avail. However, the facts can no longer be ignored. This alternative is feasible and environmentally superior. It must be analyzed in the General Plan EIR.

For all of the foregoing reasons and to ensure that the DEIR to be prepared for the City's General Plan update is legally adequate, we respectfully request that the proposed development of the Conaway Property, in conjunction with the City Property adjacent thereto, be considered as an alternative to the project and analyzed to the same extent and detail as the project and any other alternative to be considered in the DEIR. Also, because this alternative was not included in the NOP, we further request that the NOP be revised and redistributed in order to give the appropriate parties an opportunity to consider and comment on the potential impacts of this alternative at this early stage in the process.

Thank you for the opportunity to comment on the Notice of Preparation for the Draft EIR for the General Plan update and if you have any questions, please call me or Bert Bangsberg of the Conaway Conservancy Group at 753-8000.

Sincerely,

HEFNER, STARK & MAROIS

By: Timothy D. Taron

Timothy D. Taron
Writer's Direct Dial No: (916) 567-7329

TDT.ms

cc: Bert Bangsberg, Conaway Conservancy Group

LIST OF EXHIBITS

Exhibit A	-	Map of Conaway Property and Conaway Ranch
Exhibit B	-	Draft Land Use Plan for City/Conaway Property
Exhibits C-1 & C-2	-	Prime/Non-Prime Agricultural Land
Exhibit D	-	Water, Wastewater and Drainage Analysis - Nolte & Associates
Exhibit E	-	West Yost Evaluation of Potential Flooding from Cache Creek
Exhibit F	-	Wallace Kuhl Soils Analysis
Exhibit G	-	West Yost Contadina Relocation Feasibility Study
Exhibit H	-	Hefner, Stark & Marois Opinion Regarding Contadina Relocation

WILLIAM ABBOTT & ASSOCIATES
ATTORNEYS AT LAW

William W. Abbott *Diane G. Kindermann*

June 15, 1995

Post-It™ Fax Note 7671	Date	# of pages ▶
To LUCINDA	From HOWARD NIES	
Co./Dept.	Co.	
Phone # 446-7520	Phone # 661-5820	
Fax #	Fax #	

VIA FACSIMILE

Ms. Janet Ruggerio
Community Development Director
City of Woodland
300 First Street
Woodland, CA 95695

Re: **Notice of Preparation**

Dear Janet:

On behalf of the Heidrick partnership, involving the properties located between the sewer ponds and Road 102, I am submitting the following comments on the Notice of Preparation.

My letter of February 7, 1995 (another copy of which is attached) sets forth the basis by which I believe that the City should and must engage in a good faith study of the "go East" land use option. I would add that to that letter my caution to the City that the recent study by CH_2M Hill on the matter of the sewer pond setback is topical, but not dispositive of the issue of the growth to the east. As Mr. Buttz pointed out, his report was *preliminary* in form. There is no supporting documentation available to the public to verify the need for an equal distance perimeter around the entire site. As he pointed out during the discussion of the item, the suggested line is neither hard nor fast, and his objective was to alert the Council and community to the issue as one of possible concern. So that the public may adequately evaluate this issue, the EIR must detail where and on what basis the conflicts may lie. Reliance on a study of another plant, without establishing the similarity of plant operations, meteorological conditions and risk of upset, is not an adequate evaluation. This point is underscored by the information received by me from the City of Galt which indicated a fundamentally different approach setback, resulting in a much reduced level of land use impacts.

455 Capitol Mall, Suite 702 ♦ Sacramento, California 95814 ♦ (916) 446-9595 ♦ Fax No. (916) 446-2291

Turning next to the issue of flooding, the information seems fairly clear that existing portions of the City are subject to flood risk. The EIR should analyze what the City can do to minimize that risk, and to the extent that corrective measures are identified, the EIR should identify all of the areas for which the flood risk is reduced. As the risk of flooding is reduced, the feasibility of the "go East" alternative will change.

Finally, there have been a number of generalized references in prior public meetings that the original funding for the City sewer treatment plant make relocation financially impossible. Despite the public interest in this issue, that constraint, if it exists, has never been documented. Since existence of the ponds is likely to be identified as a constraint to the feasibility of a "go East" alternative, the EIR must contain the supporting documentation if the Council elects to find this alternative infeasible. This is the appropriate time for the City to disclose the basis of the constraint.

