

# The Hollywood Fault — Prudent Steps Forward in 2015

by Robert H. Sydnor

California Certified Engineering Geologist #968

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prepared for: **Hollywood United Neighborhood Council**

P.O. Box 3272, Hollywood, California, 90078

www.hollywoodunitednc.org      HuncOffice@gmail.com

## 1. Background and Purpose of Report

This is a preliminary geology report intended for homeowners and residents of the Hollywood United Neighborhood Council who are concerned about the recently-zoned Hollywood Fault. The author was invited to attend and speak at an evening meeting of local homeowners which is to be held at the First Presbyterian Church, 1760 North Gower Street, Hollywood 90028, on November 20, 2014; but regrettably could not do so.

The homeowner audience would be presumably composed of university-educated citizens who reside in the Hollywood district, and who are justifiably concerned that a newly-zoned Holocene-active fault has been legally delineated through their neighborhood.

The purpose of this interim report is: ① to assist concerned Hollywood homeowners understand several geologic hazards (= active faulting, earthquake ground-motion, landslides, and liquefaction) that occur in Hollywood and the Santa Monica Mountains; ② to provide hyperlinks to geologic reports; and ③ to make prescient scientific recommendations for prudent steps forward.

## 2. Legal Zonation of Active Faults under the Alquist-Priolo Act

The Hollywood Fault was legally zoned on November 6, 2014 as an active fault by the State Geologist under the Alquist-Priolo Earthquake Fault Zoning Act. There was an official press-conference in Los Angeles for this event and it was carefully reported in the *Los Angeles Times* newspaper.

It is recommended that citizens carefully read all of CGS Special Publication 42, published by the California Geological Survey. This is the key document about the Alquist-Priolo Act and the legal zonation of Holocene-active faults throughout California. It is free and on-line for convenient download. It is important for citizens to realize that a legal zone map is not a fault map. Yes, the best interpretation of the fault scarps are shown, but instead, look at the envelope of the legal zone.

<http://www.conservation.ca.gov/cgs/rghm/ap/Pages/disclose.aspx>

## 3. CGS Fault Evaluation Report #253

This comprehensive report explains the scientific steps that were carefully taken to evaluate the Hollywood Fault within the Hollywood quadrangle. The report is signed by three California Certified Engineering Geologists, each having many decades of professional experience in the evaluation of Holocene-active faults in California. Citizens can freely download the entire report and the maps at this state government ftp site:

<ftp://206.170.189.144/pub/dmg/pubs/fer/253/>

It is recommended to refer to CGS Special Publication 42 while reading the scientific terminology within CGS Fault Evaluation Report 253. Some of the complicated geologic terms can be readily discerned by using Wikipedia, or refer to the *Glossary of Geology*, published by the American Geosciences Institute (available in university libraries).

#### 4. Seismic Hazard Zone Maps issued by the California Geological Survey

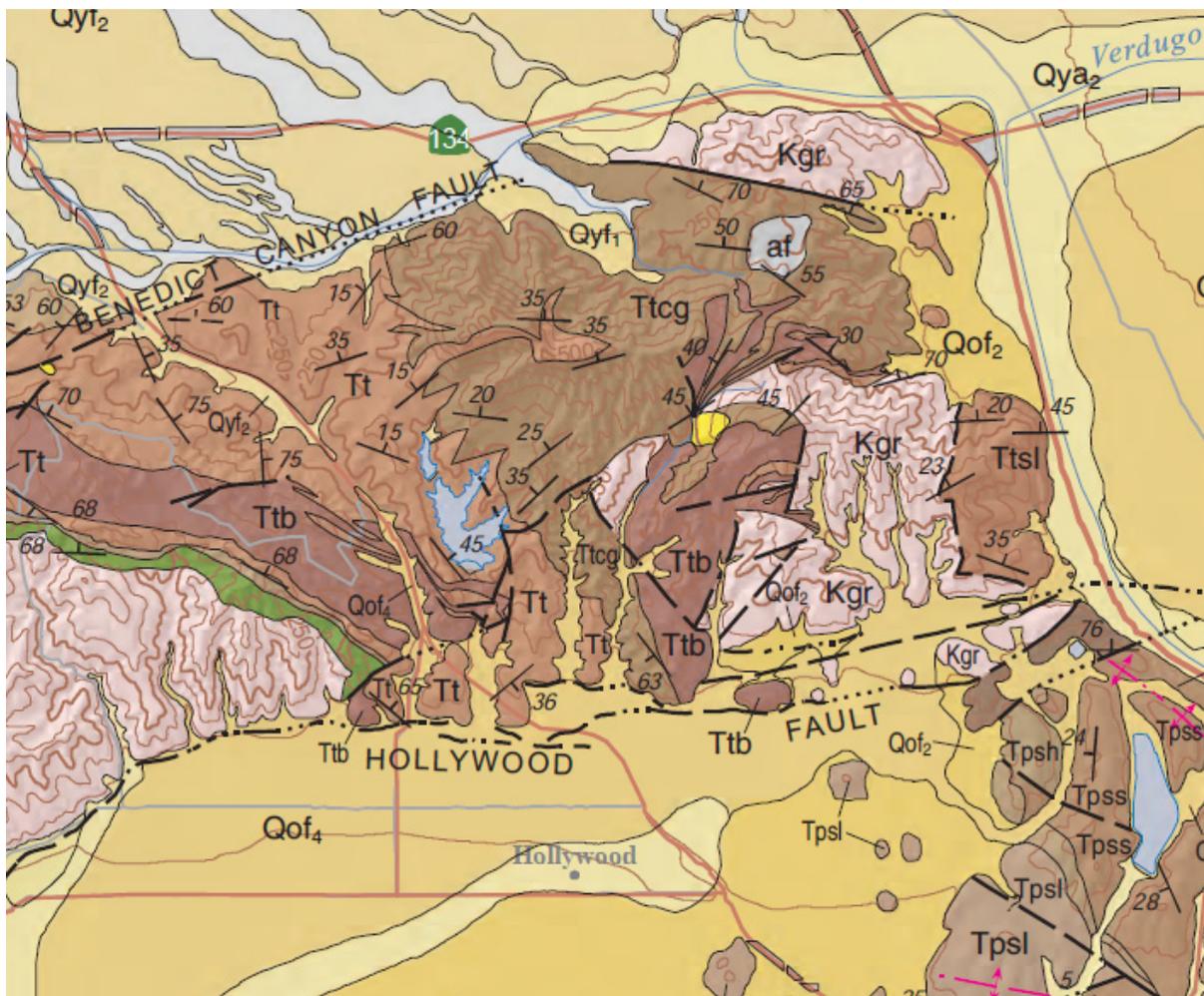
In addition to active faults, the California Geological Survey has zoned more than one hundred quadrangles for landslides and liquefaction. Homeowners can obtain free copies of these maps at:

