



CALIFORNIA LAND SURVEYORS ASSOCIATION

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MONUMENTATION CONSERVATION COMMITTEE (MCC) ADDENDUM TO THE REPORT TO THE BOARD OF DIRECTORS, 2011 Q2

Committee Members :

R. Reese; P. Cook; R. Frank; L. Gross; G. Haggitt; D. Hobbs; A. Hoppe; C. Kavanagh; R. Maher; R. Nelms; M. O'Hern; J. Scarpa; J. Seymour; A. Smith, T. Taylor

The above listed individuals are those who contributed through teleconference participation and/or submittal of materials and commentary on distributed material. The MCC wishes to thank all who expressed interest in this subject but were unavailable for scheduled discussion.

Summary

This committee had three teleconferences preceding the July, 2011, Board of Directors meeting. Attention is directed to the Monumentation Conservation Committee (MCC) report submitted with agenda, which outlines charges presented by President Hofferber and the MCC agenda designed to discharge those items.

It should be noted that the creation of the MCC was primarily to assist in developing some specific language for consideration by Executive Committee (ExCom) and Legislative Committee (LegCom) as discussed at the April, 2011, Board of Directors meeting. An aggressive schedule was necessary and implemented if any changes to the Professional Land Surveyors Act (PLSA) section 8771 were to be included in LegCom's upcoming agenda.

It must be acknowledged that this issue has historically been a bane, not only to land surveyors but also to land surveying clients, public and private. It is hoped that this MCC's comments, conclusions and opinions below will help frame what obviously will be a continuing effort to deal with the effects of ignorance of and inattention to monument conservation measures.

The responses and conclusions in the attachments have been distilled from the minutes of the teleconferences, from conversations with members, from email correspondence and from submittals of materials by committee members in connection with monument conservation.

Contributions from this committee are many, and have certainly broadened this chairman's awareness and knowledge base regarding monument conservation. Although not directly related to execution of the charges, much of the information in the attachments is simply being passed along for edification and use by others in parallel efforts.

- Attachment 1: Response to Committee Charges
- Attachment 2: Suggested Language for §8771
- Attachment 3: Existing Text of Codes Regarding Monument Conservation
- Attachment 4: Monument Conservation Program Example No.1
- Attachment 5: Monument Conservation Program Example No.2
- Attachment 6: Monument Conservation Provisions From Other States
- Attachment 7: Existing Opinions Regarding Monument Conservation Provisions in §8771

This chair wishes to thank the contributors for their time, considerable experience and opinions, as well as those surveyors and engineers in public agencies who take a thoughtful, dutiful approach to the responsibilities of monument conservation and have graciously given permission to use their programs as models.

Respectfully submitted,

Robert J. Reese

Robert J. Reese, Chair

Attachments: as noted above

ATTACHMENT 1: Response to Committee Charges

Charge 1 Identify Monument Conservation provisions in PLS Act (section §8771, possibly others?).

The MCC identified the following portions of California Codes related to monument conservation.

Business & Professions Code §8760, 8771, 8773.3

Government Code §27580

Penal Code §605, §615, §622

Streets & Highways Code §732, §732.5

Note: Federal Code 18 USC 1858 also apertains

Full text of these codes is listed in Attachment 3

Charge 2 Identify deficiencies, inconsistencies and/or ambiguities in the monument conservation provisions in the PLS Act that contribute to perceived ineffective or incorrect implementation of monument conservation measures (where is it broken?).

General consensus was reached that 8771 needs “improvement”. The MCC identified many deficiencies, inconsistencies and/or ambiguities. In brief, they are:

1. the responsibility of the an agency for monument conservation is diluted by the inclusion of the ambiguous “...and others performing construction work...”. This particular phrase results in agency abdication of responsibility to general contractors unprepared or unauthorized to effect monument conservation provisions in 8771. Indeed, elimination of the problem phrase has led to some agencies interpretation that the agency must pour the concrete and set the well;
2. the species of monuments subject to this 8771(b) is limited, and should be broadened to include a wider array of monuments, including horizontal and vertical control;
3. the manner of conservation is limited and should be broadened to include alternate methods of conservation, including reference or witness monuments, with an attendant clarification of what reference or witness monuments actually are under the law;
4. notwithstanding §8792(j), there is no explicit nexus in §8771 between violation of this section and misdemeanor offense. It is the unanimous opinion that enforcement is lacking and penalties are inadequate to place this issue on the radar of some public agencies;
5. the engineers or bureaucrats in public works departments who hold the position assigned the duty of monument conservation are ignorant of the issue, do not understand the issue, minimize the monumentation issue and/or do not care to devote the financial responsibility to monumentation. Education, either through outreach or through punitive measures will be necessary for an increased “attention”;
6. when §8771 is, in fact, administered, doing so using a bid cost basis for such administration is counterproductive;
7. §8771 is a practice act and primarily tells the land surveyor how to be a land surveyor. The engineering orientation of administrators or bureaucrats who are responsible under §8771 for monument conservation predisposes theme to recognize “how to” measures rather than practice act statutes. Monument conservation provisions, requirements, minimally accepted standards may be better suited to the Government Code.

Charge 3 Search for any existing opinions regarding Monument Conservation and 8771, e.g. AG Opinions, BPELS Policy/Resources etc...Determine if it would be beneficial to request an official opinion from BPELS, Legislative Counsel, and/or Attorney General?

General consensus was reached that the existing opinions issued by DCA Legislative Counsel, BORPELS, BPELS and BPELSG are intrinsically clear. Additional opinions by other entities would not be useful, and quite possibly detrimental unless the right question is asked.

Attachment 4 provides examples of existing opinions from the DCA or BPELSG and its predecessors.

Charge 4 Develop suggested changes to the PLS Act language to mitigate or interdict the perceived ineffective or incorrect implementation of monument conservation measures (how to fix the problem).

There were only three submittals for proposed language changes that were the focus of the last committee discussion. These are presented in Attachment 2.

Charge 5 Submit suggested language to ExCom & LegCom for consideration and action within the legislative domain.

This report and Attachment 2 is respectfully submitted as fulfillment of this charge.

ATTACHMENT 2: Suggested Language for §8771

There were only three submittals for proposed language changes that were the focus of the last committee discussion. These follow.

Language No.1 – Possible inclusion in future Government Code provision

The government agency [may][shall] require a contractor/property owner to comply with these requirements by directly stating so in the contract documents or issuing a permit. Additionally, the government agency may withhold payment to the contractor for not complying with this section as stated in the contract documents up to 10% of the overall contract price. Congruently, the government agency shall not issue a certificate of occupancy for the permitted project until compliance with this section.

Language No.2 – Revision to 8771

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 may be disturbed or destroyed by any public works project, the monuments shall be located and referenced by or under the direction of a licensed land surveyor or registered civil engineer prior to the time the public works project construction begins, 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 reference 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. Monuments shall be retained or replaced in their original positions, if possible. Reference monuments shall be shown with bearing or azimuth and distance to location of original monument. It shall be the responsibility of the governmental agency to provide for the monumentation required by this section. The government agency may require a contractor to comply with these requirements by directly stating so in the contract documents. Additionally, the government agency may withhold payment to the contractor for not complying with this section as stated in the contract documents up to 10% of the overall contract price.

(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 registered civil engineer submitting the document.

Language No.3 – Revision to 8771

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) Prior to the disturbance or destruction of when-existing monuments exist that control the location of subdivisions, tracts, boundaries, roads, streets, ~~or~~ highways, or other boundary or easement locations, or provide horizontal or vertical survey control, the-those monuments shall be located and referenced by or under the direction of a licensed land surveyor or registered civil engineer person licensed 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, their disturbance or destruction. -and a A corner record or record of survey shall be filed with and approved by the county surveyor showing monuments that will be disturbed or destroyed, along with the reference monuments or marks and bearings or azimuth and distances to the location of the monument to be disturbed or destroyed.