Thank for the opportunity to submit comments. I look forward to reviewing the EIR.

Sincerely,

William W. Abbott

WWA:yb

Enclosure

9506.77.2

WILLIAM ABBOTT
& ASSOCIATES
ATTORNEYS AT LAW

William W. Abbott *Diane G. Kindermann*

February 7, 1995

VIA FACSIMILE

Janet Ruggerio
Community Development Director
300 First Street
Woodland, CA 95695

Re: General Plan Update

Dear Janet:

In response to the recent Town Hall meeting and the anticipated initiation of the environmental review process for the General Plan update, I am submitting the following comments regarding the required scope of the Environmental Impact Report. At this time, my comments are confined to the range of required alternatives. My purpose is to ensure that the City has the earliest opportunity to fulfill its statutory obligations.

The significance of an adequate discussion of project alternatives cannot be understated. The process by which a community updates its general plan, thereby setting the charter for future growth, represents the one and only opportunity during which complete and disparate options for community growth, form and design can be fairly weighed and debated by the community. Once a new plan is adopted, public and private resources are invested to fulfill the plan's new vision. Once those resources are committed, there is no turning back.

Through the passage of the California Environmental Quality Act, the Legislature has mandated that public agencies inject protection of environmental values into their decision-making process. The California courts have rigorously supported these requirements. EIRs "must produce information sufficient to permit a reasonable choice of alternatives as far as environmental aspects are concerned." *San Bernardino Valley Audubon Society, Inc. v. County of San Bernardino* (1984) 155 Cal.App.3d 738. The investigation and evaluation of alternatives is not simply an academic exercise. As noted in the decision of *Kings County Farm Bureau v. City of Hanaford* (1990) 221 Cal.App.3d 692, there must be "quantitative, comparative analysis of alternatives." The requirement for detailed information does not stop with the alternatives themselves. "If the agency finds certain alternatives to be infeasible, its analysis must explain

in meaningful detail the reasons and factors supporting that conclusion." *Stand Tall on Principles v. Shasta Union High School District* (1991) 235 Cal.App.3d 772. Finally, the duty to consider alternatives cannot be delegated to the community at large. As noted by the California Supreme Court in its last two CEQA decisions addressing project alternatives, the burden rests with the public agency to generate the required range of alternatives, even if those go beyond those proposed and justified by the objectors.

The CEQA Guidelines define the parameters as to how alternatives are to be selected. The discussion must focus on alternatives capable of either eliminating any significant adverse environmental effects or reducing them to a level of insignificance, even if such alternatives would be more costly or would impede to some degree the project's objectives. Section 15126(d)(3).

Woodland's General Plan update process has identified the following areas of environmental impacts which are likely to be significant and unmitigated, but in fact are impact categories which may be avoided and/or mitigated through consideration of an eastern growth alternative: *loss of prime agricultural lands, land subsidence, and traffic circulation.*

Evaluation of an eastern growth alternative would allow the City to permit development of universally recognized low quality soils. Growth to the east would also facilitate negotiations with Conaway Ranch, holder of significant water rights. Whereas growth to the south would simply exacerbate the City's declining water table, successful negotiations with the Conaway would give the City an all important tool for managing groundwater levels. Finally, growth to the east would reduce the increased traffic levels that the City's older established neighborhoods are likely to endure. With direct access to I-5 plus newer streets constructed to more modern standards, along with the ability to create additional access to I-5, the East Area is worthy of study.

As I am sure that you will recognize, the fact that the East Area lies outside the current City limits is not an impediment to its consideration where the current discussions regarding expansion to the south also dictate a similar expansion of the City's corporate limits.

In order for the City to foster informed public participation over the comparative environmental values of growth to the east as compared to growth to the south, the City will have to study the extent to which there are limitations or qualifications on the relocation of the existing sewer ponds. To date, the possibility of limitations arising out of the original grant have been alluded to a basis for rejecting the East Area, however, there has never been a cogent evaluation of what restrictions, if any, actually exist. My clients have over thirty years experience in real estate development and believe, based upon the information currently available is that a large property owner such as the Conaway, whose fate is interwoven with that of the City's property, may well be in a position to underwrite some or all of the City's potential costs in relocating the plant and ponds.

