future and on a much larger scale. Fuel Reduction – Fuel Break Projects are vital in disrupting fire behavior and slowing fire progression. Evidence of this is the

overwhelming passage of Senate Bill 85 and signed into law April 12, 2021. Senate Bill 85 allocates \$536 million for a range of Wildfire prevention Projects. It is imperative that County Surveyors work closely with all Fuel Reduction – Fuel Break Project partners to promote and oversee the successful completion of survey monument preservation whether these projects are located in road or highway rights-of-way, Federal or State lands, or private lands. The primary fundamental professional function and responsibility of County Surveyors, in their official capacity, is to ensure that property rights and public welfare are protected by providing survey monument preservation oversight for Projects that could put survey monuments in jeopardy of being disturbed or destroyed. It is incumbent on the County Surveyor to advise the Fuel Reduction – Fuel Break Project partners of their obligation to designate a licensed land surveyor to be in "responsible charge" of necessary land surveying services and of survey monument preservation for the Fuel Reduction – Fuel Break Project areas. The designated land surveyor can evaluate the ground disturbing potential of the Project and determine which, if any, survey monuments are in jeopardy of being disturbed or destroyed, and must be referenced (tied out) and preserved. Equally important, the designated land surveyor would also establish property lines and road right-of-way lines that limit and define the Fuel Reduction – Fuel Break Project.

Local agencies must keep lines of communication open with the "Wildfire and Forest Resilience Task Force" and all involved parties to monitor survey monument preservation opportunities and to provide general land surveying oversight.

With a vegetation removal permit or without a permit, vegetation control contractors are required to comply with Business & Professions Code Section [8771](#) Survey Monument Preservation if working in streets, highways, other rights-of-way, and easements; and to comply with Business and Profession Code Section [8725](#); Civil Code Section [841](#); California Penal Code Section [605](#); Streets and Highways Code Section [732](#); California Code of Regulations [16 CCR 476](#); and U.S. Code [18 USC 1858](#) for Public Land Survey monuments and bearing trees.

Establishing and identifying where the Fuel Reduction – Fuel Break Project begins and ends between public and private properties is needed by the vegetation removal contractors. Fuel Reduction – Fuel Break Projects on Federal and State lands are typically accomplished with the use of a "USFS Stewardship Landline Survey Agreement." County Board of Supervisors have typically been approving Master Stewardship Agreements (MSA) with the USDA and the Forest Service. These Agreements give the County authority, for a period of time, to work with the USFS to conduct Fuel Reduction – Fuel Break and land surveying activities on the National Forest Lands within the County boundaries. These agreements include proven detailed survey specifications for identifying and marking the lines between public and private lands and to preserve survey monuments. These agreements have proven to be very effective.

The goal is for all agencies to work together so the results will be a safer community environment with survey monuments preserved and property rights respected.

3.13 STATE, COUNTY AND CITY OFFICES OF EMERGENCY SERVICES (OES)

As part of the recovery effort after an incident, such as a wildland fire, OES coordinates the cleanup of sites where structures were destroyed. OES offices need do their part to protect existing survey monuments from getting scraped up by lot clearing activities. Survey monuments (or their remains) can be protect in place by getting land surveyors to flag survey monuments for "protect in place" ahead of the heavy equipment hitting the ground.

OES also needs to be involved in getting funding to replace survey monuments destroyed by wildland fires.

Although often overlooked, all survey monuments are critical for a successful rebuilding process, especially on the smaller lots or parcels where setback limits must be met along with other building standards. Realizing the importance of survey monuments is the first step in helping to preserve them. Survey monuments are an important and critical asset that belong to the public and government alike. Survey monuments are in the Public Domain and must be preserved for all to benefit. The cleanup contractor is there to help the landowners. The contractor should NOT destroy one of the most important assets landowners have – the survey monuments marking their property corners. The effort to preserve survey monuments will NOT hinder or delay the cleanup process, BUT in fact, will facilitate the rebuilding process to be a success. Survey monuments are the foundation of any project. Whenever a survey monument is destroyed the location of property lines, and consequently ownership, are brought into question. When a survey monument needs to be replaced, it delays the rebuilding efforts, it incurs significant monetary costs, it incurs loss of time, and in some cases, adds property line location uncertainty, which are all negative consequences. It costs much less to preserve a survey monument in place than it does to replace it after being destroyed. Survey monuments that have survived the disaster should not be destroyed in the cleanup process by ignoring their existence and failing to recognize their importance.

It is in the public's interest to preserve survey monuments by including land surveyors in pre-cleanup discussions and meetings with all governmental agencies, clean-up companies, landowners, and various contractors. Land surveyors would be authorized to enter the disaster zone ahead of the cleanup crews when the disaster zone is determined to be safe in order to locate, measure, protect, or preserve the position of survey monuments. The Right-of-Entry forms must include language explaining the importance of preserving survey monuments and authorizing land surveyors to enter the property, if needed. Monument preservation requirements and standards must be incorporated into disaster relief protocols with all Federal, State, and local governmental agencies. FEMA's definition of "cleanup" and the list of services provided by and paid for by FEMA must be amended to include survey monument preservation performed by land surveyors prior to or concurrent with debris cleanup.

3.14 STATE AND FEDERAL SURVEYING AND GEODETIC AGENCIES

Bureau of Land Management (BLM), National Geodetic Survey (NGS) and other agencies maintain many vital survey records such as shoreline gauging stations and boundary information, horizontal and vertical datums, mapping projections and models for determining elevations using geoids. NGS has interactive maps available online that can be used to located survey monuments and datasheets with vital information on each survey monument in their database.

3.15 CALIFORNIA SPATIAL REFERENCE CENTER (CSRC)

There are approximately 900 active ground-based radio stations that transmit information to GPS satellites and GPS equipment used by land surveyors on the ground. This constellation of receivers operated by CSRC and others are vital to tracking the spatial location of survey points

4.0 ATTACHMENTS

4.1 SAMPLE ORDINANCE LANGUAGE

Example from City of Turlock Municipal Code

7-2-407 Monuments.

Any monument of concrete, iron, or other lasting material set for the purpose of locating or preserving the lines and/or elevations of any public street or right-of-way, property, subdivision, or a precise survey point or reference point shall not be removed or disturbed without first obtaining permission from the City Engineer to do so. The replacement of removed or disturbed monuments shall be made by a registered civil engineer or licensed land surveyor at the expense of the property owner.

4.2 SAMPLE MEMO TO ENCROACHMENT PERMIT OFFICE

Notes:

- 1. If your agency does not have an in-house Encroachment Permit Office, then this memo is to be directed to the person responsible for contract management over the firm(s) that provide Encroachment Permit services*
- 2. This memo is intended to be sent out on an annual basis, preferable in early spring ahead of the construction season.*
- 3. TIP: Set a perpetual MS Outlook calendar reminder to send out this memo; and include a hyperlink to your version of the memo in the calendar reminder.*

TO: Encroachment Permit Office
FROM: County Surveyor's Office
DATE: <DATE>
RE: **SURVEY MONUMENT PRESERVATION**

The purpose of this memo is to provide you with clear direction to comply with Business and Professions Code Section [8771](#). This code section addresses monument preservation. Preservation includes filing pre-construction corner records, replacing monuments that are destroyed during construction, and filing post-construction corner records. Business and Professions Code Section [6730.2](#) places this responsibility with the person in responsible charge of the civil engineering work / Encroachment Permit Office. The Board for Professional Engineers, Land Surveyors and Geologists has cited civil engineers in responsible charge that have failed to comply with monument preservation requirements. In 2016, a city engineer was investigated by the licensing board for professional engineers, land surveyors, and geologists. The investigation found that the civil engineer was guilty of not replacing survey monuments destroyed during road improvement projects. The civil engineer was fined \$5,000 and ordered to pay \$5,000 in investigative costs. **That's \$10,000.** The responsibilities of the Encroachment Permit Office and the County Surveyor's Office are set forth below. Please share this memo with any contractors that you may hire.

ENCROACHMENT PERMIT OFFICE

- All encroachment permits shall include language requiring pre-construction and post-construction corner records.
- Require that pre-construction corner records shall be submitted prior to issuance of an Encroachment Permit. Forward all corner records along with the review fee to the County Surveyor.

If there are no survey monuments within the work area, the land surveyor contracted to prepare pre-construction corner records shall provide a letter indicating that no pre-

CEAC Survey Monument Preservation Toolkit

Version 1.0 December 5, 2025 FINAL

construction corner records are necessary. The letter must also reference the construct plan set (project name, project engineer, company name, date of plans).

- Copies of all issued Encroachment Permits shall be given to the County Surveyor.
- Encroachment Permits shall not be finalized until the County Surveyor signs off on post-construction corner records.

COUNTY SURVEYOR'S OFFICE

- Review and approve pre-construction and post construction corner records.
- Notify Encroachment Permit Office when the encroachment permit final is tied to post-construction corner records.
- Notify the Encroachment Permit Office when an encroachment permit can be finalized.
- Educate and aid applicants, contractors and the public with pre-construction and post-construction corner record requirements.
- Provide education on what survey monuments are; what survey monuments may look like; where survey monuments may be found; and why survey monument preservation is important.

The City of Stockton, the City of Turlock, and El Dorado County have both incorporated survey monument preservation requirements into their Encroachment Permit; which are attached to this memo.



ENCROACHMENT PERMIT ON PUBLIC RIGHT-OF-WAY

Permit Number

Applicant: _____ Date: _____

Address: _____

City: _____ State: _____ ZIP: _____

Phone: _____ E-mail: _____

OFFICIAL USE ONLY	APPROVED: BY THE DEPARTMENT DIRECTOR
	Subject to the General Provisions and Special Conditions, and all work must conform to the project's approved Storm Water Pollution Prevention Plan or the most current version of the City of Stockton Storm Water Pollution Prevention Maintenance Staff Guide, whichever is applicable.
	By: _____ Date: _____
	Associated Permit(s): _____ Expiration: _____

<p>WORK LOCATION: _____</p> <p>Start Date: _____ Completion Date: _____</p> <p><small>ATTENTION: Applicant/Contractor- you are responsible to replace all broken, damaged, and/or raised sidewalk, curb and gutter from score mark to score mark adjacent to the parcel; remove USA markings upon completion of the permitted work.</small></p>
--

PERMIT NOT VALID WITHOUT A CONTROL NUMBER.
CALL (209) 937-8381 TO REQUEST A CONTROL NUMBER NO LESS THAN 24 HOURS, BUT NOT IN EXCESS OF 72 HOURS PRIOR TO START OF WORK. CONTROLS

I (or we) hereby apply for an Encroachment Permit to carry out the following work:

<p>Show sketch or refer to attached Drawing</p>	Official Use Only		
	Base Permit Fee	\$	
	Additional Footage Fee	\$	
	Misc.	\$	
	Misc.	\$	
	Misc.	\$	
	Total	\$	
Special Conditions:			

IMPORTANT: Applicant hereby agrees to comply with all provisions of this permit, as well as all applicable city ordinances, resolutions, Standards and Specifications currently in effect, and to pay to the City its actual cost for removal and proper replacement of any item which does not meet the above requirements. Failure to comply will be cause for revocation of this permit. Applicant agrees to indemnify and hold the City harmless against any and all losses, costs, or damages resulting from injury to persons, death of person or damage to property occurring at the site of, or as a result of, work to be performed under this permit. A certificate of insurance shall be on file with the City Risk Manager prior to issuance of this permit.

IF THE WORK DOES NOT COMMENCE WITHIN 72 HOURS OF THE ISSUANCE OF A CONTROL NUMBER, THE CONTROL NUMBER WILL BECOME INVALID AND THE PERMITTEE SHALL CALL FOR A NEW CONTROL NUMBER. PRIOR TO ANY REQUIRED INSPECTIONS, AS IDENTIFIED ON THE REVERSE SIDE OF THIS PERMIT, PERMITTEE SHALL CALL INSPECTIONS AT (209) 937-8381.

Sign _____

READ GENERAL PROVISIONS ON THE REVERSE SIDE OF THIS PERMIT BEFORE SIGNING.