(c) For PUBLIC WORKS PROJECTS, it shall be the responsibility of the agency to provide for They-replacement monuments as described under (e).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.

ATTACHMENT 2: Suggested Language for §8771

(d) For NON PUBLIC WORKS PROJECTS, it shall be the responsibility of a person licensed to practice land surveying to provide for replacement monuments as described under (e).

(e) Replacement monuments shall either be

(1) reset in the original location of the monument disturbed or destroyed in the surface of the new roadway construction with a suitable monument box placed thereon, or

(2) a suitable permanent reference monument set outside roadway construction to perpetuate the location of the monument disturbed or destroyed.

(3) A corner record or record of survey shall be filed with and approved by the county surveyor prior to the recording of a certificate of completion for such public works project.

(f) Nothing in this section shall prevent an agency, person or entity responsible for compliance with this section from contracting with an unlicensed individual or contractor for setting the physical monument except for the location of the precise marks thereon.

(g) 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.

(h) It shall be the duty of every land surveyor or 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.~~

~~(i) The decision to file either the required corner record or a record of survey pursuant to paragraph (b), unless otherwise required under section 8762, shall be at the election of the licensed land surveyor or registered civil engineer~~ person licensed to practice land surveying submitting the document.

ATTACHMENT 3: Existing Text of Codes Regarding Monument Conservation

Business & Professions Code

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 registered civil engineer 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. 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 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 registered civil engineer submitting the document.

Government Code

27580. If in the performance of his official duties any surveyor finds a government corner which has been marked by a government surveyor by placing charcoal in the ground or a wooden stake, earth mound, or other perishable monument, he shall remark the corner by placing therein a monument of heavily galvanized iron pipe or galvanized iron stake not less than two inches in diameter and not less than two feet long, or other monument not less in size and equally imperishable.

27581. All monuments located in public highways shall be placed with the top not less than 12 inches below the surface of the ground, but when not located in public highways, they shall be placed with the top six inches above the surface of the ground. If the top of the monument is placed above the ground and is of metal, it shall be not less than four feet long.

27582. The surveyor shall note witness objects that are within a reasonable distance of any corner, and state distance and course from the corner. He shall record the note in a properly indexed record book in the county surveyor's office. The book is a public record. 27583. The board of supervisors shall furnish all necessary pipes or stakes for monuments in the county on demand and without cost.

Penal Code

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,

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.

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.

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.

ATTACHMENT 3: Existing Text of Codes Regarding Monument Conservation

Streets & Highways Code

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.

732.5. "Survey monuments shall be preserved, referenced, or replaced to Section 8771 of the Business and Profession Code.

18 USC Sec. 1858 (02/01/2010)

TITLE 18 - CRIMES AND CRIMINAL PROCEDURE

PART I - CRIMES

CHAPTER 91 - PUBLIC LANDS

Sec. 1858. Survey marks destroyed or removed

Whoever willfully destroys, defaces, changes, or removes to another place any section corner, quarter-section corner, or meander post, on any Government line of survey, or willfully cuts down any witness tree or any tree blazed to mark the line of a Government survey, or willfully defaces, changes, or removes any monument or bench mark of any Government survey, shall be fined under this title or imprisoned not more than six months, or both.

ATTACHMENT 4: Monument Conservation Program Example No. 1

Methods and procedures for preserving and replacing survey monuments

The purpose of this document is to provide the necessary information to preserve soon-to-be disturbed or soon-to-be destroyed survey control monuments. Each control point represents a large investment of resources. The City of Los Angeles has invested in control monumentation since before Statehood. These monuments are critically needed to define both public and private ownership of property. Just as important is the preservation of vertical control data. Maintenance and construction of infrastructure, highways, sewers, flood control projects, all require an accurate and well maintained vertical control network. The support and cooperation of local surveyors and engineers is not only important, but essential to preservation of this data. It is for this reason that these monuments are protected by law. The responsibility of this preservation is given directly to Licensed Surveyors and Engineers practicing land surveying, with an obligation to the local government to coordinate these efforts.

(See Appendix A, codes and laws)

Preconstruction: Horizontal Control

In those cases where control line monuments cannot be found, but accessory ties exist, the position of the missing monument will be referred to as an "existent point"

All phases of the proposed construction will be reviewed by the Bureau of Engineering's Survey Division, to determine the total number of monuments that might be disturbed or existent points that will need to be replaced with monuments after construction. In all cases, horizontal control monuments or existent points will be referenced with at least 4 ties, placed outside the construction zone. All set points will be tagged with the appropriate PLS or RCE number.

When control line monuments or points are in the construction zone with ties outside of the construction zone, and are found to be "as called for" in the City field books, it is adequate to reference the field book and found ties on the preconstruction notes. If ties are missing, (less than 4) additional ties will be set and tagged. If point is existent, this would involve reestablishing the position of the missing monument and resetting missing ties outside of the construction zone in accordance with the procedures outlined in this document. (See Reestablishing Horizontal Monuments) Monuments need not be set at this time; point location is for preconstruction tie out.

In cases where the ties are found to be in the construction zone, the monument or existent point must be reestablished and referenced with at least 4 ties, placed outside the construction zone.

When controlling monuments that are missing, have no reference ties, and are used as controlling points for the construction project, said monuments must be reestablished and referenced with at least 4 ties, placed outside the construction zone, in accordance with the procedures outlined in this document. Monuments need not be set at this time; point location is for preconstruction tie out.

(See Reestablishing Horizontal Monuments)

When the monument is reestablished by existing ties or other methods of reestablishment are used. On the Professional Land Surveyor notes, state method used to reestablish the monument as shown below.

Note: The referencing or re-establishment of survey monumentation by coordinate pairs, including those derived by GPS techniques, is not considered an adequate or acceptable procedure.

Follow the instructions under **Note Requirements** for preparing tie notes.

All tie notes shall be on standard Bureau of Engineering plat paper. Plat paper may be purchased from the Central Records Section in the Public Works Building located at 1149 S. Broadway, Los Angeles (Basement Level, Suite B-10).

Reestablishing Horizontal Control:

1. **Statement: Reestablished** (monument) **by ties per** (reference)

Example: Reestablished monument by ties per reference. No weight is given to angles and distances to other distant points. Tie distances and throw-overs are weighted as to their apparent stability or quality of fit. If a prod or tie is held to, or other ties appear unstable, state the facts on P.E. notes.

2. **Statement: Reestablished** (monument) **by line and ties per** (reference)

Example: A temporary point is Reestablished by ties per reference, then moved over to the control line (monumented and referenced), along a line perpendicular to the control line.

3. **Statement: Reestablished** (monument) **by proration** between (monument) **per** (reference) and (monument) **per** (reference)

Example: Use controlling distance and the measured distance to set monument on line at prorated distance.

4. **Statement: Reestablished** (monument) **by line and distance** from (monument, direction), **per** (reference)

Example: Holding to a control line (monumented and referenced) and setting a monument at the distance called for by C.E.F.B. or other record document. Proration was not used to set monument.