<http://gmw.consrv.ca.gov/shmp/MapProcessor.asp?Action=County&Location=SoCal>

Most of southern California has been mapped for landslides and liquefaction by CGS because of the large population center. For the Hollywood 7½-minute quadrangle, both the active fault zone, the landslide zones, and the liquefaction are conveniently shown together on one zone map.

#### 5. New 2014 Regional Geologic Map of the Los Angeles Quadrangle

The California Geological Survey has compiled a new 2014 regional geologic map of the 1:100,000 quadrangle that is centered on the Santa Monica Mountains. The surficial units and bedrock formations are described in a free 119-page booklet that accompanies the 1:100,000 map. At this convenient scale, one centimeter equals one kilometer.



This is an extract of the new 1:100,000-scale regional geologic map, centered on Hollywood and the eastern Santa Monica Mountains. Notice that this is a generalized regional map, not at the detailed 1:24,000 scale. Therefore, do *not* enlarge the geologic map beyond the published 1:100,000 scale. The 119-page booklet describes each of the map symbols, such as Tt and Ttb and Qof<sub>4</sub>

## 6. Published Scientific References

A comprehensive list of published reports is in the back-pages of Fault Evaluation Report 253. It also includes some unpublished reports prepared by consulting geology and geotechnical firms. Shown below is a *partial* list of published references that homeowners can view and photo-copy at university libraries or the main LA City Library. The starred reports are particularly salient. Download reports and geologic maps from the California Geological Survey directly from their website>

[www.conservation.ca.gov/cgs](http://www.conservation.ca.gov/cgs)

