ALIFORNIA COASTAL COMMISSION

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Filed: 4/4/00 49th Day:5/23/00 180th Day: waived 270th Day 11/27/00 Staff: J Johnson

Staff Report: 10/26/00 Hearing Date: 11/16/00

STAFF REPORT: PERMIT AMENDMENT

APPLICATION NO: 4-96-025-A-3

APPLICANT: Mark Jason

PROJECT LOCATION: 20556 Betton Drive, Topanga, Los Angeles County

DESCRIPTION OF PROJECT PREVIOUSLY APPROVED: Construct a new 4,800 sq. ft., 25 ft. high, two story single family residence, with swimming pool, and involves grading 696 cubic yards of material to construct residence. The project also includes improvements to a 1,790 ft. long access road involving paving, the installation of drainage devices, a water line, approximately 3,016 cubic yards of grading for this portion of the road improvements.

Additionally, the project was amended twice to include a below grade retaining wall (soldier pile design) with an 'Arizona' crossing, construct a larger three foot diameter culvert with rip rap dissipater, install erosion control swales along top of cut slopes, reduce approved thirty foot wide road to twenty foot wide except for turnouts, reduce approved grading from 3,016 cubic yards to 2,321 cubic yards on Betton Drive, Chard Avenue and Skyhawk Road.

DESCRIPTION OF AMENDMENT: Construct a water well, 8,000 gallon water tank, and fire hydrant with connecting piping to serve approved residence at 20556 Betton Drive. The applicant proposes to completely bury the water tank by excavating 150 cubic yards of material to be disposed at a disposal site located outside the coastal zone. The applicant proposes to landscape the tank area with native plants.

LOCAL APPROVALS RECEIVED: Los Angeles County Department of Health Services, "Approved with Conditions", dated 3/10/2000.

SUBSTANTIVE FILE DOCUMENTS: Coastal Development Permit No. 4-96-025, Jason; Coastal Development Permit No. 4-96-025-A-1, Jason; Coastal Development Permit No. 4-96-025-A-2, Jason; Coastal Development Permit Staff Report No. 4-97-

015, Sayles; Coastal Development Staff Report Permit No. 4-99-164, Olson; Coastal Permit No. 1-95-62, Olympic Club; Los Angeles County Malibu/Santa Monica Mountains certified Land Use Plan; Report of Hydrogeologic Evaluation by Bing Yen & Associates, dated May 31, 2000; Response to Verbal Comments by California Coastal Commission, dated August 3, 2000, by Bing Yen & Associates; Memorandum from Mark Johnsson, Senior Geologist regarding Jason water well, dated August 4, 2000; Second Response to Comments by California Coastal Commission, dated August 25, 2000, by Bing Yen & Associates; Additional Hydrogeologic Information, dated September 21, 2000, by Bing Yen & Associates; Memorandum from Mark Johnsson, dated October 16, 2000.

PROCEDURAL NOTE: The Commission's regulations provide for referral of permit amendment requests to the Commission if:

- 1. The Executive Director determines that the proposed amendment is a material change, or
- 2. Objection is made to the Executive Director's determination of immateriality, or
- 3. The proposed amendment affects conditions required for the purpose of protecting a coastal resource or coastal access.

If the applicant or objector so requests, the Commission shall make an independent determination as to whether the proposed amendment is material (14 Cal. Admin. Code Section 13166). The Executive Director has determined that this proposed amendment will be processed as a material amendment.

SUMMARY OF STAFF RECOMMENDATION:

Staff recommends APPROVAL of the proposed project as it will not create significant adverse individual or cumulative effects through ground water extraction on the designated Environmentally Sensitive Habitat Area within the Tuna Canyon Significant The applicant has submitted hydrogeologic studies, reviewed by the Commission's geologist, confirming that neither the proposed development on an individual basis nor the cumulative impacts of similar development in the subject subdivision would have a significant impact on stream hydrology in upper Tuna Canyon. The applicant previously received approval for a water line extension (about 1790 feet long) to bring imported water from the Los Angeles County Water District No. 29 to the proposed residential building site. According to the applicant, the water line extension is not proposed to be constructed at this time as the coastal permits for nearby properties (Coastal Permit No. 4-97-015, Sayles and Coastal Permit No. 4-99-164, Olson) were vacated by the Commission. The property owners of these two lots and the remaining 13 lots within the subdivision are not interested in sharing the water line at this time. The applicant's permit was issued in 1997 and he currently intends to proceed with the development. Thus, water is needed to install the landscaping on site, in part, for erosion control purposes.

Staff recommends that the Commission determine that the proposed water well development in this amendment, as conditioned to address visual effects, is consistent with the requirements of the coastal resource protection policies of the Coastal Act.

STAFF NOTE

Because this application was filed on April 4, 2000, the Commission was required under the Permit Streamlining Act to act on this application at the September 12- 15, 2000 Commission meeting. However, the applicant requested additional time to provide further information for Commission staff review. As a result, Staff received an Agreement for Extension of Time for a Decision on Coastal Development Permit from the applicant. This Agreement allows the Commission to act on this application no later than November 13 - 17, 2000 Commission. Therefore, the Commission must act on this application at the November 13 - 17, 2000 meeting.

I. PERMIT AMENDMENT RECOMMENDATION OF APPROVAL

MOTION:

I move that the Commission approve the proposed amendment to Coastal Development Permit No. 4-96-025-

A-3 pursuant to the staff recommendation.

STAFF RECOMMENDATION OF APPROVAL:

Staff recommends a YES vote. Passage of this motion will result in approval of the amendment as conditioned and adoption of the following resolution and findings. The motion passes only by affirmative vote of a majority of the Commissioners present.

RESOLUTION TO APPROVE A PERMIT AMENDMENT:

The Commission hereby approves the coastal development permit amendment on the ground that the development as amended and subject to conditions, will be in conformity with the policies of Chapter 3 of the Coastal Act and will not prejudice the ability of the local government having jurisdiction over the area to prepare a Local Coastal Program conforming to the provisions of Chapter 3. Approval of the permit amendment complies with the California Environmental Quality Act because 1)feasible mitigation measures have been incorporated to substantially lessen any significant adverse visual effects of the amended development on the environment 2) there are no feasible alternatives that would substantially lessen any impacts of the amended development on the environment; and 3) the project, with the mitigation measures that are imposed, will have no significant adverse impacts on the environment.

STAFF NOTE: All Standard (No. 1-7) and Special Conditions (No. 1-9) attached to the original permit as amended (Exhibit A) shall remain in effect and are incorporated herein. The applicant has met these Special Conditions and the Coastal Permit and

Two Coastal Permit Amendments have been issued. One new Special Condition, Number Ten, is added as a result of this Amendment.

A. STANDARD CONDITIONS:

See Exhibit A for Standard Condition Numbers. 1 - 7

B. SPECIAL CONDITIONS:

See Exhibit A for Special Condition Numbers. 1 – 9

10. Landscaping Plan (NEW)

Prior to issuance of a coastal development permit, the applicant shall submit a revised landscape plan for review and approval of the Executive Director. The revised plan shall incorporate the following criteria:

- a. The graded and disturbed site surrounding the buried water tank on the subject site shall be planted and maintained for erosion control purposes within (60) days of the completion of the final building permit by the Los Angeles County Building Department for the water well and water tank by the County of Los Angeles. To minimize the need for irrigation all landscaping shall consist primarily of native/drought resistant plants as listed by the California Native Plant Society, Santa Monica Mountains Chapter, in their document entitled Recommended List of Plants for Landscaping in the Santa Monica Mountains, dated February 5, 1996. Invasive, non-indigenous plan species which tend to supplant native species shall not be used. Such planting shall be adequate to provide ninety (90) percent coverage within one year (1) and shall be repeated, if necessary, to provide such coverage.
- b. Plantings shall be maintained in good growing condition throughout the life of the project and, whenever necessary, shall be replaced with new plant materials to ensure continued compliance with applicable landscape requirements;
- c. The Permittee shall undertake development in accordance with the final approved plan. Any proposed changes to the approved final plan shall be reported to the Executive Director. No changes to the approved final plan shall occur without a Coastal Commission approved amendment to the coastal development permit, unless the Executive Director determines that no amendment is required.

II. Findings and Declarations

The Commission finds and declares:

A. Project Description and Location

The applicant proposes to construct a water well, an 8,000 gallon water tank, a fire hydrant, and connecting piping to provide water to the Commission-approved residence at 20556 Betton Drive, Topanga/Malibu. The applicant proposes to completely bury the 7½ feet in diameter by 24 feet long water tank in the ground by excavating 150 cubic yards of material to be disposed at a disposal site located outside the coastal zone. The applicant proposes to landscape the tank area with native plants. The project site is located near the northeast corner of the subject lot near Betton Drive and the applicant's driveway leading to the residence (Exhibits 1 and 2).

The subject project site includes an approved residence and road improvements including a water line extension from the intersection of Tuna Canyon Road and Skyhawk Lane to the subject site as approved by Coastal Permit No. 4-96-025. The water line would extend from a pipeline owned by the Los Angeles County Water Works District No. 29 (LACWD) located along Tuna Canyon Road. The project site is located within the water service area of LACWD which supplies water from the Los Angeles Metropolitan Water District, a public water agency. Along the private roadway to the applicant's property, there are currently three residences nearby along Skyhawk Lane and Chard Avenue served by LACWD. There are many other residences in the general vicinity along Tuna Canyon Road, that are also served by the LACWD. According to the applicant, the water line extension is not proposed to be constructed at this time as the coastal permits for nearby properties (Coastal Permit Staff Report No. 4-97-015, Sayles and Coastal Permit Staff Report No. 4-99-164, Olson) were vacated by the Commission. At this time, applications for new coastal permits for the Sayles and Olson properties (vacant lots in the same subdivision) are pending but not scheduled for Commission action. These property owners have indicated that they are not interested in sharing the approved water line. Sayles and Olson have submitted new permit applications that propose to provide public water to their proposed residences using a shorter water line extension along a different route. (These applications have not yet been scheduled for a Commission hearing). Mr. Jason is ready to proceed with construction and water is needed to install the landscaping on site, in part, for erosion control purposes. Rather than constructing the waterline solely to serve his residence. Mr. Jason is proposing to install a well to provide water for his residence.

The subject site is located within the Tuna Canyon Significant Watershed, south of Tuna Canyon Road, west of Skyhawk Lane, and south of Chard Avenue. (Exhibits 1 and 3) The site is accessed from Tuna Canyon Road, a public road, across private roads, Skyhawk Lane, Chard Avenue, and Betton Drive to the site where a single family residence was approved by the Commission in Coastal Permit No. 4-96-025 (Exhibit 4). In August 1996, the Commission approved Coastal Permit Number 4-96-025 for road improvements and a new residence. The road improvements consisted of paving 1,790 feet of an existing dirt access road (Chard Road and Betton Drive), installing three drainage culverts with rip rap dissipaters, installing connecting utilities including a water line, electricity, and telephone, and grading about 3,016 cubic yards of material. The Commission approved the proposed residence consisting of a 4,800 sq. ft. two story structure with a pool to be accessed across a former dirt road with the above approved road improvements. On July 7, 1997, the applicant complied with all the conditions

required prior to the issuance of the coastal development permit; the permit was issued to the applicant (Exhibit 4).

In September 1998, the Commission approved Coastal Permit Amendment number 4-96-025-A-1 to change the approved project to construct a below-grade, 135-foot long retaining wall, to reinforce the road embankment along Chard Avenue, increase the grading and replace an approved drainage culvert with an "Arizona" crossing. This Permit Amendment was issued on September 22, 1998.

On December 9, 1999, the Commission approved Coastal Permit Amendment number 4-96-025-A-2 to revise the road improvements to construct a larger three-foot diameter culvert with a dissipater, install erosion control swales along the top of cut slopes, reduce the approved 30 foot wide road to twenty feet wide, except for turnouts, reduce the approved grading from 3,016 cubic yards to 2,321 cubic yards, and revise the underground retaining wall to reinforce Chard Avenue with a soldier pile design to access the approved residence at 20556 Betton Drive. This Permit Amendment was issued on January 12, 2000.

A portion of the road improvements have been completed, consisting of the grading, drainage improvements, erosion control swales, and road paving. The building pad and driveway are graded and a retaining wall is constructed along the driveway. Construction of the approved residence has not started. The installation of the waterline, Arizona crossing, and proposed soldier pile retaining wall along Chard Avenue have not been completed at this time.

B. New Development / Environmentally Sensitive Resource Areas

The Coastal Act includes a policy providing that new development be located within or near existing developed areas able to accommodate it, or in other areas where there are adequate public services and it will not have significant adverse effects, either individually or cumulatively, on coastal resources. Section 30250 of the Coastal Act states in part:

(a) New residential, commercial, or industrial development, except as otherwise provided in this division, shall be located within, contiguous with, or in close proximity to, existing developed areas able to accommodate it or, where such areas are not able to accommodate it, in other areas with adequate public services and where it will not have significant adverse effects, either individually or cumulatively, on coastal resources. ...

The Coastal Act includes a policy protecting environmentally sensitive habitat areas from disruption of habitat values. Section 30240 of the Coastal Act states:

(a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on such resources shall be allowed within such areas.

(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade such areas, and shall be compatible with the continuance of such habitat areas.

Section 30231 of the Coastal Act is written to protect and enhance, or restore where feasible, marine resources and the biological productivity and quality of coastal waters, including streams:

The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.

Section 30105.5 of the Coastal Act defines the term "cumulatively" as it is used in Section 30250(a) to mean that:

... the incremental effects of an individual project shall be reviewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.

The area's habitat values within the Tuna Canyon Significant Watershed (Exhibit 3) are well documented in the staff report and findings for Coastal Development Permit Number 4-96-025, Jason. The applicant has an approved coastal permit (Permit Number 4-96-025, Exhibit 4) for the construction of a residence with a 1790 foot long access road and water line extension from Tuna Canyon Road. According to the applicant, residential water service through the approved water line extension would originate from State Water sources from the Los Angeles County Water District Number 29. The subject site is located within the Service Boundaries of this Water District. The Water District obtains its water from sources located outside of the Santa Monica Mountains. Although the applicant has a coastal permit to construct a water line extension to provide District water to serve the residence, the applicant is requesting this Amendment to the Coastal Permit to allow an onsite private water well to provide domestic water service for the residence.

The project site is located within the Tuna Canyon Significant Watershed. The specific location of the proposed water well and water storage tank is at the northeast corner of the applicant's property near Betton Drive and the applicant's driveway to the building pad (Exhibit 2). Groundwater in this area is not part of an aquifer used for public water supplies or for agriculture.

Two upper tributaries to Tuna Canyon Creek, a Commission-designated environmentally sensitive habitat area (ESHA), are located on either side of the proposed development (Exhibit 5). These tributaries are the 'blue line' designated stream portions of Tuna Canyon Creek. The proposed well site is about 800 feet to the east and about 800 feet north of the ESHA habitat. The designated ESHA surrounds the upper tributaries of Tuna Canyon Creek. Tuna Canyon Creek and its tributaries are intermittent watercourses that flow during the rainy season. The well site is located about 850 feet from the tributary to the east and 1,700 feet from the tributary to the south. Due to the proximity of the well site and the tributaries of Tuna Canyon Creek, staff requested in April 2000 that the applicant submit a hydrogeological report to evaluate the potential individual and cumulative impacts of the onsite domestic water well on the hydrogeologic conditions in these tributaries. Staff also requested information on the potential individual and cumulative biological impacts of water withdrawal on the tributaries and ESHA. The applicant submitted hydrogeologic information on water extraction but no information from a biologist regarding potential ESHA impacts.

In response, the applicant submitted on June 14, 2000, a report titled: "Report of Hydrogeologic Evaluation", by Scott Moors, Bing Yen & Associates, dated May 31, 2000 (Exhibit 6). The report concludes that the net groundwater withdrawal at the site should be approximately 80 gallons per day. The report states:

As shown below, of the 400 gallons of well water extracted per day, approximately 320 gallons will recharge to groundwater. Therefore, net groundwater withdrawal at the site should be approximately 80 gallons per day.

As shown above, net groundwater withdrawal of 80 gallons per day could induce a theoretical cumulative drawdown of 6.9 feet over a 50-year period. The actual drawdown should be less since the above calculations neglect inflow from surrounding open space and undeveloped properties. Long-term actual drawdown of the groundwater table across the site should be in the range of one to four feet, with a resulting change in the groundwater table lowering from approximately 120 feet to approximately 121 to 124 feet.

The above groundwater analysis assumes that all surrounding properties are extracting groundwater at the same rate as the subject site. Therefore, the cumulative impacts of additional development would not increase the estimated impact at the site.

Conclusions

 Due to the low-density nature of the planned development, residential water supply by onsite domestic water well should have a negligible influence on the hydrogeologic water balance at the site and surrounding areas.

 Due to the relatively high topographic relief and depth to groundwater of over 100 feet, water well withdrawals should have a negligible influence on dryseason and wet-season stream flows and springs.

The Commission's geologist, Mark Johnsson, agrees with the finding by the applicant's hydrologist that the net groundwater loss from the proposed well would be 80 gallons per day. The Commission's geologist stated in a memo dated August 4, 2000:

"Mr. Moors estimates a total household water usage of 400 gallons per day (gpd), all of which is to be provided by the proposed well. Of this volume, an estimated 80 gpd will be used for irrigation. He estimates that 20% of the 80 gpd, or 16 gpd, will infiltrate and recharge ground water, whereas the rest will be lost through runoff and evapotranspiration. Of the 320 gpd used for household purposes, Mr. Moors estimates that 95%, or 304 gpd, will be sent to a septic system, which will eventually recharge to ground water. Thus, of the 400 gpd extracted, 320 (304 + 16) will be returned to ground water, leaving a net ground water loss (use) of 80 gpd. These numbers seem reasonable, and I concur with these findings." (See Exhibit 8).

The Commission's geologist also found that some of the assumptions by the applicant's hydrologist, such as the porosity values adopted and infiltration rates needed further consideration. He requested additional information from the applicant's hydrologist addressing porosity, specific yield values, the location of nearby wells and a time frame for groundwater recharge from the septic system.). As a result, the applicant's geologist submitted additional information in a letter titled; "Response to Verbal Comments by California Coastal Commission" dated August 3, 2000 (Exhibit 7). The letter states:

The simple model and accompanying discussion demonstrates that, since the site will use a septic system for sewage disposal, the vast majority of extracted groundwater will be recharged to the water table. Use of the well and septic system will result in a much smaller hydrogeologic "impact" on the site than importing chlorinated water from offsite. ...

The attached map [staff note, see Figure 1 in Exhibit 7] illustrates the locations of the nearby water wells. ...

The original permit, No. 4-96-025, authorized use of a septic system for disposal of waste water from the residence. In approving the septic system, the Commission was informed that the Los Angeles County Department of Health had approved the proposed septic system and found that it met the requirements of the Los Angeles Uniform Plumbing Code. The Commission found that the County's standards take into consideration the percolation capacity of the soil, the depth to groundwater, and other relevant factors, and impose standards that are sufficient to ensure protection of coastal resources. Thus, the Commission found that the proposed septic system is consistent with the requirements of Section 30231 of the Coastal Act, which requires protection of the quality of coastal waters and streams, protection of human health, and minimizing of adverse effects of waste water discharges. Accordingly, the Commission has determined that the waste water discharged into the septic system will be properly filtered and will not cause pollution of the groundwater. See, Staff Report dated July 25, 1996, Permit No. 4-96-025.