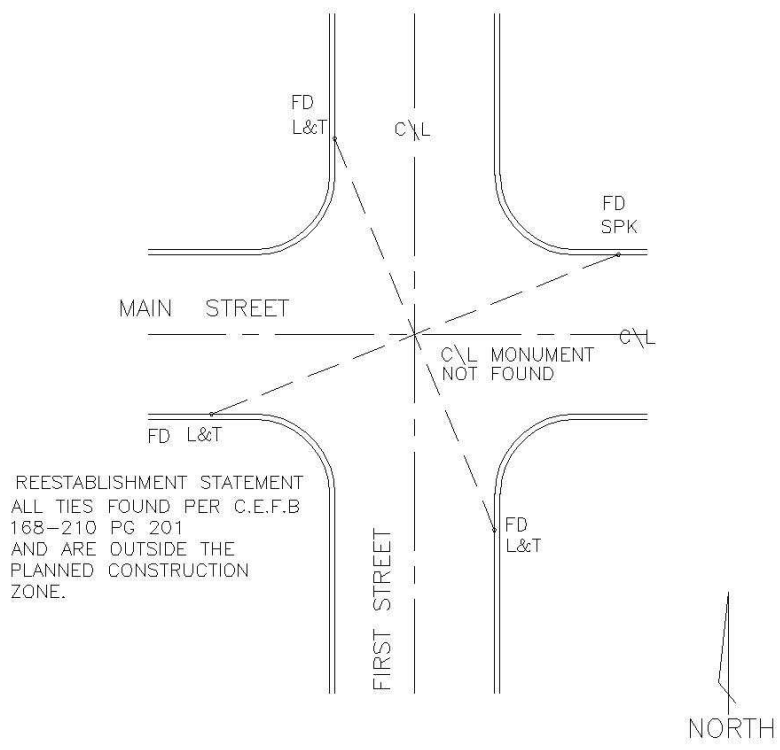
ATTACHMENT 4: Monument Conservation Program Example No. 1

5. **Statement: Reestablished** (monument) **by angle and distance** from (monument, direction), **per** (reference)
Example: Holding to a control line (monumented and referenced) and setting off a direction and distance using the angle and distance of the stated reference.
6. **Statement: Reestablished** (monument) **by intersection** between (monumented line) **per** (reference) and (monumented line) **per** (reference).
Example: Does not mean set by ties except when a prod is used. An intersection is created by found monuments on **each side of the intersected point**. There must be 2 held monuments (referenced) for each line. Show controlling monuments and references on Map and P.E. notes.
7. **Statement: Reestablished** (monument) **by angle, distance intersection** from (monument, direction), **per** (reference) and (monument, direction), **per** (reference)
Example: From one direction holding to a control line (monumented and referenced), set off a direction using the angle of the stated reference. From the other direction holding to a control point (monumented and referenced), set off a direction using the distance of the stated reference.
8. **Statement: Reestablished** (monument) **by angle, angle intersection** from (monument, direction), **per** (reference) and (monument, direction), **per** (reference)
Example: Holding each control line (monumented and referenced) and setting off a direction using the angle of the stated reference.
9. **Statement: Reestablished** (monument) **by distance, distance intersection** from (monument, direction), **per** (reference) and (monument, direction), **per** (reference)
Example: Holding each controlling point (monumented and referenced), set off a direction using the distance of the stated reference.
10. **Statement: Reestablished** (monument) **by type of adjustment** of (state referenced data) between (monument), **per** (reference) and (monument), **per** (reference)
Example: State type of adjustment used (i.e., compass rule, grant line, etc.). Do not state "set by adjusted angle and distance".

ATTACHMENT 4: Monument Conservation Program Example No. 1

Surveyed by _____ Date _____ F.B. _____ Pg. _____
 Type of Survey PRECONSTRUCTION TIE OUT Sheet _____ of _____
 Distances corrected to 68" _____ Monuments tagged _____ L.S.# _____ RCE # _____ Tract or Parcel Map # _____
 Checked by _____ Date _____ km grid _____ MB _____

EXAMPLE 1
 ALL TIES FOUND PER CITY FIELD BOOK. MONUMENT MAY OR MY NOT BE FOUND. AS ALL TIES ARE OUT OF THE CONSTRUCTION ZONE AND NO CHANGE IS REFLECTED FROM THE CITY ENGINEER'S FIELD BOOK, ONLY A MINIMAL AMOUNT OF INFORMATION IS REQUIRED TO BE SHOWN.
 NOTE THAT ALL TIES ARE FOUND AND GIVE REFERENCE

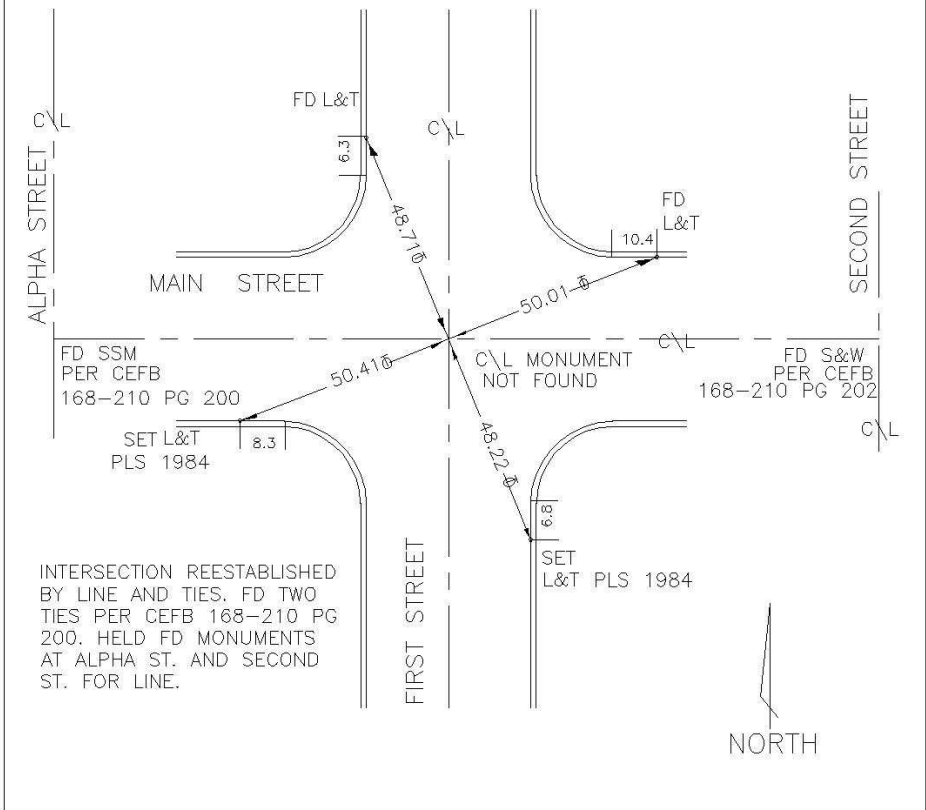


REESTABLISHMENT STATEMENT
 ALL TIES FOUND PER C.E.F.B
 168-210 PG 201
 AND ARE OUTSIDE THE
 PLANNED CONSTRUCTION
 ZONE.