- ★ Bryant, William A., and Hart, Earl W., 2007, Fault-Rupture Hazard Zones in California — Alquist-Priolo Earthquake Fault Zoning Act, with Index to Earthquake Fault Zones Maps: California Geological Survey, Special Publication #42, 48 pages. California Geological Survey, 2013 edition, Checklist for the Review of Engineering Geology and Seismology Reports for California Public Schools, Hospitals, and Essential Services Buildings: CGS Note 48, two pages. [http://www.conserv.ca.gov/cgs/information/publications/cgs\\_notes/note\\_48/note\\_48.pdf](http://www.conserv.ca.gov/cgs/information/publications/cgs_notes/note_48/note_48.pdf)
- ★ California Geological Survey, 1997, Seismic Hazard Zone Report for the Hollywood 7½-minute quadrangle: CGS Seismic Hazard Zone Report 26, 61 p.
- ★ California Geological Survey, 2002, Guidelines for Evaluating the Hazard of Surface Fault Rupture: CGS Note 49, 4 p.
- ★ Campbell, Russell H., Chris J. Wills, Pamela J. Irvine, and Brian J. Swanson, 2014, Preliminary Geologic Map of the Los Angeles 30×60-minute Quadrangle, version 2.0, California Geological Survey, scale 1:100,000. [http://www.conservation.ca.gov/cgs/rghm/rgm/Pages/preliminary\\_geologic\\_maps\\_1page.aspx](http://www.conservation.ca.gov/cgs/rghm/rgm/Pages/preliminary_geologic_maps_1page.aspx)
- Catchings, R.D., G. Gandhok, M.R. Goldman, D. Okaya, M.J. Rymer, and G.W. Bawden, 2008, Near-Surface Location, Geometry, and Velocities of the Santa Monica Fault Zone, Los Angeles, California: *Bulletin of the Seismological Society of America*, v. 98, no. 1, p. 124-138.
- ★ Crook, Richard Jr., and Proctor, Richard J., 1992, The Santa Monica and Hollywood Faults and the Southern Boundary of the Transverse Ranges Province, in: Pipkin, B., and Proctor, R.J., editors, Engineering geology practice in southern California: Association of Engineering Geologists, Special Volume, p. 233-246.
- Dolan, James F., Sieh, Kerry E., Rockwell, Thomas K., Yeats, Robert S., Shaw, John, Suppe, John, Huftile, Gary J., and Gath, Eldon M., 1995, Prospects for larger or more frequent earthquakes in the Los Angeles metropolitan region: *Science*, vol. 267, p. 199-205.
- ★ Dolan, James F., Sieh, Kerry E., Rockwell, Thomas K., Guphill, Paul, and Miller, Paul, 1997, Active tectonics, paleoseismology, and seismic hazards of the Hollywood Fault, northern Los Angeles Basin, California: *Bulletin of the Geological Society of America*, vol. 109, no. 12, p. 1595-1616.
- ★ Dolan, James F., Stevens, Donovan, and Rockwell, Thomas K., 2000, Paleoseismologic evidence for an early to mid-Holocene age of the most recent surface rupture on the Hollywood Fault, Los Angeles, California: *Bulletin of the Seismological Society of America*, vol. 90, no. 2, April 2000 issue, p. 334-344.
- Hummon, Cheryl, Schnieder, C.L., Yeats, Robert S., Dolan, James F., Sieh, Kerry E., and Huftile, Gary J., 1994, Wilshire fault: earthquakes in Hollywood?: *Geology*, v. 22, p. 291-294; *comment and reply*, p. 959-960.
- Jennings, C.W., and Bryant, W.A., 2010, Fault Activity Map of California: California Geological Survey, Geologic Data Map #6.
- Meigs, Andrew J., and Oskin, Michael E., 2002, Convergence, block rotation, and structural interference across the Peninsular-Transverse Ranges boundary, eastern Santa Monica Mountains, California, in Barth, Andrew, editor, Contributions to Crustal Evolution of the Southwestern United States – the Perry Lawrence Ehlig volume: Geological Society of America, Special Paper 365, p. 279-293. *Tectonics of the Santa Monica fault – Hollywood fault – Elysian Park anticline.*
- Plesch, Andreas; John H. Shaw, Christine Benson, William A. Bryant, Sara Carena, Michele Cooke, James Dolan, Gary Fuis, Eldon Gath, Lisa Grant, Egill Hauksson, Thomas Jordan, Marc Kamerling, Mark Legg, Scott Lindvall, Harold Magistrale, Craig Nicholson, Nathan Niemi, Michael Oskin, Sue Perry, George Planansky, Thomas Rockwell, Peter Shearer, Christopher Sorlien, M. Peter Süss, John Suppe, Jerry Treiman, and Robert Yeats, 2007, Community Fault Model (CFM) for Southern California: *Bulletin of the Seismological Society of America*, v. 97, no 6, p.1793-1802. (This SCEC report with 28 authors represents the 2007 expert consensus of seismologists & geologists for the 140 active faults in Southern California. Look for periodic updates that reflect new insights about active faults.)
- ★ Treiman, Jerry, and Hernandez, Janis L., 2014, Fault Evaluation Report for the Hollywood 7½-minute quadrangle: California Geological Survey, CGS FER 253 (pdf format with text, official Alquist-Priolo zone map dated November 6, 2014, and appendices). [www.conservation.ca.gov/cgs](http://www.conservation.ca.gov/cgs)

## 6. Lystric Thrust-Faulting

The Hollywood Fault — Santa Monica Fault system is responsible for the active tectonic uplift of the Santa Monica Mountains. Geologists have carefully observed the geometry of the fault plane at a rapid-transit tunnel that was drilled under the Santa Monica Mountains. Refer to a published report by Dolan and others, 1997, in the *Bulletin of the Geological Society of America*. They also prepared boreholes to find the geometry of the fault plane(s). Here is Figure 10 from their 1997 report. Notice carefully that there are multiple lystric (curved) fault planes that are imbricated (like overlapping roofing shingles), and that the black triangles denote perched groundwater. This gives geologists a clear insight into what to expect on the same fault near the Hollywood & Vine and Yucca & Argyle areas. Look for multiple fault planes with a curved dip, with abrupt changes in the water-table (with the North side higher).

