

**DEPARTMENT:** Health

**BY:** C. B. Mosher, MD, MPH, H.O.  
**PHONE:** 966-3689

**RECOMMENDED ACTION AND JUSTIFICATION:**

Recommend variance from statutory setback distance of 100 feet between well and septic leachfield for APN 006-160-034, Christian Gallery and Lucy Snyder, 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 leachfield. The 100 foot setback is a safe distance and in many cases could safely be reduced but that would depend on geological circumstances. Dr. Gallery and Ms. Snyder have submitted a geologic report (Attachment A) addressing the issue of the local geology, concluding that a setback of 60 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 five (5) owners of parcels located in the same geologic area. All five requests were entertained and relevant geological data were reviewed by the Health Department at that time. All five 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, 96-0604, 01-82, 01-235 and 01-236).

**ALTERNATIVES AND CONSEQUENCES OF NEGATIVE ACTION:**

Do not approve variance, owner will be required to develop property utilizing other alternatives.

Financial Impact? ( ) Yes (x) No	Current FY Cost: \$	Annual Recurring Cost: \$
Budgeted In Current FY? ( ) Yes ( ) No ( ) Partially Funded		
Amount in Budget: \$ _____		List Attachments, number pages consecutively _____
Additional Funding Needed: \$ _____		_____
Source:		_____
Internal Transfer _____		_____
Unanticipated Revenue _____ 4/5's vote		_____
Transfer Between Funds _____ 4/5's vote		_____
Contingency _____ 4/5's vote		_____
( ) General ( ) Other		_____

**CLERK'S USE ONLY:**

Res. No.: 03-94 Ord. No. \_\_\_\_\_  
Vote - Ayes: 4 Noes: \_\_\_\_\_  
Absent: Pickard  
MW Approved  
( ) Minute Order Attached ( ) No Action Necessary

The foregoing instrument is a correct copy of the original on file in this office.

Date: \_\_\_\_\_  
Attest: MARGIE WILLIAMS, Clerk of the Board  
County of Mariposa, State of California

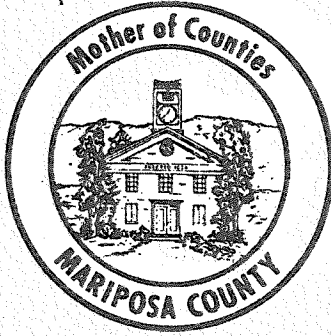
By: \_\_\_\_\_  
Deputy

**COUNTY ADMINISTRATIVE OFFICER:**

Requested Action Recommended  
 No Opinion  
Comments:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

CAO: [Signature]



# 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

February 25, 2003

TO: Board of Supervisors  
FROM: Charles B. Mosher, M.D., MPH, Health Officer  
SUBJECT: Variance request on Gallery property, APN 006-160-034

## 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 November of 2002, Dr. Gallery received a permit for a sewage disposal system on this lot.

On 8/28/02, Dr. Gallery submitted 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).

Other issues with this property have intervened between August and the date of this memo.

Review by staff of the geologic report shows it to be consistent with geologic reports submitted on the previous five (similar) requests for variance from 100-foot setback submitted by owners of other lots in Foresta. Applying the same standards as those applied to previous cases, with the exception of not requiring the owner to fund an outside hydro-geologist 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"
  - B. County Well Ordinance 13.16.090, "required setbacks", referring to the Department of Water Resources Bulletin 74-90.
  - C. State of California Water Well Standards AKA Bulletin 74-90.
  - 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, 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, which slopes away from the proposed well.

## 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 previous 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.



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**Geotechnical Research & Development**

August 7, 2002  
GRD 020071

Mariposa County Health Department  
5100 Bullion Street  
P.O. Box 5  
Mariposa, Ca. 95338

COPY

Attn: Mr. David L. Conway

Re: Mariposa County Assessor's Parcel 006-160-034, aka 1248 Yosemite Way, Foresta.

Dear Sir:

The purpose of this letter report is to present background data for consideration by the County to evaluate the request of Chris Gallery, and Lucy Snyder for variances to County Code that will allow for the permitting and construction of a single family home requiring water and waste water disposal systems on her land parcel in Foresta.

The scope of this report includes the presentation of data that has been gathered with respect to the water and waste water disposal questions generated by the desire of Chris Gallery, and Lucy Snyder to build a replacement for the dwelling APN: 006-160-034. The parcel, which is located at 1248 Yosemite Way 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 rocks which outcrop in the southern half of the property. The granitic rock outcroppings are surrounded by decomposed granitic soils. Past trenching efforts by the Mariposa County Health Department (supporting documentation attached) have revealed up to nine feet of soil to be present.

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 the clients 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, (a copy of the appropriate pages are attached) 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 Ballerini 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 three 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 twelve feet thick in the area of the leaching trenches. 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 thickness decreases rapidly in the vicinity of rock outcroppings.

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.

It is proposed that the sewage treatment and disposal be via a gravel filled trenches.

Prior to drilling the new well, approval for a single family gravel filled trenches should be obtained for the extreme northern portion of the property. The 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).

\* In addition to advance treatment of the sewage by the gravel filled trenches, it is proposed that the well's annular seal be extended to 100 feet.

It is proposed that a variance be allowed to place the leach field five feet from the property lines. This is deemed to be technically prudent given the soil depths indicated and politically prudent in that the surrounding land holdings are government land in essentially large parcels with little likelihood that the wells will be placed within 100 feet of the proposed leach field area, once the current well located on NPS Land is legally abandoned.