ATTACHMENT 4: Monument Conservation Program Example No. 1

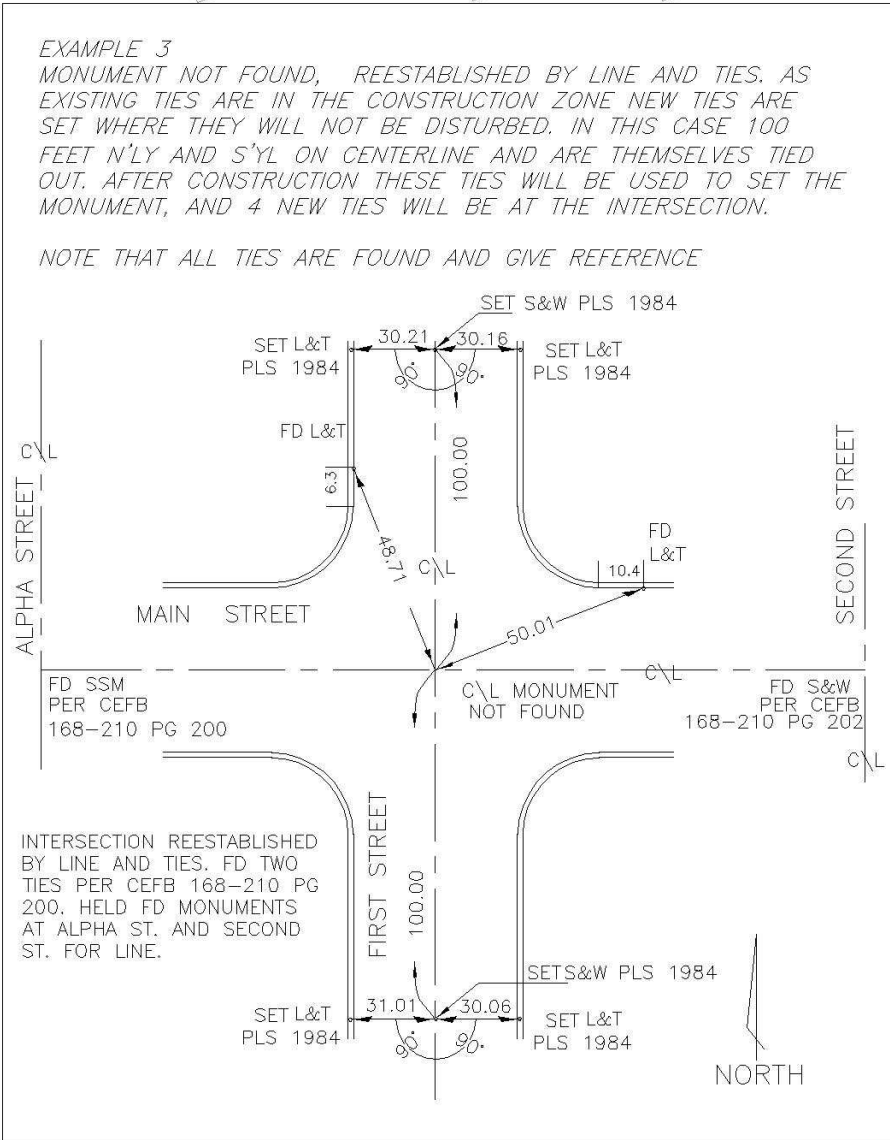
Surveyed by _____ Date _____ F.B. _____ Pg. _____
 Type of Survey PRECONSTRUCTION TIE OUT Sheet _____ of _____
 Distances corrected _____ Monuments tagged _____ L.S.# _____ Tract or
 to 68' _____ RCE # _____ Parcel Map # _____
 Checked by _____ Date _____ km grid _____ MB _____

*EXAMPLE 2
 MONUMENT NOT FOUND, REESTABLISHED BY LINE AND TIES. AS
 NEW TIES AND EXISTING TIES ARE OUT OF THE CONSTRUCTION
 ZONE, THESE TIES CAN BE USED FOR PRECONSTRUCTION AND
 THEN FOR POST CONSTRUCTION NOTES, WHEN THE C/L MONUMENT
 IS SET.
 NOTE ALL TIES THAT ARE FOUND AND GIVE REFERENCE IN THE
 REESTABLISHMENT STATEMENT.*



ATTACHMENT 4: Monument Conservation Program Example No. 1

Surveyed by _____ Date _____ F.B. _____ Pg. _____
 Type of Survey PRECONSTRUCTION TIE OUT Sheet _____ of _____
 Distances corrected to 68' _____ Monuments tagged _____ L.S.# _____ RCE # _____ Tract or Parcel Map # _____
 Checked by _____ Date _____ km grid _____ MB _____

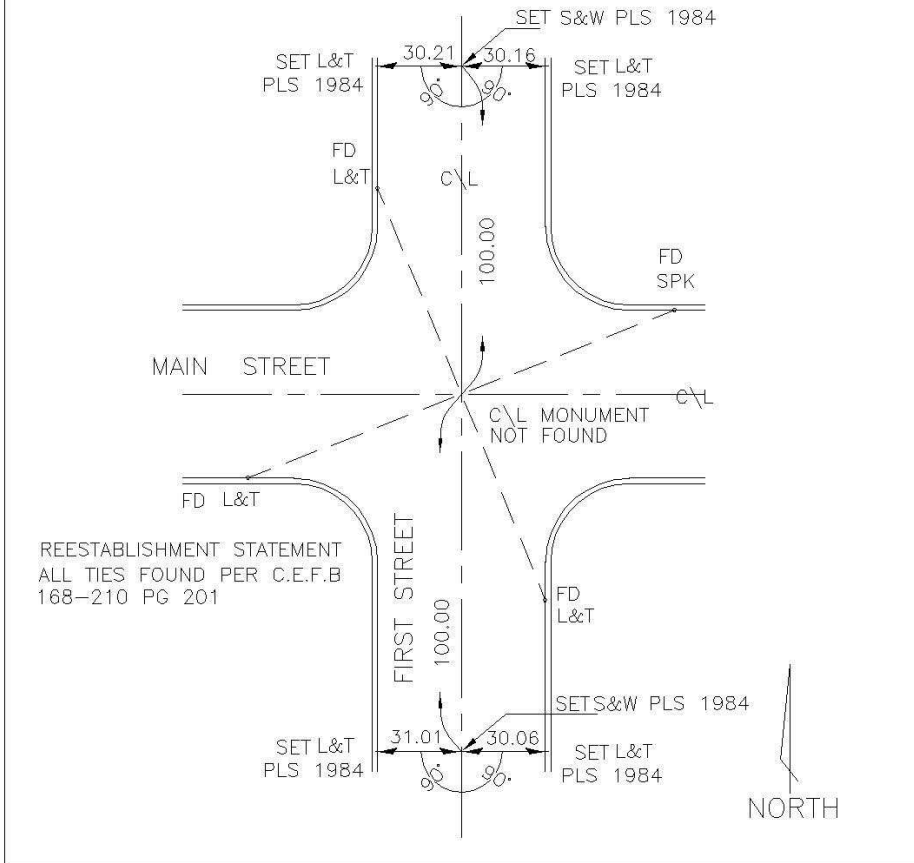


ATTACHMENT 4: Monument Conservation Program Example No. 1

Surveyed by _____ Date _____ F.B. _____ Pg. _____
 Type of Survey PRECONSTRUCTION TIE OUT Sheet _____ of _____
 Distances corrected to 68' _____ Monuments tagged _____ L.S.# _____ RCE # _____ Tract or Parcel Map # _____
 Checked by _____ Date _____ km grid _____ MB _____

*EXAMPLE 4
 MONUMENT NOT FOUND, REESTABLISHED BY TIES. AS EXISTING TIES ARE IN THE CONSTRUCTION ZONE, NEW TIES ARE SET WHERE THEY WILL NOT BE DISTURBED. IN THIS CASE 100 FEET N'LY AND S'LY ON CENTERLINE AND ARE THEMSELVES TIED OUT. AFTER CONSTRUCTION THESE TIES WILL BE USED TO RESET THE MONUMENT, AND 4 NEW TIES WILL BE AT THE INTERSECTION.*

NOTE THAT ALL TIES ARE FOUND AND GIVE REFERENCE



ATTACHMENT 4: Monument Conservation Program Example No. 1

Post Construction: Horizontal Control

All post construction monuments will be reset by preconstruction tie notes.