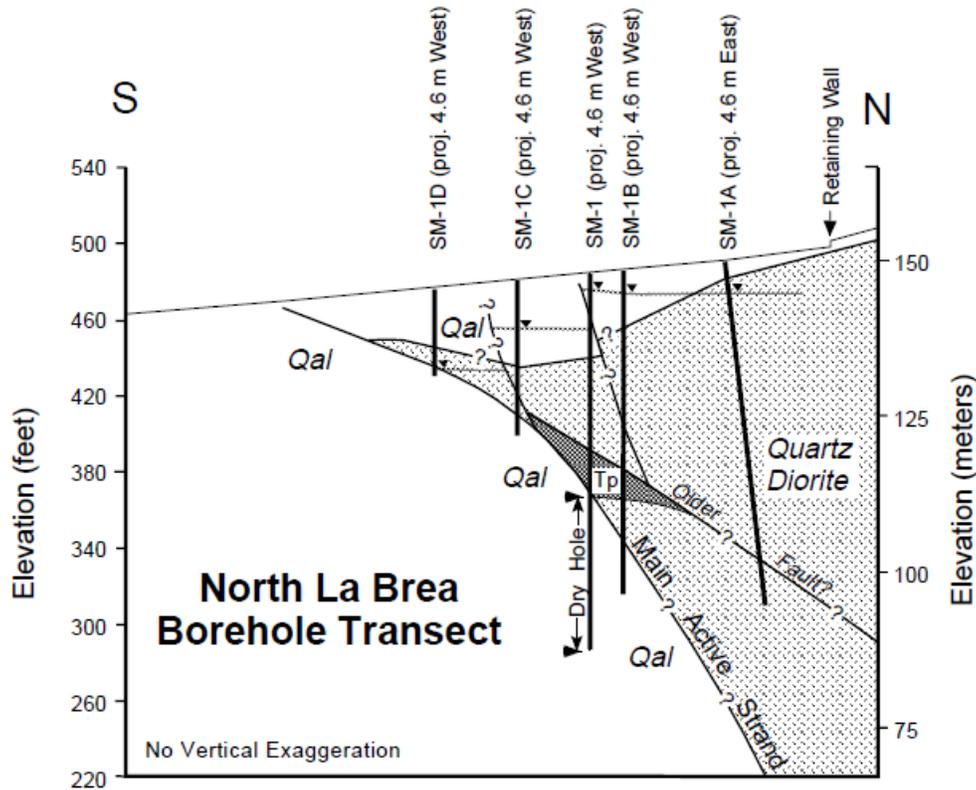


Figure 10. Cross section of North La Brea Avenue borehole transect shows that the Hollywood fault dips moderately steeply at depth but flattens near the surface. The main fault strand acts as a major ground-water barrier, separating a shallow water table to the north from a much deeper water table to the south. Thick vertical lines denote boreholes. Small triangles and gray lines denote ground-water levels in boreholes. Although ground water was encountered at shallow depth in SM-1, the hole was dry below the main fault plane. Modified from detailed borehole logs in Earth Technology Report (1993).

## 7. Fifty-foot Setback against a Dipping Thrust Fault

It is readily discernible from this complex geometry of the multiple fault planes that structures with deep basements (such as a high-rise commercial building with three or four parking levels in the basement) will have to consider the *subsurface* set-back of 50-feet, not the surface set-back. The deep foundations of high-rises (piles and caissons) will also have to be set-back.

## 8. Geophysical Survey to Locate Fault Planes

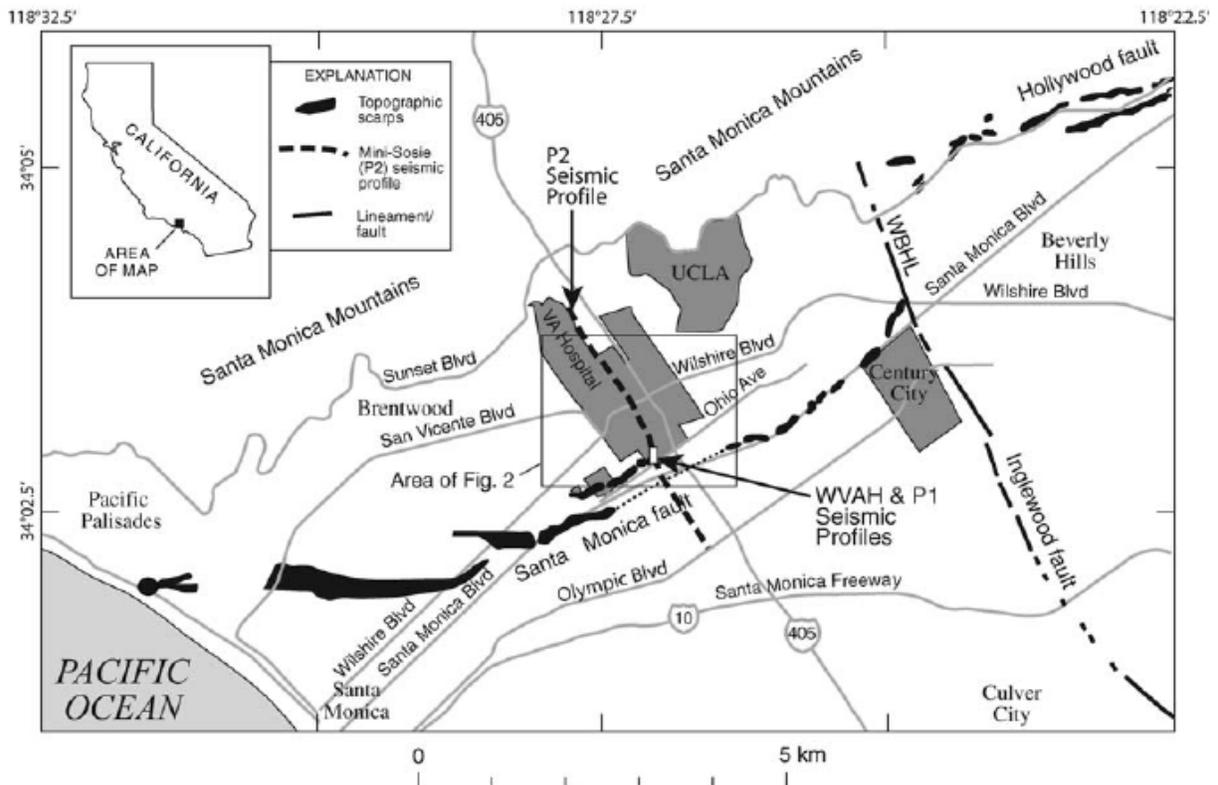
Shallow geophysics can be readily used to find the subsurface geometry of a dipping fault plane in an urban setting. This subsurface information is presently lacking along Vine Street and Argyle Street.