The City should also evaluate the relative risks of flooding at the different elevations within the East Area. There is a substantial variation in elevations starting at the eastern edge of Gibson Ranch extending all the way to the bypass. Even though the current FEMA and Corps maps stop short of evaluating the East Area, a cursory review of the maps in question tells us that there are tremendous differences internal to the East Area, but also substantial similarities between elevations within the East Area and its immediate neighbor to the west, Gibson Ranch. Flood control practices currently in effect within the City have not proven themselves cost prohibitive to affordable housing, one of the issues raised at the Town Hall. Furthermore, depending upon where the flood control measures to serve the East Area are installed, there could well be spillover benefits to the existing City presently denoted within the floodway. Growth to the south offers no opportunity for reducing flood risks to the existing City, but unless the City undertakes a responsible study of the actual flood risk for the East Area, the public will never know what potential benefits may be available through an eastern growth alternative.

As noted by citizens at the Town Hall meeting, the City possesses a real estate asset unrivaled by any other municipality. Continued use of this land for low value uses such as ground application of wastes is only likely to depreciate the value of this land over time. This devaluation, coupled with the discounted value of future dollars were this property to be ever developed, suggests that the maximum economic return to the City lies in capturing for the City itself a portion of the growth likely to occur over the next twenty years by including that land in the current General Plan update. The City can use this asset to not only address the public amenities desired to be included in the updated General Plan such as regional parks and ballfields, but also avoid the unnecessary conversion of prime agricultural land. Given the size of the City's holdings in the East Area, it is quite possible that the City Could also develop this resource into a significant economic asset as well, radically improving the City's current fiscal position.

In summary, this General Plan update will be the last opportunity in the next twenty years to debate fundamental decisions regarding community form and features. Citizens at the Town Hall meeting urged the Commission and Council to investigate the option of developing the City's extraordinary land holdings in the East Area. This inquiry dovetails with the City's obligation to engage in detailed and serious evaluation of environmentally superior alternatives. On behalf of my clients, I urge to City to undertake this responsibility to meet the applicable legal requirements both in form and spirit to fully inform the public and decision-makers.

I look forward to the City's efforts in this area. Please send me a copy of the notice of preparation when available.

Very truly yours,

William W. Abbott

William W. Abbott

cc: Honorable Gary Sande
Members of the City Council

0502.11.2

WILLIAM ABBOTT
& ASSOCIATES
ATTORNEYS AT LAW

William W. Abbott *Diane G. Kindermann*

June 19, 1995

Larry Mintier
Mintier & Associates
813 F Street, 2nd Floor
Sacramento, CA 95814

Re: City of Woodland General Plan Update

Dear Larry:

Previously, David Wade provided you a revised land use plan for the Heidrick property. Based upon conversations with City representatives, that plan has been further adjusted, a copy of which is enclosed. It is my belief that this plan (or one similar in form) must be the basis for the "go East" alternative that will be evaluated as part of the general plan EIR. As you know, the Taussig study dismisses the need for expanded commercial and industrial land uses east of 102. This fact, coupled with the recognition that provision of residential land uses east of 102 is the only means by which the primary impacts of the preferred alternative can be avoided or reduced, compels the conclusion that a residential land use plan must be studied. The best plan available is that enclosed with this letter.

Should you have any questions, please do not hesitate in calling.

Sincerely,

[Sent in absence of author]

William W. Abbott

WWA:ybm
Enclosure

cc: Janet Ruggerio (w/encl.)
Bruce Nott (w/o encl.)

9506.80.2

RECEIVED
JUN 20 1995
J. LAURENCE MINTIER
& ASSOCIATES

455 Capitol Mall, Suite 702 ♦ Sacramento, California 95814 ♦ (916) 446-9595 ♦ Fax No. (916) 446-2291

STATE OF CALIFORNIA - THE RESOURCES AGENCY PETE WILSON, Governor

DEPARTMENT OF CONSERVATION
DIVISION OF ADMINISTRATION
DIVISION OF MINES AND GEOLOGY
DIVISION OF OIL AND GAS
DIVISION OF RECYCLING