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

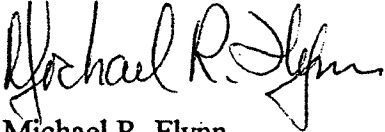


Based on the information gathered and reviewed to date plus two site visits and past experience in the immediate vicinity of the project site, it is the opinion of the undersigned that the possibility of commingling of treated leachate from the proposed leaching area and groundwater recharge serving 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,



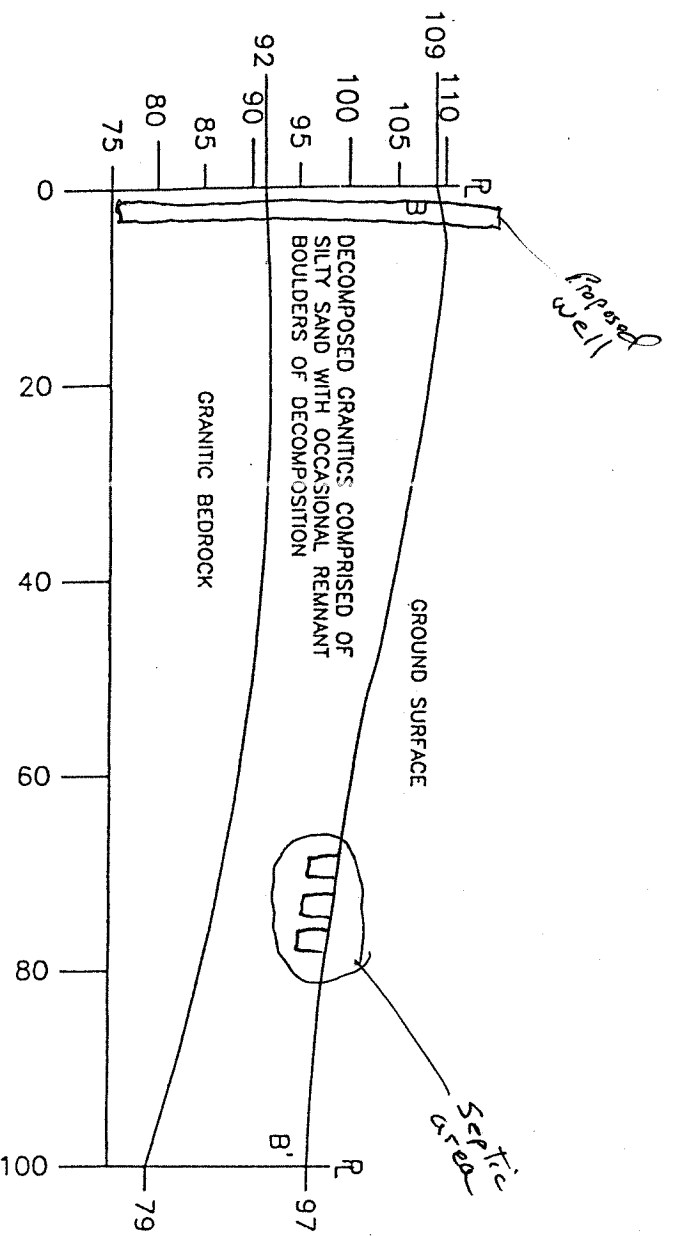
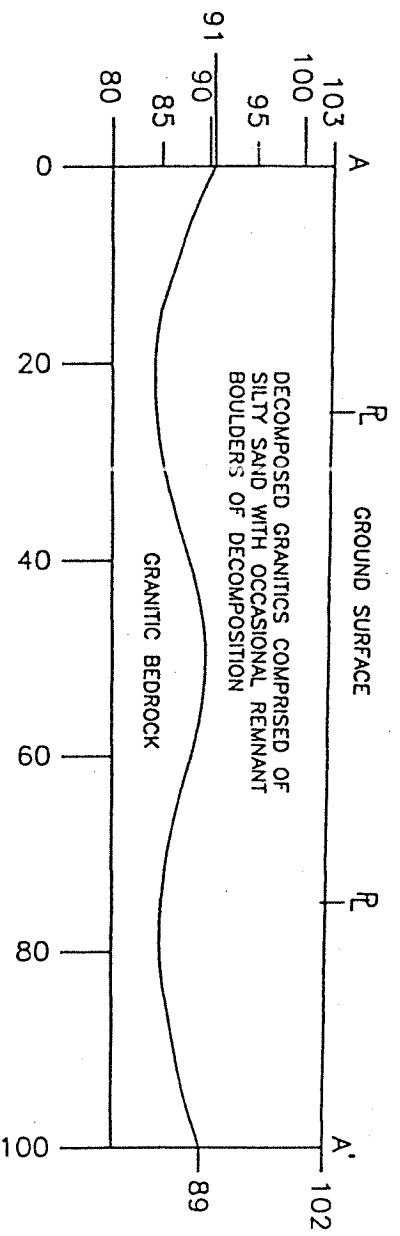
Michael R. Flynn

CEG 1127 expires 2/28/03

RG 3396 expires 2/28/03







SCALE: 1"=20'

GEOLOGIC CROSS-SECTION  
 MARIPOSA COUNTY APN: 006-160-034



JOB NO. 020071

DRAWN BY: JSZ

APP. BY:

FIGURE

2