Print _____

GENERAL PROVISIONS

1. **VALIDATION/REVOCACTION** - This permit is not valid unless signed by the Department Director or his authorized representative. This permit is non-transferable and is void if work is not completed prior to expiration date. An extension may be granted if such is requested forty-eight (48) hours before the permit expires.
2. **ACCEPTANCE OF PROVISIONS** - It is understood and agreed by the permittee that the performing of any work under the permit shall constitute an acceptance of the provisions.
3. **KEEP PERMIT AT JOBSITE** - The permit and control number shall be kept on the jobsite and shall be shown to any representative of the City requesting verification of permit issuance.
4. **INSPECTION AND APPROVAL** - A minimum of 24 hours notice shall be required prior to placing any backfill, connection to any existing facility, or the placement of any concrete or asphalt paving. Inspection shall not be deemed a waiver on the part of the City of the right to demand correction of defects discovered at a subsequent date.
5. **STANDARD PLANS AND SPECIFICATIONS** - All work shall conform to the City of Stockton Standard Plans and Specifications.
6. **SURVEY MONUMENT PRESERVATION** - Any monuments including, but not limited to, chipel crosses, witness corners, and iron pins that control the location of subdivisions, tracts, boundaries, property lines, roads, streets, or provide survey controls, and that may be disturbed or destroyed during construction, shall be referenced by a licensed land surveyor and reset in the surface of the new construction or set a permanent witness monument. Corner records or Records of Survey shall be filed as required. (California Business and Professions Code 8771 and California Streets and Highways Code 732.5, 1492.5, 18310.5)
7. **MINIMUM INTERFERENCE WITH AND PROTECTION OF TRAFFIC** - All work shall be planned and carried out so there will be the least possible inconvenience to the traveling public. Placing of lights, barricades, warning signs and other safety devices required for public safety shall be the responsibility of the permittee. All work-zone traffic controls shall be in accordance with the most current revision of Chapter 5 of the State of California, Department of Transportation Traffic Manual.
8. **STANDARD WORKING HOURS** - All work shall be restricted to the hours between 8:30a.m. and 4:30p.m., except on arterials and collectors where the work is limited to the hours between 9:00a.m. and 3:00p.m., unless otherwise noted on this permit.
9. **FAILURE TO COMPLY WITH GENERAL PROVISIONS** - The permittee agrees to reimburse the City for performing all work and furnishing all materials to correct any failure to comply with these provisions, as well as all applicable City Ordinances and Standard Plans and Specifications currently in effect.
10. **NOTIFICATION OF UTILITY COMPANY** - The permittee shall notify utility companies 48 hours prior to beginning any construction, which may involve underground or overhead facilities and will pay all expenses for any removal or relocation necessary. Valves on water mains may not be turned off without permission of the utility company involved.
11. **NOTIFICATION OF POLICE, FIRE AND PUBLIC WORKS DEPARTMENTS** - When streets are to be blocked, the Police, Fire and Public Works Departments are to be notified each day the street is to be blocked and/or when traffic is delayed or hindered. Access to fire hydrants shall be maintained at all times. Streets will not be closed without prior approval of City Traffic Engineer and Permit Engineer.
12. **CLEANUP OF JOBSITE** - The permittee will remove any refuse material from the jobsite within three days after completion of the work.
13. **DELINQUENT BILLS** - Failure to pay any delinquent bill accrued under any previous permit issued by the Department will be cause for rendering the applicant ineligible for any other permit from the Issuing Department until such bill is paid.
14. **MEETING EXISTING IMPROVEMENT** - The permittee shall be responsible for meeting all adjacent frontage improvements such as paving and sidewalks.
15. **PARKING METER AND TRAFFIC SIGN REMOVAL** - The permittee shall contact either the Traffic Maintenance Supervisor at (209) 937-7408, or the Senior Public Works Supervisor at (209) 937-8381 of the Public Works Traffic Devices Section, at least 48 hours prior to any parking meter or traffic sign removal.

*****IMPORTANT*****

MANDATORY Encroachment Permit Procedures

To provide a more efficient and economical inspection service for Encroachment Permit construction, the following procedure shall be followed by all permittees:

1. Call the Permit Engineer at (209) 937-8356 to obtain a control number, no less than 24 hours, but not in excess of 72 hours prior to the start of work, and prior to any required inspections as identified below. If work does not begin within 72 hours of the issuance of a control number, the control number will be invalid and the permittee shall call for a new control number. (For City Capital Improvement Projects or subdivision improvements, permittee shall contact the assigned City Project Engineer at (209) 937-8411 for specific instructions prior to the beginning of any work.)
2. Discuss with the Permit Engineer or Inspector any unusual or difficult features of the construction.
3. Advise Permit Engineer or Inspector of name and phone number of contact person for the project prior to beginning work.
4. Notify Permit Engineer or Inspector one day in advance to cancel a scheduled inspection or to request an additional or earlier inspection.
5. Notify Permit Engineer or Inspector upon completion of construction at (209) 937-8381.

REQUIRED INSPECTIONS

Listed below are several types of construction and points at which inspections must be made, prior to continuing construction operation. Unauthorized continuance of construction beyond an inspection point may result in rejection of all work.

CONCRETE:

1. Grade and excavate before forming
2. Forming before placement of concrete
3. Beginning and during asphalt paving
4. Cleanup and final approval

PIPE INSTALLATION:

1. Excavating and bedding
2. Pipe installation and/or utility connections
3. Backfill (compaction test may be required)
4. Beginning and during asphalt paving
5. Final approval



CITY OF STOCKTON

COMMUNITY DEVELOPMENT DEPARTMENT
Permit Center • 345 N. El Dorado Street • Stockton, CA 95202-1997 • 209 / 937-8266 • Fax 209 / 937-8893
www.stocktongov.com/cdd

Acknowledgement of Monument Preservation
Monument Preservation prior to construction activity

I, _____, duly licensed Land Surveyor or Professional
(Please Print)

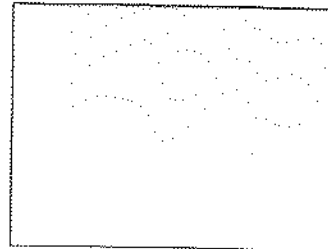
Engineer authorized to perform Land Surveying in the State of California, Registration
No. _____, hereby acknowledge and accept all responsibility for the monument
preservation as required per Section 8771 (a-f) of the Business and Professional Code
within the bounds of the construction activity permitted by the City of Stockton Permit No./
Plan No. _____.

I further acknowledge that I am hereby responsible for the Acknowledgement of Monument
Responsibility prior to final acceptance of construction activity permitted by the City of
Stockton Permit No./ Plan No. _____.

Signature

Date

Seal





CITY OF STOCKTON

COMMUNITY DEVELOPMENT DEPARTMENT

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Acknowledgement of Monument Preservation
Monument Preservation prior to construction activity

I, _____, duly licensed Land Surveyor or Professional
(Please Print)

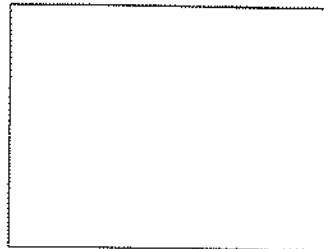
Engineer authorized to perform Land Surveying in the State of California, Registration
No. _____, hereby acknowledge and accept all responsibility for the monument
preservation as required per Section 8771 (a-f) of the Business and Professional Code
within the bounds of the construction activity permitted by the City of Stockton Permit No./
Plan No. _____.

I further acknowledge that I am hereby responsible for the Acknowledgement of Monument
Responsibility prior to final acceptance of construction activity permitted by the City of
Stockton Permit No./ Plan No. _____.

Signature

Date

Seal





CITY OF STOCKTON

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Permit Center • 345 N. El Dorado Street • Stockton, CA 95202-1997 • 209 / 937-8266 • Fax 209 / 937-8893
www.stockton.gov/cdd

Legislation changes effective January 1, 2015
Senate Bill No. 1467, Chapter 400

"SURVEY MONUMENT PRESERVATION"

Section 16: Section 8771(d) of the Business and Professions Code (Land Surveyor's Act):

(d) The governmental agency performing or permitting construction or maintenance work is responsible for ensuring that either the governmental agency or landowner performing the construction or maintenance work provides for monument perpetuation required by this section.

The City of Stockton has modified the Encroachment, Grading, and Building permit process to ensure that a responsible individual is in charge of the Land Surveying activities within the bounds of the permitted construction activity. The responsible individual shall be a Licensed Land Surveyor or a Professional Engineer authorized to perform Land Surveying in the State of California. It shall be at the sole discretion of the Public Works Department to determine if the permitted construction activity warrants the need to fulfill this requirement.



City of Turlock
Engineering Division
156 S. Broadway, Suite 150
Turlock, CA 95380
(209) 668-5520 Fax (209) 668-5563

Permit #:

APPLICATION FOR ENCROACHMENT PERMIT

PLEASE PROVIDE ALL INFORMATION FOR ITEMS 1 THROUGH 9 (INCOMPLETE APPLICATIONS WILL BE RETURNED)

1. Location of Work: _____ Assessors Parcel #: _____
2. Owner: _____ Email: _____ Phone: _____
Address: _____ City: _____ State: _____ ZIP Code: _____
3. Contractor: _____ Email: _____ Phone: _____
Address: _____ City: _____ State: _____ ZIP Code: _____
State License Number: _____ City/Business License Number: _____
4. Estimated Start Date: _____ Estimated Completion Date: _____
5. Description of Work: _____
6. Provide an engineers estimate or contractor's bid price for all off site improvements (REQUIRED): \$
7. Total improvement area (square feet):
8. Total new and reconstructed impervious surface area (square feet):
9. Total new and rehabilitated landscape area (square feet):

PLEASE CHECK ALL ITEMS THAT APPLY (Documents must be submitted and approved by the City prior to issuance of a permit.)

10. Insurance Requirements:
 - A. If construction shall be performed by Homeowner, please provide the following:
 - 1. Proof of homeowner's insurance (including general liability coverage, address insured and policy number.)
 - B. If construction shall be performed by Contractor, please provide the following:
 - 1. Certificate of Insurance "ACORD" evidencing commercial general liability, automobile liability, and applicable workers' compensation coverages.
 - 2. 30-days Notice of Cancellation Endorsement.
 - 3. Additional Insured CG 20 10 Endorsement naming "The City of Turlock, its elective and appointive boards, officers, agents, employees and volunteers."
 - 4. Additional Insured CG 20 37 Endorsement naming "The City of Turlock, its elective and appointive boards, officers, agents, employees and volunteers."
 - 5. Primary/Non-contributory Endorsement.
 - 6. Commercial General Liability Waiver of Subrogation Endorsement.
 - 7. Workers' Compensation Waiver of Subrogation Endorsement.
 - C. If construction shall be performed by Contractor and the work is related to a trip and fall complaint, please provide all items under both A and B.
11. Improvement Security:
 - A. If construction shall be performed by Contractor, please provide improvement security, in the form of cash, check, bond or letter of credit, equal to 110% of the total construction cost.
12. Improvement Plans:
 - A. If you do not have plans approved by the City, please provide a sketch of the proposed work showing all dimensions, property lines, existing improvements and proposed improvements.
13. MS4 Requirements: (if applicable)
 - A. If the proposed work will create a soil disturbance, please provide a completed Erosion and Sediment Control Plan Worksheet (ESCP) or Storm Water Pollution Prevention Plan (SWPPP).
 - B. If the proposed work creates or replaces more than 2,500 square feet of impervious surface, please provide a completed Post Construction BMP Worksheet.
14. Monument Preservation: (if applicable)
 - A. If the proposed work will be in close proximity to property corners or other monuments, please provide the following from a Licensed Land Surveyor or Professional Engineer authorized to perform Land Surveying:
 - 1. Completed Acknowledgement of Monument Responsibility Certificate.
 - 2. Completed Acknowledgement of Monument Preservation Certificate (Required prior to sign-off of permit).
15. Traffic Control Plan: (if applicable)
 - A. If the proposed work is in the City right of way, please provide a Traffic Control Plan designed in accordance with the MUTCD for temporary traffic control.
16. Utility Access Agreement: (if applicable)
 - A. If construction includes the televising of City utility pipes, manholes, cleanouts, catch basins or lift stations, a Utility Access Agreement is required.

Applicant (or owner's authorized agent) hereby acknowledges that he/she has read the contents of this application, is familiar with and will abide by City of Turlock standards, specifications, drawings and ordinances. Failure to do so may result in postponement or cancellation of the work and Applicant will be responsible for any costs associated therewith. Applicant hereby assumes all responsibility to construct the improvements in conformance with City of Turlock standards, specifications, drawings and ordinances.

Signature of Applicant (or authorized agent) _____

Date _____



May 19, 2015

Legislation changes effective January 1, 2015
Senate Bill No. 1467, Chapter 400

"SURVEY MONUMENT PRESERVATION"

Section 16: Section 8771(d) of the Business and Professions Code (Land Surveyor's Act):

(d) The governmental agency performing or permitting construction or maintenance work is responsible for ensuring that either the governmental agency or landowner performing the construction or maintenance work provides for monument perpetuation required by this section.

The City of Turlock has modified the Encroachment and Grading permit process to ensure that there is an individual in responsible charge of the Land Surveying activities within the bounds of the permitted construction. The individual shall be a Licensed Land Surveyor or a Professional Engineer authorized to perform Land Surveying in the State of California. It shall be at the sole discretion of the City Land Surveyor to determine if the permitted construction activity warrants the need to fulfill this requirement.

- Minor construction activity where there is no potential for jeopardizing monuments would be a situation where the City of Turlock would not require the permittee to designate an individual in responsible charge of the Land Surveying activities within the bounds of the permitted construction.
- All other permitted construction activity will require an acknowledgement signed by an individual in responsible charge of the Land Surveying activities within the bounds of the permitted construction prior to issuance of the permit. Prior to final acceptance of the construction activity, the City of Turlock will require another acknowledgement signed by the designated individual in responsible charge of the Land Surveying activities, stating that all monuments within the bounds of the permitted construction have been preserved.

Acknowledgement of Monument Responsibility
"Pre-Construction"
Monument Preservation prior to construction activity

I, _____, a duly Licensed Land Surveyor or a Professional Engineer
(Please print)

authorized to perform Land Surveying in the State of California, Registration No. _____

hereby acknowledge and accept all responsibility for the monument preservation as required per

Section 8771(a-f) of the Business and Professions Code within the bounds of the construction

activity permitted by the City of Turlock Permit No. _____

Construction Site Address: _____

I further acknowledge that I am hereby responsible for the Acknowledgement of Monument
Preservation prior to final acceptance of the construction activity.