801 K Street
SACRAMENTO, CA 95814-3528
Phone (916) 445-8733
FAX (916) 324-0948

June 21, 1995

RECEIVED
JUN 26 1995
CITY OF WOODLAND
COMMUNITY DEVELOPMENT DEPARTMENT

Ms. Heidi Tscudin
City of Woodland
300 First Street
Woodland, California 95695

Subject: Notice of Preparation (NOP) of a Draft Environmental Impact Report (DEIR) for the City of Woodland General Plan - SCH#95053061

Dear Mr. Yeast:

The Department of Conservation (Department) has reviewed the NOP for the above referenced project. The Department monitors farmland conversion on a statewide basis and administers the California Land Conservation (Williamson) Act. It also has special expertise in evaluating geologic and seismic hazards and mineral resources. The Department offers the following comments:

Land Conservation

A Williamson Act contract exists on the site. In order to assess the impacts of farmland conversion, the Department recommends that the following information be provided in the Draft Environmental Impact Report (DEIR).

Prime Agricultural Land

The California Code of Regulations (Section 15000 et seq., Appendix G (y) states that a project will normally have a significant effect on the environment if it converts prime agricultural land to non-agricultural use or impairs the agricultural productivity of prime agricultural land. The DEIR should identify the location and number of acres of prime agricultural land within the project site.

Agricultural Character of the Project Site and Surrounding Area

- A map defining the location of agricultural preserves, and the number of acres and type of land in each preserve (i.e., prime/non-prime).
- A map defining the location of Williamson Act contracts within the site and on surrounding lands.
- Describe current and past use of the project area.
- Provide data on types of crops grown and relative yields.
- Agricultural potential of the area's soils, as defined by the Department of Conservation's Important Farmland series map designations, Williamson Act (Government Code Section 51201), or the U. S. Department of Agriculture's Land Capability Classification System.

Post-it® Fax Note 7671	Date 6-26 # of pages ▶ 5
To Lucinda	From Howard
Co./Dept.	Co.
Phone #	Phone # 661-5820
Fax #	Fax #

Williamson Act Issues

- A discussion of the impacts that termination of Williamson Act contracts would have on nearby properties also under contract. As a general rule, land can be withdrawn from Williamson Act contract only through the nine-year nonrenewal process. Cancellation is reserved for "extraordinary" situations (See Sierra Club v. City of Hayward (1981) 28 CAl.3d 840, 852-855). Cancellation must be based on specific findings that are supported by substantial evidence.
- If Williamson Act contract cancellation is proposed, include a discussion of the specific findings (Government Code Section 51282) that must be made by the Board of Supervisors in order to approve tentative contract cancellation. (Notice of the hearing, and a copy of the landowner's petition, shall be mailed to the Director of the Department of Conservation ten (10) working days prior to the hearing on tentative contract cancellation.)

Farmland Conversion Impacts

- The type, amount and location of farmland conversion resulting from project development.
- Impacts on current and future agricultural operations.
- Cumulative and growth-inducing impacts.
- Economic impacts of the farmland conversion. In assessing these impacts, use should be made of economic multipliers. (The University of California Cooperative Extension's study, "Economic Impacts of Agricultural Production and Processing in Stanislaus County", can be used as a model.)

Mitigation Measures and Alternatives

Public Resources Code, Section 21081.6, requires a public agency to adopt a reporting or monitoring program for project changes in order to mitigate or avoid significant effects on the environment.

- Direct urban growth to lower quality soils in order to protect prime agricultural land.
- Increase densities or cluster residential units to allow a greater portion of the development area to remain in agricultural production.
- Establish buffers such as setbacks, berms, greenbelts and open space areas to separate farmland from urban uses.
- Implement right-to-farm ordinances.
- Adopt a farmland protection program utilizing transfer of development rights, purchase of development rights and conservation easements, and establishment of farmland trusts.

Seismic Safety

The Division of Mines and Geology (DMG) has a copy on file of the Safety Element of the City of Woodland's General Plan dated August 7, 1979, and amended in 1987. This 16-year old document was adequate at the time it was written, but geological science and applied seismology have rapidly advanced in the past decade. DMG has learned considerably more about the seismotectonic setting of the Woodland area, beginning with the 1983 Coalinga earthquake. This has given DMG considerable insight to the tectonic mechanism of the 1892 Winters-Vacaville earthquake sequence,

estimated to be about magnitude 6.8 for the main shock, which caused significant damage in nearby Woodland. The new concept of "blind thrust faults" has direct application to Woodland. Much of the text of the Safety Element which pertains to seismic safety needs to be substantially rewritten using new published references. To facilitate this, we have compiled a working bibliography of geology and seismology references for the City of Woodland.