A successful example of a geophysical profile was published in 2008 by the U.S. Geological Survey in the *Bulletin of the Seismological Society of America*. Refer to Catchings, *et al*, 2008 (listed above in paragraph #6). This was performed by the USGS in a geophysical line that was parallel to the 405-Freeway. The USGS study was focused on the Wadsworth Veteran's Administration Hospital. The purpose was to ascertain whether or not this federal hospital was sited on an active fault.

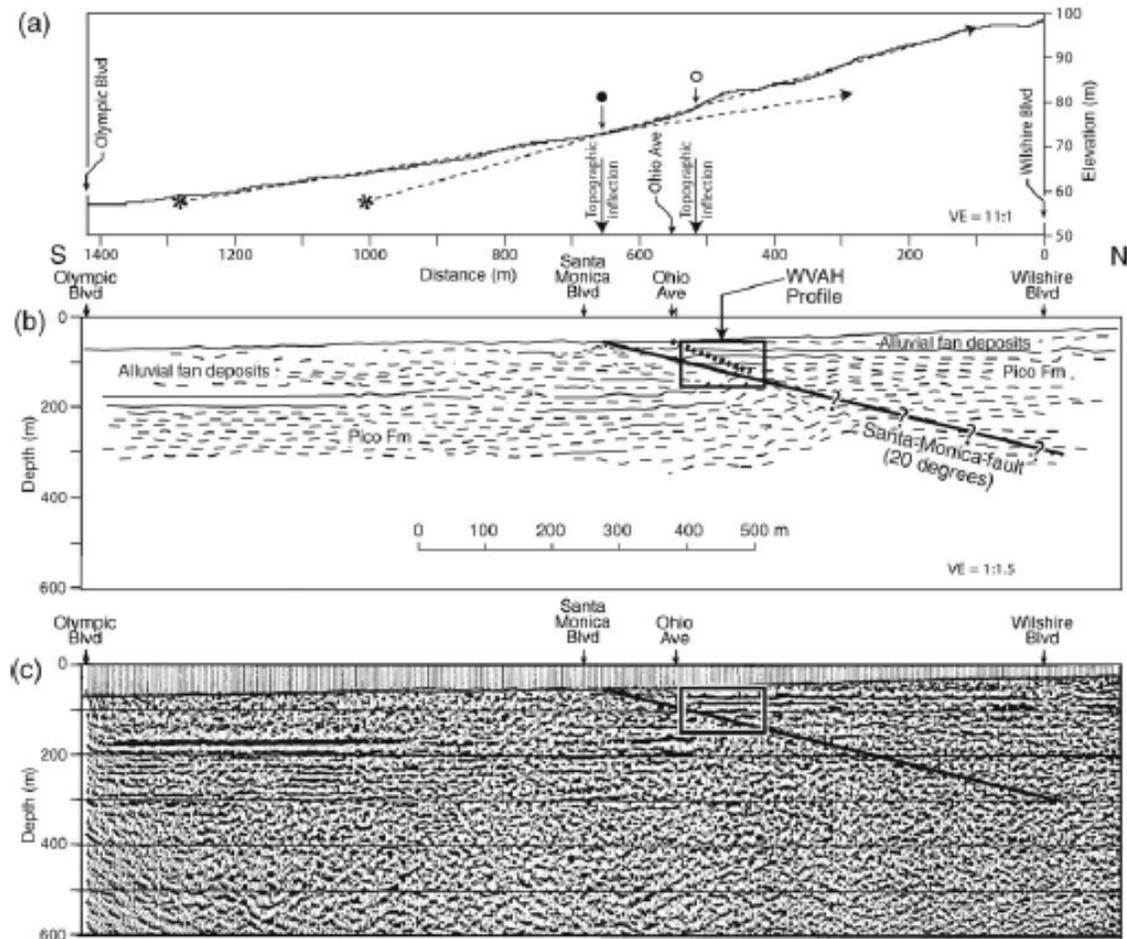
This shows where the geophysical survey was performed by the US Geological Survey:

*Near-Surface Location, Geometry, and Velocities of the Santa Monica Fault Zone, Los Angeles, CA*

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*Collateral insight:* When the California Geological Survey legally zones the Santa Monica Fault in the near future, it will be closely reviewing this published fault map from the USGS. Notice how the Hollywood Fault steps over to the Santa Monica Fault.



This is the North-South geophysical profile of the Santa Monica Fault (dipping 20 degrees) in relation to the Wadsworth Veteran's Administration Hospital, WVAH. The USGS Menlo Park field-work was successfully led by Dr. Rufus Catchings, senior geophysicist. Notice carefully that shallow geophysical surveys are far different than earthquake seismology.

It is recommended that at least **five** geophysical profiles (oriented North-South along existing streets) be performed in the Hollywood district so that the subsurface geometry of the multiple fault planes can be discerned. The recommended geophysical profiles would be along Argyle Avenue, Vine Street, Ivar Avenue, Gower Street, and Cahuenga Boulevard.

Perhaps the City of Los Angeles could fund the neutral-expert U.S. Geological Survey to perform the geophysical work, and then publish the results in a national journal. Partial funding might be available from the LA Department of Water and Power and Caltrans, since both agencies have a vested interest in the precise location of the Hollywood Fault.