Statement: Set (monument) **by ties per** (reference)

When replacing control-line monuments there shall be no less than four tie points for each control-line monument. There will be 2 on each side of the control line (C/L). The tie points will be throw-overs wherever possible. A tie point will be set on the prod (production) of each survey line where possible.

Show type of monument set and tagged with your certificate number.

See Tie Note examples below.

All tie notes shall be on standard Bureau of Engineering plat paper. Plat paper may be purchased from the Central Records Section in the Public Works Building located at 1149 S. Broadway, Los Angeles (Basement Level, Suite B-10).

Requirements for Horizontal Control Plat:

The following applicable information must be filled out on the heading of each sheet of plat. The Survey Division will enter field book and page numbers.

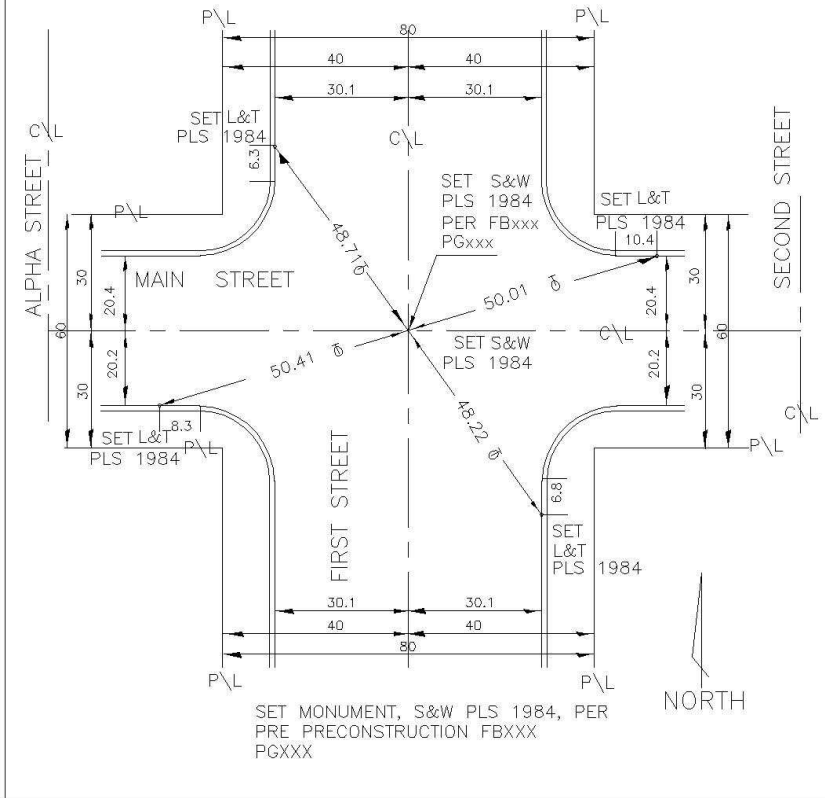
Double Asterisk ** will indicate that this is not needed for Preconstruction.

- a. North Arrow
- b. Street name(s)
- c. Finder distances
- d. Appropriate calls on all monuments and ties (See monument and tie definitions)
- e. Establishment statements (If applicable)
- f. Tie line designation – (i.e., T/O)
- g. Control line designation – (i.e., C/L)
- h. Curb line shall be shown as a double line.
- i. Curb to curb existing street widths, half and full, with leaders.
- j. Property line designation will shown – (i.e., P/L) post construction only **
- k. Property lines will show, Right of Way widths, half and full, with leaders **
- l. Field notes shall be cross-referenced by sheet number to all sheets being prepared. A cross-reference shall be made to the nearest point tied to a CEFB when applicable.
- m. Reference to nearest street intersection and or type of monument shall be used when necessary for clarity.
- n. Control line curve data: radius, delta, tangent or chord and arc length. **
- o. Control line distances if necessary for location.

ATTACHMENT 4: Monument Conservation Program Example No. 1

Surveyed by _____ Date _____ F.B. _____ Pg. _____
 Type of Survey POST CONSTRUCTION TIES Sheet _____ of _____
 Distances corrected to 68' _____ Monuments tagged L.S.# _____ Tract or Parcel Map # _____
 RCE # _____
 Checked by _____ Date _____ km grid _____ MB _____

*POST CONSTRUCTION
 MONUMENTS WILL BE RESET PER PRECONSTRUCTION TIES, PROPER
 FIELD BOOK WILL BE REFERENCED. SET MONUMENT WILL BE TIED
 OUT AS DIRECTED IN THIS DOCUMENT.*



Monument Definitions:

- Lead and Tag in concrete (Set L&Tag PLS.#) – Surveyor’s or engineer’s certificate number shall be stamped on the tag.
- Epoxy and tag may be used in special circumstances, when using lead could result in damage to private property.
- Two-inch Iron Pipe (Set 2” I.P. PLS.#) not less than 18” in length. A nail and tag shall be imbedded in concrete in the top of the pipe pr plug with certificate number.
- Spike and Washer (Set S&W, P.L.S.#) – Surveyor’s or engineer’s certificate number shall be stamped on the washer.
- Four Punch Marks (Set 4PM’S) – When a storm drain or a sanitary sewer maintenance hole occupies the position where a permanent monument

ATTACHMENT 4: Monument Conservation Program Example No. 1

should be set, two punch marks should be made in the maintenance rim on each of the intersecting control lines.

Tie Definitions:

- a. Lead and Tag (Set L&Tag, P.L.S. #) – to be used in concrete only.
- b. Spike and Washer (Set S&W, R.C.E. #) to be used in AC only. Spike to be not less than 1½” long with punchmark.
- c. I.P. (Set 1” I.P. L.S. #) of not less than 1” in diameter. A nail and tag shall be imbedded in concrete in the top of the pipe or plug with certificate number.
- d. 5/8” Rebar (#5) (Set 5/8” Rebar and cap, L.S. #) with plastic cap and stamped with certificate number.

Vertical Control:

All vertical control monuments (benchmarks) shall be tied out with at least 3 witness points. As stated in the California Business and Professions Code Section 8771, it shall be the duty of every land surveyor to cooperate with such governmental agency in matters of maps, field notes, and other pertinent records. To this end, all tie notes must be reviewed and approved by the Bureau of Engineering’s Survey division.

Methods and procedures for preserving and replacing survey monuments:

All phases of the proposed construction will be reviewed to determine the total number of monuments that might be disturbed.

There are two general situations that occur when a bench mark is to be destroyed: (1) there is time available to reset a new monument in the vicinity before the threatened mark is destroyed, or (2) the threatened mark will be destroyed and the construction zone is of such scope that a monument can’t be reset in the appropriate area. The latter case generally occurs when the location of the new (replacement) mark is not yet suitable or available for its physical establishment. This is often the case when the new mark will not be set until a new bridge or culvert head wall is constructed. Guidelines for both cases are presented in this paper.