DMG suggests that the City replot Quaternary geologic units as shown on Wagner and others (1981) and Helley (1979) onto the city base map. These five units are:

Qa	=	alluvium, natural levee and channel deposits
Qb	=	alluvial basin deposits
Qmr	=	Modesto-Riverbank Formations (arkosic alluvium)
Qr	=	Riverbank Formation
Tt	=	Tertiary Tehama Formation, in the Dunnigan Hills area (sand, silt, and volcaniclastic rocks)

The physical properties of these geologic units are different, and are anticipated to perform differently during strong seismic shaking. This will facilitate a seismic zonation map of the City of Woodland, from which appropriate land-use planning can readily be made. A page-sized fault map should be provided which indicates approximate location of the blind thrust fault, about 10 to 15 km west of the city, oriented north-south and parallel with the Dunnigan Hills.

Seismic safety issues can recount the known damage from the 1892 magnitude 6.8 earthquake, use this as a probable scenario with application to the current situation, then published seismic safety materials can be referenced for application and mitigation measures.

If you have follow-up questions regarding seismic safety issues, please contact Robert H. Sydnor, senior engineering geologist with DMG at (916) 327-0807. Questions concerning Land Conservation (Williamson Act) can be directed to Kenneth E. Trott, Office of Land Conservation at (916) 324-0850.

The Department appreciates the opportunity to comment on the NOP. If I can be of further assistance, please phone me at (916) 445-8733.

Sincerely,

Thomas J. Gibbs
Environmental Analyst

Enclosure:

cc: Kenneth E. Trott, Office of Land Conservation
Yolo County Resource Conservation District
Robert H. Sydnor, Division of Mines and Geology

Selected Geologic Bibliography for the Safety Element of the General Plan of the City of Woodland, Yolo County

Prepared in June 1995 by the California Department of Conservation Division of Mines and Geology

The selected geologic bibliography is divided into four sections:

(1) Earthquakes and Seismicity
(2) Geologic Maps and Reports
(3) Uniform Building Code, Earthquake Preparedness, and CDMG Notes
(4) Hydrogeology

Earthquakes and Seismicity

Eaton, J.P., 1986, Tectonic environment of the 1892 Vacaville/Winters earthquake, and the potential for large earthquakes along the western edge of the Sacramento Valley: U.S. Geological Survey Open-File Report 86-370.

Hill, D.P., Eaton, J.P., Ellsworth, W.L., Cockerham, R.S., Lester, F.W., and Corbett, E.J., 1991, The seismotectonic fabric of central California, *in* Slemmons, D.B., Engdahl, E.R., Zoback, M.D., and Blackwell, D.D., editors, Neotectonics of North America: Geological Society of America, Decade Map Volume 1, p. 107-132.

Idriss, I.M., 1990, Response of soft soil sites during earthquakes, *in* Duncan, J.M., *editor*, Proceedings of the H. Bolton Seed Memorial Symposium: BiTech Publishers Ltd., v. 2, p. 273-289.

Joyner, W.B., and Boore, D.M., 1988, Measurement, characterization, and prediction of strong ground motion, *in* VonThun, J.L., *editor*, Earthquake engineering and soil dynamics II: American Society of Civil Engineers, Geotechnical Special Publication 20, p. 43-102. *(This reference is typically used by engineers, seismologists, and geologists for evaluation of strong motion.)*

Reiter, Leon, 1990, Earthquake hazard analysis: Columbia University Press, 254 p. *(A comprehensive text which explains probabilistic seismic hazard analysis and applications of strong-motion seismology.)*

Rymer, Michael J., and Ellsworth, William L., *editors*, 1990, The Coalinga, California, Earthquake of May 2, 1983: U.S. Geological Survey Professional Paper 1487, 417 pages, 23 chapters by 62 geologists and seismologists. *(The definitive publication about the 1983 Coalinga earthquake, which is the prototype of a blind-thrust earthquake along the western margin of the Great Central Valley. These kinds of blind-thrust faults are of particular concern because they are believed to be the source of regional seismic shaking which would affect the City of Woodland.)*

Stein, R.S., and Ekstrom, G., 1992, Seismicity and geometry of a 110-km-long blind thrust fault; part 2, Synthesis of the 1982-1985 California earthquake sequence: Journal of Geophysical Research, v. 97, part B, no. 4, p. 4865-4883.