Dr. Rufus Catchings (the lead author) is a senior-level geophysicist in the USGS Menlo Park office, phone 650-329-4749 [catching@usgs.gov](mailto:catching@usgs.gov). He holds a Ph.D. degree in geophysics from Stanford University, and has more than three decades of experience in using geophysics to locate fault planes in both Southern California and the San Francisco Bay Area. I spoke this afternoon with Dr. Catchings on the telephone, and he is interested in this scientific endeavor on the Hollywood Fault.

## 9. Downhole logging of 80- to 100-foot deep large-diameter geology boreholes

Once the geophysical survey is performed and the location(s) of the active fault planes are precisely known, then it is effective to drill deep boreholes into the fault planes. These are not 8-inch diameter geotechnical boreholes; instead they are large-diameter 24-inch boreholes wherein the licensed professional geologist enters and descends in the borehole. A safety harness, miner's headlamp, and directly observes the stratigraphy (soil and bedrock), samples the fault gouge, collects *insitu* charcoal samples for carbon-14 dating, and measures the dip on the fault planes plus the azimuth and rake angle of the striations (to determine the geometry of fault movement during an earthquake).

There is a special exemption in CalOSHA rules that allows a licensed geologist to perform this downhole logging of boreholes. A detailed description of the method is in this published report by the California Geological Survey, CGS Bulletin 210, and the Association of Engineering Geologists:

Johnson, Philip L., and Cole, William F., 2002, Use of large-diameter boreholes and downhole logging methods in landslide investigations, *in* Ferriz, H., and Anderson, R.L., *editors*, Engineering geology practice in northern California: California Geological Survey Bulletin 210 and Association of Engineering Geologists Special Publication 12, p. 95–106.

*This paper describes the standard-of-care and typical safety methods for downhole logging of large-diameter boreholes whereby the engineering geologist descends down the 24-inch borehole using a safety harness to measure strike & dip with a Brunton compass, observe the slide plane or the fault plane, collect insitu samples of carbon-14 and clay seams, and check for other potential rupture surfaces. Refer to California Construction Safety Orders, CCR Title 8, §1542, Shafts, for the text of California law that permits licensed geotechnical specialists to enter exploration shafts using proper safety equipment.*

The careful method for downhole logging of large-diameter boreholes was pioneered more than four decades ago by Dr. F.B. Leighton and Dr. Richard H. Jahns, both Caltech PhD's in geology. Hundreds of Certified Engineering Geologists (including myself) in southern California have safely and successfully downhole logged thousands of large-diameter (24-inch) boreholes for subsurface investigations of active faults and active landslides. *(We graciously infer that this will be startling news for homeowners.)*

More to the point, downhole logging of boreholes has been cleverly used to precisely pierce the plane of the known-active Raymond Fault in San Marino by a University of Southern California geology professor (Dr. James F. Dolan). Notice carefully that the City of San Marino would certainly not welcome a giant bulldozer trench (=the size of the Grand Canyon) costing a huge sum of money that would shut-down Huntington Boulevard in San Marino for many weeks. Instead, a cost-effective 24-inch diameter borehole was quickly drilled, the borehole pierced the active fault plane, and it was expediently downhole logged by an excellent geologist who published the results in a national journal. Allegorically, finding a needle in a haystack is easy .... *if* ....you have a giant magnet. Here is the reference:

Weaver, Kristin D., and Dolan, James F., 2000, Paleoseismology and geomorphology of the Raymond Fault, Los Angeles County, California: *Bulletin of the Seismological Society of America*, vol. 90, no. 6, p. 1409–1429.

Concerned Hollywood homeowners need to know that (as of November 2014) none of the inexperienced consulting firms (who are apparently not geologically trained in advanced methods in fault evaluations) have used this cost-effective two-step method with minimum disruption to the underground utilities in the streets of Hollywood: a geophysical survey to pinpoint the location of the fault plane(s), then followed by downhole logging of large-diameter boreholes that cleverly pierce the fault plane. Giant bulldozer trenches in a dense metropolitan environment (like Hollywood & Vine) are not the optimum cost-effective approach for many geologic reasons. In standard situations, fault trenches are standard protocol and the exposures are excellent. However, since the target depth is on the order of 80 to 100 feet in depth (in the case of the Hollywood Fault), the volume of earth to be moved is huge, cumbersome, and unfortunately quite costly.

Everyone realizes that Hollywood is a densely developed urban area with hundreds of fragile and expensive underground utilities and uncooperative property owners. How to prudently proceed for future development? This three-step approach is recommended for this congested locality: ① geophysical surveys by USGS neutral-expert geophysicists along North-South streets. The imbricate planes of the Hollywood Fault are then illuminated and precisely located; ② down-hole logging of large-diameter boreholes by pre-qualified geologists who have vetted prior experience with this unique method; ③ fault-trenching (by state-licensed professional geologists) at select sites wherein the planes of the known-active Hollywood Fault are reasonably near the surface, and there is a favorable expectation of trenching into the fault. This avoids the tragic and expensive conundrum of a giant deep bulldozer trench with minimal or equivocal evidence of active faulting.

## **10. State-licensed Professional Geologists**

We should not have to state the obvious: Under California state law, the only persons that are legally licensed to evaluate active faulting are Professional Geologists. Read this in CGS Special Publication #42. Refer to CCR Title 14. Also read this in the Business and Professions Code for the California State Board of Engineers, Surveyors, and Geologists.

Next time some opinionated "spokesman" stands up to stridently lecture the public on active faulting, the moderator should quickly cut him/her off, and cogently ask for his/her California state license number as a Professional Geologist. That will cool-down the parvenus, bureaucrats, and self-appointed "experts".....who are unlicensed to practice geology, and legally unqualified to evaluate the presence or absence of Holocene-active faulting.