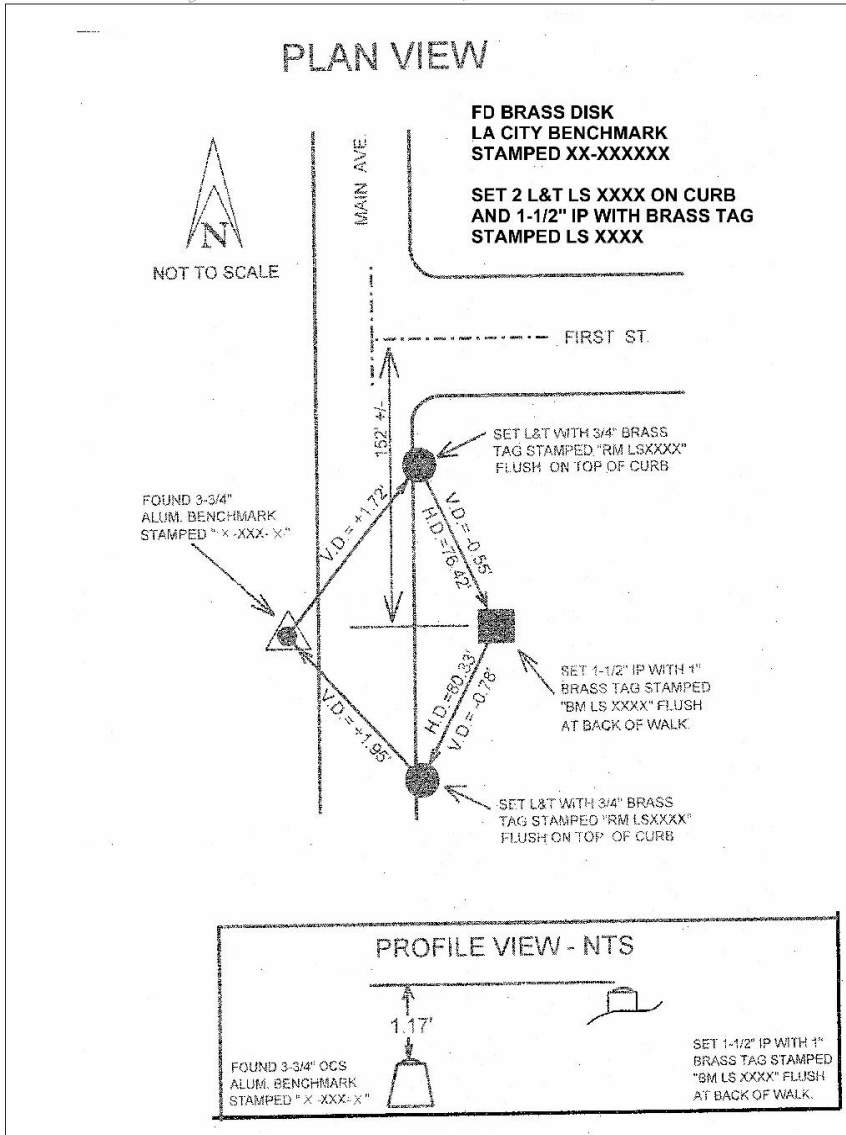
For both cases the prepared notes will include the bench reference and description as well as a description of the ties and/or bench set. All set points will be tagged with the appropriate PLS or RCE number.

Note Requirements vertical Control:

- a. North Arrow
- b. Street name(s)
- c. Finder distances
- d. Appropriate calls on all monuments and ties (See monument and tie definitions)
- e. Stadia distance between and vertical difference between monuments.
- f. All vertical notes will include a profile view

ATTACHMENT 4: Monument Conservation Program Example No. 1

Surveyed by _____ Date _____ F.B. _____ Pg. _____
 Type of Survey _____ Sheet _____ of _____
 Distances corrected to 68' _____ Monuments tagged L.S.# _____ Tract or
 to 68' _____ RCE # _____ Parcel Map # _____
 Checked by _____ Date _____ km grid _____ MB _____



ATTACHMENT 4: Monument Conservation Program Example No. 1

Appendix A

US Sec. 1858. Survey marks destroyed or removed

Whoever willfully destroys, defaces, changes, or removes to another place any section corner, quarter-section corner, or meander post, on any Government line of survey, or willfully cuts down any witness tree or any tree blazed to mark the line of a Government survey, or willfully defaces, changes, or removes any monument or bench mark of any Government survey, shall be fined under this title or imprisoned not more than six months, or both.

AMENDMENTS

1994 - Pub. L. 103-322 substituted "fined under this title" for "fined not more than \$250".

8771. Record of survey -monumentation

(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 registered civil engineer 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. 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 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.

8773. (a) Except as provided in subdivision (b) of Section 8773.4, a person authorized to practice land surveying in this state shall complete, sign, stamp with his or her seal, and file with the county surveyor or engineer of the county where the corners are situated, a written record of corner establishment or restoration to be known as a "corner record" for every corner established by the Survey of the Public Lands of the United States, except "lost corners," as defined by the Manual of Instructions for the Survey of the Public Lands of the United States, and every accessory to such corner which is found, set, reset, **or used as control in any survey** by such authorized person.

8773.3. In every case where a corner record is filed pursuant to Section 8773, the licensed land surveyor or registered civil engineer shall reconstruct or rehabilitate the monument of such corner, and accessories to such corner, so that the same shall be left by him in such physical condition that it remains as permanent a monument as is reasonably possible and so that the same may be reasonably expected to be located with facility at all times in the future.

(The private surveyor's field notes will be in lieu of corner record)

The Bureau of Engineering's Survey Division establishes and maintains horizontal and vertical control for the City of Los Angeles (to the benefit of both private and public surveyors and their clients) in accordance with applicable State laws. The requirements for this activity are found in the Business and Professions code (LS Act) at sections 8771 and 8773, et seq. The above sections of the Land Surveyors Act detail the requirements for monument preservation and rehabilitation and require the filing of a Record of Survey or Corner Record with the County Surveyor. Because the County has never performed surveys in the City and also because the Chief Surveyor is deputized as a County Surveyor we are allowed to file notes in the City Engineer's index system.

ATTACHMENT 4: Monument Conservation Program Example No. 1

2-9 SURVEYING

2-9.1 Permanent Survey Markers.

The private engineer, or the owner at its cost, shall cause preconstruction survey tie notes to be filed with the Engineer.

2-9.3 Private Engineers or Land Surveyors. Surveying by private engineers or land surveyors on the Work shall conform to the quality and practice required by the Engineer. Surveying shall be performed by a California licensed Land Surveyor or registered Civil Engineer authorized to practice land surveying. For projects constructed under permit the Contractor shall be responsible for the preservation of survey monuments and bench marks. **At least two (2) working days before the start of construction, the Contractor shall submit acceptable preconstruction survey tie notes to the Engineer.** Post construction survey monument ties acceptable to the Engineer shall be submitted to the Engineer before the Completion Date

ATTACHMENT 5: Monument Conservation Program Example No. 2

Monument Perpetuation

A monument is set by a surveyor as shown on a subdivision map, record of survey, parcel map or corner record. A typical monument may be a lead and disk in concrete (exhibit A), a lead and tack (exhibit B), a pipe with a disk (exhibit C), a shiner and nail (exhibit D) or a well monument with a 2.5 inch brass disk (exhibit E). See Exhibit F for typical locations of monuments. They may be in the sidewalk, middle of the street or at the actual property corner.

If at any time a monument will be destroyed during construction, it must be perpetuated in accordance with state law. Assuming that the project is a City Contract, submit the attached Monument Perpetuation Request to the survey section with the location of the monument(s) to be referenced and replaced later. (ex: the NE corner of Aero Drive & Ruffin Road). If the construction project is a private permit, request proof that a private land surveyor has referenced the monument.

State Law

The 'Greenbook' is the Standard Specifications for Public Works Construction projects used throughout California. It is the 'bible' used for both the bidding and the inspecting of projects. Therefore, the standards within the book must be adhered to. The legal requirements for the perpetuation of monuments within the Greenbook, 'Section 2-9.1 simply reiterates state law.

2-9 SURVEYING.