The time frame for septic discharge to recharge to the water table is dependent on the depth of the septic pits and the wetting-front seepage velocity in the unsaturated zone. Seepage velocity can be estimated by the equation: Vs = ki ... = 0.0001 cm/sec and solving for a seventy-foot travel path gives a travel time of approximately 8 months. ...

Conclusions

- Due to the low-density of the planned development, residential water supply by onsite domestic water well will have a negligible influence on the hydrogeologic water balance at the site and surrounding areas.
- Due to the relatively high topographic relief and the depth to groundwater (> 100 feet), water well withdrawal will have a negligible influence on dry-season and wet-season stream flows and springs.

The Commission's geologist reviewed the report and letter discussed above in a memo dated August 4, 2000 (Exhibit 8). The memo discusses the finding that the net groundwater loss will be 80 gallons per day (see above) and then goes on to state:

Mr. Moors then uses a simple approach to calculate lowering of the water table to be expected from this amount of ground water extraction. His approach is conservative in that he assumes no inflow from adjacent properties; an assumption that is reasonable if applied on a somewhat more regional scale since the site lies near the top of a ridge of the Santa Monica Mountains and is hydrologically fairly isolated by canyons. Based on assumed values of porosity and specific yield for the aquifer, he then calculates a drawdown for a 50-year design life of 6.9 feet; this can be adjusted to 10.35 feet for the 75-year design life usually adopted by the Commission. In fact, this is a rather simplistic model; drawdown would not be equal under the entire property, but in fact would be greater that 10.35 feet at the well itself, and taper to zero at some distance from the well, forming a cone of depression. It is impossible to accurately assess the shape of this cone of depression or the maximum drawdown at the well without additional information.

The Commission's geologist further notes that the value for porosity originally adopted by Mr. Moors may be too high. The lower value ("low 20's") that Mr. Moors provided in his report dated 3 August 2000 yields a theoretical drawdown of 14.9 feet (for 23%) over the 75-year design life of the well and therefore, the Commission's geologist uses 15 feet of drawdown over a 75-year period in his analysis.

The Commission's geologist concludes that: "the proposed well is unlikely to significantly affect the blue-line streams when considered in isolation." He does state, however, that "the cumulative effect of developing the entire subdivision is more difficult to assess" and will require additional hydrologic information. He further states that:

"Information required to better assess the changes to be expected from the development of 16 water wells on the subdivision include: an assessment of seasonal groundwater contributions to the streams, hydrographs of the streams, the location of the water table beneath the streams and its seasonal variation, and ground water flow velocity."

A copy of the above August 4, 2000 staff memo by the Commission's geologist was sent to the applicant's agent on August 7 and confirmed by letter sent to the applicant's agent on August 11, 2000. In response, the applicant's hydrologist submitted further information in a letter titled; "Second Response to Comments by California Coastal Commission" dated August 25, 2000 (Exhibit 9). The letter states, in part:

"The cumulative effect of multiple wells is certainly a valid concern, however, the model presented in the referenced reports specifically accounts for cumulative impacts. As previously discussed, no lateral flow is assumed in the simplified groundwater model presented in the referenced report. Therefore, each approximately 2.5 acre parcel is considered individually in isolation. The calculated drawdown of less than 15 feet will remain the same for 1 lot or 10 lots because the additional groundwater extraction occurs over a larger area. Furthermore, if lateral flow occurs (which it certainly will), the total drawdown will be reduced in proportion to the lateral underflow flux.

It is also worth noting that all 16 lots of the tract are unlikely to ever be developed with water wells. One lot in particular is owned by the State and will most likely remain as open space. A few other lots are unlikely to be developed individually due to topography and are more likely to be combined with adjacent lots by single owners. Ultimate build-out will most likely be 12 to 14 lots.

Finally, Mark Johnson's [Commission's geologist] memo notes that cross sections presented in BYA's May 31 report conceptually illustrate a groundwater connection between the site and the nearest blue-line streams (page 2, paragraph 3). Indeed, examination of the cross section, noting that the scale is 1 inch equals 400 feet, illustrates that the estimated (75-year) 15-footdrawdown is approximately the equal to the line-width of the water-table line.

Balanced Ecosystem: It is our understanding that a goal of the Coastal Commission is to minimize the potential impacts of developments on the coastal ecosystem. Towards this end, developing groundwater wells coupled with septic systems will result in the least impact of any reasonable development scenario. Currently, significant artificial groundwater recharge is occurring at several homes that import water and discharge to septic systems. Using the same water usage figures presented in our BYA's May 31 report, net groundwater recharge from homes using imported water is approximately 320 gpd (304 gallons septic plus 16 gallons irrigation infiltration). Thus, the net extraction from a home using a well of 80 gpd offsets only 25% of the net recharge supplied by a home using

imported water. Therefore, in order to achieve a "balanced" groundwater system, it is desirable to develop a mix of homes supplied by wells and homes supplied by imported water. Numerous existing homes in the immediate vicinity of the subject tract are currently using imported water and discharging to septic systems (Mark Jason, personal comm.) These homes include those located along Tuna Canyon Road, Hawks Nest Trail, and Sabina Drive (Figure 1). [Staff note, see Exhibit 7, for Figure 1].

Conclusions

- Due to the low-density nature of the planned development and the existing mix of homes using imported water and well water, residential water supply by onsite domestic water wells will have a negligible influence on the hydrogeologic water balance at the site and surrounding areas.
- Due to the relatively high topographic relief and depth to groundwater of over 100 feet, water well withdrawals will have a negligible influence on dry-season and wet-season flows in blue-line streams and springs.

The applicant submitted another report titled: Additional Hydrogeologic Information, dated September 21, 2000, by Bing Yen & Associates (Exhibit 10). This report provided information on water flows in Topanga Creek. Although Topanga Creek is within an adjoining watershed, its water flow data is not germane to the discussion of this application.

The Commission's geologist reviewed the above letter in a memo dated 16 October 2000 regarding the Jason water well (Exhibit 11). The memo states:

In [his 25 August 2000 report], Scott Moors addresses cumulative impacts of the development of the 16 lots that are part of the Betton Drive subdivision. He makes the point that it is likely that not all of the lots in the subdivision will be developed; that ultimately only 12-14 lots will be built upon. Although this assessment may be accurate, an estimate of potential cumulative impacts must consider all 16 lots, since they are all legal buildable lots.

I concur with Mr. Moors conclusion that the type of hydrogeologic analysis undertaken in reference (1) implicitly takes into consideration of cumulative effects on the level of the water table. When adjusted by the new porosity values given in reference 2 [his 3 August 2000 report], this analysis gives an estimated water table drawdown of 15 feet for the 75-year estimated economic lifespan of the development. This amount of drawdown would not change with development of additional lots in the subdivision; given the conservative assumptions of the type of analysis undertaken, cumulative effects would be limited to an additional area affected, not by a greater amount of drawdown. Drawdown of the water table by 15 feet is not likely to have a significant impact on the hydrology of the nearby streams (headwaters of Tuna Canyon Creek), which are deeply entrenched below the site.

In addition to water table drawdown, the net amount of water extracted due to the development should be considered, since the reduction in hydraulic head due to water table drawdown could reduce the flow velocity of ground water toward the streams, with a resultant reduction in ground water recharge to the Tuna Canyon streams. The estimated net removal of ground water at full build-out is 1280 gallons per day (see my memo of 4 August). This value represents the maximum possible reduction in ground water recharge to the streams; actual reductions may be much lower. Based on the available hydrologic information, I cannot find that this reduction would have a significant impact on stream hydrology. At my request, Mr. Moors searched for additional hydrologic data, but was unable to find it for the streams immediately surrounding the development.

. . .

Finally, Mr. Moors makes the point in both [his 25 August 2000 and 21 September 2000 reports] that the existing use of imported water in development near the subject site would more than offset the ground water use proposed. For each residence using imported water, approximately 320 gallons per day will be added to ground water through the septic system and irrigation. In contrast, Mr. Moors' calculations in reference [his May 31 2000 report] indicate that use of water wells would result in the net extraction of only about 80 gallons per day per residence. Mr. Moors points out that at full build-out, a mix of water wells and use of imported water would best maintain the pre-development water table. I concur in this assessment; in fact, if imported water were to be used exclusively throughout the subdivision, the ground water table would very likely rise in the area, and the intermittent streams at the head of Tuna Canyon would carry water for a greater period of the year than they do at present. Therefore, it is not clear from the available data, whether use of water wells would be more likely to have a greater impact on stream hydrology than use of imported water.

To summarize, I find after reviewing the above cited documents and researching the hydrogeology of the area, that it cannot be demonstrated that either the proposed development or the cumulative impacts of similar development throughout the Betton Drive subdivision, would have a significant impact on stream hydrology in upper Tuna Canyon.

Compliance with the Coastal Act Sections 30231, 30240, 30250, and 30105.5

Coastal Act Section 30231 provides, in part, that the biological productivity and the quality of coastal streams shall be maintained and, where feasible, restored through, among other means, preventing depletion of ground water supplies and maintaining natural vegetation buffer areas that protect riparian habitats.

Coastal Act Section 30240 provides, in part, that development in areas adjacent to environmentally sensitive habitat areas shall be sited and designed to prevent impacts

which would significantly degrade such areas, and shall be compatible with the continuance of such habitat areas.

Coastal Act Section 30250 provides, in part, that new residential development shall be located within, contiguous with, or in close proximity to, existing developed areas able to accommodate it or, where such areas are not able to accommodate it, in other areas with adequate public services and where it will not have significant adverse effects, either individually or cumulatively, on coastal resources. ...

Section 30105.5 of the Coastal Act defines the term "cumulatively" as it is used in Section 30250(a) to mean the incremental effects of an individual project shall be reviewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.

The proposed project is located within the Tuna Canyon Significant Watershed designated in the Malibu/Santa Monica Mountains Land Use Plan for Resource Protection and Management. Under the LUP, which may serve as guidance to the Commission, allowable Land Uses in a Significant Watershed include resource dependent uses, such as nature observation, research, education, and passive recreation, and residential uses at a maximum of one unit per 20 acres. Existing non-conforming parcels may be developed according to standards identified in Table 1. As noted in LUP Policy P59, Significant Watersheds are relatively undisturbed watershed areas containing exceptional undisturbed riparian and oak woodlands or savannahs and are recognized as important in contributing to the integrity of these woodlands. The Commission has previously found that residential development on the site, as conditioned, is consistent with the resource protection policies of the Coastal Act. The issue raised by this project is whether the proposed ground water well has potential adverse environmental individual or cumulative effects on the coastal resources within the Significant Watershed.

One of the Development Standards/Stream Protection Policies identified in Table 1 of the LUP requires new residential development be located in proximity to services and infrastructure. This Standard states: "Structures and uses shall be located as close as possible to existing roadways and other services to minimize the construction of new infrastructure." In this case, the alternatives for locating the residential development proposed by the applicant are limited by the existence of a legal lot in an area zoned for residential use. As a result, it is not possible to locate the residence so as to avoid extension of the paved road. Similarly, it is not possible to avoid either extension of the water line, or construction of a ground water well (if it is otherwise consistent with the Chapter 3 policies of the Coastal Act) to supply water to the residence. Commission previously found that the proposed residence, access road improvements including a water line extension to the subject site was consistent with Sections 30231. 30240, and 30250 of the Coastal Act in the adopted findings for Coastal Permit No. 4-96-025, Jason. In effect, the Commission found that the proposed residence served by the road improvement and water line extension met the guidance in Table 1. Because the proposed ground water well does not involve construction of new infrastructure.

approval of the amendment allowing construction of a well to provide water to the residence will be consistent with the guidance provided in the above-reference LUP policy.

As discussed above, review of individual and cumulative effects were provided by the applicant's hydrologist. Relative to individual effects of the single proposed water well, staff found no significant effect. In the memo dated August 4, 2000 from Commission Geologist, Mark Johnsson, it was concluded that " ... neither the extraction of 80 gpd nor the calculated drawdown are likely to significantly affect ground water recharge to the blue-line streams surrounding the site, ... In summary, the proposed well is unlikely to significantly affect the blue-line streams when considered in isolation."

The Commission's Geologist initially requested more information to evaluate whether the cumulative effects of additional groundwater extraction and drawdown if the adjacent 15 parcels are similarly developed would be significant. In response, the applicant demonstrated that the amount of ground water drawdown if the adjacent 15 parcels are similarly developed would not be greater than the 15 foot drawdown (over a period of 75 years) that would be expected as a result of the applicant's individual well. Based on the cone-shaped drawdown that would occur, as well as the depth to ground water (about 120 feet below ground surface), the Commission's geologist concluded that the expected cumulative drawdown would not have a significant impact on the hydrology of the nearby creeks. In addition, the Commission's Senior Geologist agreed with the assertion by the applicant's hydrologist that use of imported public water, which is occurring on some parcels in the watershed, results in the addition of a significant amount of water (approximately 320 gallons per day, per residence) to the ground water. Accordingly, this raises a concern that if all new residences in the watershed use imported water, significant environmental impacts might occur due to increased streamflows in the nearby creeks. The Commission's geologist concluded that it is not clear whether use of a water well would be more likely to have a greater impact on stream hydrology than the impact from use of imported water. Furthermore, the Commission's geologist concurs that a mix of wells and imported public water appears to be the most likely way to prevent significant impacts to the hydrology of the creeks. Thus, after evaluating the available information, the Commission's geologist concluded that it cannot be demonstrated that either the proposed development or the cumulative impacts of similar development throughout the Betton Drive subdivision, would have a significant impact on stream hydrology in upper Tuna Canyon. These conclusions are set forth in the Commission's geologist's memo dated October 16, 2000, which is quoted above.

It should be noted that the applicant did not provide all of the information that was requested by the Commission's geologist regarding the affected watershed, i.e., seasonal groundwater contributions, location of the water table and its seasonal variation, and ground water flow velocity. The applicant indicated that the requested data were not available. Instead, the applicant provided information regarding the Topanga Creek watershed approximately one mile from the site. The Commission's geologist indicated that this information could not be used to evaluate the impacts of this

project because the area of the Topanga Creek watershed where the data were collected is far larger than the upper reaches of the Tuna Creek watershed where the well is proposed. To obtain the requested information for the project site would require at least a full year of extensive monitoring in the upper Tuna Creek watershed. The Commission has not previously required such an extensive data collection effort from an applicant seeking to install a residential groundwater well in the Santa Monica Mountains. Further, the Commission's geologist has indicated that, in his opinion, the potential for significant adverse impacts to stream hydrology is sufficiently remote that it is not warranted to require the collection of such an extensive data set. Therefore, the Commission staff determined that it is not reasonable to require collection of this data in this instance. Furthermore, as explained above, the Commission's geologist has determined that the existing information about the proposed project and other projects that potentially affect the Tuna Creek watershed is sufficient to determine that there will not be a significant adverse impact on the hydrology of the nearby creeks, either individually or cumulatively, from the proposed groundwater well. Accordingly, there is no evidence that the proposed well would adversely impact natural vegetation buffer areas that protect riparian habitats, would significantly degrade designated ESHA, or would be incompatible with the continuance of such habitat areas.

Additionally, as discussed above, the Commission has considered the environmental effects of the available alternative – using imported water – and finds that the evidence does not indicate that this alternative would lessen any of the impacts of the project. In conclusion, the ground water information provided by the applicant demonstrates that there will be no individual or cumulative adverse impacts to hydrology of the creeks and the designated ESHA located nearby in the tributaries to the Tuna Canyon Creek. Thus, the Commission finds that the proposed Amendment to this Coastal Permit is consistent with Sections 30231 and 30240 of the Coastal Act.

Therefore, the Commission finds that the new residential development approved in Coastal Permit No. 4-96-025 is located in close proximity to an existing developed area able to accommodate it. The Commission finds that because groundwater is available to serve the residence without adversely impacting the environmental resources, the area is able to accommodate the residential development. This is consistent with the Commission's prior approval of numerous other residences in the Santa Monica Mountains that will use private groundwater wells to supply water for the residence. (See Coastal Permit Number 4-98-004, Bolanowski and Coastal Permit Number 4-00-064, Mastoras). Thus, the Commission also finds that the proposed Amendment to this Coastal Permit is consistent with Section 30250 of the Coastal Act.

D. <u>Visual Resources and Landform Alteration</u>

The Coastal Act includes a policy to protect public views from development to and along the coast and to minimize the alteration of natural landforms. Section 30251 of the Coastal Act states that:

The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas such as those designated in the California Coastline Preservation and Recreation Plan prepared by the Department of Parks and Recreation and by local government shall be subordinate to the character of its setting.

The proposed project consisting of drilling a water well and constructing a 8,000 gallon water storage tank (about 7 1/2 feet in diameter by 24 feet in length), fire hydrant, and connecting piping. The applicant amended the project description on August 9, 2000 to relocate the tank and well outside the Betton Drive road easement area and to reduce its visibility. The revised location of the tank and well is identified in Exhibit 2. The applicant amended the application on October 20, 2000 to completely bury the water tank. In an effort to reduce its visibility, the applicant is proposes to bury the 7 1/2 foot diameter by 24 feet long water tank completely into the ground. In addition, the applicant proposes to landscape the water tank site with native plants. About 150 cubic yards of cut is proposed to excavate the tank area; the cut material will be disposed outside the coastal zone. The above ground portion of the water well and the fire hydrant is small and their public visibility is not significant. It is important to note that on site the visibility of the fire hydrant is important for emergency services by the fire department.

The graded and disturbed area would potentially be visible if the area is not replanted. Public views of the site are from the north along a portion of Saddle Peak Road located about one mile away and to the west along portions of Tuna Canyon Road located about one half mile away. (Exhibit 1). As required by Special Condition Number Ten (10) landscaping will be planted on the graded and disturbed areas at the buried water tank site to soften the visual impact of the water tank as viewed from sites along public roads and minimize potential erosion. The change in vegetation in this area will have an insignificant visual impact. The Commission further notes that the use of non-native and/or invasive plant species for residential landscaping results in both direct and indirect adverse effects to native plants species indigenous to the Malibu/Santa Monica Mountains area. Direct adverse effects from such landscaping result from the direct occupation or displacement of native plant community habitat by new development and associated non-native landscaping. Indirect adverse effects include offsite migration and colonization of native plant species habitat by non-native/invasive plant species (which tend to outcompete native species) adjacent to new development. Commission notes that the use of exotic plant species for residential landscaping has already resulted in significant adverse effects to native plant communities in the Malibu/Santa Monica Mountains area. Therefore, in order to minimize adverse effects to the indigenous plant communities of the Malibu/Santa Monica Mountains area,

Special Condition Number Ten (10) requires that all landscaping consist primarily of native plant species and that invasive plant species shall not be used.

Therefore, impacts on public views of the project site and water storage tank will be minimal due to the distance to public viewing locations and native plant landscaping. The water tank burial site will not be visible from nearby state and federal park lands to the east and south due to an intervening earthen landform. Within this setting as proposed by the applicant, and as conditioned with a revised landscape plan, public visibility of the proposed project will be very limited and will not adversely effect visual resources. For these reasons, the Commission finds that the proposed project, as conditioned, is consistent with Section 30251 of the Coastal Act.

E. Local Coastal Program

Section 30604 of the Coastal Act states that:

a) Prior to certification of the local coastal program, a coastal development permit shall be issued if the issuing agency, or the commission on appeal, finds that the proposed development is in conformity with the provisions of Chapter 3 (commencing with Section 30200) of this division and that the permitted development will not prejudice the ability of the local government to prepare a local coastal program that is in conformity with the provisions of Chapter 3 (commencing with Section 30200).