Stein, Ross S., and Yeats, Robert S., 1989, Hidden earthquakes: Scientific American, v. 260, no. 6, p. 48-57. *(Explains the concepts of blind-thrust faults and Coalinga-type earthquakes which might affect Yolo County.)*

Stover, C.W., and Coffman, J.L., 1993, Seismicity of the United States, 1568-1989 (revised): U.S. Geological Survey Professional Paper 1527, 418 p. *(An up-to-date catalog listing all significant American earthquakes.)*

Toppozada, T.R., 1987, The 1892 Vacaville-Winters earthquake and the 1983 Coalinga earthquake: *California Geology*, v. 40, p. 84-85.

Toppozada, T.R., Real, C.R., and Parke, D.L., 1981, Preparation of isoseismal maps and summaries of reported effects for pre-1900 California earthquakes: California Division of Mines and Geology, Open-File Report 81-11, 182 p. *(Contains maps of the felt areas of older historic earthquakes.)*

Toppozada, T.R., and Parke, D.L., 1982, Areas damaged by California earthquakes, 1900-1949: California Division of Mines and Geology, Open-File Report 82-11, 65 p.

Wakabayashi, John, and Smith, David L., 1994, Evaluation of recurrence intervals, characteristic earthquakes, and slip rates associated with thrusting along the Coast Range-Central Valley Geomorphic Boundary, California: Seismological Society of America, v. 84, no. 6, p. 1960-1970. *(Contains a useful and up-to-date summary of seismotectonic setting with application to the Woodland area.)*

Wesnousky, S.G., 1986, Earthquakes, Quaternary faults, and seismic hazard in California: Journal of Geophysical Research, v. 91, no. B-12, pages 12,587-12,631. *(A comprehensive catalog and discussion of earthquakes and active faulting with application to northern California.)*

Unruh, J.R., and Moores, E.M., 1992, Quaternary blind thrusting in the southwestern Sacramento Valley, California: Tectonics, v. 11, p. 192-203.

Unruh, J.R., Loewen, B.A., and Munk, L.R., 1992, Seismic hazard assessment of an active blind thrust beneath the Rumsey Hills, southwestern Sacramento Valley, California: EOS, Transactions of the American Geophysical Union, v. 73, p. 589-590.

Volpe, R.L., Kiesick, C.M., and Wakabayashi, J., 1992, Seismic hazard in the Sacramento-San Joaquin Delta Region; insight from probabilistic seismic risk analysis: in Borchardt, Glenn, editor, Proceedings of the Second Conference on Earthquake Hazard in the Eastern San Francisco Bay Area: California Division of Mines and Geology, Special Publication 113, p. 525-534.

Wong, I.G., Ely, R.W., and Kollmann, A.C., 1988, Contemporary seismicity and tectonics of the northern and central Coast Ranges - Sierran Block Boundary Zone, California: Journal of Geophysical Research, v. 93, p. 7813-7833.

Geologic Maps and Reports

Bowen, O.E., Jr., *editor*, 1962, Geologic guide to the gas and oil fields of northern California: California Division of Mines and Geology, Bulletin 118.

Harwood, D.S., and Helley, E.J., 1987, Late Cenozoic tectonism of the Sacramento Valley, California: U.S. Geological Survey Professional Paper 1359, 46 p.

Helley, Edward J., and Barker, J.A., 1979, Preliminary geologic map of Cenozoic deposits of the Woodland quadrangle, California: U.S. Geological Survey Open-File Report 79-1606, map scale 1:62,500. *(Covers the area west of Woodland.)*

Helley, Edward J., 1979, Preliminary geologic map of the Davis Quadrangle, California: U.S. Geological Survey Open-File Report 79-583, map scale 1:62,500. *(Covers the area east of Woodland.)*

Jennings, C.W., 1994, Fault activity map of California and adjacent areas: California Division of Mines and Geology, Geologic Data Map 6, scale 1:750,000. *(Faults are color-coded by recency of movement.)*

