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**Paraiso Springs General Development Plan**

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PLANNING & BUILDING  
INSPECTION DEPT.

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**Owner:**

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# Paraiso Springs General Development Plan

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## **Section 1**

### **General Development Plan**

## ***PARAISO SPRINGS RESORT***

### **Project Description**

Paraiso Hot Springs Resort is located in Monterey County, eight miles southwest of the town of Soledad. The resort is located at an elevation of approximately 1200 feet overlooking the Salinas Valley. The property is situated on 240 acres, with approximately 90 acres of area for the spa/resort development, and the remainder of the site to be retained in open space, hiking trails, habitat and landform preservation, and landscaping improvements.

Access to the spa/resort is provided via Paraiso Springs Road from Clark Road or River Road with direct access from either Route 68 or Highway 101.

The Paraiso site is owned by Thompson Holdings, LLC. The property is divided into three lots of record that are included in the following Assessor's Parcel Numbers: 418-361-004, 418-381-022, 418-381-021. The area currently developed and those areas to be redeveloped are zoned Commercial-Visitor Serving.

### **Land Uses**

#### **Resort**

The Paraiso Spa/Resort will be one of the premier properties in all of California. Paraiso will provide both overnight and day guest with a tranquil landscaped environment by which the visitor can enjoy the beautiful surroundings of the property and Salinas valley. The spa/resort will bring to California unique wellness treatments only found in the finest spas in Europe. In combination with the wellness treatments Paraiso will provide an extensive educational component, fitness program and culinary experience that promises to be a valued enhancement to the surrounding community. The spa/resort is envisioned to consist of a series of single and two-story clustered visitor-servicing hotel units, timeshare units, timeshare villas and common visitor areas. A total of 103 hotel units, 60 2/3 bedroom timeshare units and 17 timeshare villas are planned in addition to a variety of resort amenities that comprise Paraiso Springs Spa/Resort.

The redevelopment of Paraiso will be constructed, where feasible, with green building materials. Sustainability practices will be adopted in all facets of the project from design to construction and operation of the spa/resort. The resort/spa has been designed to provide both a public access part of the resort via a Hamlet and a secluded part of the resort for hotel guests. The public will be provided access to the historic springs through the use of the day spa located within the hamlet. The landscaping of the property will make use of man made ponds and waterfalls. Trails will also be incorporated throughout the site. The guest units will be strategically placed on the site to provide a sense of privacy for the guests and also to preserve views from the guest quarters of the Paraiso property and the Salinas Valley below. The hotel units are designed so that they may be clustered in groups of two/four units, or as a detached single unit. The timeshare-hotel units are proposed to be larger units which will include small kitchens, a small dining nook, a living room and two/three bedroom suites, complete with baths for each bedroom. The timeshare-villas are larger units that provide family style living for the guest.

The Paraiso General Development Plan was developed after a detailed review of the Central Salinas Valley Area Plan and its associated EIR for the Paraiso Hot Springs Property. The Central Salinas Valley Area Plan policy number 28.1.1.1 designates specific land uses for the Paraiso Hot Springs Property specifically "The resort may include such uses as a lodge, individual cottages, visitor center, recreational vehicle accommodations, restaurants, shops, stables, tennis courts, aquaculture, mineral water bottling, hiking trails, vineyards and orchards".

**Recreation**

Second only to the spectacular foothills setting of the Paraiso Springs Resort, the natural mineral springs of the property are the preeminent assets of Paraiso and are responsible for the original development of the site in the 1800's. The existing hot springs will be used in both existing and new water features. A Spa Center is proposed which will offer massage, beauty and therapeutic services. A Wellness/Education Center is proposed which will offer lectures by some of the top wellness professionals from around the world. Conference facilities are proposed which will offer seminars, small group and meeting space. An outdoor/indoor fitness center is proposed which will integrate outdoor activities with indoor physical wellness and training facilities. A cultural center for the arts is proposed which will offer music, art and literature.

**Restaurants**

Three restaurants are proposed, featuring organic foods and wine. The restaurants will provide both dining facilities for the general public and hotel guests. A garden and greenhouse are proposed to be located near the restaurant(s), offering herbs and produce grown on the resort property. A culinary training school is also proposed.

**Site Amenities**

An outdoor amphitheater is proposed for various uses by the hotel guests. Vineyards and a wine pavilion for hotel guest functions are contemplated near the entrance to the resort. Laundry and maintenance facilities are also proposed on site.

**Parking**

Parking is proposed for both overnight and day guests. The total number of parking spaces is 310 spaces.

**Landscaping**

The proposed amenities will be located to be surrounded by man made ponds and waterfalls to promote a sense of tranquility. The use of many trees (both existing and new plantings) will be incorporated into the project to promote a feeling of privacy. Paths are proposed throughout the site to provide easy accessibility for guests.

**Site Summary**

The property is located on 240 acres of mountain and foothill terrain. The proposed development area will encompass approximately 90 acres, with a focus on 50 acres or 21% of the total property. A total of 103 hotel units, 60 timeshare units and 17 timeshare villas with support facilities are proposed. The following will serve as a reference table, with functional descriptions of the space/feature, keyed directly to the master site plan and drawings contained within the application. The table also indicates if the facility/feature is available to the public (day guest and overnight guest access), private (access to overnight guest only) or is a support facility only accessible by spa/resort staff.