Section 30604(a) of the Coastal Act provides that the Commission shall issue a coastal development permit only if the project will not prejudice the ability of the local government having jurisdiction to prepare a Local Coastal Program which conforms with Chapter 3 policies of the Coastal Act. The preceding sections provide findings that the proposed amendment will be in conformity with the provisions of Chapter 3. The proposed amendment will not create adverse effects and is found to be consistent with the applicable policies contained in Chapter 3. Therefore, the Commission finds that approval of the proposed amendment, as conditioned, will not prejudice the County of Los Angeles' ability to prepare a Local Coastal Program for this area of Malibu that is also consistent with the policies of Chapter 3 of the Coastal Act as required by Section 30604(a).

F. California Environmental Quality Act (CEQA)

Section 13096(a) of the Commission's administrative regulations requires Commission approval of Coastal Development Permit application to be supported by a finding showing the application, as conditioned by any conditions of approval, to be consistent with any applicable requirements of the California Environmental Quality Act (CEQA). Section 21080.5(d)(2)(A) of CEQA prohibits a proposed development from being approved if there are feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse effect which the activity may have on the environment.

The Commission finds that, the proposed project, as conditioned, will not have significant adverse effects on the environment, within the meaning of the California Environmental Quality Act of 1970. The Commission has not identified any insignificant environmental impacts of the project that are not discussed in the staff report, nor has the public at this time brought any to the Commission's attention. The Commission considered the environmental effects of the available alternative – using imported water – and determined that it would not lessen any of the impacts of the project. Therefore, the proposed project, as conditioned, has been adequately mitigated and is determined to be consistent with CEQA and the policies of the Coastal Act.

496025a3jasonstaffreportfinal

Page 1 of 44 Permit No. 4-96-025-4-2

STANDARD CONDITIONS:

- Notice of Receipt and Acknowledgment. The permit is not valid and development shall not commence until a copy of the permit, signed by the permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.
- 2. <u>Expiration</u>. If development has not commenced, the permit will expire two years from the date on which the Commission voted on the application. Development shall be pursued in a diligent manner and completed in a reasonable period of time. Application for extension of the permit must be made prior to the expiration date.
- 3. <u>Compliance</u>. All development must occur in strict compliance with the proposal as set forth in the application for permit, subject to any special conditions set forth below. Any deviation from the approved plans must be reviewed and approved by the staff and may require Commission approval.
- 4. <u>Interpretation</u>. Any questions of intent or interpretation of any condition will be resolved by the Executive Director or the Commission.
- 5. <u>Inspections</u>. The Commission staff shall be allowed to inspect the site and the project during its development, subject to 24-hour advance notice.
- 6. <u>Assignment</u>. The permit may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and conditions of the permit.
- 7. <u>Terms and Conditions Run with the Land</u>. These terms and conditions shall be perpetual, and it is the intention of the Commission and the permittee to bind all future owners and possessors of the subject property to the terms and conditions.

SPECIAL CONDITIONS:

1. Future Development:

Prior to the issuance of a coastal development permit, the applicant shall execute and record a document, in a form and content acceptable to the Executive Director, stating that the subject permit is only for the development described in the Coastal Development Permit No. 4-96-025; and that any future structures, additions or improvements to the property, including but not limited to clearing of vegetation, that might otherwise be exempt under Public Resource Code Section 30610(a), will require a permit from the Coastal Commission or its successor agency. However, fuel modification consistent with the requirements of the Los Angeles County Fire Department's fuel modification standards is permitted. The document shall run with the land, binding all successors and assigns, and shall be recorded free of prior liens and any other encumbrances which the Executive Director determines may affect the interest being conveyed.

APPLICATION NO. 4-3 CDP 4-96-025 A-2

Page ♣of 1/4 Permit Application No. 4-96-025-#/2

2. Plans Conforming to Geologic Recommendation

All recommendations contained in the Preliminary Soils and Engineering Geologic Investigation, dated November 20, 1995, prepared by California GeoSystems, shall be incorporated into all final design and construction including foundations, grading and drainage. All plans must be reviewed and approved by the consultants. Prior to the issuance of the coastal development permit, the applicant shall submit, for review and approval by the Executive Director, evidence of the consultants' review and approval of all project plans.

The final plans approved by the consultants shall be in substantial conformance with the plans approved by the Commission relative to construction, grading and drainage. Any substantial changes in the proposed development approved by the Commission which may be required by the consultants shall require an amendment to the permit or a new coastal permit.

3. Wild Fire Waiver of Liability

Prior to the issuance of the coastal development permit, the applicants shall submit a signed document which shall indemnify and hold harmless the California Coastal Commission, its officers, agents and employees against any and all claims, demands, damages, costs, expenses of liability arising out of the acquisition, design, construction, operation, maintenance, existence, or failure of the permitted project in an area where an extraordinary potential for damage or destruction from wild fire exists as an inherent risk to life and property.

4. Road Maintenance Agreement

By acceptance of this Coastal Development Permit, the applicant agrees that should the proposed improvements to the access road or the proposed drainage structures fail or result in erosion, the applicant/landowner or successor interests shall be solely responsible for any necessary repairs and restoration along the entire length of the access road as it crosses Skyhawk Lane, Chard Road and Betton Drive.

5. Erosion Control and Drainage Plan

Prior to the issuance of the Coastal Development Permit, the applicant shall submit for the review and approval of the Executive Director, a erosion control and drainage plan designed by a licensed engineer. The plan shall incorporate the following criteria:

a) All disturbed areas on the subject site shall be planted and maintained for erosion control and visual enhancement purposes according to the submitted landscape plan within thirty (30) days of final occupancy of the residence. Such planting shall be adequate to provide ninety (90) percent coverage within one (1) year and shall be repeated, if necessary, to provide such coverage.

Page $\frac{3}{4}$ of $\frac{4}{100}$ Permit Application No. 4-96-025-A-Z

- b) Should grading take place during the rainy season (November I March 31), sediment basins (including debris basins, desilting basins, or silt traps) shall be required on the project site prior to or concurrent with the initial grading operations and maintained through the development process to minimize sediment from runoff waters during construction. All sediment should be retained on-site unless removed to an appropriate approved disposal location.
- The drainage plan shall illustrate that run-off from the roof, patios, driveway and all other impervious surfaces on the subject parcel are collected and discharged in a non-erosive manner which avoids ponding on the pad area. Site drainage shall not be accomplished by sheetflow runoff. Should the residential project's drainage structures fail or result in erosion, the applicant/landowner or successor interests shall be responsible for any necessary repairs and restoration.

6. Required Approvals

Prior to the issuance of a coastal development permit, the applicant shall provide to the Executive Director of the Commission; a copy of a valid California Department of Fish & Game Streambed Alteration Agreement, or evidence that such an agreement is not required.

7. Plans Conforming to Geologic Recommendation

PRIOR TO THE ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicant shall submit, for the review and approval by the Executive Director, evidence of the Geologist and Engineer consultant's review and approval of all project plans. All recommendations contained in the submitted geologic report titled: Supplemental Soils and Engineering Geologic Investigation, dated September 10, 1999, prepared by California Geosystems, shall be incorporated into all final design and construction including embedment depth and soldier pile design. All plans must be reviewed and approved by the consultants.

The final plans approved by the consultants shall be in substantial conformance with the plans approved by the Commission relative to construction, grading and drainage. Any substantial changes in the proposed development approved by the Commission which may be required by the consultants shall require an amendment to the permit or a new coastal permit.

8. Removal of Excavated Material

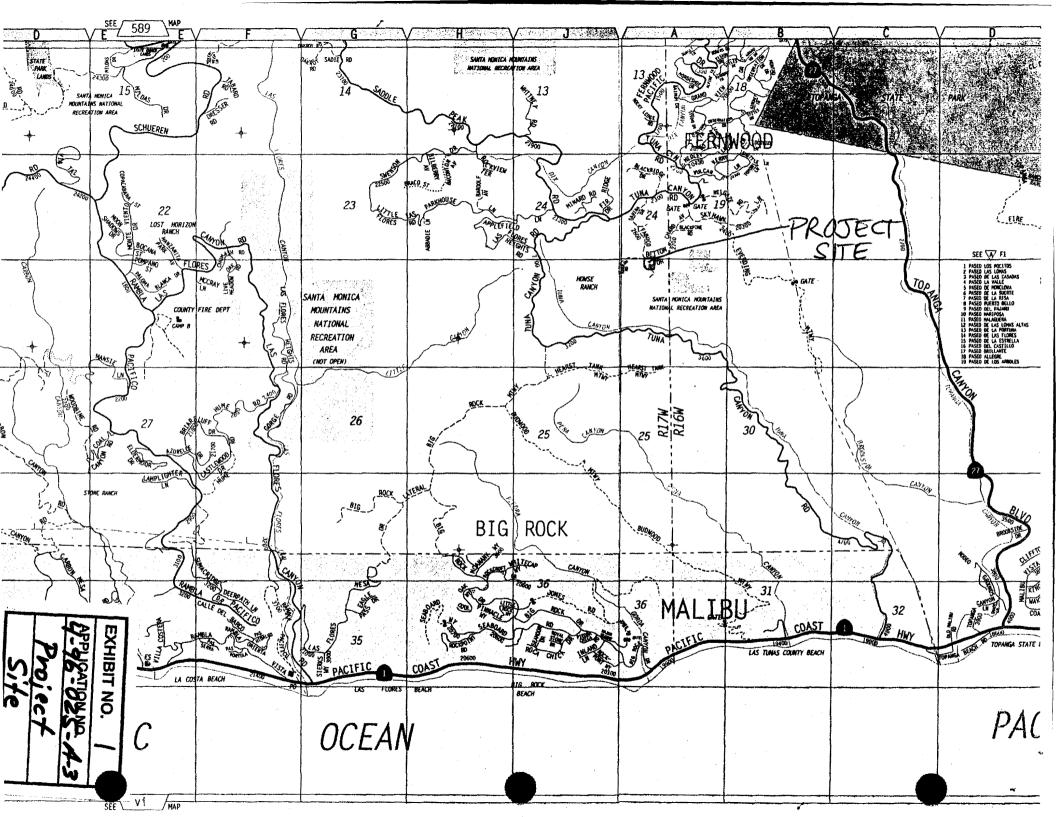
The applicant shall remove all excavated or cut material consisting of approximately ten (10) cubic yards of material to an appropriate disposal site located outside in the Coastal Zone, or an approved site located in the coastal zone with a valid coastal development permit for disposal of fill material.

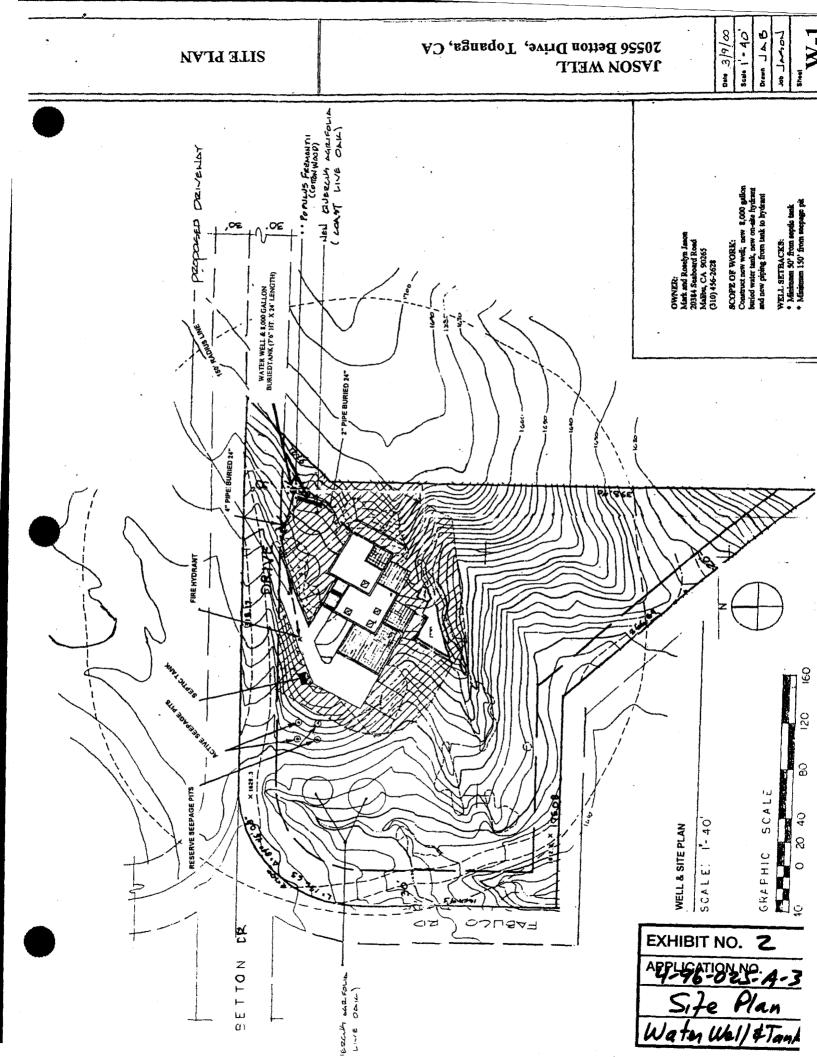
Page of 9 Permit Application No. 4-96-025-A-Z

9. Polluted Runoff Control Plan

Prior to issuance of the Coastal Development Permit Amendment, the applicant shall submit, for the review and approval of the Executive Director, a Polluted Runoff Control Plan, which, when implemented, will serve to minimize the discharge of pollutants from residential runoff into surface water drainage, and maintain post-development peak runoff rate and average volume, at levels that are similar to pre-development levels, by incorporating structural and nonstructural Best Management Practices (BMPs) into final approved grading, paving and drainage development plans. Appropriate BMPs include, but are not limited to, the following:

- Protecting existing vegetation and natural drainage systems;
- Incorporating silt traps, catch basins, and oil/water separators into the design of development that increases impermeable surfaces, including private roads and driveways;
- Incorporating a BMP maintenance agreement which states that by acceptance of this Coastal Development Permit Amendment, the applicant/owner or successor interests agrees to be solely responsible for regular maintenance including inspection and regular cleaning of these approved BMPs to ensure their effectiveness prior to and during each rainy season from November 1 through April 31 of each year. Debris and other water pollutants contained in BMP device(s) will be contained and disposed of in a proper manner on a regular basis. All BMP traps/separators and/or filters must be cleaned prior to the start the winter storm season, no later than October 15th each year.





ESRI ArcExplorer 1.1 Tuna Canyon Significant Watershed new homes contours @ 100ft Project Site? Blue Line Streams streets watersheds laprcls Boundary Tuna Canyon Watershed Thursday, Oct 19 2000

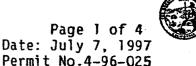
CALIFORNIA COASTAL COMMISSION

JITH CENTRAL COAST AREA

SOUTH CALIFORNIA ST., SUITE 200

VENTURA, CA 93001

(805) 641-0142



COASTAL DEVELOPMENT PERMIT

On August 15, 1996, the California Coastal Commission granted to Mark Jason Permit 4-96-025, this permit subject to the attached Standard and Special conditions, for development consisting of:

Construction of a new 4,800 sq. ft., 25'-0", 2 story single family residence, with a swimming pool, involving 596 cubic yards of grading. The project also involves improvements to a 1,790' access road involving paving, the installation of 3 rip-rap drainage devices and approximately 3,016 cubic yards of grading and is more specifically described in the application on file in the Commission offices.

The development is within the coastal zone in Los Angeles County at 20556 Betton Drive, Topanga.

Issued on behalf of the California Coastal Commission by

1146611111

JAN 18 1999

:_ALIFORNIA.
COASTAL COMMISS.
SOUTH CENTRAL COAST DOLLARS

PETER DOUGLAS Executive Director

John Ainsworth

Title: Regulatory Supervisor

ACKNOWLEDGMENT

The undersigned permittee acknowledges receipt of this permit and agrees to abide by all terms and conditions thereof.

The undersigned permittee acknowledges that Government Code Section 818.4 which states in pertinent part, that: "A public entity is not liable for injury caused by the issuance. . . of any permit. . ." applies to the issuance of this permit.

IMPORTANT: THIS PERMIT IS NOT VALID UNLESS AND UNTIL A COPY OF THE PERMIT WITH THE SIGNED ACKNOWLEDGEMENT HAS BEEN RETURNED TO THE COMMISSION OFFICE. 14 Cal. Admin. Code Section 13158(a).

Date

A6: 8/95

Signature of Permitte

EXHIBIT NO. 4

APPLICATION NO. A-3

1-400000

Page 2 of 4 Permit No. 4-96-025

STANDARD CONDITIONS:

- Notice of Receipt and Acknowledgment. The permit is not valid and development shall not commence until a copy of the permit, signed by the permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.
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- 3. <u>Compliance</u>. All development must occur in strict compliance with the proposal as set forth in the application for permit, subject to any special conditions set forth below. Any deviation from the approved plans must be reviewed and approved by the staff and may require Commission approval.
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- 6. <u>Assignment</u>. The permit may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and conditions of the permit.
- 7. <u>Terms and Conditions Run with the Land</u>. These terms and conditions shall be perpetual, and it is the intention of the Commission and the permittee to bind all future owners and possessors of the subject property to the terms and conditions.

SPECIAL CONDITIONS:

1. <u>Future Development:</u>

Prior to the issuance of a coastal development permit, the applicant shall execute and record a document, in a form and content acceptable to the Executive Director, stating that the subject permit is only for the development described in the Coastal Development Permit No. 4-96-025; and that any future structures, additions or improvements to the property, including but not limited to clearing of vegetation, that might otherwise be exempt under Public Resource Code Section 30610(a), will require a permit from the Coastal Commission or its successor agency. However, fuel modification consistent with the requirements of the Los Angeles County Fire Department's fuel modification standards is permitted. The document shall run with the land, binding all successors and assigns, and shall be recorded free of prior liens and any other encumbrances which the Executive Director determines may affect the interest being conveyed.

Page 3 of 4 Permit Application No. 4-96-025

2. Plans Conforming to Geologic Recommendation

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The final plans approved by the consultants shall be in substantial conformance with the plans approved by the Commission relative to construction, grading and drainage. Any substantial changes in the proposed development approved by the Commission which may be required by the consultants shall require an amendment to the permit or a new coastal permit.

3. Wild Fire Waiver of Liability

Prior to the issuance of the coastal development permit, the applicants shall submit a signed document which shall indemnify and hold harmless the California Coastal Commission, its officers, agents and employees against any and all claims, demands, damages, costs, expenses of liability arising out of the acquisition, design, construction, operation, maintenance, existence, or failure of the permitted project in an area where an extraordinary potential for damage or destruction from wild fire exists as an inherent risk to life and property.

4. Road Maintenance Agreement

By acceptance of this Coastal Development Permit, the applicant agrees that should the proposed improvements to the access road or the proposed drainage structures fail or result in erosion, the applicant/landowner or successor interests shall be solely responsible for any necessary repairs and restoration along the entire length of the access road as it crosses Skyhawk Lane, Chard Road and Betton Drive.

5. Erosion Control and Drainage Plan

Prior to the issuance of the Coastal Development Permit, the applicant shall submit for the review and approval of the Executive Director, a erosion control and drainage plan designed by a licensed engineer. The plan shall incorporate the following criteria:

a) All disturbed areas on the subject site shall be planted and maintained for erosion control and visual enhancement purposes according to the submitted landscape plan within thirty (30) days of final occupancy of the residence. Such planting shall be adequate to provide ninety (90) percent coverage within one (1) year and shall be repeated, if necessary, to provide such coverage.

