Recommend variance from statutory setback distance of 100 feet between well and septic leach field for APN 006-160-020, Noreen Trombley, based upon uniqueness of property regarding geology and hydrology.

The setback distance from well and septic referred to above is found in County Code Section 13.08.090 Rules and Regulations Section .070. The rationale behind the codified setback is to maintain protection of drinking water from contamination resulting from the sewage leach field. The 100 foot setback is a safe distance and in many cases could safely be reduced, but that would depend on geological circumstances. Mrs. Trombley has submitted a geologic report (Attachment A) addressing the issue of the local geology, concluding that a setback of 50 feet or more on this particular parcel is adequate for protection of public health issues. See attached memo for more details.

BACKGROUND AND HISTORY OF BOARD ACTIONS:

Similar variance requests have been made by two owners of parcels located in the same geologic area. Both requests were entertained and relevant geological data were reviewed by the Health Department at that time. Both requests were recommended to the Board of Supervisors with certain protective conditions and time has proven the safety of this process. (See Resolutions 93-603 and 96-604).

LIST ALTERNATIVES AND CONSEQUENCES OF NEGATIVE ACTION:

Do not approve variance---Owner will be required to develop property utilizing other alternatives.
TO: DR. MOSHER, Public Health Officer
FROM: MARGIE WILLIAMS, Clerk of the Board
SUBJECT: Variance from Statutory Set Back Distance of 100 Feet Between Well and Septic Leach Field for APN 006-160-020, Noreen Trombley

THE BOARD OF SUPERVISORS OF MARIPosa COUNTY, CALIFORNIA,

ADOPTED THIS Order on April 3, 2001

ACTION AND VOTE:

Dr. Mosher, Public Health Officer;
Request for Variance from Statutory Set Back Distance of 100 Feet Between Well and Septic Leach Field for APN 006-160-020, Noreen Trombley

BOARD ACTION: Discussion was held with Dr. Mosher relative to the request. (M)Reilly, (S)Parker, Res. 01-82 adopted approving the variance and directing staff to file a CEQA exemption for this project/Ayes: Unanimous.

cc: Eric Toll, Planning Director
    File
Mariposa County Health Department
Charles B. Mosher, MD, MPH, County Health Officer

Public Health Section
4988 Eleventh Street
Post Office Box 5
Mariposa, California 95338
(209) 966-3689  FAX (209) 966-4929

Environmental Health Section
5100 Bullion Street
Post Office Box 5
Mariposa, California 95338
(209) 966-2220  FAX (209) 966-8248

March 21, 2001

TO : Board of Supervisors

FROM : Charles B. Mosher, M.D., MPH, Health Officer

SUBJECT : Variance request on Trombley property APN 006-160-020

BACKGROUND:

This property is located in Foresta on a small lot measuring 50 by 100 feet. The owner’s desire to rebuild on this property after the Foresta Fire presents the now familiar challenge of maintaining setbacks required by County Code applicable to both planning issues and public health issues. In October of 1997 Ms. Trombley received an amended permit for a sewage disposal system on this lot with a variance from property line setback recognized under condition 6(e) (See Attachment B). This variance was granted through the planning process as variance number 97-3.

On 1/17/2001 Ms. Trombley applied for a permit for a well and attached to the permit application a geological report prepared by Geotechnical Research and Development which supports, on the basis of the underground geology on the lot, the reduction of the setback distance between well and septic below the 100 feet in Mariposa County Code, with the proviso that it be no closer than 50 feet (See Attachment A). Review by staff of the geologic report shows it to be consistent with geologic reports submitted on the previous two (similar) requests for variance from 100 foot setback submitted by owners of other lots in Foresta. Applying the same standards as those applied to the previous two cases, with the exception of not requiring the owner to fund an outside hydrogeologist to review the geologic report (which was accomplished on the first such case, but which the Health Department has been able to do in house since then) leads to the conclusion that the Health Department can recommend the requested variance to the Board of Supervisors without undue concern about negative public health impacts to the drinking water. The specifics are as follows:
I. Applicable codes:

A. County Code Section 13.08.090 Rules and Regulations Section .070 "minimum setbacks"


D. Regional Water Quality Control Board guidelines for on-site sewage disposal.

II. Analysis of request:

Health Department staff analysis of the geologist's report indicates the following findings:

A. Reasonable evidence that water inflow into the site of the proposed well will come from the opposite direction of the site of the current leach field.

B. Previous experience in the area with wells indicating a first recharge of water at a depth between 70 and 90 feet below the surface.