Signature

Seal

Date

**Acknowledgement of Monument Preservation
"Post Construction"**
Monument Preservation prior to final acceptance of construction activity

I, _____, a duly Licensed Land Surveyor or a Professional Engineer
(Please print)

authorized to perform Land Surveying in the State of California, Registration No. _____

hereby acknowledge and accept all responsibility for the monument preservation as required per
Section 8771(a-f) of the Business and Professions Code within the bounds of the construction
activity permitted by the City of Turlock Permit No. _____.

Construction Site Address: _____

I hereby state that all monuments within the bounds of the construction activity are in the original
location or have been reset in accordance with Section 8771(a-f) of the Business and Professions
Code.

Signature

Seal

Date



EL DORADO COUNTY POLICY FOR ENSURING ENCROACHMENT PERMIT COMPLIANCE WITH CALIFORNIA BUSINESS AND PROFESSIONS CODE SECTION 8771(B)

California Business and Professions Code Division 3, Article 5, Section 8771(b) states, *“When monuments exist that control the location of subdivisions, tracts, boundaries, roads, streets, or highways, or provide horizontal or vertical survey control, the monuments shall be located and referenced by or under the direction of a licensed land surveyor or licensed civil engineer legally authorized to practice land surveying, prior to the time when any streets, highways, other rights-of-way, or easements are improved, constructed, reconstructed, maintained, resurfaced, or relocated, and a corner record or record of survey of the references shall be filed with the county surveyor.”*

Accordingly, El Dorado County will ensure compliance with California Business and Professions Code Section 8771(b) by requiring every applicant to engage a licensed land surveyor to determine which of the following 2 scenarios best describe the work proposed in the permit application:

1. There are no survey monuments located within the permit application’s work zone; or
2. There are survey monuments located within the permit application’s work zone.

Under scenario 1, the applicant’s licensed land surveyor will complete El Dorado County’s Certificate of Monument Preservation (attached) stating that no monuments were found within project limits and attach the Certificate to the permit application.

Under scenario 2, the applicant’s licensed land surveyor will locate and reference the survey monuments and provide DOT with a preliminary copy of a Pre-Construction Corner Record or Record of Survey before an encroachment permit will be issued. The applicant’s licensed land surveyor will then have 90 days to file the actual Pre-Construction Corner Record or Record of Survey with the El Dorado County Surveyor’s Office. After construction is complete, if any survey monuments have been damaged or destroyed, the applicant’s licensed land surveyor will set new monuments pursuant to California Business and Professions Code Section 8771(c) and file a Post-Construction Corner Record or Record of Survey with the El Dorado County Surveyor’s Office.

If an applicant believes that the work proposed under their application will in no way disturb any existing survey monument, then the applicant may request a waiver from this requirement that will be reviewed by El Dorado County on a case-by-case basis. An example of work for which a waiver might be issued is an instance where no vehicles are parked in unpaved areas of County right-of-way and no work is performed on roads or in unpaved areas of County right-of-way.



EL DORADO COUNTY
CERTIFICATE OF MONUMENT PRESERVATION

El Dorado County Department of Transportation Encroachment Permit number: [REDACTED]

Utility Company Job Number: [REDACTED]

Encroachment Location:
(Address/Address Range) [REDACTED]

Improvement Plan Title: [REDACTED]

Plan Set Date: [REDACTED]

I, [REDACTED], a duly licensed land surveyor or registered civil engineer authorized to perform land surveying in California as specified in Section 8700 of the California Business and Professions Code, do hereby certify that I have performed survey monument preservation as required by Section 8771 of the California Business and Professions Code at the request of my client,
[REDACTED]

No monuments were found within the work zone of this encroachment permit application.

Monuments are located within the work area and Pre-Construction Corner Record(s) are attached.

Project has been completed and Post-Construction Corner Record(s) are attached.

This Certificate of Monument Preservation was prepared by me, or under my direct supervision, in conformance with the Professional Land Surveyors' Act on [REDACTED], 20 [REDACTED].

Signed: _____

PLS or RCE number: [REDACTED]

Date: [REDACTED]

Stamp:

4.3 SAMPLE MEMO TO COUNTY ROAD MAINTENANCE DIVISION

Notes:

- 1. If your County does not have an in-house road maintenance division, then this memo is to be directed to the person responsible for contract management over the firm(s) that provide road maintenance services.*
- 2. This memo is intended to be sent out on an annual basis by the County Surveyor or City Engineer, preferably in early spring ahead of the construction season.*
- 3. The memo is formatted for a County Surveyor, but can easily be adapted to refer to a City Surveyor.*
- 4. The **Field Guide for Identifying Survey Monuments** is included in Section 0 of the toolkit. Since many colleges no longer offer surveying courses as part of a civil engineering degree, it is important to include educational materials regarding what survey monuments are.*
- 5. The **Survey Monument Fact Sheet** is included in Section 0 of the toolkit.*
- 6. TIP: Set a perpetual MS Outlook calendar appointment as reminder to send out this memo; and include a hyperlink to your version of the memo in the calendar reminder.*

TO: Road Maintenance Division
FROM: County Surveyor's Office
DATE: <date>
RE: SURVEY MONUMENT PRESERVATION

The purpose of this memo is to provide you with clear direction to comply with Business and Professions Code Section [8771](#). This code section addresses monument preservation. Preservation includes filing pre-construction corner records, replacing monuments that are destroyed during construction, and filing post-construction corner records. Business and Professions Code Section [6730.2](#) places this responsibility with the person in responsible charge of the civil engineering work / road maintenance work. The Board for Professional Engineers, Land Surveyors and Geologists has cited civil engineers in responsible charge that have failed to comply with monument preservation requirements. In 2016, a city engineer was investigated by the licensing board for professional engineers, land surveyors, and geologists. The investigation found that the civil engineer was guilty of not replacing survey monuments destroyed during road improvement projects. The civil engineer was fined \$5,000 and also ordered to pay \$5,000 in investigative costs. **That's \$10,000.** The responsibilities of the Road Maintenance Division and the County Surveyor's Office are set forth below. Please share this memo with any contractors that you may hire.

ROAD MAINTENANCE DIVISION

- When maintenance activities (micro surfacing, overlays, chip seals, culvert replacement, curb replacement, etc.) will be disturbing the roadway or sidewalk contact the County Surveyor to research survey monuments in the area. At least two weeks' notice is needed.

As a rule of thumb:

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- If you call USA / dig alert, you need to check with the County Surveyor's Office for survey monuments.
 - If you will be cutting and removing pavement, you need to check with the County Surveyor's Office.
 - If you place any kind of overlay or any kind of seal coat, check with the County Surveyor's Office.
 - Routine pothole filling is exempt; however, saw-cutting, removing and replacing areas are subject to monument preservation.
 - Monument preservation is required for all contracted work overseen by Road Maintenance Division.
- Foreman to receive annual training in "emergency" monument preservation from the County Surveyor.
 - Road Maintenance to notify County Surveyor when work is complete.
 - Allow sufficient lead time for the County Surveyor to research survey monuments prior to commencing with construction.
 - Become educated on what survey monuments are; what survey monuments may look like; where survey monuments may be found; and why survey monument preservation is important. The County Surveyor is willing to provide formal training for you and your staff.

COUNTY SURVEYOR'S OFFICE

- Prepare pre-construction and post-construction corner records, as needed.
- Immediately respond to requests for emergency monument preservation; or direct the foreman to preform emergency monument preservation.
- Provide annual training to foreman for "emergency" monument preservation.
- Provide education on what survey monuments are; what survey monuments may look like; where survey monuments may be found; and why survey monument preservation is important.

Attachments:

- *Field Guide for Identifying Survey Monuments*
- *Survey Monument Fact Sheet*

4.4 SAMPLE MEMO TO UTILITY DIVISION (Design and Construction)

Notes:

- 1. If your agency provides utilities but does not have in-house utility engineers, then this memo is to be directed to the person responsible for contract management over the firm(s) that provide engineering design services and/or construction inspection / oversight services.*
- 2. This memo is intended to be sent out on an annual basis by the County Surveyor or City Surveyor, preferably in early spring when projects are starting to be bid ahead of the construction season.*
- 3. The memo is formatted for a County Surveyor, but can easily be adapted to refer to a City Surveyor.*
- 4. The **Survey Monument Preservation Checklist** is included in Section 0 of the toolkit.*
- 5. The **Field Guide for Identifying Survey Monuments** is included in Section 0 of the toolkit.*
- 6. The **Survey Monument Fact Sheet** is included in Section 0 of the toolkit.*
- 7. TIP: Set a perpetual MS Outlook calendar appointment as reminder to send out this memo; and include a hyperlink to your version of the memo in the calendar reminder.*

TO: Utility Division
FROM: County Surveyor's Office
DATE: <DATE>
RE: **SURVEY MONUMENT PRESERVATION**

The purpose of this memo is to provide you with clear direction to comply with Business and Professions Code Section [8771](#). This code section addresses monument preservation. Preservation includes filing pre-construction corner records, replacing monuments that are destroyed during construction, and filing post-construction corner records. Business and Professions Code Section [6730.2](#) places this responsibility with the person in responsible charge of the civil engineering work. The Board for Professional Engineers, Land Surveyors and Geologists has cited civil engineers in responsible charge that have failed to comply with monument preservation requirements. In 2016, a city engineer was investigated by the licensing board for professional engineers, land surveyors, and geologists. The investigation found that the civil engineer was guilty of not replacing survey monuments destroyed during road improvement projects. The civil engineer was fined \$5,000 and ordered to pay \$5,000 in investigative costs. **That's \$10,000.** The responsibilities of the Utilities Division / Design Section and Utilities Division / Construction Section, and the County Surveyor's Office are set forth below. Please share this memo with all your design consultants and construction management consultants.

DESIGN SECTION RESPONSIBILITIES

- Once a project has been designed and the limits of the project have been established, use the *survey request form* to request that the County Surveyor's Office prepare pre-construction corner records.

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- Modify the construction bid documents to include survey monumentation sheets (if any) provided by the County Surveyor's Office.
- Modify the construction bid documents to identify "Protect in Place" symbols for all monuments that are to be protected in place.
- Include contract language that creates a financial penalty for the contractor if the contractor destroys a "Protect in Place" monument.
- Provide an appropriate budget for the County Surveyor's Office to prepare pre-construction corner records; to replace all monuments destroyed by construction; and to prepare pre-post construction corner records.

CONSTRUCTION SECTION RESPONSIBILITIES

- Review survey monument map for "Protect in Place" monument prior to project bidding.
- At the pre-construction meeting review, survey monument map review penalty for destroying "Protect in Place" monuments.
- Resident Engineer to receive annual training on "emergency" monument preservation to tie the monuments if the County Surveyor's Office is not available to tie it out immediately. Resident Engineer still needs to immediately call County Surveyor to immediately survey the emergency ties.
- Resident Engineer to contact the County Surveyor's Office at conclusion of construction for post-construction corner records.
- Resident Engineer to charge the contractor for all "Protect in Place" monuments destroyed by contractors.
- Resident Engineer to file in project binder all pre-construction and post-construction corner records.

COUNTY SURVEYOR RESPONSIBILITIES

- Prepare survey monument sheets to be included in bid documents.
- Identify monuments to be "protect in place".
- Prepare pre-construction corner records.
- Notify Resident Engineer of all "protect in place" survey monuments destroyed by contractor.
- Replace destroyed or damaged survey monuments.
- Prepare post-construction corner records.
- Provide annual training to Resident Engineers for emergency monument preservation.

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- Immediately respond to requests for emergency monument preservation; or direct Resident Engineer to perform emergency monument preservation.

Attachments:

- *Survey Monument Preservation Checklist*
- *Survey Monument Fact Sheet*

4.5 SAMPLE MEMO TO COUNTY CAPITAL PROJECTS DIVISION (OR UTILITIES DIVISION)

Notes:

1. *If your County does not have an in-house capital projects division, then this memo is to be directed to the person responsible for contract management over the firm(s) that provide engineering design services or construction inspection / oversight services.*
2. *If your County has a separate utility division, then this memo should also be used to contact that division as well.*
3. *This memo is intended to be sent out on an annual basis by the County Surveyor or City Engineer, preferably in early spring when projects are starting to be bid ahead of the construction season.*
4. *The memo is formatted for a County Surveyor, but can easily be adapted to refer to a City Surveyor.*
3. *The **Survey Monument Preservation Checklist** is included in Section 0 of the toolkit.*
5. *The **Field Guide for Identifying Survey Monuments** is included in Section 0 of the toolkit.*
6. *The **Survey Monument Fact Sheet** is included in Section 0 of the toolkit.*
4. *TIP: Set a perpetual MS Outlook calendar appointment as reminder to send out this memo; and include a hyperlink to your version of the memo in the calendar reminder.*

TO: Capital Projects Division

FROM: County Surveyor's Office

DATE: <DATE>

RE: **SURVEY MONUMENT PRESERVATION**

The purpose of this memo is to provide you with clear direction to comply with Business and Professions Code Section [8771](#). This code section addresses monument preservation. Preservation includes filing pre-construction corner records, replacing monuments that are destroyed during construction, and filing post-construction corner records. Business and Professions Code Section [6730.2](#) places this responsibility with the person in responsible charge of the civil engineering work. The Board for Professional Engineers, Land Surveyors and Geologists has cited civil engineers in responsible charge that have failed to comply with monument preservation requirements. In 2016, a city engineer was investigated by the licensing board for professional engineers, land surveyors, and geologists. The investigation found that the civil engineer was guilty of not replacing survey monuments destroyed during road improvement projects. The civil engineer was fined \$5,000 and ordered to pay \$5,000 in investigative costs. **That's \$10,000.** The responsibilities of the Capital Projects Division / Design Section and Capital Projects Division / Construction Section, and the County Surveyor's Office are set forth below. Please share this memo with all your design consultants and construction management consultants.