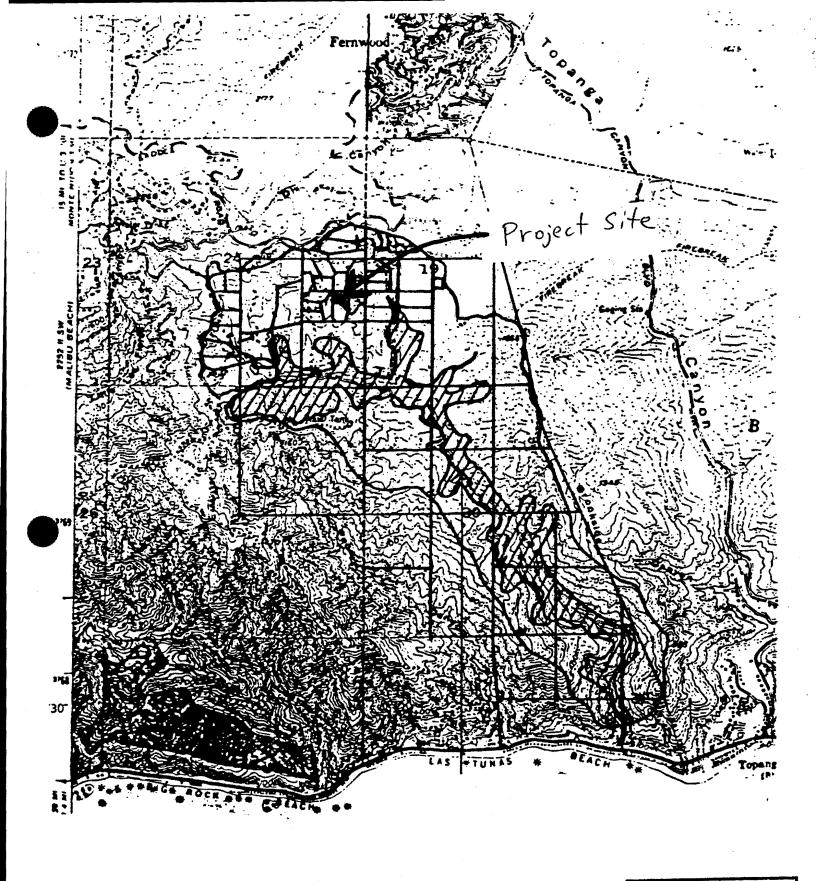
Page 4 of 4 Permit Application No. 4-96-025

- b) Should grading take place during the rainy season (November 1 March 31), sediment basins (including debris basins, desilting basins, or silt traps) shall be required on the project site prior to or concurrent with the initial grading operations and maintained through the development process to minimize sediment from runoff waters during construction. All sediment should be retained on-site unless removed to an appropriate approved disposal location.
- c) The drainage plan shall illustrate that run-off from the roof, patios, driveway and all other impervious surfaces on the subject parcel are collected and discharged in a non-erosive manner which avoids ponding on the pad area. Site drainage shall not be accomplished by sheetflow runoff. Should the residential project's drainage structures fail or result in erosion, the applicant/landowner or successor interests shall be responsible for any necessary repairs and restoration.

6. Required Approvals

Prior to the issuance of a coastal development permit, the applicant shall provide to the Executive Director of the Commission; a copy of a valid California Department of Fish & Game Streambed Alteration Agreement, or evidence that such an agreement is not required.

3947C/JA/dp



Tuna Canyon Environmentally Sensitive Habitat Area

EXHIBIT NO. 5

OPENSATION NO. A-3

Tuna Canyon

ESHA



May 31, 2000

BYA Project No. 49.92096.0001

Mr. Mark Jason 20384 Seaboard Road Malibu, California 90265 me ccc

SUBJECT:

Report of Hydrogeologic Evaluation, 20556 Betton Drive, Topanga Canyon

Area, Los Angeles County, California

Introduction

Bing Yen & Associates, Inc. (BYA) completed this hydrogeologic evaluation of the Jason property, a proposed single-family residence development. This work was performed in accordance with your request and authorization dated April 27, 2000. The purpose of this investigation was to evaluate the potential impacts of the proposed development, including an onsite domestic water well, upon the hydrogeologic conditions in the vicinity of the site. This letter report presents the results of our evaluation and includes conclusions regarding the potential hydrogeologic impact of the proposed development on the local water table and the surrounding environment.

The scope of work completed for this investigation included the following tasks:

- Background data collection and review;
- Onsite geologic reconnaissance;
- Preliminary watershed-area analysis;
- Preparation of geologic maps and cross sections;
- Hydrogeologic data evaluation; and
- Preparation of this report.

Site Description

The project site, known as the "Jason Property", is located in the Topanga Canyon area of western Los Angeles County, California (Figure 1). The site address is 20556 Betton Drive. Access is via Tuna Canyon Road to Betton Drive.

The site is an irregularly shaped parcel comprising 2.60 acres. A portion of the site has been rough graded for a building pad. The remaining areas are in a relatively natural state. Maximum topographic relief on the property is approximately 90 feet with elevations ranging from 1590 to 1680 feet. Surface drainage is via overland sheet flow. No drainage improvements were observed at the time of our site visit.

The Jason property comprises one lot of a 16-lot development. All of these properties are currently undeveloped and unoccupied. Nearby improvements include the recently paved Betton Drive. The existing nearest residential homes are located over one thousand feet to the north.

EXHIBIT NO. 6

APPLICATION NO. A-3

BYA Report

May 31, 2000

Jason Report May 31, 2000

Proposed Development

The proposed site development includes one single-family residence. Residential water is planned to be supplied by an onsite domestic water well with an associated storage tank. Sewage will be disposed by an onsite septic system utilizing multiple seepage pits.

The surrounding area consists of either undeveloped lots or open space. The Jason property and surrounding lots are part of a residential development that originally included 16 units. All lots are approximately 2.5 acres. Of the original 16 lots, one has been purchased by the State, and the remaining 14 lots are owned by others (Jason, 2000).

Geologic Setting

The site is located in the western Santa Monica Mountains, part of the Transverse Ranges geomorphic province of southern California. The Transverse Ranges are characterized by eastwest trending mountain ranges experiencing regional compression caused by the "Big Bend" in the San Andreas fault. The regional compression is accommodated on reverse faults that typically bound the flanks of the mountain ranges.

Bedrock in the site vicinity is the Oligocene-age Sespe formation. The Sespe formation is a widespread terrestrial deposit consisting primarily of sandstone, pebbly sandstone, conglomerate, and mudstone beds. Minor thicknesses of surficial deposits, including alluvium in the streambeds and colluvium on slopes, mantle the bedrock. Bedding near the site is folded with generally north dips at angles ranging from 20 to 30 degrees.

Groundwater

Groundwater flow in folded and faulted bedrock aquifers is usually unfeasible to accurately model. Studies in mountainous bedrock terrain commonly treated groundwater flow as occurring under unconfined conditions (Forster and Smith, 1988) with flow patterns mimicking the surface topography.

Data regarding the depth to groundwater at the site is not available, however, two existing wells are present within approximately 2,000 feet of the site. Depth to water in these wells was reported at approximately 110 feet (Frayne well) and at 130 to 260 feet (Zanini well). Depth to groundwater at the site is assumed to be at approximately 100 to 200 feet below the surface. Actual groundwater levels will fluctuate significantly from season to season. Groundwater conditions near the site are conceptually depicted on Cross Sections A-A' and B-B' (Figure 2). Well records are included as Appendix B.

Analysis of Water Usage from Proposed Development

Water demand for a typical single-family residence is approximately 400 gallons per day. Of the total demand, approximately 80% is typically used inside the residence and the remaining 20% is used for landscape irrigation. Approximately ½ acre of irrigated landscaping is required within "Zone A" as part of the Landscape / Fuel Modification Plan for the site (Malibu Design, 2000).

As shown below, of the 400 gallons of well water extracted per day, approximately 320 gallons will recharge to the groundwater. Therefore, net groundwater withdrawal at the site should be approximately 80 gallons per day.

Summary of Well Water Fate

Water Use	Water Volume	Water Fate	Groundwater Recharge	Recharge Volume
Household	320 gpd	Septic System	95%	304 gpd
Isriantian	80 gpd	Infiltration	20%	16 gpd
Irrigation		Runoff/Evapotranspiration	80%	0 gpd
Total	400 gpd	Groundwater Recharge	80 %	320 gpd

Hydrogeologic Impact of Proposed Development

The total porosity of the Sespe formation can be estimated at approximately 33% with a specific yield of approximately 25% (Fetter, 1988; Todd, 1988). The 2.6-acre site comprises 113,256 square feet. Using a porosity of 33%, each foot of saturated bedrock underlying the 2.6-acre site holds approximately 280,000 gallons of water.

Site Area:	2.60 acres (113,256 ft ²)
Dito I Liou.	

•	Porosity (estimated):	33%

Pore Volume per foot:
$$38,400 \text{ ft}^3 = 280,000 \text{ gallons}$$

• , '	Aquifer Yield per foot of drawdown:	212,000 gallons
	Net Groundwater Withdrawal (see above):	80 gallons/day

As shown above, net groundwater withdrawal of 80 gallons per day could induce a theoretical cumulative drawdown of 6.9 feet over a 50-year period. The actual drawdown should be significantly less since the above calculations neglect inflow from surrounding open space and undeveloped properties. Long-term actual drawdown of the groundwater table across the site should be in the range of one to four feet, with a resulting change in the groundwater table lowering from approximately 120 feet to approximately 121 to 124 feet.

The above groundwater analysis assumes that all surrounding properties are extracting groundwater at the same rate as the subject site. Therefore, the cumulative impacts of additional development would not increase the estimated impact at the site.

Conclusions

- Due to the low-density nature of the planned development, residential water supply by onsite domestic water well should have a negligible influence on the hydrogeologic water balance at the site and surrounding areas.
- Due to the relatively high topographic relief and depth to groundwater of over 100 feet, water well withdrawals should have a negligible influence on dry-season and wet-season stream flows and springs.

We appreciate the opportunity to assist you on this project. If you have any questions regarding this report, please contact us at your convenience.

Sincerely,

BING YEN & ASSOCIATES, INC.

D. Scott Moors

Senior Project Geologist CHG 607, exp. 9/30/2000 CEG 1901, exp 3/31/02

QA/QC: MBP

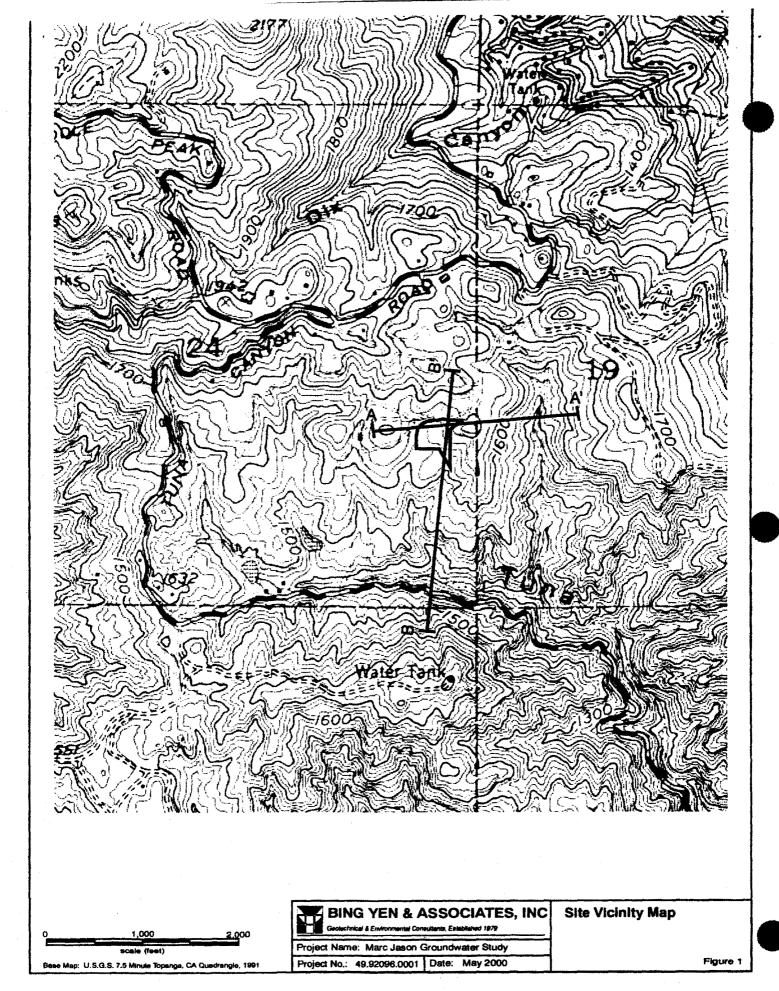
Attachments:

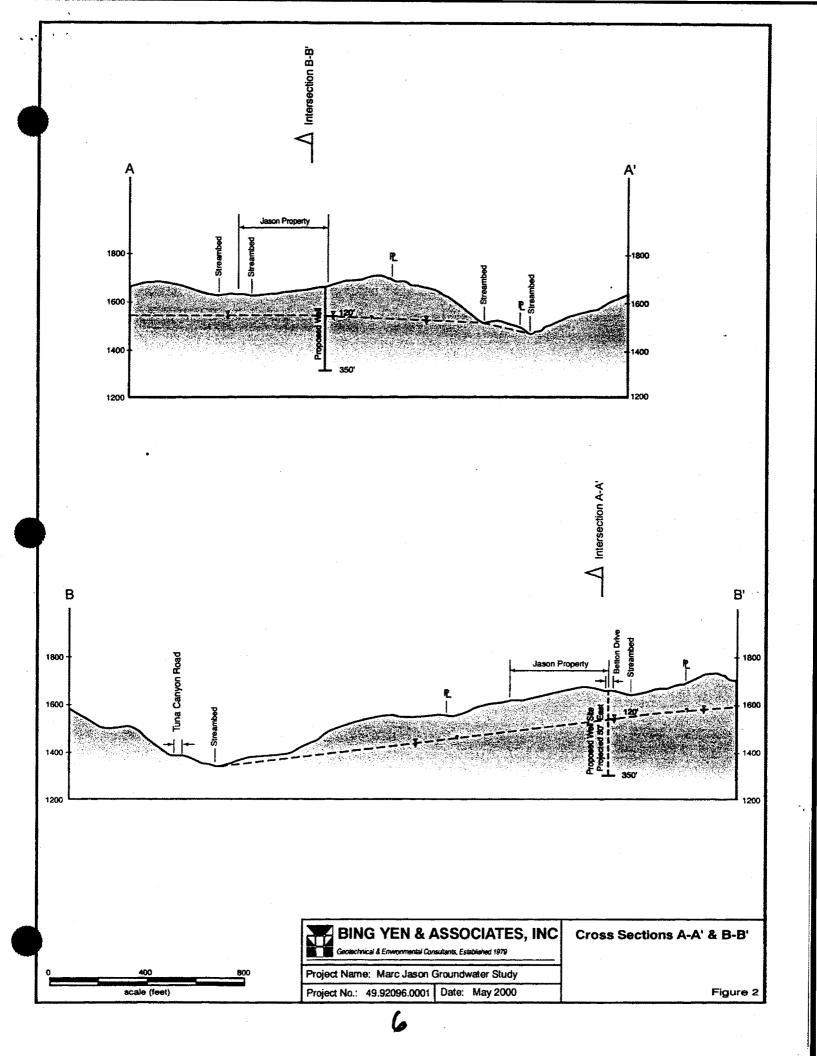
Figure 1 - Site Vicinity Map

Figure 2 - Cross Section A-A' & B-B'

Appendix A - References

Appendix B - Site Plan and Well Records





APPENDIX A

References

- Dibblee, Thomas W., Geologic Map, Topanga/Canoga Park Quadrangle, CA. 1998
- Fetter, C.W., Applied Hydrology, Merrill Publishing, Second Edition, 1988
- Forster, C., and Smith, L., Groundwater Flow Systems in Mountainous Terrain, water Resources Research, vol. 24, no. 7, pp. 999-1023, July 1988
- Jason, Mark; 2000: personnel communication, May 2000
- Lohman, S.W., Ground-Water Hydraulics, Geological Survey Professional Paper 708, Fifth Edition, 1989
- MacNeil, John H., L.S., 1999: Aerial Map of the NE 4 SE 4 Sec. 24, T.1S., R.17W., S.B.M, and Adjacent Areas, Topographic Parcel Map, Scale: 1"=100', revised 1/99
- Malibu Design, 2000: Landscape / Fuel Modification Plan for Mark Jason & Mrs. Roselyn H. Richman, revised 3/9/2000
- Todd, David K., Groundwater Hydrology, John Wiley & Sons, Second Edition, 1988
- Yerkes, R.F. and Campbell, R.H., U.S.G.S Preliminary Geologic Map Topanga, CA. Quadrangle



BING YEN & ASSOCIATES, INC. Georechnical & Environmental Consultents, Established 1979

August 3, 2000

BYA Project No. 49.92096.0001

Mr. Mark Jason 20384 Seaboard Road Malibu, California 90265

SUBJECT:

Response to Verbal Comments by California Coastal Commission, 20556

Betton Drive, Topanga Canyon Area, Los Angeles County, California

REFERENCE: Bing Yen & Associates, Inc.: Hydrogeologic Evaluation, 20556 Betton Drive,

Topanga Canyon Area, Los Angeles County, California, dated May 31, 2000

Bing Yen & Associates, Inc. (BYA) prepared this letter in response to verbal comments by Mark Johnson of the Californ a Coastal Commission. Mr. Johnson reviewed the referenced report and requested additional information in three areas:

- 1. Provide additional information or references regarding the porosity and specific yield values assumed for the Sespe Formation.
- Provide the location of the nearby water wells identified in the referenced report.
- Evaluate the time-frame for groundwater recharged via septic system to recharge well.

BYA presents the following responses to the listed comments:

- BYA researched several sources for site specific and formation specific porosity and specific yield values for the Sespe Formation. BYA contacted the following information sources: No published values were identified following contacts with the following sources:
 - a) California Well Sample Repository Internet site at www wellsample.org.
 - b) City of Malibu City Geologist Chris Dean.
 - c) California Department of Water Resources Gary Gilbreath
 - d) California Division of Oil, Gas, and Geothermal Resources Tim Quenten
 - e) Schlumbeger Ltd. (805) 642-8141
 - f) CoreLabs (Bakersfield) Jeff Smith (661) 392-8600

Jeff Smith of CoreLabs stated that porosity values for the Sespe Formation are in the "low twenties" based on unpublished testing results. No other published values were available from these sources.

Our May 31, 2000 report assumes 33% porosity interstitial for calculating the "theoretical" draw down potential over the design life of the project. Assuming a lower porosity would increase the theoretical drawdown based on the model presented in the report. The model includes several conservative, simplifying assumptions.

The most significant assumption in the groundwater discussion is that there would be no lateral recharge. As a well draws down the water table, lateral inflow of groundwater is induced, which stabilizes the cone of depression. As discussed in the report, we estimate that a steady-state drawdown of one to four feet will be produced at the site. Quantitative draw

2310 E. Ponderose Drive, Suite 1, Camarillo, CA 93010 Tel. (805)383-0064 Fax (805)383-309 A subsidiary of ATC Group Services, Mc.