*Insight:* we have all been in barbershops, wherein the barber gives strident advice on court-room law, psychology, medicine, political voting, and theology. But, it just a loquacious barber rendering his opinions on life; we clients are glad that he is only licensed to perform a haircut. The rest of his strident opinions are (allegorically) like leaves blowing in the wind. *(a little humor here)*

## **11. Need for Immediate Update to LA City Zoning for Hollywood District**

The long-awaited official fault-zone map for the Hollywood Quadrangle is now extant. The Planning Department for the City of Los Angeles needs to immediately update the city zoning map for the district of Hollywood. This can then be quickly voted on by the Los Angeles City Council. This does not have to be a long and drawn-out process, with malingering by bureaucrats with slow schedules. The official state zone maps under the Alquist-Priolo Act are a legal trump on all of the 58 counties and 480+ cities throughout California. The City of Los Angeles already has more than a dozen Alquist-Priolo quadrangles that are legally extant, and this 2014 quad is just one more.

## **12. The Concept of Green Belts along the Active Fault Zone**

The Planning Department of the City of Los Angeles needs to consider the possibilities of green-belts within the active Hollywood Fault zone. These can actually enhance property values of residential and commercial properties that are outside of the legal fault zone. A successful example is the City of Fremont, wherein the known active Hayward Fault bisects the city. It has taken more than a decade, but the City of Fremont has performed an exemplary job of coping with an active fault. Weak collapsible structures that were bisected by the Hayward Fault were removed, many were retrofitted, and new earthquake-resistant buildings were built nearby ---- but off the fault.

### 13. Need for Evaluation of Underground Utilities along the Active Fault Zone

The Los Angeles Department of Water and Power has already prudently begun the process of evaluating the public utilities that cross the Hollywood Fault. Right now, they are urgently working on the break of the water-main under Sunset Boulevard that flooded UCLA and made national headlines. The replacement and upgrade of ancient corroded utility pipelines will take billions of dollars and many decades. Homeowners need to be aware of the financial issues involved (perhaps billion dollar bonds, plus federal grants). Ask for periodic updates, but be patient. LADWP has several excellent California Registered Geotechnical Engineers (at the PhD level) who are presciently working on this issue. Sagacious LADWP engineers are well-aware of the faulting situation and are diligently working on it. Akin to many predicaments in life, they need time and money.... and our support. They publish in ASCE scholarly journals, and have lectured at UCLA in January 2014 on the 20th anniversary of the 1994 Northridge Earthquake. LADWP geotechnical engineers are scholarly, candid, frank, and not into denial about seismic hazards for their own lifelines (water-mains and electrical power). I was in attendance at UCLA, sitting in the middle of the front row, right next to my friends who are senior-level reporters from the *Los Angeles Times*.

It is discomfoting to realize that the corroded broken water-main that flooded UCLA campus did do under *static* conditions (that is, no earthquake shaking). Just imagine the implications of surface faulting plus strong earthquake shaking on the ancient corroded water-mains that are prevalent throughout the Hollywood region. The LA Fire Department cannot fight a fire without water.

We re-learned this harsh lesson at the 2014 South Napa Earthquake several months ago. The Napa Fire Department had to rely on a few pumper trucks drawing water from the river, since the fire-hydrants were not operable. Their hook-and-ladder trucks were inoperable. Many homes burned to the ground, with the Napa Fire Department unable use fire hoses. The same problem occurred historically in 1906 for the Magnitude 8 San Francisco Earthquake.

### 14. Professional Scientific Societies that will be have Reliable Seismology

Homeowners in Hollywood can find reliable scientific and engineering reports in the national journals of these societies:

Earthquake Engineering Research Institute (EERI publishes *Earthquake Spectra*, which contains lots of seismic safety and planning reports); the Seismological Society of America (which publishes the *Bulletin of SSA* and *Seismological Research Letters*); the Association of Engineering Geologists (which co-publishes with GSA, *The Environmental and Engineering Geoscience Journal*); the American Geophysical Union (which publishes a dozen journals, including the *Journal of Geophysical Research*); the American Society of Civil Engineers (which publishes the *ASCE Journal of Geotechnical Engineering*); and the Geological Society of America (which publishes several journals on geologic mapping and active faults)

Homeowners in Hollywood are very welcome to get on the weekly e-mail notification list of all of these seismology journals. Use Google to find the homepage of each journal. You do not have to be a member to scroll-down and read the table of contents of newly published monthly journals and read the free abstracts. However, the full articles are not free. You can read them at university libraries, or purchase the .pdf on a case-by-case basis.

**Good news:** The 2015 annual meeting of the **Seismological Society of America** will be held in Pasadena on April 21-23, 2015. Any person can attend, although there is a slightly higher registration fee for non-members of SSA. Citizens of Hollywood can adroitly drive to Pasadena and attend this 3-day convention if you are interested in seismology and seismic safety. The SSA President is Dr. Lisa Grant Ludwig, professor of geology at the University of California at Irvine. The SSA past-President is Dr. Thomas Jordan of the University of Southern California. We are indeed fortunate for their leadership.