DESIGN SECTION RESPONSIBILITIES

- Once a project has been designed and the limits of the project have been established, use the *survey request form* to request that the County Surveyor's Office prepare pre-construction corner records.

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- Modify the construction bid documents to include survey monumentation sheets (if any) provided by the County Surveyor's Office.
- Modify the construction bid documents to identify "Protect in Place" symbols for all monuments that are to be protected in place.
- Include contract language that creates a financial penalty for the contractor if the contractor destroys a "Protect in Place" monument.
- Provide an appropriate budget for the County Surveyor's Office to prepare pre-construction corner records; to replace all monuments destroyed by construction; and to prepare pre-post construction corner records.
- Provide adequate funding for the County Surveyor (or contracted land surveyor) to perform monument preservation work.

CONSTRUCTION SECTION RESPONSIBILITIES

- Review survey monument map for "Protect in Place" monument prior to project bidding.
- At the pre-construction meeting review, survey monument map review penalty for destroying "Protect in Place" monuments.
- Resident Engineer to receive annual training on "emergency" monument preservation to tie the monuments if the County Surveyor's Office is not available to tie it out immediately. Resident Engineer still needs to immediately call County Surveyor to immediately survey the emergency ties.
- Resident Engineer to contact the County Surveyor's Office at conclusion of construction for post-construction corner records.
- Resident Engineer to charge the contractor for all "Protect in Place" monuments destroyed by contractors. See Caltrans Standard Specifications 5-1.36A and 5-1.36D.
- Resident Engineer to file in project binder all pre-construction and post-construction corner records.

COUNTY SURVEYOR RESPONSIBILITIES

- Prepare survey monument sheets to be included in bid documents.
- Identify monuments to be "protect in place".
- Prepare pre-construction corner records.
- Notify Resident Engineer of all "protect in place" survey monuments destroyed by contractor.
- Replace destroyed or damaged survey monuments.
- Prepare post-construction corner records.
- Provide annual training to Resident Engineers for emergency monument preservation.
- Immediately respond to requests for emergency monument preservation; or direct Resident Engineer to perform emergency monument preservation.

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Attachments:

- *Survey Monument Preservation Checklist*
- *Field Guide for Identifying Survey Monuments*
- *Survey Monument Fact Sheet*

4.6 SAMPLE LETTER TO CITIES

Notes:

1. *This letter is intended to be sent out on an annual basis by the County Surveyor, preferably in early spring when projects are starting to be bid ahead of the construction season. It is to be sent by County Surveyors to all of the cities and utility districts located within the County. Letters should be sent to the following:*

City Manager, City Engineer, City Utility Division (if there is one), and City Surveyor

2. *The **Survey Monument Preservation Checklist** is included in Section 0 of the toolkit.*
3. *The **Field Guide for Identifying Survey Monuments** is included in Section 0 of the toolkit.*
4. *The **Survey Monument Fact Sheet** is included in Section 0 of the toolkit.*
5. *TIP: Set a perpetual MS Outlook calendar appointment as reminder to send out this memo; and include a hyperlink to your version of the memo in the calendar reminder.*

<City Manager><City Engineer><City Utility Division><City Surveyor>

RE: SURVEY MONUMENT PRESERVATION

The purpose of this memo is to provide you with clear direction to comply with Business and Professions Code Section [8771](#). This code section addresses monument preservation. Preservation includes filing pre-construction corner records, replacing monuments that are destroyed during construction, and filing post-construction corner records. Business and Professions Code Section [6730.2](#) places this responsibility with the person in responsible charge of the civil engineering work. The Board for Professional Engineers, Land Surveyors and Geologists has cited civil engineers in responsible charge that have failed to comply with monument preservation requirements. In 2016, a city engineer was investigated by the licensing board for professional engineers, land surveyors, and geologists. The investigation found that the civil engineer was guilty of not replacing survey monuments destroyed during road improvement projects. The civil engineer was fined \$5,000 and ordered to pay \$5,000 in investigative costs. **That's \$10,000.** The responsibilities of the Capital Projects Division / Design Section and Capital Projects Division / Construction Section, and the City Surveyor's Office are set forth below. If your City does not have an in-house City Surveyor, then coordination would be with the person contracted to perform the duties of the City Surveyor. For the purposes of this letter, a person contract to perform the duties of the City Surveyor is called the City Surveyor. Please share this memo with all your design consultants and construction management consultants.

ENGINEERING RESPONSIBILITIES

- Once a project has been designed and the limits of the project have been established, use the *survey request form* to request that the City Surveyor's Office prepare pre-construction corner records.
- Modify the construction bid documents to include survey monumentation sheets (if any) provided by the City Surveyor's Office.

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- Modify the construction bid documents to identify "Protect in Place" symbols for all monuments that are to be protected in place.
- Include contract language that creates a financial penalty for the contractor if the contractor destroys a "Protect in Place" monument.
- Provide an appropriate budget for the City Surveyor's Office to prepare pre-construction corner records; to replace all monuments destroyed by construction; and to prepare pre-post construction corner records.

CONSTRUCTION MANAGEMENT/OVERSIGHT RESPONSIBILITIES

- Review survey monument map for "Protect in Place" monument prior to project bidding.
- At the pre-construction meeting review, survey monument map review penalty for destroying "Protect in Place" monuments.
- Resident Engineer* to receive annual training on "emergency" monument preservation to tie the monuments if the City Surveyor's Office is not available to tie it out immediately. Resident Engineer still needs to immediately call County Surveyor to immediately survey the emergency ties.

*Resident Engineer is a term used by Caltrans in their standard specifications as the person in charge of overseeing construction.

- Resident Engineer to contact the City Surveyor's Office at conclusion of construction for post-construction corner records.
- Resident Engineer to charge the contractor for all "Protect in Place" monuments destroyed by contractors. See Caltrans Standard Specifications 5-1.36A and 5-1.36D; and APWA Greenbook Section 2-9.
- Resident Engineer to file in project binder all pre-construction and post-construction corner records.

CITY SURVEYOR RESPONSIBILITIES

- Prepare survey monument sheets to be included in bid documents.
- Identify monuments to be "protect in place".
- Prepare pre-construction corner records.
- Notify Resident Engineer of all "protect in place" survey monuments destroyed by contractor.
- Replace destroyed or damaged survey monuments.
- Prepare post-construction corner records.
- Provide annual training to Resident Engineers for emergency monument preservation.
- Immediately respond to requests for emergency monument preservation; or direct Resident Engineer to perform emergency monument preservation.

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Thank you for doing your part to protect survey monuments. If you have any questions, please feel free to contact me.

Sincerely,

<County Surveyor>

Attachments:

- *Survey Monument Preservation Checklist*
- *Field Guide for Identifying Survey Monuments*
- *Survey Monument Fact Sheet*

4.7 SAMPLE LETTER TO UTILITY COMPANIES AND UTILITY DISTRICTS

Notes:

- 1. This letter is intended to be sent out on an annual basis by the County Surveyor, preferable in early spring when projects are starting to be bid ahead of the construction season. It is to be sent by County Surveyors to all of the utilities (electricity, telephone, cable TV, fiber, etc) and utility districts (water and sewer) located within the County. Letters should be sent to the following:*

District Manager and District Engineer

- 2. The memo is formatted for a County Surveyor, but can easily be adapted to refer to a City Surveyor.*
- 3. The **Survey Monument Preservation Checklist** is included in Section 0 of the toolkit.*
- 4. The **Field Guide for Identifying Survey Monuments** is included in Section 0 of the toolkit.*
- 5. The **Survey Monument Fact Sheet** is included in Section 0 of the toolkit.*
- 6. TIP: Set a perpetual MS Outlook calendar appointment as reminder to send out this memo; and include a hyperlink to your version of the memo in the calendar reminder.*

<County Letterhead>

<Utility District Manager><Utility District Engineer>

RE: SURVEY MONUMENT PRESERVATION

The purpose of this memo is to provide you with clear direction to comply with Business and Professions Code Section [8771](#). This code section addresses monument preservation. Preservation includes filing pre-construction corner records, replacing monuments that are destroyed during construction, and filing post-construction corner records. Business and Professions Code Section [6730.2](#) places this responsibility with the person in responsible charge of the civil engineering work. The Board for Professional Engineers, Land Surveyors and Geologists has cited civil engineers in responsible charge that have failed to comply with monument preservation requirements. In 2016, a city engineer was investigated by the licensing board for professional engineers, land surveyors, and geologists. The investigation found that the civil engineer was guilty of not replacing survey monuments destroyed during road improvement projects. The civil engineer was fined \$5,000 and ordered to pay \$5,000 in investigative costs. **That's \$10,000.** The responsibilities of the Capital Projects Division / Design Section and Capital Projects Division / Construction Section, and the District Surveyor's Office are set forth below. If your District does not have an in-house District Surveyor, then coordination would be with the person contracted to perform the duties of the District Surveyor. For the purposes of this letter, a person contract to perform the duties of the District Surveyor is called the District Surveyor. Please share this memo with all your design consultants and construction management consultants.

UTILITY ENGINEERING RESPONSIBILITIES

- Once a project has been designed and the limits of the project have been established, use the *survey request form* to request that the District Surveyor's Office prepare pre-construction corner records.

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- Modify the construction bid documents to include survey monumentation sheets (if any) provided by the District Surveyor's Office.
- Modify the construction bid documents to identify "Protect in Place" symbols for all monuments that are to be protected in place.
- Include contract language that creates a financial penalty for the contractor if the contractor destroys a "Protect in Place" monument.
- Provide an appropriate budget for the District Surveyor's Office to prepare pre-construction corner records; to replace all monuments destroyed by construction; and to prepare pre-post construction corner records.

UTILITY CONSTRUCTION MANAGEMENT/OVERSIGHT RESPONSIBILITIES

- Review survey monument map for "Protect in Place" monument prior to project bidding.
- At the pre-construction meeting review, survey monument map review penalty for destroying "Protect in Place" monuments.
- Resident Engineer* to receive annual training on "emergency" monument preservation to tie the monuments if the City Surveyor's Office is not available to tie it out immediately. Resident Engineer still needs to immediately call County Surveyor to immediately survey the emergency ties.

*Resident Engineer is a term used by Caltrans in their standard specifications as the person in charge of overseeing construction.

- Resident Engineer to contact the City Surveyor's Office at conclusion of construction for post-construction corner records.
- Resident Engineer to charge the contractor for all "Protect in Place" monuments destroyed by contractors. See Caltrans Standard Specifications 5-1.36A and 5-1.36D; and APWA Greenbook Section 2-9.
- Resident Engineer to file in project binder all pre-construction and post-construction corner records.

DISTRICT SURVEYOR RESPONSIBILITIES

- Prepare survey monument sheets to be included in bid documents.
- Identify monuments to be "protect in place".
- Prepare pre-construction corner records.
- Notify Resident Engineer of all "protect in place" survey monuments destroyed by contractor.
- Replace destroyed or damaged survey monuments.
- Prepare post-construction corner records.
- Provide annual training to Resident Engineers for emergency monument preservation.

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- Immediately respond to requests for emergency monument preservation; or direct Resident Engineer to perform emergency monument preservation.

Thank you for doing your part to protect survey monuments. If you have any questions, please feel free to contact me.

Sincerely,

<County Surveyor>

Attachments:

- *Survey Monument Preservation Checklist*
- *Field Guide for Identifying Survey Monuments*
- *Survey Monument Fact Sheet*

4.8 SAMPLE LETTER TO TRADE ORGANIZATIONS (REALTORS, CONTRACTORS, BUILDERS EXCHANGES)

Notes:

- 1. This letter is intended to be sent on an annual basis by the County Surveyor as part of a public education and outreach campaign.*
- 2. The letter is formatted for a County Surveyor, but can easily be adapted to refer to a City Surveyor.*
- 3. Contractor mailing addresses can be downloaded from the CSLB website:
<https://cslb.ca.gov/onlineservices/dataportal/>*
- 4. A future goal is to prepare a MS powerpoint presentation that can presented to educate them on survey monument presentation. If you develop such a powerpoint presentation, please share it with the authors of this toolkit so that it can be included in future versions of the toolkit. Building relationships with Cal Fire personnel will help drive the content that is needed for the powerpoint; as well as revisions to the sample letter.*
- 5. TIP: Set a perpetual MS Outlook calendar appointment as reminder to send out this memo; and include a hyperlink to your version of the memo in the calendar reminder.*

<County letterhead>

RE: SURVEY MONUMENTS

This letter is to start a discussion of how your organization can help minimize the destruction of survey monuments. What are survey monuments? Survey monuments are points that are marked on the ground. These points typically represent property corners. Survey monuments vary in appearance and size. Most are quite small and are difficult to spot. See the attached *Field Guide for Identifying Survey Monuments*. When a survey monument is destroyed or removed, it can be extremely costly to replace.

I would be happy to speak at your next meeting to discuss the importance of survey monuments and what your organization and its members can do to help minimize the destruction of survey monuments. Please contact me to set up a date when I can make a presentation to your organization.