EXHIBIT NO.

pages 1-7

Jason Report

August 3, 2000

down modeling is both impractical for a hilly bedrock aquifer and is not warranted given the size of the project and the results of the qualitative analysis.

The simple model and accompanying discussion demonstrates that, since the site will use a septic system for sawage disposal, the vast majority of extracted groundwater will be recharged to the water table. Use of a well and septic system will result in a much smaller hydrogeologic "impact" on the site than importing chlorinated water from offsite. If imported water is required, than the net change in groundwater recharge will be on the order of 320 gpd (recharge), as opposed to 80 gpd (extraction) if a well is used. Water recharged from a well will be of the same mineral character as the local groundwater. Imported water would have different chemical character.

- 2. The attached map illustrates the locations of the nearby water wells. The "Frayne" well indicated in the report is depicted as "Jobbins" due to a change in ownership.
- 3. The time frame for septic discharge to recharge to the water table is dependant on the depth of the septic pits and the wetting-front seepage velocity in the unsaturated zone. Seepage velocity can be estimated by the equation:

$$v_{*} = k$$

Where v_s is the seepage velocity, k is the hydraulic conductivity, and i is the hydraulic gradient. Bedrock consists of interbedded sandstones, conglomerates, siltstones, and minor claystones. The majority of groundwater seepage occurs through the units having the highest hydraulic conductivities. Flow may occur through clay beds, retarding seepage flow in a near vertical seepage path. Using an assumed value of $k = 10^{-3}$ cm/sec from published references (Todd, 1988, Fetter, 1988), and a gradient of i = 10.0 and solving for v_s gives:

$$y_x = ki$$

- 0.0001 cm/sec

and solving for a seventy-foot travel path gives a travel time of approximately 8 months.

4. Two typographic errors were noted in review of the referenced report: 1). The pore volume on page 3 should read 37,400 ft³, rather than 38,400 ft³. The correct value (37,400 ft³) was used in all calculations. 2) "Specific Yield" listed on page 3 should read "Specific Retention". Neither error has any impact on the calculations or on the conclusions.

Conclusions

- Due to the low-density of the planned development, residential water supply by onsite
 domestic water well will have a negligible influence on the hydrogeologic water balance
 at the site and surrounding areas.
- Due to the relatively high topographic relief and the depth to groundwater > 100 feet, water well withdrawal will have a negligible influence on dry-season and wet-season stream flows and springs.

Jason Report

August 3, 2000

We appreciate the opportunity to assist you on this project. If you have any questions regarding this report, please contact us at your convenience.

Sincerely,

BING YEN & ASSOCIATES, INC.

D. Scott Moors

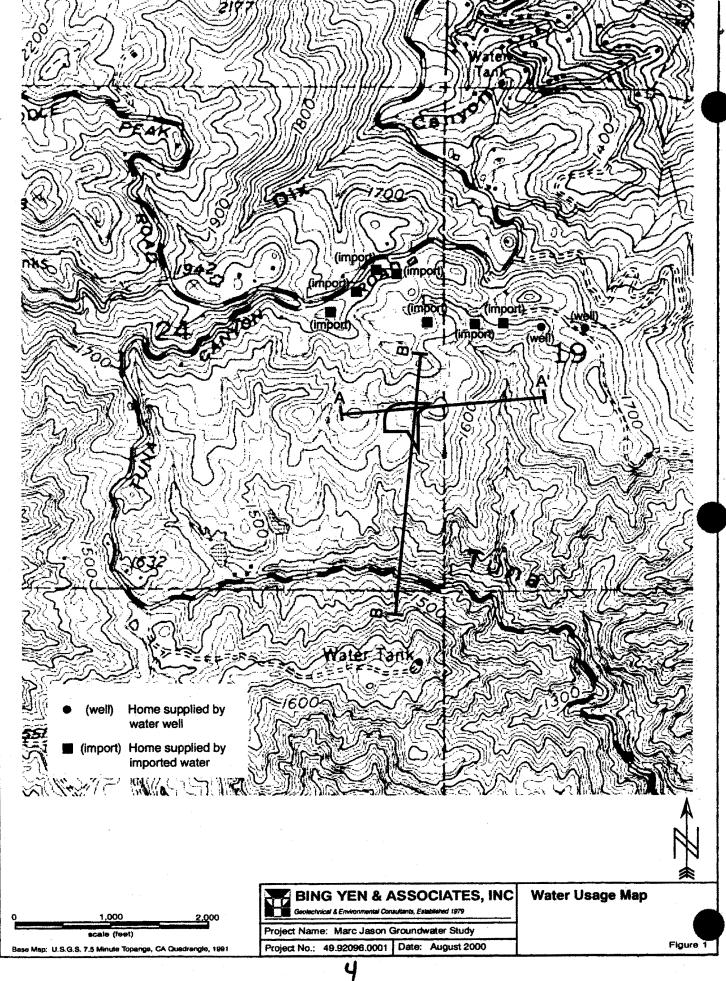
Senior Project Geologist CHG 607, exp. 9/30/02 CEG 1901, exp 3/31/02

Attachments:

Figure 1 - Site Vicinity Map

Appendix A – References
Appendix B – Calculation Sheet

ann I



APPENDIX A

References

- Dibblee, Thomas W. Jr., 1998 Geologic Map, Topanga/Canoga Park Quadrangle, CA, dated 1998
- Fetter, C.W., 1988 Applied Hydrology, Merrill Publishing, Second Edition, dated 1988
- Forster, C., and Smith, L., Groundwater Flow Systems in Mountainous Terrain, water Resources Research, vol. 24, no. 7, pp. 999-1023, dated July 1988
- Jason, Mark; 2000 personnel communication, May 2000
- Lohman, S.W., Ground-Water Hydraulics, Geological Survey Professional Paper 708, Fifth Edition, 1989
- MacNeil, John H., L.S., 1999 Aerial Map of the NE 1/4 SE 1/4 Sec. 24, T.1S., R.17W., S.B.B.&.M, and Adjacent Areas, Topographic Parcel Map, Scale: 1"=100', revised 1/99
- Malibu Design, 2000 Landscape / Fuel Modification Plan for Mark Jason & Mrs. Roselyn H. Richman, revised 3/9/2000
- Todd, David K., Groundwater Hydrology, John Wiley & Sons, Second Edition, 1988
- Yerkes, R.F. and Campbell, R.H., U.S.G.S Preliminary Geologic Map Topanga, CA. Quadrangle, dated 1995

APPENDIX B

Calculation Sheet

Bing Yen & Associates, Inc.

CALCULATION SHEET

Geotechnical & Environmental Consultants

PROJECT NAME: HYDROGRA JOIC EVALUATION

PROJECT NUMBER: 49.92096, 0001

SUBJECT: CALCULATIONS - G. W. RECHARGE TIMEPRAWE

DATE: 8/2/00

ORIG. BY: S, M.
CHECKED BY: C.W.

Sheet ____ of ___

Us = Ki

Vs = SERPAGE VELIZITY

K = HYDRAULIC CONDUCTIVITY

L = HYDRAULIC GRADIENT

K= 10 5 cm/sec

L = 10.0

DISTANCE = 70ft

Time = ?

Vs= ki

Vs = (0,000) CN/SEC × (10.0) > 0,0001 CN/SEC

Converting UNITS TO FEET/day:

0.0001 cm/ sec 36400 sec 1ft => 0.2835 ft/dm

Vs = 0.2835 ft/dm

CALCULATING TIME:

TIME = DISTANCE = 70ft = 246.9 days

Time = 246.9 days 2/8 MONTHS

CALIFORNIA COASTAL COMMISSION

45 FREMONT, SUITE 2000 SAN FRANCISCO, CA 94105-2219 VOICE AND TDD (415) 904-5200 FAX (415) 904-5400



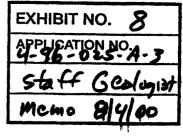
4 August 2000

MEMORANDUM

To: James Johnson, Coastal Program Analyst

From: Mark Johnsson, Senior Geologist

Re: Iason water well



pages 1-3

I have reviewed the following documents in reference to the proposed water well for the Jason property at 20556 Betton Drive in the Topanga Canyon area of Los Angeles County:

- 1) Bing Yen and Associates report "Report of hydrogeologic evaluation 20556 Betton Drive, Topanga Canyon Area, Los Angeles County, California" dated 31 May 2000 and signed by D. Scott Moors.
- 2) Bing Yen and Associates Letter Report "Response to verbal comments by California Coastal Commission, 20556 Betton Drive, Topanga Canyon Area, Los Angeles County, California" dated 3 August 2000 and signed by Scott Moors.

In addition, I have spoken with Mr. Moors and discussed his findings with him.

In reference (1), Mr. Moors estimates a total household water usage of 400 gallons per day (gpd), all of which is to be provided by the proposed well. Of this volume, an estimated 80 gpd will be used for irrigation. He estimates that 20% of the 80 gpd, or 16 gpd, will infiltrate and recharge ground water, whereas the rest will be lost through runoff and evapotransipiration. Of the 320 gpd used for household purposes, Mr. Moors estimates that 95%, or 304 gpd, will be sent to a septic system, which will eventually recharge to ground water. Thus, of the 400 gpd extracted, 320 (304+16)will be returned to ground water, leaving a net ground water loss (use) of 80 gpd. These numbers seam reasonable, and I concur with these findings.

Mr. Moors then uses a simple approach to calculate lowering of the water table to be expected from this amount of ground water withdrawal. His approach is conservative in that he assumes no inflow from adjacent properties; an assumption that is reasonable if applied on a somewhat more regional scale since the site lies near the top of a ridge of the Santa Monica Mountains and is hydrologically fairly isolated by canyons. Based on assumed values of porosity and specific yield for the aquifer, he then calculates a drawdown for a 50-year design life of 6.9 feet; this can be adjusted to 10.35 years for the

75-year design life usually adopted by the Commission. In fact, this is a rather simplistic model; drawdown would not be equal under the entire property, but in fact would be greater than 10.35 feet at the well itself, and taper to zero at some distance from the well, forming a cone of depression. It is impossible to accurately assess the shape of this cone of depression or the maximum drawdown at the well without additional information. Due to the proposed location of the well, the majority of this cone of depression would not be under the subject property.

Further, and as addressed in reference (2), the values of porosity and specific yield assumed in this calculation may tend to underestimate drawdown. A lower value of porosity than the one used would increase theoretical drawdown—the "low 20's" figure cited in reference (2) yields a theoretical drawdown of 14.9 feet over the 75 year design life (for 23%). Actual drawdown would be greater than this figure at the well itself and taper off to zero at some distance from the well. Even a porosity value of 23% may be too high for the geologic units underlying the site, with the possibility that drawdown would be correspondingly greater.

Although neither the extraction of 80 gpd nor the calculated drawdown are likely to significantly affect ground water recharge to the blue-line streams surrounding the site, the cumulative effects of additional ground water extraction and drawdown if the adjacent 15 parcels are similarly developed may be significant. Given the elevation of the water table observed nearby in the Jobbins and Zanini wells, it appears possible that the water table surfaces in the bed of the small tributary to Tuna Canyon east of the site. Indeed, reference (1) above shows this geometry in the interpretive cross sections provided. Thus, ground water may contribute to the flow of this tributary, at least seasonally. Lowering the water table might prevent this contribution in the uppermost portions of this stream. Since similar conditions probably exist in Tuna Canyon streams to the south and west of the site, all of the blue-line streams south, east, and west of the site may be similarly affected.

Even if the ground water table is not sufficiently lowered by development to eliminate seasonal recharge to the stream beds, a net removal of up to 1280 gpd (80 gpd \times 16 units) could occur if, as seems likely, the recharge area is not receiving groundwater inputs laterally.

In summary, the proposed well is unlikely to significantly affect the blue-line streams when considered in isolation. The cumulative effect of developing the entire subdivision is more difficult to assess. Without additional hydrologic information, it is impossible to assess whether the calculated lowering of the water table or the withdrawal of the estimated 1280 gpd would significantly change the character of the streams, but there is some cause for concern. I have conferred with staff biologist John Dixon regarding the effects that the reduction of 1280 gpd might have on the habitat associated with the streams. In the absence of better information on expected changes in stream character, an assessment of habitat changes is impossible.

Information required to better assess the changes to be expected from the development of 16 water wells on the subdivision include: an assessment of seasonal groundwater contributions to the streams, hydrographs of the streams, the location of the water table beneath the streams and its seasonal variation, and ground water flow velocity.

I hope that this information is useful in formulating your recommendation. Please do not hesitate to contact me if you have further questions.

Sincerely,

Mark Johnsson Senior Geologist



August 25, 2000

Mr. Mark Johnson California Coastal Commission 45 Fremont, Suite 2000 San Francisco, CA 94105



BYA Project

EXHIBIT NO

CALIFORNIA COAST IL COMMISSION

pages 1-3

SUBJECT:

Second Response to Comments by California Coastal Commission, 20556 Betton Drive, Topanga Canyon Area, Los Angeles County, California

REFERENCE: Bing Yen & Associates, Inc.: Response to Verbal Comments by California Coastal Commission, 20556 Betton Drive, Topanga Canyon Area, Los Angeles

County, California, dated August 3, 2000

Bing Yen & Associates, Inc.: Hydrogeologic Evaluation, 20556 Betton Drive. Topanga Canyon Area. Los Angeles County, California, dated May 31, 2000

Bing Yen & Associates, Inc. (BYA) reviewed the Coastal Commission memorandum prepared by Mark Johnson, Senior Geologist, to James Johnson, Coastal Program Analyst, regarding the subject site, dated 4 August 2000. This letter in responds to concerns raised in that memo.

Cumulative Impacts: The referenced memorandum notes that while "the proposed well is unlikely to affect the blue-line streams when considered in isolation", ... "the cumulative effects of additional groundwater extraction and drawdown if the adjacent 15 parcels are similarly developed may be significant". The cumulative effect of multiple wells is certainly a valid concern, however, the model presented in the referenced reports specifically accounts for cumulative impacts. As previously discussed, no lateral flow is assumed in the simplified groundwater model presented in the referenced report. Therefore, each approximately 2.5 acre parcel is considered individually in isolation. The calculated drawdown of less than 15 feet will remains the same for 1 lot or 10 lots because the additional groundwater extraction occurs over a larger area. Furthermore, if lateral flow occurs (which it certainly will), the total drawdown will be reduced in proportion to the lateral underflow flux.

It is also worth noting that all 16 lots of the tract are unlikely to ever be developed with water wells. One lot in particular is owned by the State and will most likely remain as open space. A few other lots are unlikely to be developed individually due to topography and are more likely to be combined with adjacent lots by single owners. Ultimate build-out will most likely be 12 to 14

Finally, Mark Johnson's memo notes that the cross sections presented in BYA's May 31 report conceptually illustrate a groundwater connection between the site and the nearest blue-line streams (page 2, paragraph 3). Indeed, examination of the cross section, noting that the scale is 1 inch equals 400 feet, illustrates that the estimated (75-year) 15-foot drawdown is approximately the equal to the line-width of the water-table line. This simply illustrates the low significance of the maximum projected drawdown.

Balanced Ecosystem: It is our understanding that a goal of the Coastal Commission is to minimize the potential impacts of developments on the coastal ecosystem. Towards this end,

developing groundwater wells coupled with septic systems will result in the least impact of any reasonable development scenario. Currently, significant artificial groundwater recharge is occurring at several homes that import water and discharge to septic systems. Using the same water usage figures presented in our BYA's May 31 report, net groundwater recharge from homes using imported water is approximately 320 gpd (304 gallons septic plus 16 gallons irrigation infiltration). Thus the net extraction from a home using a well of 80 gpd offsets only 25% of the net recharge supplied by a home using imported water. Therefore, in order to achieve a "balanced" groundwater system, it is desirable to develop a mix of homes supplied by wells and homes supplied by imported water. Numerous existing homes in the immediate vicinity of the subject tract are currently using imported water and discharging to septic systems (Mark Jason, personal comm.). These homes include those located along Tuna Canyon Road, Hawks Nest Trail, and Sabina Drive (Figure 1).

Conclusions

- Due to the low-density nature of the planned development and the existing mix of homes
 using imported water and well water, residential water supply by onsite domestic water
 wells will have a negligible influence on the hydrogeologic water balance at the site and
 surrounding areas.
- Due to the relatively high topographic relief and depth to groundwater of over 100 feet, water well withdrawals will have a negligible influence on dry-season and wet-season flows in blue-line streams and springs.

If you have any questions regarding this letter, please contact us at your convenience.

Sincerely,

BING YEN & ASSOCIATES, INC.

D. Scott Moors

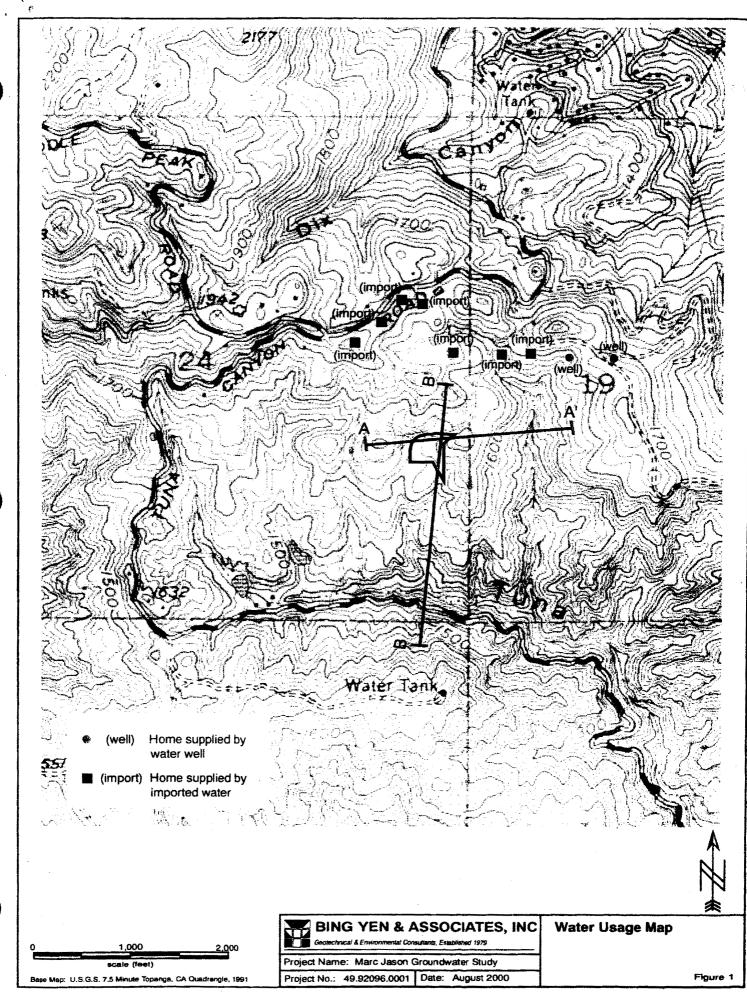
Senior Project Geologist CHG 607, exp. 9/30/02 CEG 1901, exp 3/31/02

Attachments: Figure 1 -Water Usage Map

Cc: James Johnson - Coastal Program Analyst

Mark Jason Terry Valente

response2





BING YEN & ASSOCIATES, INC.

Geotechnical & Environmental Consultants, Established 1979

OCT 0 3 200

BYA Project No.