C. An adequately constructed annular seal consistent with current Department of Water Resources standards of at least 50 feet is proposed.

D. The sewage disposal system is a proven technology with a track record of adequate microbacteriological cleansing such that, in the geologic setting found at the subject APN, that the commingling of treated leachate from the proposed leaching area and ground water recharge serving the well is extremely remote.

E. The geological report indicates that there is a solid granite shelf located between the proposed well and the approved sewage disposal area.

Recommendation:

Staff finds that the geological conditions on this lot are unique and sufficient to reasonably allow a closer encroachment between leach field and well than the 100 foot
minimum established by County Code. We recommend granting the variance with the following conditions (consistent with conditions placed on the previous two variances):

1. Setback distance to encroach no closer than sixty (60) feet.

2. An annular seal or at least fifty (50) feet in depth to be placed with the well.

3. Quarterly bacteriological testing to be performed by the property owner on water from the private well on said APN to include coliform count and heterotrophic plate count. Copy of results to be sent to the Health Department. (This condition may be waived after two years of monitoring).

4. In the case of any bacteriological tests of water demonstrating presence of coliform organisms or significant increase in the heterotrophic plate count, the County Health Department will be immediately notified and the drinking of raw water from that well will be immediately suspended.

5. In the event that the water from said well should demonstrate bacteriological contamination and that standard and reasonable attempts to decontaminate the well fail, after three such attempts the landowner will destroy the well.
Mariposa County Health Department  
5100 Bullion Street  
P.O. Box 5  
Mariposa, Ca.  
95338

Attn: Mr. David L. Conway  
Re: Mariposa County Assessor’s Parcel 006-160-020

Dear Sir:

The purpose of this letter report is to present background data for consideration by the County to evaluate the request of Noreen Trombley for variances to County Code that will allow for the permitting and construction of a two bedroom, single family home requiring water and waste water disposal systems on her land parcel in Foresta. The parcel, which is located at 4261 First Street in Foresta, is 100 by 50 feet in size with the long axis orientated in a north-south direction.

The site is underlain by granitic rock which have decomposed into a silty sand soil mantle which covers the parent rock to a depth of at least nine feet as confirmed by the March 18, 1992 report of trenching efforts by the Mariposa County Health Department (supporting documentation attached).

Based on observations made both on-site and off-site at bedrock outcroppings, it appears that major joint sets are measured in terms of feet between joint planes while the minor ones are spaced on the order of one foot. The spacing between the two rock surfaces marking joint planes along a given feature varies from several inches at the surface, due in part to erosion, to a rapidly decreasing fraction of an inch within a short vertical distance.

A geologic cross section is presented as Figure One. This cross section, which represents a pictorial “slice” of the earth between the northern and the southern property lines, has been compiled based on (1) surface geologic mapping, (2) the results of the Health Department trenching, and (3) seismic profiling. The resultant picture is one of several feet of loam topsoil underlain by decomposed granitics, and finally granitic bedrock.

It is the desire of Ms. Trombley to construct a single family residence on the site. This requires that both water supply and sewage disposal systems be approved and installed. Given the size of the parcel, a variance to Mariposa County Code 13.08.090.070. must be obtained.

Mariposa County Code 13.08.090.070 speaks to the minimum distance between domestic wells and
sewage disposal system components. The County Code is based on the California Department of Water Resources publication entitled California Well Standards, which is as known Bulletin 74-90. Bulletin 74-90 calls for a separation of 100 feet between the subsurface sewage leaching field and a domestic well. This is based on “past experience and general knowledge” which is tempered by a footnote stating:

“Many variables are involved in determining the “safe” separation distance between a well and a potential source of pollution or contamination. No set separation distance is adequate and reasonable for all conditions. Determination of the safe separation distance for individual wells requires detailed evaluation of existing and future site conditions.”

Where, in the opinion of the enforcing agency adverse conditions exist, the above separation distances shall be increased, of special means of protection, particularly in the construction of the well, shall be provided, such as increasing the length of the annual seal.

Lesser distances than those listed above may be acceptable where physical conditions preclude compliance with the specified minimum separation distances and where special means of protection are provided. Lesser separation distances must be approved by the enforcing agency on a case-by-case basis.”

Section 9 of the Water Well Standards relates to the sealing of the upper annular space during well construction. Domestic wells require a twenty foot minimum seal depth below the ground surface. Again, the Department of Water Resources annotates the minimum depth requirement as follows:

“Encroachment on known or potential sources of pollution or contamination. When, at the approval of the enforcing agency, a water well is to be located closer to a source of pollution or contamination than allowed by Section 8, page 12, above, the annular space shall be sealed from ground surface to the first impervious stratum, if possible. The annular seal for all such wells shall extend to a minimum depth of 50 feet.”