Sincerely,

<County Surveyor>

4.9 SAMPLE LETTER TO CLSA CHAPTERS

Notes:

- 1. This letter is intended to be sent by the County Surveyor on an annual basis as part of a public education and outreach campaign to the CLSA chapter in their region. It is recommended that this letter be sent in the spring, ahead of the construction season.*
- 2. The memo is formatted for a County Surveyor, but can easily be adapted to refer to a City Surveyor.*
- 3. TIP: Set a perpetual MS Outlook calendar appointment as reminder to send out this memo; and include a hyperlink to your version of the memo in the calendar reminder.*

<County letterhead>

CLSA <chapter name>

RE: SURVEY MONUMENTS

This letter is an annual reminder to encourage your chapter to consider Best Management Practices (BMPs) when setting survey monuments. As you are aware, the preservation of survey monuments is important to both land surveyors and landowners. By utilizing BMPs when deciding where to place a survey monument, you can help ensure its preservation. The following BMPs are suggested:

1. When setting property corners, confer with your client and neighboring properties about their intent for installing fencing along the common property lines. By understanding how the property may be fenced can help you decide the best location for monumenting property corners. Monuments placed in line with future fencing provide little value when the type of fencing to be installed is a block wall. Offset monuments may afford the best protection from being destroyed by fence/wall installers.
2. Consider setting property corners outside the road right-of-way. With the property owners' consent, set the monuments behind the sidewalk on private property adjacent to the parkway. If sidewalk is scheduled to be installed, set at least 1 foot behind the sidewalk so that monument does not interfere with form boards used to the construct the sidewalk.

The asphalt surface should be avoided due to frequent maintenance activity. Setting monuments in the tops of curbs is better since curbs tend to remain intact longer than paved road surfaces; however outside of the right of way and public utility easements greatly helps reduce the quantity of entities likely to disturb the survey monuments. The property owners need to be alerted when setting survey monuments on their property, so they know to avoid disturbing them during yard maintenance or improvements.

3. The only monuments in the asphalt roadway should be centerline monuments for the roadway (Radius Point, Begin / End Curve, Intersection). The only exception is for public land system monuments and rancho monuments; these monuments should be in a monument well. Roadway surfaces undergo frequent repair and are also subject to pothole failures. Each monument in the roadway surface results is an extra, and perhaps unnecessary, expense that

the taxpayer must cover when the road surface is worked on when there are more appropriate locations for the monuments.

Consider setting witness or accessory monuments to perpetuate the location of centerline monuments outside the road right-of-way. With the property owners' consent, set the monuments behind the sidewalk on private property adjacent to the parkway. The property owners need to be alerted when setting survey monuments on their property, so they know to avoid disturbing them during yard maintenance or improvements.

4. When setting monuments in the sidewalk, recognize your obligation to comply with the American's with Disabilities Act as codified in [CBC 11B-303](#) "Change of level" requirements: maximum $\frac{1}{4}$ " change in level without bevel; maximum change in level is $\frac{1}{2}$ " with 2:1 bevel. Ideally, monuments should be countersunk into the sidewalk to be as close as flush as possible. Some people have disabilities that result in a "shuffle" gait where their feet drag across the ground as the walk. These people may trip on small imperfections in the sidewalk, so setting monuments close to flush is important.

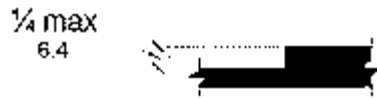


Figure 11B-303.2

Vertical change in level

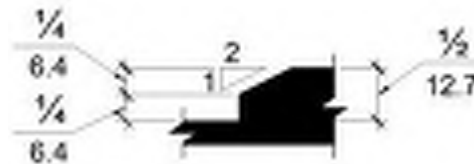


Figure 11B-303.3

Beveled change in level

5. Use your interactions with civil engineers as a way to educate them about survey monuments. Many colleges no longer offer surveying courses in their civil engineering curriculum.
6. Include notes on your deliverables regarding the need to protect survey monuments.
 - For paper deliverables consider adding the following note to the map:

IMPORTANT NOTE: The survey monuments shown on this map are to be protected in place pursuant to Business and Professions Code Section 8771, California Penal Code Sections 605, 615, and 622. In the event that future construction will destroy a survey monument (such as constructing a fence), contact a land surveyor to discuss how to preserve the survey monument and to provide for its replacement should construction require its destruction. It is imperative that a land surveyor be contacted prior to any survey monument being disturbed or destroyed. The cost to replace a disturbed or destroyed monument is exponentially greater than the cost of having a land surveyor assist with the preservation of survey monuments before construction commences.

- For digital deliverables (like AutoCAD files), separate survey monuments onto a different layer than project control. Include notes in model space on the same layer as the survey monuments to educate/remind your clients about the need to preserve survey monuments. Make the text large so that it can be clearly seen when the drawing is zoomed out, but

positioned away from where viewports are likely to be made. Make the text "no plot" so that it will not interfere with plotting. Suggested note:

IMPORTANT NOTE: Survey monuments shown on this layer are required to be protected in place pursuant to Business and Professions Code Section 8771, California Penal Code Sections 605, 615, and 622. The board of registration for professional engineers, land surveyors, and geologists has determined that civil engineers in responsible charge of the project are liable for survey monument preservation. All construction drawings and specifications shall specify that survey monuments are to be protected in place. Survey monuments shall be individually identified on construction drawings with notes that state "PROTECT IN PLACE"; unless the survey monument must be destroyed to construct the improvements.

In the event that construction of improvements will destroy a survey monument or construction will occur within 10 feet of a survey monument (including conform paving limits), contact the project land surveyor to tie out the monuments before construction commences. The land surveyor will then replace any monuments that have been disturbed or destroyed by construction.

It is the responsibility of the owner to enter into a contract with a land surveyor to provide for survey monument preservation at the same time that the owner enters into a contract with a contractor to construct improvements.

Additionally, CLSA chapters should support and assist City Surveyors and County Surveyors in getting survey monument policies codified in municipal codes.

- For Counties that contract out County Surveyor duties, CLSA chapters should work with the party responsible for managing the County Surveyor contract to include an adequate budget for the contracted County Surveyor to coordinate all monument preservation activities for the County.
- For Cities that contract out City Surveyor duties, CLSA chapters should work with the party responsible for managing the City Surveyor contract to include an adequate budget for the contracted City Surveyor to coordinate all monument preservation activities for the City.

Also, I am sending letters to cities, utility companies, and contractors to educate them on their obligation to protect survey monuments. Your prompt response to inquiries from contractors is greatly appreciated. My outreach to contractors include the following contractor license types that have an address in this County.

- A - General Engineering Contractor
- C-8 - Concrete Contractor
- C-12 - Earthwork and Paving Contractors
- C-13 - Fencing Contractor
- C-32 - Parking and Highway Improvement Contractor
- C-34 - Pipeline Contractor
- D-56 - Trenching Only

CEAC Survey Monument Preservation Toolkit
Version 1.0 December 5, 2025 FINAL

I request that you include this topic on an upcoming agenda. I would be happy to speak at an upcoming meeting to discuss the importance of using BMPs when deciding on the location to set monuments. If you have any questions, please feel free to contact me.

Sincerely,

<County Surveyor>

CEAC Survey Monument Preservation Toolkit
Version 1.0 December 5, 2025 FINAL

Bakersfield Chapter
1930 22nd Street
Bakersfield, CA 93301

Cascade Chapter
1730 South St.
Redding, CA 96001

Central Coast Chapter
2624 Airpark Drive
Santa Maria, CA 93455

Central Valley Chapter
www.californiacentralvalleysurveyors.org

Channel Islands Chapter
PO Box 6572
Ventura, CA 93006

Desert Chapter
PO Box 10581
Palm Desert, CA 92255

East Bay Chapter
32 Mirango Court
Clayton, CA 94517

Gold Country Chapter
PO Box 1883
Grass Valley, CA 95945

Humboldt Chapter
PO Box 253
Eureka, CA 95502

Los Angeles Chapter
2107-D W Commonwealth Ave #431
Alhambra, CA 91803

Marin Chapter
504 Redwood Blvd, Suite 310
Novato, CA 94947

Monterey Bay
<https://www.californiasurveyors.org/chapters-monterey-bay>

Orange County Chapter, CLSA
PMB 201
13681 Newport Ave., Suite 8
Tustin, CA 9278

Riverside / San Bernardino CLSA Chapter
PO Box 81
San Bernardino, CA 92402

SACRAMENTO CHAPTER
PO Box 340807
Sacramento, CA 95834

San Diego Chapter
5519 Clairemont Mesa Blvd., Mail Box 261
San Diego, CA 92117

San Francisco Chapter
www.sfclsa.org

San Joaquin Valley Chapter
PO Box 2457
Tulare, CA 93275

Santa Clara/San Mateo Chapter
www.facebook.com/sc.sm.clsa

Sonoma County Chapter CLSA
1200 Coddington Center, P.O. Box 11217
Santa Rosa, CA 95401

4.10 SAMPLE LETTER TO UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Notes:

1. *This letter is intended to be sent on an annual basis by the County Surveyor as part of a public education and outreach campaign.*
2. *The memo is formatted for a County Surveyor, but can easily be adapted to refer to a City Surveyor.*
3. *The **Field Guide for Identifying Survey Monuments** is included in Section 0 of the toolkit.*
4. *The **Survey Monument Fact Sheet** is included in Section 0 of the toolkit.*
5. *TIP: Set a perpetual MS Outlook calendar appointment as reminder to send out this memo; and include a hyperlink to your version of the memo in the calendar reminder.*

<County/City letterhead>

RE: SURVEY MONUMENT PRESERVATION

This letter is to start a discussion of how the United State Environmental Protection Agency (USEPA) operations can damage survey monuments, and the actions that USEPA can take to minimize the destruction of survey monuments when constructing facilities, repairing facilities, maintaining facilities, and post-incident cleanup work. What are survey monuments? Survey monuments are points that are marked on the ground. These points typically represent property corners. Survey monuments vary in appearance and size. Most are quite small and are difficult to spot. See the attached *Field Guide for Identifying Survey Monuments*. When a survey monument is destroyed or removed, it can be extremely costly to replace; therefore, it is important to use best management practices to protect survey monuments from destruction/removal to the maximum extent practical.

- **POST INCIDENT OPERATIONS:** After a wildfire or significant earthquake, cleanup operations begin. Contractors are brought onsite to remove the toxic debris of destroyed structures. This is typically done by scraping the ground. In more urban areas, property corners may be close to the area being scraped and could inadvertently be removed during the debris removal operations. This is less of a concern in sub-urban and rural areas where structures aren't typically located near property corners.

When USEPA is involved with debris removal in more urban areas where property corners are likely in the debris field of a destroyed structure, land surveyors need to be contracted with to flag the property corners and other survey monuments so that they can be protected in place. Land surveyors will also document the survey monument's location (called "tied-out") which will allow the survey monument to be easily replaced should debris removal operations inadvertently disturb or remove the survey monument. While it is best to preserve a survey monument in place, it will be less expensive for a land surveyor to replace a survey monument that was tied-out. When survey monuments that have not been tied-out are destroyed, it is often very expensive for a land surveyor to determine the exact location of where to place a replacement survey monument.

Cleanup of mud flows and other debris flows can inadvertently destroy survey monuments. When such work is to occur, consult with a land surveyor on how existing survey monuments within the debris field can be protected.

Any monuments destroyed by the incident itself, or the cleanup effort following the incident must be replaced. Provisions must be included in scope of the cleanup in order to fund the replacement of damaged or destroyed survey monuments.

If a survey monument gets disturbed (bent, becomes loose, or has been removed from the ground), contact a land surveyor. It is not OK to attempt to straighten the pipe, or place a survey monument back in the ground that was removed. Attempts by non-surveyors to do this only complicate matters for land surveyors. Only a land surveyor can accurately place a survey monument.

Why do survey monuments need to be protected? Survey monuments document important property rights. There are several laws regarding the protection of survey monuments. They are:

California Penal Code Section [605](#)

Every person who either:

4. Maliciously removes any monument erected for the purpose of designating any point in the boundary of any lot or tract of land, or a place where a subaqueous telegraph cable lies; or,
 5. Maliciously defaces or alters the marks upon any such monument; or,
 6. Maliciously cuts down or removes any tree upon which any such marks have been made for such purpose, with intent to destroy such marks;
- Is guilty of a misdemeanor.

California Penal Code Section [615](#)

Every person who willfully injures, defaces, or removes any signal, monument, building, or appurtenance thereto, placed, erected, or used by persons engaged in the United States Coast Survey, is guilty of a misdemeanor.

California Penal Code Section [622](#)

Every person, not the owner thereof who willfully injures, disfigures, or destroys any monument, work of art, or useful or ornamental improvement within the limits of any village, town, or city, or any shade tree or ornamental plant growing therein, whether situated upon private ground or on any street, sidewalk, or public park or place, is guilty of a misdemeanor.

For new construction, the engineer in responsible charge of the project is responsible.