## 15. National Academy of Sciences publication on Applied Seismology

Hollywood homeowners are typically university-educated and scholarly members of society. They are tired of platitudes and bureaucracy regarding seismic safety and geologic hazards. These sagacious Hollywood homeowners have long ago switched-off the banal trivia of Hollywood television, TV trash-talk, and Twitter (triple irony here), and are eager to turn to reliable scholarly information. The U.S. National Academy of Sciences was presciently ahead of Hollywood homeowners. NAS commissioned a select panel of seismologists and geologists to prepare a 2003 book with the intriguing title: "*Living on an Active Earth*"

You will enjoy reading the 432-page seismology treatise which has the *imprimatur* of the National Academy of Sciences. This authoritative NAS treatise took two years of editorial work by a blue-ribbon panel of nationally-ranked seismologists to prepare. As you can imagine, many of the authors are from the US Geological Survey in Menlo Park, and various campuses of the University of California, Caltech, and USC. Here is the hyperlink to the National Academy of Science website:

<http://www.nap.edu/catalog/10493.html>

There is a choice of the free pdf, or purchase a hard-bound copy of the book from the National Academy Press. However, be cautioned that this is a scientific treatise for university-educated readers, not for the general public.

Hollywood homeowners will be delighted to read in the 432-pages that it is heavily slanted towards California and local seismic safety issues .... that means that the **Alquist-Priolo Act** is showcased, plus the **Seismic Hazard Zoning Act** that is administered by the **California Geological Survey** is carefully described. (The *subrosa* reasoning is that National Academy of Sciences wants other states to follow the lead of the California Geological Survey in legal zonation of geologic hazards. Imagine that.)

## 16. Grading Appeals Board of the City of Los Angeles

For many years, I formerly served on the Grading Appeals Board within the Department of Building and Safety of the City of Los Angeles. I had to gracefully resign in my position when I moved from southern to northern California, since it then became logistically unfeasible me to serve as a scientific juror on complicated cases within the City of Los Angeles. Most of the appeals were about landslides and hillside grading permits in Pacific Palisades, the Santa Monica Mountains, and in Lomita (near San Pedro).

It appears that this scientific and engineering panel for the City of Los Angeles is moribund (??). It would be convenient for it to be resurrected to deal with complicated predicaments along the newly zoned Hollywood Fault. This neutral and expert panel of Certified Engineering Geologists and Registered Geotechnical Engineers could prepare a short but focused checklist for consulting geology firms to use when preparing reports for developers within the legal zone of the Hollywood Fault. That would avoid misunderstandings and short-comings for geology consulting work along the corridor of the active fault. I am the 2004 original author of CGS Note 48 checklist (two pages) for hospitals and public schools within the state of California. A new 2013 edition is available at the hyperlink shown in paragraph 3 on page 3.

A shorter version could be prepared for use by the City of Los Angeles Department of Building and Safety for projects within the active Hollywood Fault Zone. A focused checklist could help developers and Certified Engineering Geologists alike to efficiently prepare complete and adequate consulting reports.

## 17. FEMA reports for Hollywood Homeowners

The Federal Emergency Management Agency, part of the US Department of Homeland Security, has prepared many scholarly reports that will be helpful to homeowners and small businesses in the Hollywood District of Los Angeles. Go to the FEMA website and scroll-down for seismic safety reports, particularly on seismic retrofit.

For new structures, refer to FEMA Publication P-750, NEHRP Recommended Seismic Provisions for New Buildings and Other Structures, 2009 edition, 388 pages, plus CD-ROM. It is available free as a .pdf from the FEMA website, and also free as a printed volume by US Mail (takes a week or two for delivery).

**18. California State Websites**

There are several state agencies with lots of salient information in seismic safety for homeowners. Use Google to find the URL of these agencies, then scroll-down for publications and booklets that are pertinent to homeowners:

- California Geological Survey, CGS
- California Seismic Safety Commission, SSC
- California Earthquake Authority, CEA
- California Insurance Commission *(regarding earthquake insurance)*
- Governor's Office of Emergency Services, OES
- California Division of Safety of Dams *(within the Department of Water Resources)*

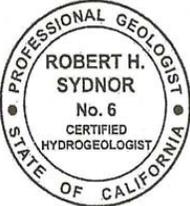
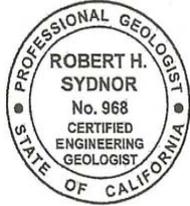
**19. U.S. Geological Survey**

Go to the main website of the USGS and bookmark many of their subdirectories in seismic safety. There are dozens of useful publications on seismic safety, plus technical reports and fault maps in .pdf format. Obtain the popular pamphlet "**Putting Down Roots in Earthquake Country**" which has been translated into many languages besides English (principally Spanish and Chinese for California residents). This pamphlet is written for the general public.

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*Epilogue:* It is realized that perhaps not all of these 19 paragraphs in 11 pages will be interesting to every homeowner in Hollywood. But perhaps many of you will find several items of scientific value that will prepare you for the road ahead in the coming new year of 2015.

*Respectfully submitted,*  
*Robert H. Sydnor*



Robert Hadley Sydnor  
 PG 3267, CHG 6, CEG 968, CPG 4496  
*Fellow*, Geological Society of America  
*Life Member*, Seismological Society of America  
*Life Member*, American Geophysical Union  
*Life Member*, California Academy of Sciences  
*Life Member*, Association of Engineering Geologists  
*Life Member*, American Assoc. for the Advancement of Science  
*Member*, American Society of Civil Engineers  
*Member*, Earthquake Engineering Research Institute  
 RHSydnor@aol.com