2-9.1 Permanent Survey Markers. The Contractor shall notify the Engineer, or the owner on a Private Contract, at least 7 days before starting work to allow for the preservation of survey monuments, lot stakes (tagged), and bench marks. The Engineer, or the owner at its cost, shall file a Corner Record Form referencing survey monuments subject to disturbance in the Office of the County Surveyor prior to the start of construction and also prior to the completion of construction for the replacement of survey monuments. **The Contractor shall not disturb survey monuments, lot stakes (tagged), or bench marks without the consent of the Engineer or the owner on Private Contracts. The Contractor shall bear the expense of replacing any that may be disturbed without permission.** Replacement shall be done only under the direction of the Engineer by Registered (licensed) Licensed Land Surveyor or a Registered Civil Engineer authorized to practice land surveying within the state.

The Business and Professions Code (B & PC) of California specifically states that monuments must be referenced and replaced. The Professional Land Surveyors Act (LSA) is part of the B & PC. The LSA is to surveyors what the Professional Engineers Act is to engineers. Section 8771(b) of the LSA specifically states

(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 registered civil engineer 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. **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 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.

Misdemeanor

ATTACHMENT 5: Monument Conservation Program Example No. 2

Monuments have been destroyed on a regular basis in the past. It can be a misdemeanor. We must be certain that this does not happen anymore. Most likely it is not done maliciously; rather it is done inadvertently without the proper knowledge. However, it may be done to avoid the cost of hiring a surveyor. California Penal Code reads

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,
 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.

Surveying

Before any construction project is commenced, it is imperative to have a surveyor, whether it is a City surveyor or a private surveyor, walk the site. If the project is a private permit, the contractor is responsible for hiring a private surveyor. If the project is a City contract, contact the RE to schedule a city survey crew. The site should be marked out so that the surveyor knows exactly what may be disturbed. The surveyor will be responsible for referencing any monuments that may be destroyed during the construction/improvement process. The contractor is NOT to reference any monuments or replace any monuments! It is against state law. If it is found that a contractor has replaced/destroyed any monument, the contractor will be responsible for hiring a surveyor to replace the monuments in accordance with state law. It is possible for the expense to be \$500 or it can be \$5000 or more, it all depends on other monumentation in the area.

Once the construction is complete, the surveyor, private or City, must replace the monuments that were destroyed. The surveyor must prepare and file the appropriate document with the County Surveyor, whether it is a Corner Record or Record of Survey. The project is not complete until the documents are filed.

ATTACHMENT 5: Monument Conservation Program Example No. 2

EXAMPLES OF MONUMENTATION

EXHIBIT A

[photo of city engineer tag in concrete]

EXHIBIT B

[photo of lead & tack in sidewalk]

EXHIBIT C

[photo of iron pipe & tag in pavement]

EXHIBIT D

[photo of city engineer cap in pavement]

EXHIBIT E

[photo of monument well]

[photo of monument in monument well]

ATTACHMENT 5: Monument Conservation Program Example No. 2

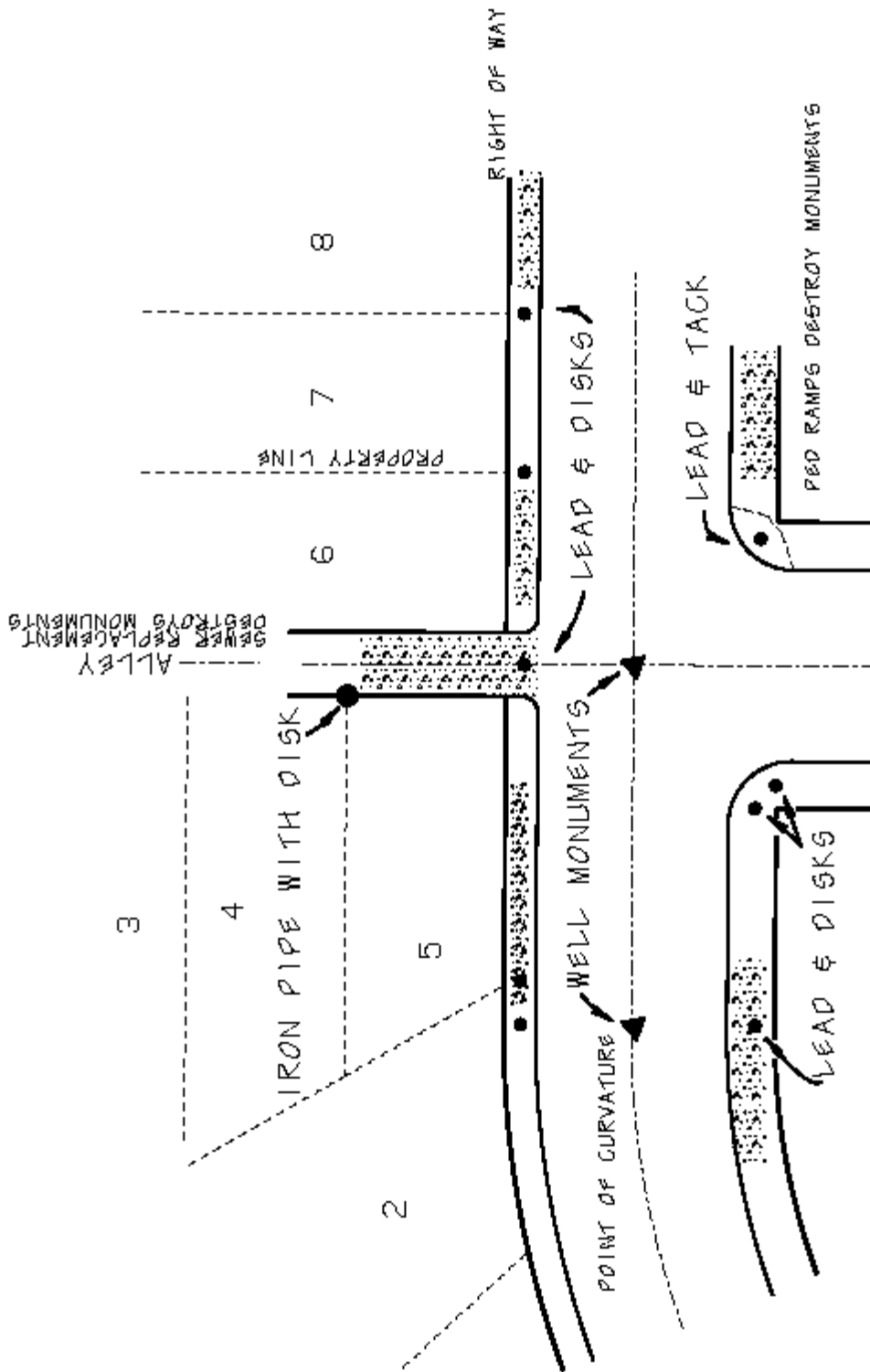


EXHIBIT F

ATTACHMENT 6: Monument Conservation Provisions From Other States

Pennsylvania:

§ 3312. Destruction of a survey monument.

(a) Offense defined.--

(1) A person commits a summary offense if he intentionally cuts, injures, damages, destroys, defaces or removes any survey monument or marker, other than a natural object such as a tree or stream.

(2) A person commits a misdemeanor of the second degree if he willfully or maliciously cuts, injures, damages, destroys, defaces or removes any survey monument or marker in order to call into question a boundary line.

(b) Restitution.--Any person convicted of violating this section shall, in addition to any other penalty imposed, be liable for the cost of the reestablishment of permanent survey monuments or markers by a professional land surveyor and all reasonable attorney fees.

(c) Affirmative defense.--It is an affirmative defense to any prosecution for an offense under this section that the survey monument or marker was improperly placed by a professional land surveyor.

(d) Definitions.--As used in this section, the following words and phrases shall have the meanings given to them in this subsection:

"Professional land surveyor." As defined under the act of May 23, 1945 (P.L.913, No.367), known as the Engineer, Land Surveyor and Geologist Registration Law.