California Business & Professions Code Section [8771](#)

- (a) Monuments set shall be sufficient in number and durability and efficiently placed so as not to be readily disturbed, to assure, together with monuments already existing, the perpetuation or facile reestablishment of any point or line of the survey.
- (b) When monuments exist that control the location of subdivisions, tracts, boundaries, roads, streets, or highways, or provide horizontal or vertical survey control, the monuments shall

be located and referenced by or under the direction of a licensed land surveyor or [PRE-1982] registered civil engineer prior to the time when any streets, highways, other rights-of-way, or easements are improved, constructed, **reconstructed, maintain, resurfaced⁴**, or relocated and a corner record or record of survey of the references shall be filed with the county surveyor. **They shall be reset in the surface of the new construction, a suitable monument box placed thereon, or permanent witness monuments set to perpetuate their location if any monument could be destroyed, damaged, covered, or otherwise obliterated, and a corner record or record of survey filed with the county surveyor prior to the recording of a certificate of completion for the project.** Sufficient controlling monuments shall be retained or replaced in their original positions to enable property, right-of-way and easement lines, property corners, and subdivision and tract boundaries to be reestablished without devious surveys necessarily originating on monuments differing from those that currently control the area. **It shall be the responsibility of the governmental agency or others performing construction work to provide for the monumentation required by this section.** It shall be the duty of every land surveyor or [PRE-1982] civil engineer to cooperate with the governmental agency in matters of maps, field notes, and other pertinent records. Monuments set to mark the limiting lines of highways, roads, streets or right-of-way or easement lines shall not be deemed adequate for this purpose unless specifically noted on the corner record or record of survey of the improvement works with direct ties in bearing or azimuth and distance between these and other monuments of record.

Please contact me so that we can further discuss how USACE can help protect survey monuments.

Sincerely,

<County Surveyor>

Attachments:

- *Field Guide for Identifying Survey Monuments*
- *Survey Monument Fact Sheet*

⁴ Red colored bold text added for emphasis.

4.11 SAMPLE LETTER TO UNITED STATES ARMY CORPS OF ENGINEERS

Notes:

1. *This letter is intended to be sent on an annual basis as part of a public education and outreach campaign.*
2. *The memo is formatted for a County Surveyor, but can easily be adapted to refer to a City Surveyor.*
3. *Addresses are compiled from ACE website in June 2025:*
<https://usace.maps.arcgis.com/apps/webappviewer/index.html?id=7344e62432694199af7790aa47a32fdd>
4. *The **Field Guide for Identifying Survey Monuments** is included in Section 0 of the toolkit.*
5. *The **Survey Monument Fact Sheet** is included in Section 0 of the toolkit.*
6. *TIP: Set a perpetual MS Outlook calendar appointment as reminder to send out this memo; and include a hyperlink to your version of the memo in the calendar reminder.*

<County letterhead>

US Army Corp of Engineers

RE: SURVEY MONUMENT PRESERVATION

This letter is to start a discussion of how the United State Army Corps of Engineers (USACE) operations can damage survey monuments, and the actions that USACE can take to minimize the destruction of survey monuments when constructing facilities, repairing facilities, maintaining facilities, and post-incident cleanup work. What are survey monuments? Survey monuments are points that are marked on the ground. These points typically represent property corners. Survey monuments vary in appearance and size. Most are quite small and are difficult to spot. See the attached *Field Guide for Identifying Survey Monuments*. When a survey monument is destroyed or removed, it can be extremely costly to replace; therefore, it is important to use best management practices to protect survey monuments from destruction/removal to the maximum extent practical.

- **CONSTRUCTION PROJECTS:** When facilities are to be constructed, repaired, maintained, or altered, survey monuments must be preserved.
- **POST INCIDENT OPERATIONS:** After a wildfire or significant earthquake, cleanup operations begin. Contractors are brought onsite to remove the toxic debris of destroyed structures. This is typically done by scraping the ground. In more urban areas, property corners may be close to the area being scraped and could inadvertently be removed during the debris removal operations. This is less of a concern in sub-urban and rural areas where structures aren't typically located near property corners.

When USACE is involved with debris removal in more urban areas where property corners are likely in the debris field of a destroyed structure, land surveyors need to be contracted with to flag the property corners and other survey monuments so that they can be protected in place. Land surveyors will also document the survey monument's location

(called "tied-out") which will allow the survey monument to be easily replaced should debris removal operations inadvertently disturb or remove the survey monument. While it is best to preserve a survey monument in place, it will be less expensive for a land surveyor to replace a survey monument that was tied-out. When survey monuments that have not been tied-out are destroyed, it is often very expensive for a land surveyor to determine the exact location of where to place a replacement survey monument.

Cleanup of mud flows and other debris flows can inadvertently destroy survey monuments. When such work is to occur, consult with a land surveyor on how existing survey monuments within the debris field can be protected.

Any monuments destroyed by the incident itself, or the cleanup effort following the incident must be replaced. Provisions must be included in scope of the cleanup in order to fund the replacement of damaged or destroyed survey monuments.

If a survey monument gets disturbed (bent, becomes loose, or has been removed from the ground), contact a land surveyor. It is not OK to attempt to straighten the pipe, or place a survey monument back in the ground that was removed. Attempts by non-surveyors to do this only complicate matters for land surveyors. Only a land surveyor can accurately place a survey monument.

Why do survey monuments need to be protected? Survey monuments document important property rights. There are several laws regarding the protection of survey monuments. They are:

California Penal Code Section [605](#)

Every person who either:

7. Maliciously removes any monument erected for the purpose of designating any point in the boundary of any lot or tract of land, or a place where a subaqueous telegraph cable lies; or,
 8. Maliciously defaces or alters the marks upon any such monument; or,
 9. Maliciously cuts down or removes any tree upon which any such marks have been made for such purpose, with intent to destroy such marks;
- Is guilty of a misdemeanor.

California Penal Code Section [615](#)

Every person who willfully injures, defaces, or removes any signal, monument, building, or appurtenance thereto, placed, erected, or used by persons engaged in the United States Coast Survey, is guilty of a misdemeanor.

California Penal Code Section [622](#)

Every person, not the owner thereof who willfully injures, disfigures, or destroys any monument, work of art, or useful or ornamental improvement within the limits of any village, town, or city, or any shade tree or ornamental plant growing therein, whether situated upon private ground or on any street, sidewalk, or public park or place, is guilty of a misdemeanor.

For new construction, the engineer in responsible charge of the project is responsible.

California Business & Professions Code Section [8771](#)

- (a) Monuments set shall be sufficient in number and durability and efficiently placed so as not to be readily disturbed, to assure, together with monuments already existing, the perpetuation or facile reestablishment of any point or line of the survey.
- (b) When monuments exist that control the location of subdivisions, tracts, boundaries, roads, streets, or highways, or provide horizontal or vertical survey control, the monuments shall be located and referenced by or under the direction of a licensed land surveyor or [PRE-1982] registered civil engineer prior to the time when any streets, highways, other rights-of-way, or easements are improved, constructed, **reconstructed, maintain, resurfaced⁵**, or relocated and a corner record or record of survey of the references shall be filed with the county surveyor. **They shall be reset in the surface of the new construction, a suitable monument box placed thereon, or permanent witness monuments set to perpetuate their location if any monument could be destroyed, damaged, covered, or otherwise obliterated, and a corner record or record of survey filed with the county surveyor prior to the recording of a certificate of completion for the project.** Sufficient controlling monuments shall be retained or replaced in their original positions to enable property, right-of-way and easement lines, property corners, and subdivision and tract boundaries to be reestablished without devious surveys necessarily originating on monuments differing from those that currently control the area. **It shall be the responsibility of the governmental agency or others performing construction work to provide for the monumentation required by this section.** It shall be the duty of every land surveyor or [PRE-1982] civil engineer to cooperate with the governmental agency in matters of maps, field notes, and other pertinent records. Monuments set to mark the limiting lines of highways, roads, streets or right-of-way or easement lines shall not be deemed adequate for this purpose unless specifically noted on the corner record or record of survey of the improvement works with direct ties in bearing or azimuth and distance between these and other monuments of record.

Please contact me so that we can further discuss how USACE can help protect survey monuments.

Sincerely,

<County Surveyor>

Attachments:

- *Field Guide for Identifying Survey Monuments*
- *Survey Monument Preservation Checklist*
- *Survey Monument Fact Sheet*

⁵ Red colored bold text added for emphasis.

Civil Works Districts

- Development and management of the Nation's water resources
- Support of commercial navigation
- Restoration, protection and management of aquatic ecosystems
- Flood risk management
- Engineering and technical services in an environmentally sustainable, economic, and technically sound manner with a focus on public safety and collaborative partnerships

Regulatory Districts

- Authority granted by Congress by laws such as the Rivers and Harbors Acts of 1890 and 1899 and the Clean Water Act.
- Evaluation of permit applications for essentially all construction activities that occur in the Nation's waters, including wetlands.
- Committed to protecting the Nation's aquatic resources, while allowing reasonable development through fair, flexible and balanced permit decisions

San Francisco Civil Works District

450 Golden Gate Ave Rm 6556 4th Fl
San Francisco, CA 94102

San Francisco Regulatory District

450 Golden Gate Ave Rm 6556 4th Fl
San Francisco, CA 94102

Sacramento Regulatory District

1325 J St
Sacramento, CA 95814-2922

Sacramento Civil Works District

1325 J St
Sacramento, CA 95814-2922

Los Angeles Regulatory District

915 Wilshire Blvd Ste 1101
Los Angeles, CA 90017

Los Angeles Civil Works District

915 Wilshire Blvd Ste 1101
Los Angeles, CA 90017

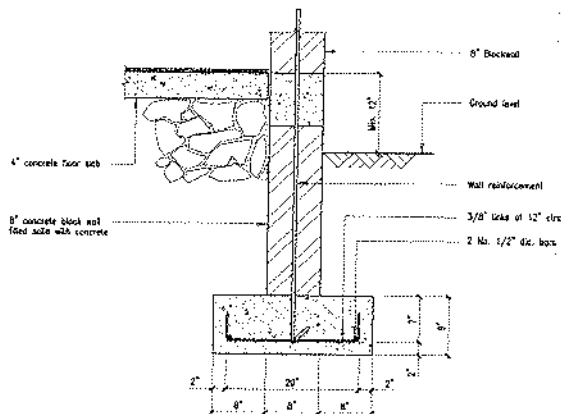
Send letters to the district which covers your County. Map to see which district your county is located in:

<https://usace.maps.arcgis.com/apps/webappviewer/index.html?id=7344e62432694199af7790aa47a32fdd>

4.12 SAMPLE FENCE FLYER AND WEBSITE LANGUAGE

Are you planning to install a fence or wall on, near or adjacent to a property boundary? If yes, contact a licensed land surveyor to locate the property boundary before the start of work. Do you know the exact location of the property boundary? If no, contact a licensed land surveyor. It would be a shame if you install the fence or wall (or construct other improvements) on your neighbor's property. Doing so is a taking without just compensation. The consequences could result in an inverse condemnation tort liability lawsuit filed against you, or worse. One of the nuances of an inverse condemnation case is you pay the plaintiffs' attorneys fees if you are found liable. Ouch! The cost for a land surveyor to locate the property boundaries is money well spent compared with the hassles and expenses that may result when your neighbor confronts with your improvements being built or partially built on their property.

Some advice is to overcommunicate with your neighbor and obtain concurrence before the start of fence or wall installation. You and your neighbor should know whether the fence or wall (and its foundation below finished grade per the diagram below) is on your property, partially on your and their property, or on their property. The photo below is an example of one neighbor who installed a fence on their property so their neighbor couldn't use the part of a driveway slab that had been in place for years. Some advance planning, personable communication and shared agreement will enable the adage, "Good fences make good neighbors" to be a reality.



Above: diagram showing the foundation from a wall extending into the neighboring property.

Above: A survey monument is in front of the orange cone. Notice that the fence was not constructed along the property line.

In addition to making sure that you construct the fence along a property line, it is important to understand that property corners as well as angle points in your property lines, may have survey monuments in those locations to mark the corners and angle points. That does make it easy to run string lines for constructing a fence. However, it is common in fence construction to set a fence post at property corners and angle points. It is important to make sure that when the fence is constructed that

the posts are installed in such a manner as to not disturb the survey monument. That may mean constructing two posts at property corners and angle points in order to protect the survey monument.

When a survey monument is disturbed (moved) or removed, it increases the cost to survey the property. If a survey monument is disturbed or removed, it is not appropriate to place it back in the ground where you think the corner is. Where you think the corner is likely not the exact spot where the monument was. The cost to replace a survey monument that has been disturbed or removed is several thousand dollars. So it is important to make sure that the survey monuments are protected in place.

See the *Field Guide for Identifying Survey Monuments* for examples of what survey monuments look like.

If a survey monument gets disturbed (bent, becomes loose, or has been removed from the ground), contact a land surveyor. It is not OK to attempt to straighten the pipe, or place a survey monument back in the ground that was removed. Attempts by non-surveyors to do this only complicate matters for land surveyors. Only a land surveyor can accurately place a survey monument.

Lastly, Civil Code Section [841](#) address the responsibility of the adjacent landowners to share in the cost of maintaining (or replacing) the survey monuments common to each landowner. This also applies to fences.

Civil Code Section 841.