EXHIBIT NO. 10

APPLICATION NO. A-3

BYA Report

Sapt. 21, 2000

September 21, 2000

Mr. Mark Johnson
California Coastal Commission
45 Fremont, Suite 2000
San Francisco, CA 94105

SUBJECT:

Additional Hydrogeologic Information, 20556 Betton Drive, Topanga Canyon Area, Los Angeles County, California Pages 1-16

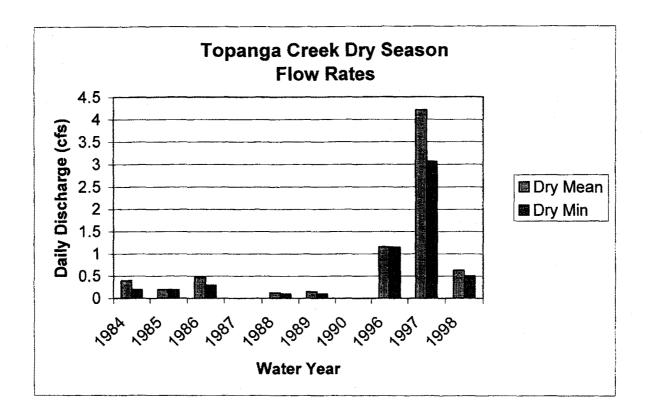
As a follow up to our telephone conversation on September 11, 2000, Bing Yen & Associates, Inc. (BYA) is providing this additional hydrogeologic information regarding the subject property.

The Coastal Commission representative asked for information regarding the period of the year that water flows in the streambeds near the site. BYA researched sources regarding flow in the creek(s) surrounding the Jason property. There was no site-specific data available from the following information sources:

- a) Los Angeles County Department of Public Works (LACDPW) (626) 458-6199
- b) United States Geological Survey (USGS) California Water Resources Division
- c) California Department of Water Resources
- d) Selected publications (see references)

LACDPW maintains a stream gauge monitoring station on Topanga Creek in Mouse Canyon, approximately one mile to the southeast of the subject site (Figure 1). According to Don Carpenter of LACDPW, this is the only source of data near the subject site. The LACDPW shares this data with the USGS – California Water Resources Division as well as the California Department of Water Resources. Stream flow data for stream gauge F54C-R shows Topanga Creek to be a perennial stream with occasional dry periods. Records, dating back to 1985, indicate average (mean) annual flows of approximately 4.5 cubic feet per second (cfs) and average dry-season (June – September) flows of approximately 0.7 cfs (Appendix A). Note that the Topanga Creek stream-gauge data indicates an increasing trend of dry-season flows (see chart). The increase in dry-season flow is probably the result of an unbalance caused by imported water being discharged into septic systems.

As discussed in our previous letter, dated August 25, 2000, a balanced groundwater system can best be maintained by obtaining low-density residential water supply from onsite water wells and by recharging the groundwater directly through onsite septic systems. By this method, the vast majority (~80%) of groundwater extracted is returned directly to the subsurface. Relying on imported water creates an imbalance because imported water is discharged to the subsurface with no offsetting extraction. The most balanced and natural-state may be obtained by a combination of homes supplied by imported water and homes supplied by water wells. This exactly the system the Jason property proposes to develop. Existing homes supplied by imported water and homes supplied by water wells in the immediate vicinity of the Jason property are depicted on Figure 1.



If you have any questions regarding this letter, please contact me at your convenience.

Sincerely,

BING YEN & ASSOCIATES, INC.

D. Scott Moors

Senior Project Geologist CHG 607, exp. 9/30/02 CEG 1901, exp 3/31/02

Attachments: Figure 1 -Water Usage Map

Appendix A - Topanga Creek Gauge Data

Cc:

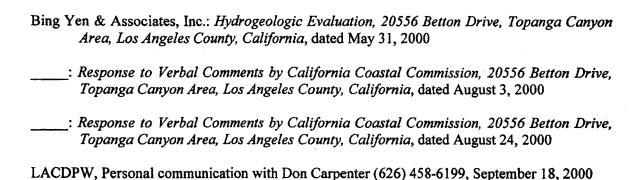
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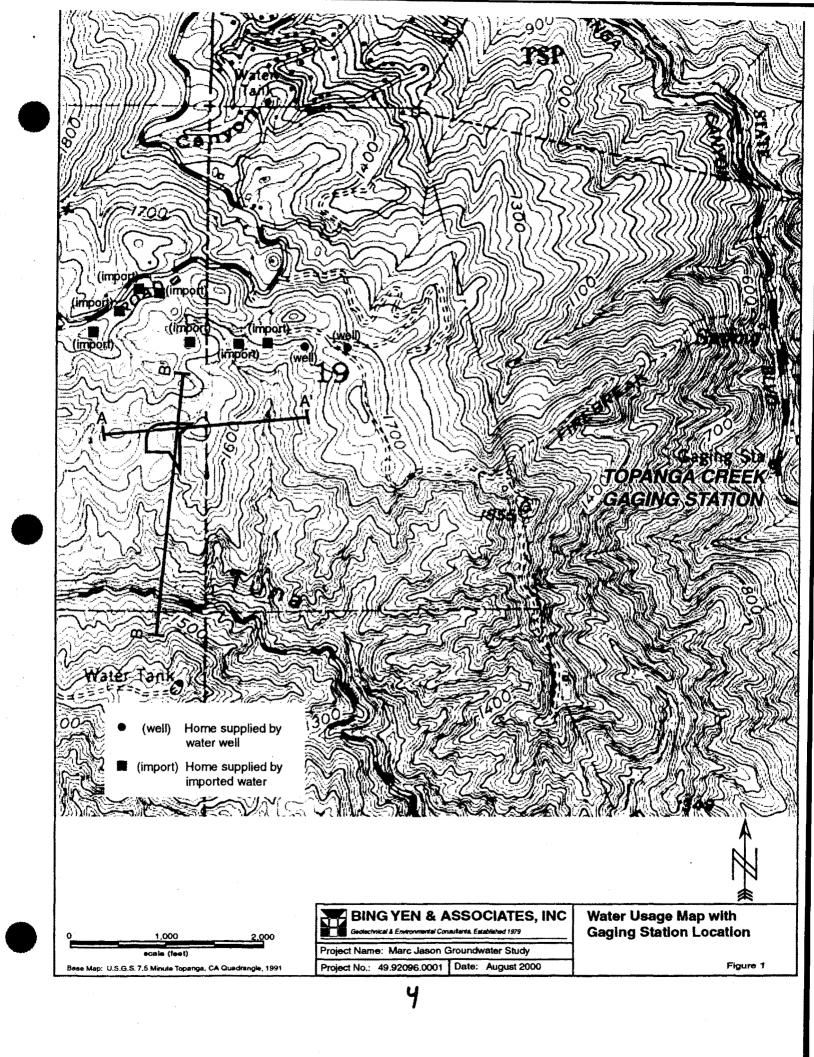
James Johnson - Coastal Program Analyst

Mark Jason Terry Valente

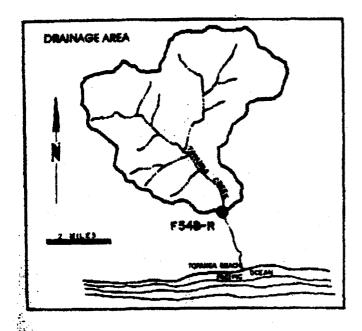
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REFERENCES

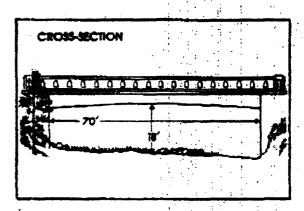




TOPANGA CREEK above Mouth of Canyon STATION NO. F54B-R







RECORDER- continuous water stage. METHOD OF MEMPLEMENTS- wading.

DCANON- downsteam side of Toponga Canyon Road bridge, 20 miles north of Toponga Beach.

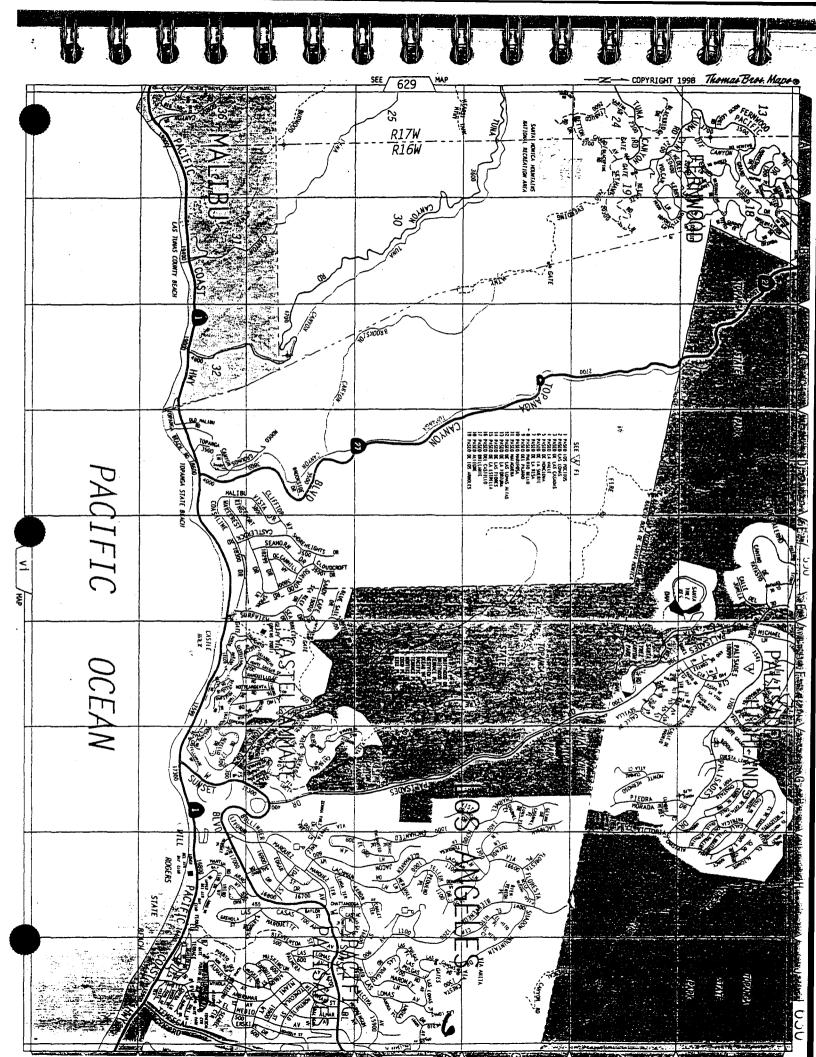
BREADON none

MANUAL - rock and gravel, natural section.

DIMINOR- HONE

MiGHI OF RECORD- at Station F54-it January 1, 1930 to June 4, 1940. at Station F548-it, June 5, 1940 to date.

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	9.3	9,1	5.0	V 1342	34	35	7/8	1.2	1.0	1.0	0.4	0.4	
	0.1	0.1 0.2 0.1	0.1 0.1	V 162:	779	40 37	10 7.5	6.0	1.4	1.0 0. 9 1.0	6.4 0.5	0.8 0.4 0.6	
	0.1	0.1	0.1	26 11 7.5	V 104 V 272 V 21:	51 45	10	5.5	1.8	1,0 1,0	0.4	9.8	
KFE YE	9.1 9.1	0.1	4.1 0.1	V 137 V 16≩	U 606	81 44	12	6-5	5.5 5.5	1.4	0.4	0.4	
	9.3	0.1 0.1	9.1	♥ 63 ♥.\$ 2.¢	V 51 V 49 V 41	112	14	\$ - 8 \$ - 8	2.4 2.4 2.4	1.0 1.0 1.0	5.6	2.2 0.8 0.4	
	0.1	9.3	9-1	V 19	7 61.0	V 2,480 V 396	17	4.0	3.4	1.0	1.3	9.3	
27	0.1	1.0	0.1	0,4 1.9	3.4	V 476	15	4.5	2.4	1.0		0.6	
	8.1	5.1	0.1	0.7	7.4	V 1.020	17	7.0	2.0	1.5	1	0.7	



WESTERN HYDROLOGIC SYSTEMS - (916) 885-2480 TOPANGA CREEK ABOVE MOUTH OF CANYON

ALLY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1998 TO SEP 1999

			•							•		ose
) 4 y	ост	HOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL"	AUG	SEP
1	1.2	.82	1.6	1.2	1.4	.90	1.3	1.4	.70	.49	.55	.89
2	1.2	1.1	1.5	1.1	1.0	. 92	1.5	1.4	1.3	.49	.56	.93
3	1.3	1.2	1.2	1.1	.95	.95	1.3	1.5	.97	-49	.56	- 94
4	1.2	1.2	1.2	1.1	.93	.96	1.2	1.5	.81	.49	.57	.96
5	1.1	1.2	1.2	1.1	1.1	. 98	1.2	1.4	.74	.47	.56	.99
6	1.0	1.2	2.2	1.1	.97	1.0	5.2	1.4	.70	.47	-59	1.0
7	1.1	1.3	1.2	1.1	.95	1.0	5.7	1.3	.70	.47	.50	.98
8	.96	3.9	1.1	1.1	. 96	1.0	2.6	1.3	.68	.46	.61	.96
9	. 91	1.3	1.1	1.1	4.2	1.1	2.0	1.3	. 66	.45	.61	.92
LG	. 95	1.0	1.0	1.1	2.3	1.1	1.7	1.2	. 65	-45	.62	.86
11	.98	1.2	1.0	1.1	1.2	1.2	19	1.2	. 65	.45	.63	-65
2	1.0	1.1	1.1	1.1	1.0	1.2	12	1.2	. 65	. 46	.63	.87
13	1.0	1.0	1.1	1.2	. 96	1.2	3.6	1.2	. 55	.45	.64	.85
14	.97	1.0	1.0	1.2	.95	1.2	2.5	1.1	.63	.46	.65	.82
15	. 98	1.0	1.1	1.2	. 95	5.4	2.0	1.0	.58	.46	.60	-85
16	.96	1.0	1-1	1.2	.91	1.9	1.7	1.0	-57	.46	.56	.65
17	. 9 0	1.1	1.1	1.2	.90	1.4	1.5	1.0	.57	.46	.56	.55
8	.86	1.1	1.2	1,2	. 35	1.2	1.4	.95	.57	.46	57	.56
	.84	1.1	1.2	1.3	.91	1.2	1.3	.95	. 56	.45	.59	.57
2	.82	1.1	1.2	1.5	.89	2.2	1.2	.95	.56	.46	.62	.58
Z 1	.85	1.1	1.1	1.2	.88	1.4	1.3	.95	.55	.46	.65	.57
22	.86	1.2	1.1	1.2	.87	1.2	1.3	.95	.56	.46	.68	.60
23	.85	1.2	1.2	1.2	.87	1.2	1.3	.94	.54	.47	.70	-61
24	.81	1.2	1.2	1.1	.88	1.2	1.4	.90	.53	.48	.69	.59
25	.82	1.2	1.2	1.7	.88	5.6	1.3	.87	.51	.50	-70	.55
26	.84	1.3	1.2	z. 8	-88	3.1	1.3	.81	.51	.52	.74	.58
27	.88	1.3	1.2	1.9	.89	1.7	1.4	.78	.51	.53	.78	.58
28	.86	4.5 2	1.2	1.2	.89	1.4	1.4	.76	.51	.54	.77	.58
29	-88	1.7	1.2	141		1.3	1.4	.77	.51	.55	.79	.54
30	. 86	1.2	1.2	1.1		1.3	14	.77	.50	.55	.83	.52
31	.83	alkali Airona-ris sar	1.2	4,0		1.3		.71		.54	.85	
TOTAL	29.64	40.82	37.5	41.6	31.35	48.71	83.5	33.46	19.13	14.94	20.08	22.35
MEAN	. 96	1.36	1.21	1.34	1.12	1.57	2.78	1.08	.64	.48	.65	-75
MAX	1.3	4.5	2.2	4.0	4.2	5.6	19	1.5	1.3	.55	. 85	1.0
MIN	. 81	.82	1.0	1.1	.87	.90	1.2	.71	. 50	.45	.55	.52
AC-FT	59	şī	74	83	62	97	166	66	38	30	40	44
CAL YEAR	1998 TOTAL*	107.96	MEAN	1.17	MAX	4.5	MIN	.81	AC-FT	214		
WTR YEAR	1999 TOTAL	423.08	MEAN	1.16	MAX	19	MIN	.45	AC-FT	839	* : :	
										and the state of	taking togeth,	ariginal a
Compl	ete Record								(B	<u>, that the east in </u>	110	

	3 3 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Post-It* Fax Note 7671	Date 9 /19/00 Dages
To Chris Wenzel	From Nethe Gorda
CO/Dept Bing den - Assoc.	CO. LACOPW
Priorie #	Phone * (636) 458 - 6128
Fax * (805) 383 - 3090	Fax #

WESTERN HYDROLOGIC SYSTEMS - (916) 885-2480 OF54RO F54C-R TOPANGA CREEK ABOVE MOUTH OF CANYON

ALLY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1997 TO SEP 1998

, ,,,,,,		22/VII 2	*** \			2000	, we a	4 AMERIC	JUL 17,			J 0
Day	oct	NOA	DEC	KAL	FEB	MAR	APE	MAY	JUN	JUL.	AUG	SEP
1	1.1	1.1	1.2	2.3	2.5	106	107	10	11	8,9	1.4	. 91
2	1.1	1.1	1.1	2.3	103	106	71	10	11	8.7	1.4	1.2
3	1.1	1.1	1.1	2.3	442	97	45	10	11	7.4	1.4	1.2
4	1.1	1.1	1.1	2.5	107	94	24	10	11	6.7	1.4	1.3
5	1.1	1.1	21	2.3	102	94	20	10	11	6.6	1.3	1.4
6	1.1	1.1	128	2.3	273	94	16	10	11	4.9	1:3	1.4
7	1.1	1.1	3.5	2.3	398	94	13	10	11	4.6	1.4	1.4
8	-1.1	7.1	2.4	2.3	180	94	31	10	11	6.4	1.4	1.3
9	1.1	1.1	2.2	28	92	94	10	10	11	4.3	1.3	1.3
10	1.1	1.1	2.2	17	92	94	10	10	11	4.2	1.3	1.2
11	1.1	.95	2.2	2.5	92	94	10	12	11	4.1	1.2	1.2
12	1.1	.95	2.2	2.2	92	94	10	12	11	4.0	1.1	1.2
13	1.1	.95	2.2	2.2	92	94	10	12	11	3.9	1.1	1.1
14	1.1	.93	2.2	2.2	106	94	16	1Z	11	3.8	1.1	1.1
15	1,1	. 88	2.2	2.2	111	94	10	12	11	3.7	1.1	1.1
16	1.1	.88	2.2	2.2	111	94	10	12	11	3.5	1.1	1.0
17	1.1	.88	2.2	2.2	111	94	10	12	11	3.4	1.1	1.0
18	1.1	.85	34	2.2	111	94	10	12	11	3.2	1.2	1.0
19	1.1	.85	4.4	2.6	111	94	10	12	11	3.1	1.2	.99
20	7.1	.86	2.5	2.5	111	93	10	12	11	3.0	. 1.1	1.0
· Marine	1.1	.88	2.5	2.5	111	93	10	12	11	2.9	1.1	1.0
٤.	1.1	.88	2.5	2.5	123	93	10	12	11	2.6	1.0	.94
	1.5	.88	2.4	2.4	494	93	10	12	31	2.4	1.0	.85
7	1.1	.88	2.3	2.4	107	93	16	12	11	2.3	1.0	.82
25	1.1	.56	2.3	2.4	108	121	10	11	11	2.1	1.0	.81
26	1.1	2.5	2.3	2.3	107	108	10	11	10	2.0	1.0	.82
27	1.1	1.0	2.3	2.3	106	107	10	11	10	1.9	1.5	.84
28	1.1	1.0	2.3	2.3	106	107	10	11	9.8	1.7	.97	.79
29	1.1	1.0	2.3	20		106	10	11	9.4	1.6	.95	.76
30	1.1	12	2.3	2.7	• • • • •	106	10	11	9.2	1.5	.90	.77
31	1.1	*******	2.3	2.5		106	****	11	7 7 11 11 11 11	1.4	.98	
TOTAL	34-1	41.96	245.9	130,9	4,021.5	3,039	527	345	323.4	118.8	35.80	31.70
MEAN	1.10	1.40	7.93	4.22	144	98.0	17-6	11.1	10.8	3.83	1.15	1.06
HAX	1.1	12	128	28	494	121	107	12	11	8.9	1.4	1.4
MEN	1.1	.88	1.1	2.2	2.5	93	10.	10	9.2	1.4	.90	.76
AC-FT	68	83	488	260	7,980	6,030	1,050	684	641	236	71	63
CAL YEAR 1	997 TOTAL	994.	.52 MEAN	2.7	2 MAX	128	MIN	.88	AC-FT	1_970		
WTR YEAR 1		8,895.		24.4	HAX	494	MIN	.75	AC-FT	17,640		
- to small t		-,-/-		•	.541				714 11	,		

As of 10/08/98 .RV.