"Survey monument or marker." Any object adopted or placed by a professional land surveyor to define the boundaries of a property, including, but not limited to, natural objects such as trees or streams, or artificial monuments such as iron pins, concrete monuments, set stones or party walls. The phrase does not include a wooden stake placed by a professional land surveyor as a temporary marker or placeholder.

(July 7, 2006, P.L.348, No.72, eff. 60 days)

Nevada -

206.220 Removal, alteration or destruction of monuments or landmarks designating boundaries.

1. Except as otherwise provided in subsection 2, every person who willfully or maliciously:

(a) Removes any monument of stone, wood or other durable material erected, or post or stake fixed or driven in the ground, for the purpose of designating the corner, or any other point, in the boundary of this state or any political subdivision thereof, or any lot or tract of land, or any mining claim or claims;

(b) Alters the marks upon any tree, post or other monument made for the purpose of designating any point, course or line, in any such boundary; or

(c) Cuts down or removes any tree upon which any such marks are made for that purpose, with the intent to destroy such marks, is guilty of a public offense proportionate to the value of the loss resulting therefrom, but in no event less than a misdemeanor.

2. This section does not apply to a professional land surveyor who acts in accordance with NRS 625.380.

3. As used in this section, the "value of the loss resulting therefrom" means the cost of restoring or replacing the marks or monuments which have been removed, altered or destroyed.

[1911 C&P § 411; A 1935, 28; 1931 NCL § 10363]-(NRS A 1967, 514; 1979, 1454; 1999, 964)

Georgia

§ 44-1-15 - Removal or destruction of survey monuments prohibited; exceptions; penalties O.C.G.A. 44-1-15(2010) 44-1-15.
Removal or destruction of survey monuments prohibited; exceptions; penalties

(a) As used in this Code section, the term:

(1) "Geodetic control monuments" means those survey monuments which are established by federal, state, local, and private agencies, the position of which monuments on the earth's surface has been fixed by high-order surveying and computation for use by surveyors and engineers in the extension of geodetic position to property corners, improvements to property, utility systems, streets and highways, and such other objects and things as may be located by surveying. Such monuments may be in the form of metal disks set in concrete, rock, metal, or some other fixed permanent object, the position thereof having been published by the agency which established the monument and made available to the public as well as to land surveyors and engineers for public use.

(2) "Property corner monuments" means those survey monuments which are established to identify property corners, the location and description of which are made a part of any plat or any instrument pertaining to real property filed in the office of the clerk of the superior court of any county of this state. Said survey monuments may be any permanent or semipermanent objects or any live or dead plant material, including, but not limited to, iron or steel pipes, bars, or rods; concrete markers, including highway right of way markers; stone or rock, whether natural or erected; trees, stumps, stakes,

ATTACHMENT 6: Monument Conservation Provisions From Other States

and marks, including those marks made on trees, stones, rocks, concrete, or metal; and such other monuments as may be described in said plats and instruments of record.

- (b) It shall be unlawful for any person willfully and knowingly to remove, destroy, injure, or displace any geodetic control monument or property corner monument except under the authority of the agency which originally set the monument or, in the case of a property corner monument, under the authority of a registered land surveyor or duly elected or appointed county surveyor having the written permission of all landowners who are parties to said property corner monument. In the case of a geodetic control monument, the record of any authorized change shall be published; and, in the case of a property corner monument, the record of any authorized change shall be filed for record in the office of the clerk of the superior court of the county in which the monument is located.
- (c) Any person who violates this Code section shall be guilty of a misdemeanor and upon conviction thereof shall be fined not less than \$100.00 nor more than \$500.00 and may also be punished by imprisonment for not less than 30 days nor more than 60 days.

Washington –

332-120-020 Definitions. The following definitions shall apply to this chapter:

Department: The department of natural resources.

Engineer: Any person authorized to practice the profession of engineering under the provisions of chapter 18.43 RCW who also has authority to do land boundary surveying pursuant to RCW 36.75.110, 36.86.050, 47.36.010 or 58.09.090. Geodetic control point: Points established to mark horizontal or vertical control positions that are part of the National Geodetic Survey Network.

Land boundary survey corner: A point on the boundary of any easement, right of way, lot, tract, or parcel of real property; a controlling point for a plat; or a point which is a General Land Office or Bureau of Land Management survey corner.

Land corner record: The record of corner information form as prescribed by the department of natural resources pursuant to chapter 58.09 RCW.

Land surveyor: Any person authorized to practice the profession of land surveying under the provisions of chapter 18.43 RCW.

Local control point: Points established to mark horizontal or vertical control positions that are part of a permanent government control network other than the National Geodetic Survey network.

Parcel: A part or portion of real property including but not limited to GLO segregations, easements, rights of way, aliquot parts of sections or tracts.

Removal or destruction: The physical disturbance or covering of a monument such that the survey point is no longer visible or readily accessible.

Survey monument: The physical structure, along with any references or accessories thereto, used to mark the location of a land boundary survey corner, geodetic control point, or local control point.

Survey Recording Act: The law as established and designated in chapter 58.09 RCW.

332-120-030 Applicability.

- (1) No survey monument shall be removed or destroyed before a permit is obtained as required by this chapter.
- (2) Any person, corporation, association, department, or subdivision of the state, county or municipality responsible for an activity that may cause a survey monument to be removed or destroyed shall be responsible for ensuring that the original survey point is perpetuated. It shall be the responsibility of the governmental agency or others performing construction work or other activity (including road or street resurfacing projects) to adequately search the records and the physical area of the proposed construction work or other activity for the purpose of locating and referencing any known or existing survey monuments. A government agency, when removing a local control point that it has established, shall be exempted from the requirements of this chapter.
- (3) Survey monuments subject to this chapter are those monuments marking local control points, geodetic control points, and land boundary survey corners. In regard to local or geodetic control points the department will defer authorization for the removal or destruction of the survey monument to the agency responsible for the establishment or maintenance of the control point. Such agency may, at their discretion, exempt the applicant from the remonumentation requirements of this chapter. Such exemption shall be noted by the agency on the application form.

Oregon –

§ 209.150¹ Removal or destruction of monument . notice to county surveyor . replacement of monument . exception

- (1) Any person or public agency removing, disturbing or destroying any survey monument of record in the office of the county surveyor or county clerk shall cause a registered professional land surveyor to reference and replace the monument within 90 days of the removal, disturbance or destruction. The registered professional land surveyor referencing and replacing the monument shall do so in the same manner that is provided for public land survey corners according to ORS 209.140

ATTACHMENT 6: Monument Conservation Provisions From Other States

(Necessary interference with corners) and shall notify the county surveyor of that action within two business days. The costs of referencing and replacing the survey monument shall be paid by the person or public agency causing the removal, disturbance or destruction.

- (2) Notwithstanding subsection(1) of this section, a county surveyor may, upon written request and written notice to an affected property owner, provide written authorization to a registered professional land surveyor to remove a survey monument other than a public land survey corner as defined in ORS 209.005 (Definitions). A county surveyor may require that the position of the removed monument be referenced to another survey monument and noted on a survey map filed in accordance with ORS 209.250 (Survey by registered land surveyor).

[Amended by 1979 c.653 §10; 1989 c. 394 §12; 1991 c.339 §2; 1997 c.336 §3; 1997 c.489 §10]

MONUMENT CONSERVATION COMMITTEE
ADDENDUM TO REPORT TO THE BOARD OF DIRECTORS, Q2, 2011
July 28, 2011

ATTACHMENT 7: Existing Opinions Regarding Monument Conservation