- (a) Adjoining landowners shall share equally in the responsibility for maintaining the boundaries and monuments between them.
- (b)(1) Adjoining landowners are presumed to share an equal benefit from any fence dividing their properties and, unless otherwise agreed to by the parties in a written agreement, shall be presumed to be equally responsible for the reasonable costs of construction, maintenance, or necessary replacement of the fence.
- (2) Where a landowner intends to incur costs for a fence described in paragraph (1), the landowner shall give 30 days' prior written notice to each affected adjoining landowner. The notice shall include notification of the presumption of equal responsibility for the reasonable costs of construction, maintenance, or necessary replacement of the fence. The notice shall include a description of the nature of the problem facing the shared fence, the proposed solution for addressing the problem, the estimated construction or maintenance costs involved to address the problem, the proposed cost sharing approach, and the proposed timeline for getting the problem addressed.
- (3) The presumption in paragraph (1) may be overcome by a preponderance of the evidence demonstrating that imposing equal responsibility for the reasonable costs of construction, maintenance, or necessary replacement of the fence would be unjust. In determining whether equal responsibility for the reasonable costs would be unjust, the court shall consider all of the following:
 - (A) Whether the financial burden to one landowner is substantially disproportionate to the benefit conferred upon that landowner by the fence in question.
 - (B) Whether the cost of the fence would exceed the difference in the value of the real property before and after its installation.

- (C) Whether the financial burden to one landowner would impose an undue financial hardship given that party's financial circumstances as demonstrated by reasonable proof.
 - (D) The reasonableness of a particular construction or maintenance project, including all of the following:
 - (i) The extent to which the costs of the project appear to be unnecessary or excessive.
 - (ii) The extent to which the costs of the project appear to be the result of the landowner's personal aesthetic, architectural, or other preferences.
 - (E) Any other equitable factors appropriate under the circumstances.
- (4) Where a party rebuts the presumption in paragraph (1) by a preponderance of the evidence, the court shall, in its discretion, consistent with the party's circumstances, order either a contribution of less than an equal share for the costs of construction, maintenance, or necessary replacement of the fence, or order no contribution.
- (c) For the purposes of this section, the following terms have the following meanings:
- (1) "Landowner" means a private person or entity that lawfully holds any possessory interest in real property, and does not include a city, county, city and county, district, public corporation, or other political subdivision, public body, or public agency.
 - (2) "Adjoining" means contiguous to or in contact with.

4.13 SAMPLE LETTER TO CALFIRE

Notes:

1. *This letter is intended to be sent on an annual basis by the County Surveyor as part of a public education and outreach campaign. In addition to mailing materials to the Cal Fire unit assigned to your county, also mail materials to the state Headquarters. The ideal time frame is spring before fuel reduction activities commence and before the start of the wild fire season.*
2. *The memo is formatted for a County Surveyor, but can easily be adapted to refer to a City Surveyor.*
3. *Addresses are compiled from Cal Fire website in June 2025:
<https://www.fire.ca.gov/about/resources/cal-fire-contacts>*
4. *A future goal is to prepare a MS powerpoint presentation that can presented to Cal Fire to educate them on survey monument presentation. If you develop such a powerpoint presentation, please share it with the authors of this toolkit so that it can be included in future versions of the toolkit. Building relationships with Cal Fire personnel will help drive the content that is needed for the powerpoint; as well as revisions to the sample letter.*
5. *The **Field Guide for Identifying Survey Monuments** is included in Section 0 of the toolkit.*
6. *The **Survey Monument Fact Sheet** is included in Section 0 of the toolkit.*
7. *TIP: Set a perpetual MS Outlook calendar reminder to send out this memo; and include a hyperlink to your version of the memo in the calendar reminder.*

<County letterhead>

RE: SURVEY MONUMENTS

This letter is to start a discussion of how Cal Fire’s operations can damage survey monuments, and the actions that Cal Fire can take to minimize the destruction of survey monuments when conducting operations. What are survey monuments? Survey monuments are points that are marked on the ground. These points typically represent property corners. Survey monuments vary in appearance and size. Most are quite small and are difficult to spot. See the attached *Field Guide for Identifying Survey Monuments*. When a survey monument is destroyed or removed, it can be extremely costly to replace; therefore it is important to use best management practices to protect survey monuments from destruction/removal to the maximum extent practical.

- **ACTIVE INCIDENT OPERATIONS:** During an active wildland fire event, it is recognized that survey monument preservation is something that cannot always be done. However, during an active wildfire, certain operations occurring away from the active fire can include survey monument preservation best management practices. For example, a dozer creating a fire break can avoid fence corners and other manmade features. By educating dozer operators on survey monuments, the dozer operator can consider that information when blazing in a fire break. Cal Fire can further monument preservation efforts by:
 - Update incident action plan templates to include monument preservation.

- When issuing instructions on Form XXX for dozer operations (and other operations that may disturb survey monuments) include special instructions regarding monument preservation:

“Avoid fence corners and angle points in fences when blading in fire breaks; as these areas may contain survey monuments that need to be protected. Avoid small mounds of rocks that appear to be human placed (not natural); as these mounds may be survey monuments. Avoid posts, flexible paddles, paddle markers and the like; as these may be aids to help locate survey monuments.”

- **POST INCIDENT OPERATIONS:** After a wildland fire, cleanup operations begin. Contractors are brought onsite to remove the toxic debris of destroyed structures. This is typically done by scraping the ground. In more urban areas, property corners may be close to the area being scraped and could inadvertently be removed during the debris removal operations. This is less of a concern in sub-urban and rural areas where structures aren't typically located near property corners.

When Cal Fire is involved with debris removal in more urban areas where property corners are likely in the debris field of a destroyed structure, land surveyors need to be contracted with to flag the property corners so that they can be protected in place. Land surveyors will also document the survey monument's location (called "tied-out") which will allow the survey monument to be easily replaced should debris removal operations inadvertently disturb or remove the survey monument. While it is best to preserve a survey monument in place, it will be less expensive for a land surveyor to replace a survey monument that was tied-out. When survey monuments that have not been tied-out are destroyed, it is often very expensive for a land surveyor to determine the exact location of where to place a replacement survey monument.

Cleanup of mud flows and other debris flows can inadvertently destroy survey monuments. When such work is to occur, consult with a land surveyor on how existing survey monuments within the debris field can be protected.

Any monuments destroyed by the incident itself, or the cleanup effort following the incident must be replaced. Provisions must be included in scope of the cleanup in order to fund the replacement of damaged or destroyed survey monuments.

The best course of action is to contract with a land surveyor to locate survey monuments that need to be protected. The land surveyor would pound a tall lath (36" tall) into the ground; and write "survey monument protect in place" on the lath; and tie red ribbon to the lath to make it easy to spot amongst the debris. This would be completed before cleanup operations begin so that personnel performing cleanup operations can protect the survey monuments.

- **REGULAR OPERATIONS:** When Cal Fire conducts operations that are not part of an active wildland fire, it is expected that Cal Fire will take into consideration survey monuments and conduct operations in a way that preserves them.

For example, roadside fire fuels reduction projects and other fuel reduction projects can damage survey monuments. It is imperative that a land surveyor evaluates the ground disturbing potential of the Roadside Fire Fuels Reduction Projects to flag survey monuments from destruction. In some instances, trees have blaze marks on their trunk; and those trees

need to be preserved. Discussing with the land surveyor the techniques to be used for the project will determine the best strategy for protecting survey monuments.

If a survey monument gets disturbed (bent, becomes loose, or has been removed from the ground), contact a land surveyor. It is not OK to attempt to straighten the pipe, or place a survey monument back in the ground that was removed. Attempts by non-surveyors to do this only complicate matters for land surveyors. Only a land surveyor can accurately place a survey monument.

Why do survey monuments need to be protected? Survey monuments document important property rights. The cost to replace a survey monument is expensive and creates an unnecessary financial burden on the landowners. The agency conducting the cleanup efforts that caused the destruction of the survey monument may be held liable for destroying the survey monument. There are several laws regarding the protection of survey monuments. They are:

California Penal Code Section [605](#)

Every person who either:

10. Maliciously removes any monument erected for the purpose of designating any point in the boundary of any lot or tract of land, or a place where a subaqueous telegraph cable lies; or,
 11. Maliciously defaces or alters the marks upon any such monument; or,
 12. Maliciously cuts down or removes any tree upon which any such marks have been made for such purpose, with intent to destroy such marks;
- Is guilty of a misdemeanor.

California Penal Code Section [615](#)

Every person who willfully injures, defaces, or removes any signal, monument, building, or appurtenance thereto, placed, erected, or used by persons engaged in the United States Coast Survey, is guilty of a misdemeanor.

California Penal Code Section [622](#)

Every person, not the owner thereof who willfully injures, disfigures, or destroys any monument, work of art, or useful or ornamental improvement within the limits of any village, town, or city, or any shade tree or ornamental plant growing therein, whether situated upon private ground or on any street, sidewalk, or public park or place, is guilty of a misdemeanor.

Please contact me so that we can further discuss how Cal Fire can help protect survey monuments.

Sincerely,

<County Surveyor>

Attachments:

- *Field Guide for Identifying Survey Monuments*
- *Survey Monument Fact Sheet*

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Counties	Unit	Mailing Address	Phone	Unit Chief
Headquarters		P.O. Box 944246, Sacramento, CA 94244-2460		
Amador	AEU	2840 Mt. Danaher Rd, Camino 95709	530-644-2345	Unit Chief Mike Blankenheim
Butte	BTU	176 Nelson Avenue, Oroville 95965	530-538-7111	Unit Chief Garrett Sjolund
Calaveras	TCU	785 Mtn. Ranch Road, San Andreas 95249	209-754-3831	Unit Chief Nick Casci
Del Norte	HUU	118 S. Fortuna Blvd, Fortuna 95540-2796	707-725-4413	Unit Chief Kurt McCray
El Dorado	AEU	2840 Mt. Danaher Rd, Camino 95709	530-644-2345	Unit Chief Mike Blankenheim
Glenn	TGU	604 Antelope Blvd, Red Bluff 96080	530-528-5199	Unit Chief Monty Smith
Humboldt	HUU	118 S. Fortuna Blvd, Fortuna 95540-2796	707-725-4413	Unit Chief Kurt McCray
Lake	LNU	1199 Big Tree Road, St, Helena 94574	707-967-1431	Unit Chief Matt Ryan
Lassen	LMU	697-345 Highway 36, Susanville 96130	530-257-4171	Unit Chief Eric Ewing
Lassen	LMU	697-345 Highway 36, Susanville 96130	530-257-4171	Unit Chief Eric Ewing
Mendocino	MEU	17501 N. Highway 101, Willits 95490	707-459-7414	Unit Chief Brandon Gunn
Modoc	LMU	697-345 Highway 36, Susanville 96130	530-257-4171	Unit Chief Eric Ewing
Modoc	LMU	697-345 Highway 36, Susanville 96130	530-257-4171	Unit Chief Eric Ewing
Monterey	BEU	2221 Garden Road, Monterey 93940-5385	831-333-4600	Unit Chief George Nunez Jr.
Napa	LNU	1199 Big Tree Road, St, Helena 94574	707-967-1431	Unit Chief Matt Ryan
Nevada	NEU	13760 Lincoln Way, Auburn 95603	530-889-0111	Unit Chief Brian Estes
Placer	NEU	13760 Lincoln Way, Auburn 95603	530-889-0111	Unit Chief Brian Estes
Riverside	RRU	210 W. San Jacinto, Perris 92570	951-940-6900	Unit Chief Bill Weiser
San Benito	BEU	2221 Garden Road, Monterey 93940-5385	831-333-4600	Unit Chief George Nunez Jr.
San Bernardino	BDU	3800 N. Sierra Way, San Bernardino 92405	909-881-6900	Unit Chief Shane Littlefield
San Diego	SDU	2249 Jamacha Road, El Cajon 92019	619-590-3100	Unit Chief Tony Mecham
San Luis Obispo	SLU	1150 #175 Laurel Lane, San Luis Obispo 93401	805-543-4244	Unit Chief John Owens
San Mateo	CZU	6059 Highway 9, Felton 95018	831-335-5353	Unit Chief Jed Wilson
Santa Clara	SCU	15670 Monterey Street, Morgan Hill 95037	408-779-2121	Unit Chief Marcus Hernandez
Santa Cruz	CZU	6059 Highway 9, Felton 95018	831-335-5353	Unit Chief Jed Wilson
Shasta	SHU	875 Cypress Avenue, Redding 96001	530-225-2418	Unit Chief Sean Ohara
Siskiyou	SKU	1809 Fairlane Rd, Yreka 96097	530-842-3516	Unit Chief Greg Roath
Sonoma	LNU	1199 Big Tree Road, St, Helena 94574	707-967-1431	Unit Chief Matt Ryan
Tehama	TGU	604 Antelope Blvd, Red Bluff 96080	530-528-5199	Unit Chief Monty Smith
Trinity	SHU	875 Cypress Avenue, Redding 96001	530-225-2418	Unit Chief Sean Ohara
Tulare	TUU	1968 So. Lovers Lane, Visalia 93277	559-732-5954	Unit Chief Andy Turner
Tuolumne	TCU	785 Mtn. Ranch Road, San Andreas 95249	209-754-3831	Unit Chief Nick Casci
Yuba	NEU	13760 Lincoln Way, Auburn 95603	530-889-0111	Unit Chief Brian Estes

Data table last updated 06/2025.