Due to the lack of other wells within a significantly close proximity to the on-site well, it is not possible to directly measure the groundwater gradient. However, past work done by GRD in the project area (Manly property) has indicated, based on well surveys, that a typical well in Foresta has a low yield (on the order of less than 0.5 to 4 gallons per minute) and obtains its first recharge from a depth between 70 to 90 feet below the surface. The well logs surveyed represent approximately 35 feet of decomposed granitics before encountering competent bedrock which indicates that the groundwater is flowing through fractures that are on the order of 35+ feet beneath the bedrock/decomposed granitic interface.

Based on the results of the Manly well survey, it appears that bedrock wells draw from a fracture system at a fairly consistent depth indicating that the groundwater gradient roughly follows the general surface topography. Extrapolating this information to the subject property, it appears that the groundwater gradient underlying the site would flow toward the southeast.

To gain additional information concerning sub-surface conditions, especially to assist in the characterization of the soil-bedrock interface, a total of four seismic traverses were extended. The seismic method of subsurface exploration is based on inducing a shock wave into the ground at a given distance from a geophone sensor. The shock wave travels through the ground at a velocity that is a function of the density of the earth materials encountered; the more dense the materials, the faster the shock wave travels.
Based on changes in the velocity (Tables representing the computer reduction of the field data follow the attached Figures) and general shape of the curve resulting from the accumulation of a number of monitoring points, it is possible to deduce the subsurface structure along the line of traverse. A review of the data gathered indicates that the soil layers overlying the granitic rock are highly variable in thickness but may generally be expected to be on the order of thirty feet thick in the area of the intermittent sand filter. The term “soil” includes both the true soil thickness and that of the underlying granitic rock which has decomposed in place (“D.G.” aka decomposed granitics).

The decomposed granitics and the near surface soils found in the proposed sewage disposal area may be classified as “Silty Sand” (SM) in accordance with the Unified Soils Classification System. An equivalent classification as “Loamy Sand” is appropriate under the Soil Conservation Service methodology.

An approved sewage treatment and disposal system utilizing a bottomless, intermittent sand filter was designed in December 1993 for the property by Lyle Brewer, RCE. Intermittent sand filters have a proven reputation for producing effluent which is clear, odorless and colorless. Documentation by the Oregon Department of Environmental Quality indicates that the biochemical oxygen demand and suspended solids are consistently less than 5 mg/L, ammonia less than 1 mg/L, nitrates average 30 mg/L and fecal coliform bacteria average a little more than 400 organisms per 100 ml.

County Code (13.08.090.070) indicates that a leach field should be located fifty feet from a property line. Given the size of the lot this is impossible (the lot is only 50 feet wide and 100 feet long). It is proposed that a variance be allowed to place the leach field five feet from the property lines.

In summary, this report presents a picture geologic/hydrologic environments, the legislative setting and the alternatives available which will allow granting of Ms. Trombley’s request.

Based on the information gathered and reviewed to date plus two site visits and past experience in the immediate vicinity of the project site, it is the opinion of the undersigned that the possibility of commingling of treated leachate from the proposed leaching area and groundwater recharge serving the well located to the north of the leaching area is extremely remote, assuming that all construction is accomplished under permit and in accordance with the best available technology.

Accordingly, the granting of a waiver of variance allowing for construction of an on-site sewage treatment and disposal system in accordance with accepted practice at a distance of more than 50 feet from the proposed well does not constitute a reasonable hazard to the public health and safety.
Based on the outlined review of data it is the recommendation of the undersigned that the requested variances be granted by the county.

Respectfully submitted,

[Signature]

Michael R. Flynn
CEG 1127 expires 2/28/01
RG 2296 expires 2/28/01

attachments:  Seismic Test Results
               Plot Plan
               Topography of bedrock
               Geologic Cross Section
               Intermittent Sand Filter Wastewater Treatment and Disposal System Design
PERMIT TO CONSTRUCT, BUILD, OR REBUILD DOMESTIC WATER SYSTEMS AND SEWAGE DISPOSAL SYSTEMS

Permission is hereby granted **NOREEN TROMBLEY** of P. O. Box 725, Yosemite, CA 95389 to construct, build, or rebuild a sewage disposal system on the following described privately owned lands within Yosemite National Park, over which the United States exercises exclusive jurisdiction:

Fed. Parcel 16-108; Mariposa Co. APN 006-160-020

subject to the general provisions and any special conditions stated on the reverse hereof.