MAXIMUM INSTANTANEOUS PEAK IS 2,470 CFS AT 1540 ON 02/23/98

WESTERN HYDROLOGIC SYSTEMS - (916) 885-2480
OF54RO F54C-R TOPANGA CREEK ABOVE MOUTH OF CANYON

TILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1996 TO SEP 1997

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.76	.72	.81	3.0	5.0	1.4	1.3	1.2	1.2	1.2	1.2	1.1
2	. 78	.63	.85	4.5	4.4	1.4	1.3	1.2	1.2	1.2	1.2	1.1
3	.80	.60	.82	4.7	3.9	1.4	1.3	1.2	1.2	1.2	1.2	i.1
4	.81	.59	.82	3.0	3.5	1.3	1.3	1.2	1.2	. 1.2	1.2	1.1
5	.82	.58	.90	2.6	3. 2	1.3	1.3	1.2	1.2	1.2	1.2	1.1
5	.82	.56	1.3	2.1	2.9	1.3	1.3	1.2	1.2	1.2	1.2	1.1
7	.81	.56	1.1	1.8	2.6	1.3	1.3	1.2	1.2	1.2	1.2	1.1
8	.80	.54	1.0	1.7	2.4	1.3	1.3	1.2	1.2	1.2	1.2	1.1
9	.81	.55	37	1.5	2.1	1.3	1.2	1.2	1.2	1.2	1.1	1.1
10	.82	. 56	40	1.5	2.4	1.3	1.2	1.2	1.2	1.2	1.1	1.1
11	.81	.57	60	1.4	2.3	1.3	1.2	1.2	1.2	1.2	1.1	1.1
12	, 82	.57	15	5.5	1.9	1.3	1.2	1.2	1.2	1.2	1.1	1.1
13	.82	.57	7.0	10	1.6	1.3	1.2	1.2	1.2	1.2	1.1	1.1
14	.84	.57	4.7	3.5	1.5	1.3	1.2	1.2	1.2	1.2	1.1	1.1
15	.87	.60	3.3	49	1.5	1.3	1.2	1.2	1.2	1.2	1.1	1.1
16	.88	.60	2.9	17	1.5	1.3	1.2	1.2	1.2	1.2	1.1	1.1
17	.88	.59	2.7	8.0	1.8	1.3	1.2	1.2	1.2	1.2	1.1	1.1
18	.88.	.60	2.1	5.4	1.6	1.3	1.2	1.2	1.2	1.2	1.1	1.1
19	.88	-60	1.9	4.3	1.4	1.3	1.2	1.2	1.2	1.2	1.1	1.1
and the same of th	.82	.60	1.8	7.6	1.4	1.3	1.2	1.2	1.2	1.2	1.1	1.1
21	. 79	9.7	1.8	8.1	1.4	1.3	1.2	1.2	1.2	1.2	1.1	1.1
22	.80	10	32	10	1.4	1.3	1.2	1.2	1.2	1.2	1.1	1.1
23	.82	2.1	7.1	80	1.4	1.3	1.2	1.2	1.2	1.2	1.1	1.1
24	.85	1.3	3.7	21	1,4	1.3	1.2	1.2	1.2	1.2	1.1	1.1
25	.88	1.1	3.0	31	1.4	1.3	1.2	1.2	1.2	1.2	1.1	1.1
26	.82	.96	2.7	42	1.4	1.3	1.2	1.2	1.2	1.2	1.1	1.1
27	.81	.81	20	22	1.4	1.3	1.2	1.2	1.2.	1.2	1.1	1.1
28	.82	.79	15	14	1.4	1.3	1.2	1.2	1.2	1.2		1.1
29	.86	.82	5.8	9.4		1.3	1.2	1.2	1.2	1.2	1.1	1.1
30	25	.80	3.9	7.2	***	1.3	1.2	1.2	1.2	1.2	1.1	1.1
31	1.1		3.2	5.8		1.3		1.2		1.2	1.1	
TOTAL	50.08	40.14	284.20	388.6	60.1	40.6	36.8	37.2	36.0	37.2	34.9	33.0
MEAN	1.52	1.34	9.17	12.5	2.15	1.31	1.23	1.20	1.20	1.20	1.13	1.10
MAX	25	10	60	80	5.0	1.4	1.3	1.2	1.2	1.2	1.2	1.1
HIN	.76	.54	.81	1.4	1.4	1.3	1.2	1.2	1.2	1.2	1.1	1.1
AC-FT	99	80	564	771	119	81	73	74	71	74	69	65
CAL YEAR	1996 TOTAL*	374	.42 MEAN	4.0	7 HAX	60	HIN	.54	AC-FT	743		
	1997 TOTAL	1.078		2.9		80	MIN	.54	AC-FT	2,140		

^{*} Incomplete Record . Maximum instantaneous peak is 229 CFS at 18:20 on 12/09/96.

As of 10/01/97.R.V.

F548-R

LOS ANGELES COUNTY BEPARTMENT OF PUBLIC NORKS TOPANGA CREEK ASOVE MOUTH OF CANYOR

MEAN DAILY DISCHARGE, IN CUBIC FEET PER SECOND. WATER YEAR 1890

											į	
DAY	GCT	MOA	DEC	JAN	FEB	MAR	AP2	MAY	jon	Mr	AUG	SEP
1	,;	.1	.3	.6	N/R	N/R	N/R	N/R	M/2	N/R	M/R	WR
2	.;	.1	.2	ï.	#/R	K/R	N/R	K/R	#/R	K/R	N/R	K/R
3	.1	.1	.2	.2	N/R	N/R	N/R	N/R	N/R	#/R	N/R	WR
i	.2	.1	.2	.2	N/R	N/R	M/R	N/R	N/R	N/R	N/R	H/R
3	.2	.1	.2	-2	M/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
								~~~~~		~~~~	: 	
δ	43	.2	.2	.2	MIR	N/R	M/R	A/R	N/R	N/R	H/R	N/R
1	.2	.2	.ž	.2	N/R	M/R	N/R	N/R	n/x	秋保	W/R	N/R
3	-2	.2	.2	.2	N/R	N/R	N/R	N/R	M/R	N/R	M/R	N/R
9	.1	.2	.2	- 2	R/R	#/R	M/A	#/R	N/R	N/R	#/R	N/R.
16	.1	-1	.2	.2	M/R	N/R	N/R	N/R	N/R	M/R	W/R	N/R
41		***************************************	**************************************		wr	K/R	N/R	N/R	N/R	X/1	W/R	N/R
11	.1	.1	.2	ş. Ş.	N/R	1/R	N/A		M/A			
12	.2	.1	.2					H/R		W/R	N/R	N/R
13	<b>.</b> î	.2	.2	1.3	W/R	N/R	N/R	X/A	N/R	N/R	W/R	N/R
14	4	.1	.2	.7	1/2	X/R	N/R	n/R	n/R	M/R	1/R	M/R
15	.2	Ą	.3	.8	N/R	K/R	N/R	N/R	N/A	N/R	W/R	N/R
18	.1		.3		N/R	¥/R	N/R	N/R	N/R	N/A	N/R	W/R
17	.1	.1	.4	.7	1/8	N/R	N/R	N/R	3/R	VI	M/R	W/R
					X/R	N/R						
18	.1	.3	.4	, <del>š</del>			N/R	N/R	N/R	N/R	A/K	M/R
19	.1	Γ,	.4	ε.	K/a	1/X	N/R	N/R	N/R	K/R	¥/R	N/R
26	.;	.1	.4	.3	H/R	N/R	R/R	#/R	N/R	1/1	#/R	W/R
21	.2		.4		x/R	N/R	N/R	N/R	N/R	W1	N/R	W/R
22	.\$	A,	.4	.3	¥/R	1/R	x/R	x/R	N/R	N/L	1/1	M/R
23	.4		.3	.3	N/R	N/R	X/R	N/R	N/R	X/X	R/R	M/R
24	.3		.3.	.3	¥√₹	E/R	N/R	R/X	N/R	1/1	K/R	K/E
25	 	-1	.2	.3	N/R	¥/8	n/R	X/8	N/R	M/R	N/R	W/R
23	-3	-1	3 <del>4</del>	14	ny n	M/ fi	M/A	w) s	Mª IL	m/ X	<b>=</b> / a	W/ R
25	.2	.+	.2	.3	N/R	N/R	N/R	N/R	N/R	X/R	N/R	11/4
21	.2	.2	.i	. 3	X/R	s/R	N/R	x/a	A/R	1/1	1/2	1/2
28	.ż	.2	.2	.3	N/R	#/R	N/R	N/R	N/R	N/R	R/R	N/R
23	.2	.2	.:	.3	.0	K/R	N/R	1/7	N/R	M/A	Wit	N/R
30	, 1	.3	.3	.\$	.0	Y/R	N/R	K/R	N/R	N/E	<b>1</b> /4	N/R
31	.;	.0	.3	.5	.0	x/R	.3	¥/8	.0	1/1	K/R	.0
1512235				::::::::		131111101	=======================================	:::::::::::::::::::::::::::::::::::::::		************		
OTAL	5.2	4,4	8.3	10.7	.0	*0*	.1*	.0=	3\$	.#		3
EAN	.2	.1	.3	.2	-0	.0	.3	.0	٥,	.8	.0	0
X		.4	.4	1.3	.0	.0	.3	.0	.8	.1	.5	.0
in	.1	1	.2	<b>.</b> 2.	.0	.0	.3	.0	.8	.0	۵.	.0
MUAL O		IR A.F.	ARRILAL TOTAL	IN CFS	ANKUAL AVERAGE	DAILY IN	CFS AMBUAL	AAXINUK DA	ILY IN CFS	AMBUAL MINE	IUW SAILI	IN CFS
****			***********		*** ***		.9		.0			.0
1107 1 s. F L	STAGE NOTE						•		**.			* .
nsiania NS[_raz	NEONS DATA		ERST_MAXTIME	naan	1921	MALBATE						
AND I FOR						DUNE THE STATE OF				Y.		
ns: nin	FI CH	.0	INST_MINTIME	ስስለለ	THET	MINBATE		and humanites			4 1	

LOS AUGELES COURTY DEPARTMENT OF PUBLIC NOSAS TOPANGA CREEK ABOYE NOUTH OF CALTON

FS4B-R

REAS DAILY DISCEARDS, IN CUBIC PEST PRE SECOND, WATER YEAR 1989

DAT	OCT	MOS	DEC	148	PEO	KAR	APR	HAT	153	10L	ADG	SEP
1 2 3 4 5		**	.1 .1 .1 .1	14 C	.3 .3 .5 6.8 2.1	.1 1.3 1.4 1.1	.3 .2 .2 .2 .1			.i .2 .i .1	.2	.2
6 7 8 9	,	. 4	.1 .2 .1 .2 .2 .3		,7 .4 .5 8.2 2.3	1.0 1.0 1.0 1.0	-i -1 -1 -2 -2	.3 .2 .1 .1	. !	.2	.i .i .i .i	.1 .1 .1
11 12 13 14 15	.1 .2 .2 .2	.2 .1 .1 .2 .8 .7	.2 .3 .3 .3	9 d d 9 d d d d d d d d d d d d d d d d	1.2 .7 .8 .9	1.0 1.0 1.0 1.0	. 2 . 2 . 2	.1 .1 .1 .1	.1	.1 .1 .1 .1	.1 .1 .1 .1	.1 .1 .2 .2
16 17 18 19 29	, A	.1 .1 .1 .1	1.4 1.3 .8 .5	***************************************	. <del>\$</del> . <del>\$</del> . <del>\$</del> . 3	90 85 90 73 77		.1 .1 .1 .1	.1	.I .I .I	.1 .2 .2 .2 .2	.2 .1 .3 .2
4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	. [	.1 .3 .2 .2 .2	9.7 1.6 .9 2.7 3.7	5.5 6.5 6.5 4. 4.4 4.4 4.4 4.4 4.4 4.4 4.4 4.4 4.	.3 .2 .2 .2 .2	- F		.1 .1 .1 .1 .2	.1	.1 .1 .1 .2	.2 .2 .2 .2	.i .i .i
20 42 42 43 43 43 43 43 43 43 43 43 43 43 43 43	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	.2 .3 .4	: · l .5 .4 .3 .2	.2	.2 .2 .2 .9 .0	1.0	.;	.2 .1 .1 .1	.1 .1 .1 .1 .2	.1 .2 .2 .2 .2 .2	.: .: .: .: .: .: .: .: .:	.1 .1 .1 .1
EXECUTE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANGE LANG	5.2 .2 .3 .1	10.1 .3 .4		11.1	30.2 1.1 6.8 .2	2.3 .9 .9 2.9	6, t .3 .3	\$.7 .2 .3 .1	3.1	4.1 .2 .2 .1	4.8 .2 .2 .2	1 GO 5"
		18 A.P. 283.4	AMBLE TOTAL	142.5	ANNUAL APREA					*****	Aleine mili	.1
iestantai Itak_teri Iest_reri		32.2	HETEKAKTER! Heterde (Terd)	9220		T RAIDATE T RIBDATE	11/21/83					

P548-8

TOPARGA CHEEK ABOVE ROUTH OF CARYON

KATING NO. 73-I

KRAN DATES DESCRASSE, IN COULD PEST ESB 1500MD. MATER SEAR 1960

DAY	907	109	MC	17%	<b>FE</b> 5	I:E	LPE	KAY	Jøs	10T	À06,	SKP
!		19.0	.;	,6		4.3	.)	.0	.1	-1	.1	4
3	, ‡	5.5	4.	.0	1.4	2,5	.4	.0			.1	.2
1	. ŧ	4.3	.5	.8	1.4	1.6	.)	.0	.1	.1	.9	.1
<del>!</del>	.‡	3.3	14.6	.0	1.9	1.1		.0	.1	. 9		.7
\$	, ŧ	11.2	5.3	. 0	. 5	1.1	.;)	.6	.1	. 1	.5	-2
¥		6.3	3.2		.!	.8	.;)	.0		.1	.3	,2
?	. 4	6.5	3.5	.0	, [	.3	.1)	,0	.1	.1	.9	.2
8	. \$	2.3	1.9	.0		.7	.1)	.0	1	.1	.5	.2
9	٤.	2.3	1.4	.0	.\$	1.5	.)	.0	.1 .		.9	
10	• 7	1.7	1.3	. 0	.6	1.5	.1)	.0	.1	.1	.9	
11	.\$	1.3	1.2	.0	ζ	1.6	.!)	.0	.1	.1	.1	.1
17	1.0	1.1	1.0	, į	.\$	I.ŧ	. i)	.0	.1	.2	.2	.1
13	1.3	. \$	.1	, å	.1	1.3	.0	.0	.!	.1	.1	.1
14	1.4	.1	. 8	.0	. 5	1.3	ų,	. <b>0</b>	.1	.1	-1	
i.	1.3	•‡	, å	. ţ	. ŧ	1.1	.3	.0	.)	.1	.1	1
!6	1.1	. į	į.¢	.0	.;	1.2	,9	.0	.1	.2	.2	.1
17	1.3	.1	ë, <b>\$</b>	-0		1.2	.1	.0		.2	.2	.1
18	1.3	.1	2.2	. 9		1.1	.11	.0	• 1		.1	.1
19	1.3	.1	2.5	.0	. 4	1.0	.4	.Ú	·i	.1	1	
10	1.2	,3	1.1	.0	. <del>[</del>	1.0	.3	.5	. J	.1	.1	.1
21	1.3	.2	1.6	.0	. ţ	. <u>.</u>	.:	.0	.9	.1	.1	.2
#	6.9	. 2	1.5	Ų.	.3	,3	.3	. 0	. 9	1.1	.1	.2
27	7.5	.1	1.4	.0	. ?	.8	.0	.0	٤.	.1 .9 .1	.1	.7
24	4.1	,1	1.1	.t .s	.2	,8 .7	.1	.0	.9 .9	.9	.9 .1	
25	3.1	.3	1.1		• •	• f	.9	.9	.3	••	•1	-4
36	2.4	.2	1.0	0	· 4	.1	.1)	.3	.1	.1.	.1	.2
??	1.3	.1	1.0	. 6	.1	. 6	, 6	<b>.</b>	.1	1.	.1	.2
22	1.4	.3	1.1	.0	1.2	, \$	.0	.0	.1	•1	-1	.2
19	2.9	.\$	1.8	. 0			.1	. Q	.1	.1	.1	.1
38	3.8	.0 •	2.8 1.3	.0 .0	.9 .8	.\$	.i)	.¢ .0	-i .t	.9 .9	<b>.9</b> .9	.(
31	26.6		1.4		. 4	• 1	- 17		. (;		.,	
111 <b>225</b> 1	?7.2	69.5	71.4	. d	: #====================================	15. §	.	.0	7.8	6,5	11.4	. 9 9. 4
240	2.5	2.3	2.3	.6	.1	1.1	.0	.0	• 1	.i	.1	.7
AI.	28.0		14,6	3.	9.?	4.5	.1	.\$		.2	·I	.2
18	. ķ	.2	.1	0,	.2	.t	.11	.9	·å	.9	.9.	.1
redal I Tr yeai		L IR A.R.	ARROAL TOTAL	. 14 CPS	ANNUAL ATER	GE DAILT IN CP3	AHTOA	L MAIIKOR DA!	LY IN CPS	MEDAL RIS	INON DAILY	IN CPS
		112.3	\$ 1444 W M M M M M M M M M M M M M M M M M	305.7		49.6			473.1	**********		41.9
	LMROUS DATA		Page November	. 2224	****	10 biskia.						
1987 [RA] [BST_N[]		.9	inst_nactini inst_niptini			IT_RAIDATE ST_NINGATE					•	
		••	*************		• ••					1000		,