Wagner, D.L, Jennings, C.W., Bedrossian, T.L., and Bortugno, E.J., 1981, Geologic map of the Sacramento Quadrangle: California Division of Mines and Geology, Map No. 1A, scale 1:250,000. *(Includes four sheets covering the greater Woodland area, with bibliography, index, radiometric age dates, and a complete description of the stratigraphic column. This is the best single geologic reference.)*

Building Codes, Earthquake Preparedness, and CDMG Notes

CDMG, 1986, Guidelines for preparing engineering geologic reports: California Division of Mines and Geology, CDMG Note 44, two-page checklist. *(A useful basic checklist prepared by the State Geologist for general use and applicable to Woodland.)*

CDMG, 1982, Guidelines for geologic/seismic considerations in environmental impact reports: California Division of Mines and Geology, CDMG Note 46, two-page checklist. *(Prepared by the State Geologist for authors of EIRs.)*

FEMA, 1991, NEHRP recommended provisions for the development of seismic regulations for new buildings: Federal Emergency Management Agency, Reports 222 and 223, two volumes prepared for FEMA by the Building Seismic Safety Council, 119 p. and 237 p. *(Map sheets 6, 8, 10, and 12 apply to California. Prepared by seismologists of the U.S. Geological Survey as a nation-wide effort in seismic microzonation utilizing latest methods in probabilistic seismic hazard mapping.)*

Hart, E.W., 1994, Fault-rupture hazard zones in California: California Division of Mines and Geology, Special Publication 42, 1992 revised edition, 34 p. *(This is the official publication to cite when an author of an Environmental Impact Report wants to state reliably that there are no active faults and no Alquist-Priolo Earthquake Fault Zones in Woodland.)*

ICBO, 1994, Uniform Building Code: Whittier, California, International Conference of Building Official, 3 volumes. *(Chapters 16, 18 and A-33 apply in regards to seismic design, foundations, and grading.)*

SSC, 1992, The homeowner's guide to earthquake safety: Seismic Safety Commission, State of California, 28 p. booklet. *(Available for purchase at $2.25 from SSC at 1900 K Street, Suite 100, Sacramento, CA 95814-4186 or telephone 916-323-4213.)*

SSC, 1992, The commercial property owners's guide to earthquake safety: Seismic Safety Commission, State of California, 32 p. booklet. *(Available for purchase at $3.25 from SSC at 1900 K Street, Suite 100, Sacramento, CA 95814-4186 or telephone 916-323-4213.)*

Townley, S.D., and Allen, M.W., 1939, Descriptive catalog of earthquakes of the Pacific Coast of the United States, 1769-1928: Bulletin of the Seismological Society of America, v. 29, no. 1, 297 p. *(Refer to pages 88-89 for a detailed description of the April 19, 1892 Winters-Vacaville earthquake sequence. The mainshock struck at 2:50 AM. There were no modern seismographs one century ago to record this earthquake series, but the 1892 earthquake magnitude is retroactively estimated to have been about Mw 6.8. Note that the symbol Mw indicates moment magnitude. There was significant damage in nearby Woodland from the mainshock, and also considerable damage from two large aftershocks on April 20 and 21, 1892, estimated to be about Mw 6.4 and 5.8.)*

Yanov, Peter I., 1991, Peace of mind in earthquake country: San Francisco, Chronicle Books, 218 p., $14.95. *(Contains practical advice and diagrams from a structural engineer about retrofitting or bracing homes to resist seismic shaking.)*

Hydrogeology

Bertoldi, G.L., Johnston, R.H., and Evenson, K.D., 1991, Ground water in the Central Valley, California; a summary report: U.S. Geological Survey Professional Paper 1401-A, p. A1-A44. *(A current summary for the entire Central Valley with abundant references to the literature.)*

California Department of Water Resources, 1978, Evaluation of ground water resources, Sacramento Valley: Calif. Dept. Water Resources Bulletin 118-6, 136 p.

Olmsted, F.H., and Davis, G.H., 1961, Geologic features and ground-water storage capacity of the Sacramento Valley, California: U.S. Geological Survey Water-Supply Paper 1497, 241 p.

Also refer to a Yolo County series of large-scale flood maps pertaining to the Woodland area published by the Federal Emergency Management Agency.

6-19-95

R.H. Sydnor, CEG 968
Senior Engineering Geologist
Calif. Dept. Conservation
Division of Mines & Geology