4.14 SAMPLE LETTER TO OFFICE OF EMERGENCY SERVICES

Notes:

1. *This letter is intended to be sent on an annual basis by the County Surveyor as part of a public education and outreach campaign to Office of Emergency Services (OES) in cities, counties and state headquarters. State headquarters address:*

*CAL OES
601 Sequoia Pacific Blvd
Sacramento, California, 95811*
2. *The memo is formatted for a County Surveyor, but can easily be adapted to refer to a City Surveyor.*
3. *TIP: Set a perpetual MS Outlook calendar appointment as reminder to send out this memo; and include a hyperlink to your version of the memo in the calendar reminder.*
4. *The **Field Guide for Identifying Survey Monuments** is included in Section 0 of the toolkit.*
5. *The **Survey Monument Fact Sheet** is included in Section 0 of the toolkit.*

<County letterhead>

RE: SURVEY MONUMENT PRESERVATION

This letter is to start a discussion of how Office of Emergency Services (OES) operations can damage survey monuments, and the actions that OES can take to minimize the destruction of survey monuments when conducting emergency response operations for an incident and post-incident cleanup work. What are survey monuments? Survey monuments are points that are marked on the ground. These points typically represent property corners. Survey monuments vary in appearance and size. Most are quite small and are difficult to spot. See the attached *Field Guide for Identifying Survey Monuments*. When a survey monument is destroyed or removed, it can be extremely costly to replace; therefore, it is important to use best management practices to protect survey monuments from destruction/removal to the maximum extent practical.

- **EMERGENCY RESPONSE OPERATIONS:** During an active incident, it is recognized that survey monument preservation is something that cannot always be done. However, for certain types of incidents, such as during an active wildfire, certain operations occurring away from the active fire can include survey monument preservation best management practices. For example, a dozer creating a fire break can avoid fence corners and other manmade features. By educating dozer operators on survey monuments, the dozer operator can consider that information when blazing in a fire break.
- **POST INCIDENT OPERATIONS:** After a wildfire or significant earthquake, cleanup operations begin. Contractors are brought onsite to remove the toxic debris of destroyed structures. This is typically done by scraping the ground. In more urban areas, property corners may be close to the area being scraped and could inadvertently be removed during the debris removal operations. This is less of a concern in sub-urban and rural areas where structures aren't typically located near property corners.

When OES is involved with debris removal in more urban areas where property corners are likely in the debris field of a destroyed structure, land surveyors need to be contracted with to flag the property corners so that they can be protected in place. Land surveyors will also document the survey monument's location (called "tied-out") which will allow the survey monument to be easily replaced should debris removal operations inadvertently disturb or remove the survey monument. While it is best to preserve a survey monument in place, it will be less expensive for a land surveyor to replace a survey monument that was tied-out. When survey monuments that have not been tied-out are destroyed, it is often very expensive for a land surveyor to determine the exact location of where to place a replacement survey monument.

Cleanup of mud flows and other debris flows can inadvertently destroy survey monuments. When such work is to occur, consult with a land surveyor on how existing survey monuments within the debris field can be protected.

Any monuments destroyed by the incident itself, or by the cleanup effort following the incident must be replaced. Provisions must be included in scope of the cleanup in order to fund the replacement of damaged or destroyed survey monuments.

If a survey monument gets disturbed (bent, becomes loose, or has been removed from the ground), contact a land surveyor. It is not OK to attempt to straighten the pipe, or place a survey monument back in the ground that was removed. Attempts by non-surveyors to do this only complicate matters for land surveyors. Only a land surveyor can accurately place a survey monument.

Why do survey monuments need to be protected? Survey monuments document important property rights. There are several laws regarding the protection of survey monuments. They are:

California Penal Code Section [605](#)

Every person who either:

13. Maliciously removes any monument erected for the purpose of designating any point in the boundary of any lot or tract of land, or a place where a subaqueous telegraph cable lies; or,
14. Maliciously defaces or alters the marks upon any such monument; or,
15. Maliciously cuts down or removes any tree upon which any such marks have been made for such purpose, with intent to destroy such marks;

--Is guilty of a misdemeanor.

California Penal Code Section [615](#)

Every person who willfully injures, defaces, or removes any signal, monument, building, or appurtenance thereto, placed, erected, or used by persons engaged in the United States Coast Survey, is guilty of a misdemeanor.

California Penal Code Section [622](#)

Every person, not the owner thereof who willfully injures, disfigures, or destroys any monument, work of art, or useful or ornamental improvement within the limits of any village,

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town, or city, or any shade tree or ornamental plant growing therein, whether situated upon private ground or on any street, sidewalk, or public park or place, is guilty of a misdemeanor.

Please contact me so that we can further discuss how OES can help protect survey monuments.

Sincerely,

<County Surveyor>

Attachments:

- *Field Guide for Identifying Survey Monuments*
- *Survey Monument Fact Sheet*

4.15 SURVEY MONUMENT PRESERVATION CHECKLIST

See next page.



County Engineers Association of California



SURVEY MONUMENT PRESERVATION CHECKLIST

The Resident Engineer is to use this checklist to ensure that construction work is done in compliance with Business & Professions Code Section [8771](#). In the eyes of the Board of Registration for Professional Engineers, Land Surveyors, and Geologists, the engineer in charge of repaving, improvements, etc. is responsible for compliance.

PRE-BID ACTIVITIES

- Resident Engineer to review construction contract specifications for penalty for damaging “protect in place” survey monuments. (Copy and place in project binder with this checklist) Date _____
- Resident Engineer to review construction contract plans and specifications for “protect in place” survey monuments (Copy and place in project binder) Date _____

PRE-CONSTRUCTION ACTIVITIES

- Verify that Resident Engineer assigned to the construction contract has received annual training from County Surveyor for “emergency” survey monument preservation Date _____
- Resident Engineer requested that the County Surveyor to prepare pre-construction corner records. Date _____
- Resident Engineer received pre-construction corner records and/or record of survey. (File pre-construction corner records in project binder) Date _____
- Resident Engineer reviewed survey monument preservation at pre-construction meeting with contractor and other key personnel Date _____

POST-CONSTRUCTION ACTIVITIES

- Resident Engineer requested that the County Surveyor prepare post-construction corner records Date _____
- Resident Engineer received post-construction corner records and/or record of survey. (File post-construction corner records in project binder) Date _____
- Resident Engineer to file claim for damages for “protect in place” survey monuments that were destroyed. See Caltrans Standard Specifications 5-1.36A and 5-1.36D. Also see APWA Greenbook Section 2-9. Date _____

Questions? Contact the City Surveyor or County Surveyor.

4.16 FIELD GUIDE FOR IDENTIFYING SURVEY MONUMENTS

The *field guide* is intended to be a full-color, 11" x 17" size document, printed on both sides, and folded to 8.5" x 11" in size.

See next page.



County Engineers Association of California



FIELD GUIDE FOR IDENTIFYING SURVEY MONUMENTS

This guide is intended to educate the reader about the types of survey monuments that are used in California. This guide is not intended to be all-inclusive, but is intended to provide a broad overview of the various types of survey monuments commonly used in California. Notice how difficult it is to spot the survey monuments in the Figures 2 and 4 due to their small size. Fortunately, land surveyors are experts in locating survey monuments. Survey monuments are important and are required by law to be protected in place. If proposed improvements will destroy or disturb a survey monument, contact your County's County Surveyor for guidance prior to constructing the improvements.



Figure 7: 5/8" rebar with 1-1/2" diameter aluminum cap monument near a fence corner.



Figure 8: close-up of Figure 7.



Figure 9: example of a 3" diameter brass benchmark set flush in concrete.



Figure 1: Survey equipment set up over a monument well. The lid is approximately 11.5 inches in diameter and stamped "monument".



Figure 2: 1" diameter Iron Pipe buried below the surface.



Figure 3: Close-up of Figure 2



Figure 10: A chisel cross (circa early 1970s) in a top of curb likely set to denote the boundaries of lots in a subdivision. For perspective the curb is 6 inches wide.



Figure 11: A scribed cross used as a temporary reference during field work. Both this and the adjacent are evidence of survey. This cross is approximately 1.25 inches.



Figure 12: A chewed up plastic cap on a rebar.

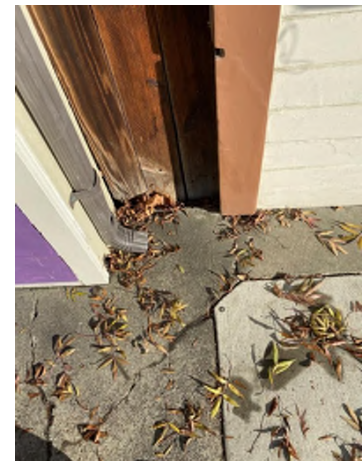


Figure 4: Example of a Nail and Tin set in concrete sidewalk.



Figure 5: Close-up of Figure 4. Approximately 3/4 inch diameter



Figure 6: A tag and tack set in lead on the top of a concrete curb. Approximately 3/8" in diameter.



Figure 13: Example of an aerial target painted on the sidewalk.



Figure 14: Example of a 1-1/2" diameter aluminum cap monument on rebar



Figure 15: Example of a bearing tree with a tag.



Figure 16: NWC Section 28, T9S, R1E, SBM original post in rock pile. See bearing tree in photo to the right.



Figure 17: NWC Section 28, T9S, R1E, SBM bearing tree for post in photo to the left.



Figure 18: NWC Section 29, T9S, R1E, SBM burnt post in rock pile – original monument.



Figure 19: Examples of survey monuments on display at the County Surveyor’s office in Riverside County. For perspective, the large brass discs are 3 inches in diameter.

4.17 SURVEY MONUMENT FACT SHEET

The *fact sheet* is intended to be a full-color, 8.5" x 11" size document, printed on both sides.

See next pages.



County Engineers Association of California



SURVEY MONUMENT FACT SHEET

Survey monuments control the location of property boundaries and the location of the road or flood control right of way, trails and various types of easements. When survey monuments are destroyed, it makes it difficult for land surveyors to establish property boundaries, the right of way for roads and other easements. Trying to locate these boundaries on a computer screen provides their position that is only as accurate as the survey control used in the computer model, which may be off by many feet. This is why survey monuments in the field are needed to obtain the positional accuracy needed to determine the boundaries in their actual location. Further, trying to locate boundaries using GPS coordinates requires the known datum, which is time dependent with adjustments needed for movement due to plate tectonic shifts and crustal movement (on the order of one foot over ten years). Remember that objects on the face of the earth move over time. The survey monuments move with the property boundaries, while GPS coordinates are fixed in time. Another reason for preserving survey monuments is it's the law: Section 6730.2(c) of the California Professional Engineers Act indicates a designated person in responsible charge of professional civil engineering work of any department or agency or the state, city, county, city and county, district or special district is responsible for survey monument preservation.

Consider that monuments have historically been set to locate ownership boundaries. An early example is a stone, often with markings chiseled in its surface. The Biblical importance of survey monuments is recognized in several verses in Deuteronomy by: "Thou shalt not remove they neighbor's landmark, which they in old times have set' (per 19:14) and "Cursed be he that removeth his neighbor's landmark" (per 27:17). In monarchies all land were initially owned in total by the king. Over the years the reigning kings made conditional land grants to his certain individuals, typically for military service or heroic acts. For example, King Kamehameha I in 1819 owned all lands in Hawaii. He divided certain parcels with his warrior chief, and a very few select others. Also consider when prospectors staked their claims, they would set stones in each corner, draw a map and register the map with the local authority. Today, the land value to properties in California, including rights for use of the land and property improvements, is huge. With this said, it is crucial for survey monuments along with maps and title documents to be protected by agencies.

It is particularly important for County and City Engineers to ensure their staff and contractors do their part in arranging with a land surveyor to tie the survey monuments out before they are disturbed or destroyed. It is fruitless to hand over the brass disk or pipe to the land surveyor saying, "We saved this survey monument for you."; however, saving the survey monument can help the land surveyor determine which survey monument was removed. The location of the survey monument is of utmost importance, not the removed monument.

(OVER)

MYTH: Survey monument preservation is not setting aside a survey monument from the construction rubble and presenting it to the city or county official and saying "here you go. I preserved this survey monument for you."



Above: A bronze control point set in new concrete. Approximately $\frac{3}{4}$ " in diameter.



Above: A new tag and tack set in lead on the top of a concrete curb. Approximately $\frac{3}{4}$ " in diameter.

FACT: Survey monument preservation means not destroying or disturbing the location of survey monuments identified as "protect in place". Survey monument preservation means that when survey monuments will be or are likely to be destroyed or moved by construction, that their locations are tied out so that the survey monuments can be replaced in the original location after construction is complete.

MYTH: Land surveyors can easily put survey monuments back in with little to no cost.

FACT: Partially true. When survey monuments are tied out prior to construction it is easy to replace those survey monuments. However, when the survey monuments are not tied out by a land surveyor before construction begins, the time and cost increase dramatically. The cost to tie out survey monuments ahead of construction and then replace them is in the hundreds of dollars. The cost to replace a survey monument that was not tied out ahead of construction may cost thousands of dollars or more to replace.

MYTH: Covering a survey monument with 2 to 3 inches of hotmix "protects" the survey monument.

FACT: False. The overlay simply means that a land surveyor will later dig through the asphalt to uncover the survey monument and leave a pothole. In addition, this violates Business & Professions code 8771 and subjects the civil engineer responsible for the work to fines and penalties. In 2016, a city engineer was investigated by the licensing board for professional engineers, land surveyors, and geologists. The investigation found that the civil engineer was guilty of not replacing survey monuments destroyed during road improvement projects. The civil engineer was fined \$5000 and ordered to pay \$5000 in investigative costs. **That's \$10,000.** Another incident illustrating costs is when asphalt wasn't replaced after taking measurements, an agency paid a settlement of \$6 million after a 26-year-old motorcyclist hit the pothole and crashed with extensive injuries that required live-long care.

Questions? Reach out to the County Surveyor. County Surveyors are committed to preserving survey monuments and are willing to provide education, guidance, and direction; as well as answering any questions that you may have.