₽54B-R

.0

IBST_KINFLOW

INST_MINTIME 7000

TOPANGA CREEK ABOVE NOUTO OF CANYON

MEAR DAILY DISCRESSE. IN CODIC PART PER BECCOME, MAYER MALE 1967

HATING DO. 73-1-

PAY 松 HAR AZE INT AUG 322 .2 . ,5 .0 . ļ .; .3 ..0 .5 1 .4 . 3 . 2 . . .\$ . ; .3 ij. .0 .1 .0 ï .4 .3 .2 .? . \$ .5 . 1 .2 ü. .0 .0 .0 .1 .5 . 2 2.5 . 1 . ‡ .0 .0 . 1 .2 .0 .0 .3 .1 2.3 .7 5 Ĭ. .+ -1 .7 Ĵ. .0 .0 .0 .0 . 3 .1 .8 1.2. . ! Z.1 . 1 .2 į. .9 O. 7 .1 . 3 .8 1.2 .1 1.1 .1 .2 ġ, .0 .0 \$ .0 .3 .1 ,3 .; .1 1.1 .4 .2 .0 .0 . } . 3 . 3 .5 .7 .1 1.1 . . . ; .0 .0 .0 .3 , ; . š .3 .1 .\$ .1 .2 ,Ö đ. 1¢ .Û 0. .1 ٠.5 .5 ť. .1 .1 . .0 .0 1) .1 .2 .0 . 5 . 1 . 5 . . . 6 12 .3 . 3 .+ ů. .0 .₽ . ! . \$ 1.3 Ĵ. ...3 .2 13 .3 .1 .0 .0 .0 .0 .1 , 8 1.9 . . .1 14 .1 . \$ . 2 Ĉ. .0 .0 .Û .0 15 .\$ .9 .\$ .: .Ó .0 .1 ,3 .3 .1 . 8 .3 .2 .0: .0 0. lf 17 .3 . 1 . 3 .1 .\$ . \$ , ; . 2 .0 .0 . . .0 .0 .0 .1 , s. 18 . 4 1.: .1 . \$ .5 .2 .0 .0 .0 .1 1.4 . . . 6 ٠ŝ 3 . . . . 3 .8 13 .3 Ů. ٥. 20 . \$ ,1 ı.İ .5 , \$ .2 .0 .0 . .0 1.1 .3 0. .0 21 1. .1 .3 .1 1.7 .3 .1 .O ** . . ٠. . : .0 .1 . 3 .5 1.0 - 4 ٥, . 0 O. 97 . 3 .0. .: ٤. ... . . , Š .9 : 14 . 3 .1 .3 .1 . 5 . i .0 :0 1 36 .7 .0 0. . . .0 .3 .2 . 5 .5 ..0 .0 ** .) . . .4 . § . ; ** . ? A. . . 3 .0 27 .1 . : . ; . ? .9 .0. ٥. .0 .2 .4 .\$ .5 Ξŝ .1 -1 :0 .0 . 4 ,¢ 79 .1 .3 .4 , Ą . 5 . 2 .3 ę. .0 .5 .2 .6 1 .0 Û. 12 .; . 1 .4 .1 .t .0 .0 .0 .0 . 1 . \$ . . 11 .0 . 3 elekeken eregen dan pada pada pada pada dan dan banka dan banka bar ban ban banka banka banka banka banka banka .5 .9 : .0 14.1 14.3 21.5 9.2 .ô 3.1 16.1 5.1 9.1 TOTAL 0. ** .2 .0 .0 .7 . C .3 .3 . § XZAN .1 . \$ .0 .0 2.1 .1 .0 .0 , ě 2.4 1.8 . L AL: .4 3.1 . /+ .0 . . Ġ. .0 : .7 . 4 . \$ 製譜 .3 .1 . 7 ATRIC LAUREA MYS YEAR 1987 TOTAL IN A.F. ARROAD TOTAL IN CWS ARROAD ARRANGE DARLY IN CWS ADROAD MALINUM DAILY IN SWS ARROAD MINIMUM DAILY IN SWS ARROAD MINIMUM DAILY IN SWS ARROAD MINIMUM DAILY IN SWS . ( .0 4. . 8 .0 I ASTARTACIONIS DATA LEST MAITINE JOSC INST MAIDATE IST KAIPLON

INST_MINDATE

F548-8

TOPARGA CREEK ABOVE ROFTE OF CARYON

MEAN BAILT BUSCHARGE, IN CUBIC FRET PER SECOND, MATER YEAR 1305

DAY	æ	MAN BVF	nc	148	<b>PB</b> B	KAR	468	XAT	jųx .	: JBL	AUG	987
1	.2	.2 .2	[ . ³	.5	1.6	1.0	1.)	2.0	.ÿ	.5 .5 .4	.3	
2	.2	.2	4.1	.5	2.0	8.3	5.7	1.9	.9	.5	.3	
	.\$	.2	3.0	.5	2.9	6.5	\$.3	1.9	. 4	4	.3	,
ţ	. ?	s.	1.3	.5	2.7	8.4	<b>†.</b> }	1.8	ů :	. 4	3	•
Ş	.2	.2	1.0	1.4	2.8	€.2	4.3	1.8	.3	.4	.3	•
 د	.2	.2	.8	1.2	7.£	5.9	<b>6.</b> 3	1.1	.3	.4	.3	; ; ;
n i	, Ž	.ż	.8	1.2	2.8	5.9	6.2	1.7	.9 ''	. <b>.</b> . <b>.</b>	.1	;; •4 •4 •4
ĸ	2	. ż . ż	<b>.</b> \$.	.6	3.7	52.0	5.1	1.5	.8	.4	.3	
9	.2		ʻŧ	.6	2.2	25.4	4.5	1.5	.8	.4	.3	
10	.2	.↓	3.3	· ·	1.9	52.5	4.1	1.5	.8	.3	.3	•
 1!	.t	4.1			2.0	32.3	4.1	1.5		.3	.3	
11		1.4	.6	.\$	4. 4	13.7	4.1	1.4	.3	.3	.3	
17	.2	.\$	.5	.4	209.0	11.2	1."	1.4	.?	.1	.3	**************************************
14	.2	, <u>†</u>	.\$	.‡	323.0	10.8	3.8	1.1	1	.3	.3	
15	-2		.5	.\$	783.9	11.6	3. 3	1.3	.7	.3	.3	•
		.1	, <u>5</u>		99.3	239.0	<b>9</b>	1.2	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	.3	.3	
11	.2	.1	.5	. \$	30.1	16.3	3.4	1.3	. 1	.3	.3	
iś	.:	.2	.5		23.0	20.3	2.3	1.1	.5	.3	.2	.:
1 9	.2	.t	. 5	.5	117.0	15.3	4 4	1.1	7	.3	.2	
29	.2	.2	.5	.\$	84.3	12.9	2."	1.0	.\$	2.3	.2	*
 21	4.0	,,			25.7	10.8	2.	1.0		.3	.2	
22	.3	.2	.5		17.9	10.0	3.5	. 4	, 8	.3	.2 .2 .3	\$.( 4.8
23	6	.1	-1	.\$	12.1	9.0	2.1	.3	.\$	.3	.:	
24	.3	3.1	.4	.5	10.8	8.7	2.5	. 9	, Š			5.5
25	.2	12.2	. 4	3	9.0	8.1	2.5	.9	·l	.1	.2	4.1
 26	.4	3.2		}	8.4	1.5	ģ.: 4.:			.3	.2	1.7
4.7	.2	1.3	. \$	. \$	7. 8	6.9	2.2	.9	.5	.3	.2	
28	.2		.4	.\$	7.2	8.4	2.:	.9		.3	.2	.!
29	. 2	5.1	. ‡	1.5	.1	5.6	2.1	.9	.;	.1	.2	• 3
19 11	.2 .2	3.1		74.4 182.9	. 9 . 9	6.4	ž. i	. 9 . 9	· į	.3	.2	
;;;;;;			***********		::::::::::::::::::::::::::::::::::::::	5 f 1 - 1	110 0		######################################	16 4		
7.A.L 18	11.2	40.2 1.3	24.8	17J.8 3.8	2,365.1 34.5	711.2 22.9	110.9	4 <b>9.</b> 0 1.3	11.5	10.4	7.3	17.5
i.	4.0	12.2	4.1	182.0	323.1	229.0	7.5	2.0	.9		**	 
Ĭ	.2	120-0	.4	4	1.3	5.7	2.1	_9	.5	.1	9	
		••	• 1	• /	-·-		<b>**</b> *	••	- ·	-		••
F ASTS	1946 1074	L IN A.P.	ABNUAL TOTA	L 13 CPS	AMESAL AFREM	igs dater in	N CF3 AFBUA	T MATERIAL D	ALLY IS CPS	ABRUAL NI	REMORE DATES	IN CES
	· · · · · · · · · · · · · · · · · · ·	7,210.9		3.435.5		<del> </del>	16.6		823.0			.2
	iarous pata iplou s,		INST_RAITIN	ድ ታተጠ	į ž	T_MAIDATE	62/15/81					•
	LPHUR, 31	130. U	LEGI KALLE	الأفارة بث	13.	- CANAMAIN	ABL #41.04					

P[48-2

TOPARGA CLEEK ABONS KOUTH OF CARYON

RATING NO. 63-11

MELH DATAY SISCHARGE, IN CUBEC PERT PER SECOND, MATTER YEAR 1985 DEC JUL AGG BAY OC. 107 P21 MAR The Take MAY 308 .2 1.0 1.0 ŧ . 6 .8 1.0 1.) . 1.0 1.8 3. 9.9 2 .4 1.0 1.1 .8 .5 .2 .1 1.0 1.0 .+ . <u>¥</u> 1.9 1.0 1.0 .£ .5 .2 .3 . ? 1.4 1.0 .4 1.9 1.1 : .5 . 8 Ļ .2 .2 : 1.0 1.0 .4 .? Ė. . . 1.0 1.0 .3 . 5 .2 .7 1.0 1.0 .3 .8 2.2 1.6 .8 . . . . . . .2 1.0 1.0 .3 .1 , 8 1.3 1.0 .8 . 2 . 4 . . . . .2 1.0 9.5 3.3 1.8 18.1 3.4 1.9 . .2 .7 . .2 . 4 .2 Š. , 9 ; .2 1.0 . 2 . . . . 9 24.4 . 1 .7 . 3 .2 .9 .3 5. £ 18 1.0 .5 5.1 4.4 . 1 . " .2 .2 .5 13 1.0 1.2 . 8 2.3 . 8 . 4 . : . " .2 .2 .7. . 5 . 2 12 . 1.0 8.3 1.2 1.5 , 9 .1 .2. .2 . i .3 .1 1.3 .2 13 .3 4.8 .9 .1 . 2 ... .2 1.2 . 5 1.8 . 7 .7 14 .1 . 4 . 9 .2 .2 .2 . 4 . 7 15 . 9 . 8 2.3 1.1 . ģ .9 .7 .2 .2 .7 -1.0 .1 1.0 .g . 7 .2 2.0 . . 1 1.9 . 5 17 5.1 . 5 1.3 .9 .1 . 2 . . 2 , à 2.2 12.9 . 7 1.0 . 8 . 1 18 .\$ . 19 . 2 .2 .2 Ż. 19 .9 .5 26.3 ٠.1 1.0 . ŧ 17 . 2 . ? ,2 .0 6.9 . 7 .7 .8 1.0 .7 20 . . . . 2 21 , 7 .. 5.0 . 1 1.0 f: . 5 . 8 . . ż. . 6 .à 4 .7 .1 22 1.7 .7 1.0 . 8 .: . 2 1.2 1.0 23 .8 . 1 .6 , f. . . . .2 1. . 2 :2 .2 1.0 .ŧ 3, 24 .8 11.5 . ; .7 . 8 .2 .6 25 . 6 .1 1.0 .6 .8 2.8 . 5 .2 . .2 1.8 13.4 . .7 1.0 2.8 .6 2.1 .8 .2 .2 .8 . È .2 25 .Σ .2 1.0 15.0 . : . 2 27 .9 . 8 . 6 . 2 .2 .9 7.2 12.0 1.6 1.7 .i. 9.5 . ŝ .2 .2 28 .2 1.4 2.1 .7 .0 1.4 . 2 29 1.0 .8 1.2 . }. .2 1.0 1.9 30 .5 1.2 .0 .5 . 4 .2 1.1 . 8 ..0 1.1 . 6 . . .0 ñ. 31 1.6 .0 64.4 121.4 19.1 34.2 33.5 28.5 21.2 8.4 6.2 6.2 8.0 35.2 1.5 3.3 1.0 12 .3 . .2 ż .2 1.1 2.1 4.4 .7 MEAN ·, 22 12.0 24.4 2.5 1.0 . ? . . 2 .ż XAX 5.1 11-8 28.3 .8 . 8 .1 .7 .8 .£ RIN . 8 .4 .5 ATAC JABELL MYR YEAR 1945 TOTAL IN A.F. AMBORE TOTAL IN CRS ABBURE APARAGE DAILY IN CRS AMBORE RAZINON DATLY IN CRS AMBORE REBINDE DAILY IN CRS 24.3 343.1 1.3 INSTANTANEOUS DATA HOT MAXYLOV 58.3. HEST MAITINE 3124
HOST MINFLOY .2 HOST MINTINE 3000 *8\85\21. STADDAR_TEH! : BTADBIN_TEH!

7548-R

LUS AMISSES COURTY ORPARTMENT OF PUBLIC HORRS

TOPARCA CESSY ABOVE MOUTH OF CARYON

RATING NO. 69-03

ARAN BALLY DISCHARGE, IN OUBIG PRET PER SENGAD, WATER YEAR 1984

DAY	oct	BOV	DEC	145	PEB	MAK	Alk	XAY	)118	107.	YEG	32.
1	17.8	.1	2.5	4.0	1.8	1.4	1.0	.4	.2	.2	.2	
2	8.6	i.i	2.3	3.2	1.5	1.2	1.0	.4	.2			,
3	2.3	1.2	2.1	3.2	1.8	1.2	1.0	.4	.2			
4	1.4	. 8	2.2	3.3	1.6	1.3	1.0	.4	. 2	.4	.2	
5	1.2	1.4	2.0	3.2	1.6	1.2	1.0	.2	. 2	.4	.2	,
	·											
E	1.8	1.4	2.0	3.2	1.4	1.2	2.8	.2	.2 .2	.4	.2	
7	1.2	1.4	2.0	3.2	1.4	1.2	2.8	,2	. 2	· .4 📳	2	
દે	1.4	1.8	1.6	3.7	1.8	1.2	1.0	.4	.2 .2		-2	
y	1.4	1.8	28-7	3.3	1.3	1.2	1.0	.4	. 2		. 2	٠,
19	1.0	1.8	14.8	4	1.3	1.2	1.0	.4	.2	4	.2	
n ******		1.2	6.0	2.8	1.6	1.2	1.0		* * * * ,			
11	.8	•						.4	.2	.4	2	1.
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## CALIFORNIA COASTAL COMMISSION

45 FREMONT, SUITE 2000 SAN FRANCISCO, CA 94105-2219 VOICE AND TDD (415) 904-5200 FAX (415) 904-5400



16 October 2000

#### **MEMORANDUM**

To:

James Johnson, Coastal Program Analyst

From: Mark Johnsson, Senior Geologist

Re: Jason water well

EXHIBIT NO. ||

APPLICATION NO. A-3

(LOMMISSION GEOLOGY)

Oct, 16, 2000

Pages 1-3

To date, I have reviewed the following documents in reference to the proposed water well for the Jason property at 20556 Betton Drive in the Topanga Canyon area of Los Angeles County:

- 1) Bing Yen and Associates report "Report of hydrogeologic evaluation 20556 Betton Drive, Topanga Canyon Area, Los Angeles County, California" dated 31 May 2000 and signed by D. Scott Moors.
- 2) Bing Yen and Associates letter report "Response to verbal comments by California Coastal Commission, 20556 Betton Drive, Topanga Canyon Area, Los Angeles County, California" dated 3 August 2000 and signed by Scott Moors.
- 3) Bing Yen and Associates letter report "Second response to comments by California Coastal Commission, 20556 Betton Drive, Topanga Canyon Area, Los Angeles County, California" dated 25 August 2000 and signed by Scott Moors.
- 4) Bing Yen and Associates report "Additional hydrogeologic information, 20556 Betton Drive, Topanga Canyon Area, Los Angeles County, California" dated 21 September 2000 and signed by Scott Moors.

My review of references (1) and (2) is found in my memo of 4 August 2000. The purpose of this memo is to review the latest information from Bing Yen and Associates, found in references (3) and (4), above.

In reference (3), Scott Moors addresses cumulative impacts of the development of the 16 lots that are part of the Betton Drive subdivision. He makes the point that it is likely that not all of the lots in the subdivision will be developed; that ultimately only 12-14 lots will be built upon. Although this assessment may be accurate, an estimate of potential cumulative impacts must consider all 16 lots, since they are all legal buildable lots.

I concur with Mr. Moors conclusion that the type of hydrogeologic analysis undertaken in reference (1) implicitly takes into consideration of cumulative effects on the level of the water table. When adjusted by the new porosity values given in reference (2), this analysis gives an estimated water table drawdown of 15 feet for the 75-year estimated economic lifespan of the development. This amount of drawdown would not change with development of additional lots in the subdivision; given the conservative assumptions of the type of analysis undertaken, cumulative effects would be limited to an additional area affected, not by a greater amount of drawdown. Drawdown of the water table by 15 feet is not likely to have a significant impact on the hydrology of the nearby streams (headwaters of Tuna Canyon Creek), which are deeply entrenched below the site.

In addition to water table drawdown, the net amount of water extracted due to the development should be considered, since the reduction in hydraulic head due to water table drawdown could reduce the flow velocity of ground water toward the streams, with a resultant reduction in ground water recharge to the Tuna Canyon streams. The estimated net removal of ground water at full build-out is 1280 gallons per day (see my memo of 4 August). This value represents the maximum possible reduction in ground water recharge to the streams; actual reductions may be much lower. Based on the available hydrologic information, I cannot find that this reduction would have a significant impact on stream hydrology. At my request, Mr. Moors searched for additional hydrologic data, but was unable to find it for the streams immediately surrounding the development. In reference (4), he provides hydrologic information for Topanga Creek at a site approximately one mile southeast of the subject site. This information is not germane to the discussion of this application, since a well on the subject site could not appreciably effect ground water recharge into Topanga Creek. Further, the watershed of Topanga Creek upstream of the gaging station in Mouse Canyon is far larger than that of the streams at the head of Tuna Canyon, and so these data are not applicable to the streams under consideration here.

Finally, Mr. Moors makes the point in both reference (3) and (4) that the existing use of imported water in development near the subject site would more than offset the ground water use proposed. For each residence using imported water, approximately 320 gallons per day will be added to ground water through the septic system and irrigation. In contrast, Mr. Moors' calculations in reference (1) indicate that use of water wells would result in the net extraction of only about 80 gallons per day per residence. Mr. Moors points out that at full build-out, a mix of water wells and use of imported water would best maintain the pre-development water table. I concur in this assessment; in fact, if imported water were to be used exclusively throughout the subdivision, the ground water table would very likely rise in the area, and the intermittent streams at the head of Tuna Canyon would carry water for a greater period of the year than they do at present. Therefore, it is not clear from the available data, whether use of water wells would be more likely to have a greater impact on stream hydrology than use of imported water.

To summarize, I find after reviewing the above cited documents and researching the hydrogeology of the area, that it cannot be demonstrated that either the proposed development or the cumulative impacts of similar development throughout the Betton Drive subdivision, would have a significant impact on stream hydrology in upper Tuna Canyon.

Sincerely,

Mark Johnsson Senior Geologist