Issued at **Yosemite NP, California** this 24th day of **OCTOBER 1997**.

[Signature]

(Superintendent)

The undersigned hereby accepts this permit subject to the terms, covenants, obligations, and reservations, expressed or implied therein.

(1) **Noreen Alma Lumby**

Name

Address: LEO, Yosemite NP, CA 95389

(1) Sign name or names as written in body of permit; for co-partnership, permittees should sign as "Members of firm"; for corporation, the officer authorized to execute contracts, etc., should sign, with title, the sufficiency of such signature being attested by the secretary, with corporate seal, in lieu of witnesses.
CONTINUATION OF PERMIT

GENERAL REGULATORY PROVISIONS OF THIS PERMIT

1. Permittee shall construct, build, or rebuild a domestic water system and/or a sewage disposal system in accordance with the standards of the Mariposa County Health Department.

2. Permittee shall not occupy constructed dwelling or establishment until completion of a bona fide, operational sewage disposal system.

3. Failure of the permittee to comply with all State and county laws and ordinances applicable to domestic water supplies and the disposal of sewage, including household waste, or with the conditions imposed by this permit will be grounds for requiring the permittee to vacate the dwelling or establishment until compliance.

4. Permittee shall take all reasonable precautions to prevent forest fires and shall assist the Superintendent to extinguish forest fires within the vicinity of the structure herein permitted.

5. This permit may not be transferred or assigned without the consent, in writing, of the Superintendent.

6. The following special provisions are made a part of this permit:

   a) Permittee shall obtain a Mariposa County building permit, and construct and build all structures in accordance with the standards and procedures of the Mariposa County Building Department.

   b) Permittee shall obtain documentation of a cadastral survey, by a registered surveyor, of the private property boundaries prior to the start of construction.

   c) Permittee shall not encroach or occupy adjacent Federal real property with construction materials, vehicles, debris, or other property, during and subsequent to the construction period.

   d) No establishment offering food, drink, or lodging for sale on privately owned lands under the legislative jurisdiction of the United States within Yosemite National Park, may be operated without a permit obtained from the Superintendent.

   e) There shall be a setback of not less than twenty-five feet (25) feet, or ten percent (10%) of the lot width, whichever is less, from any property line or parcel boundary line to any sewage disposal facilities. Except, a variance to allow installation of a septic system at zero (0) feet from the southern and eastern property boundary of APN 006-160-120 is approved. Variance # 97-3 as approved by Mariposa county planning and Building Dept.
f) All water wells within 100 feet of the proposed leach fields shall be properly destroyed to Mariposa County Health Department standards.

g) The permittee agrees to install ground water observation wells at the end of each drain field to monitor water levels in the drain fields. The septic tank must be pumped and inspected every three years to verify the tank condition, and to determine the status and integrity of the system.

h) In the event that sewage disposal system failure results in injury to adjacent National Park resources, the permittee agrees to restore and decontaminate any damaged resources.

i) All sewage disposal shall occur within the permitted sewage disposal system. Portable, pit, vault, and composting toilets are specifically not permitted.

j) All construction must meet all applicable State of California Fire Safe Regulations of the California Public Resources Code, Section 4290. The regulations provide for emergency vehicle access, signing and building numbering, private water supply reserves for emergency fire use, and vegetation modification.

k) A brass two and one-half inch National Hose standard male thread outlet fitting with cap for pressure and gravity flow systems and four and one-half inch draft systems shall be connected to the water storage tank at eighteen inches above grade, and shall be installed within twelve feet of the road adjacent to the front property line. If the water storage tank is not located within twelve feet of the road, the two and one-half inch outlet shall be installed on a stand pipe installed within twelve feet of the road at 18 inches above grade, and connected to the water storage tank by an underground length of iron pipe that meets or exceeds National Fire Protection Association (NFPA) Standard 1231. The water storage and pressure tanks should be placed underground if feasible, or be black or of a similar, dark color.

l) It is recommended that two 2,500 gallon tanks be installed and connected, rather than a larger single tank, to separate the fire suppression reserve, and to isolate a portion of the water supply should one of the tanks become compromised in any way.

m) Subsequent changes in the construction plans or design may affect the utility system and will require a new construction permit from the Superintendent. The Mariposa County Health Officer will send the plot plan and written notification to the Superintendent, Yosemite National Park, certifying that the plans for construction are consistent with the requirements of State and County health laws and ordinances applicable to systems not located on lands within the park.

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