**Master Plan Reference Table**

<b>Site Plan #</b>	<b>Feature</b>	<b>Description</b>	<b>Private/Public</b>
1	Main Entry Roadway	Road leading to Spa/Resort	Public (access to day and overnight guests)
2	Hotel Spa Entry Gateway	Gate House for overnight guests	Private (available to overnight guests only)
3	Existing specimen oaks	Typical oaks on property	N/A
4	Estate Lots Drive	Road leading to Timeshare Villas	Private
5	Estate Lots Drive – 1/3 acre	Timeshare Villas	Private
6	Vineyards	Vineyards for the production of house wine	Public
7	Hotel and Spa Entry Drive	Road leading to guest check registration	Private
8	Paraiso Institute	Educational classes for guests on health and wellness	Private
9	Themed Stone Bridge	Feature for guest arrival	Private
10	Nursery Center and Display Gardens	Organic gardens where flowers, fruits, vegetables and herbs will be grown for resale or use by the spa/resort	Public
11	Wine Pavilion	Private conference center for special events	Private
12	Hamlet Entry Drive	Road leading to the hamlet	Public
13	Parking Meadow	Overflow parking for special events	Public
14	Visitors Center	Overflow parking area for the Hamlet guests.	Public
15	Enhanced On-Site Treatment System	Waste treatment system and pump house for subsurface irrigation.	
16	Hamlet Arrival Plaza	Arrival plaza for the hamlet for day guests	Public
17	Hamlet Town Square	Main square of the hamlet where both overnight and day guests can enjoy various amenities (i.e. wine tasting, watch artist at work, shop or just enjoy a cup of tea from around the world)	Public
18	Amphitheater Lawn	The great lawn is the main seating area for specialty events	Private
19	Amphitheater Pavilion and Stage	Outdoor theater where specialty events will be held for hotel guests	Private
20	Day Spa Pools and Pavilions	Original Paraiso spring-featured pools where both day guests and overnight guests can enjoy the healing waters	Public
21	Hotel Guest Parking	Overnight guest parking	Private
22	Spa and Hotel Arrival Plaza	Arrival Plaza for the overnight hotel and spa guests	Private
23	Stone Pedestrian Arrival Bridge	Arrival feature for the overnight guest	Private
24	Re-circulating Ornamental Stream and Waterfalls	Water features	N/A



**Master Plan Reference Table (Continued)**

25	Guest Arrival Courtyard	Arrival area for the overnight guests	Private
26	Hotel Pergola Gardens & Overlook Terrace	Featured garden areas	Public
27	Activity Terrace with Croquet and Bocce Courts	Sports courts for both day and overnight guests to enjoy the sports of croquet and bocce ball	Public
28	Conference Center Gardens and Terraces	Featured Gardens	Public
29	Guestroom Casitas	Overnight guest accommodations	Private
30	Overnight Therapy Stream and Swimming Pool	Water walk with multiple hot and cold water chambers for the improvement of circulation	Private
31	Service Drive	Service road for Paraiso staff	Staff Only
32	Hamlet Parking	Parking for day guests	Public
33	Service Cart Path	Path that allow staff to provide service to the guests	Staff Only
34	Housekeeping, Laundry, Mechanical	Back of house operations	Staff Only
35	Spa Entry Courtyard Gardens	Featured entry garden for the spa	Private
36	Teahouse	Registration and waiting area for scheduled spa treatments	Private
37	Spa Water Gardens	Feature water gardens	Private
38	Spa Courtyard Garden (typical)	Feature garden	Private
39	Labyrinth	Sand based walking area for meditation	Private
40	Pedestrian Bridge to Spa Activity Center	Crossover bridge that allows guests to access the activity center	Private
41	Lap Pool	Pool within the activity center designed for lap swimming	Private
42	Vitality Pavilions	Pavilions used for the practice of yoga, palates and other activities	Private
43	Vitality Courtyard Garden	Feature Garden	Private
44	Golf School	School where guests can improve their golf game	Private
45	Practice Putting Greens	Used by the golf school	Private
46	Racquetball Pavilion	Guests can enjoy the sport of racquetball	Private
47	Basketball Pavilion	Guests can enjoy the sport of basketball	Private
48	Pathway to Hiking Center, Trailheads, and Naturist Area	Path that leads guests to the hiking center	Private
49	Hillside Village Timeshare	Timeshare Units	Private
50	Streamside Pathway	Path running along the stream	Private
51	Naturist Solarium Area	Sun bathing area for the overnight guests	Private
52	Hiking Trails	Various levels of hiking trails for the overnight guests	Private
53	Trailside Overlook	A main trail leading around the entire base of the property	Private

## **Environmental Considerations**

### **Historical/Archaeological Resources**

An Archaeological and Historical report has been prepared by Archaeological Consulting Inc. and has been submitted to Monterey County Planning Department. In summary, the historical report identified several structures on the site of significant historical value that were demised and recommended mitigations to address the demolitions. The structures were demolished prior to the submittal of this application. The archaeological report identified two recorded archaeological sites on the property. Although, no development is planned for the areas where these resources are located archaeological monitoring will be done during all earth moving activities to insure that any resources discovered will be handled and preserved properly.

### **Hydrology**

#### ***Water Quality & Quantity***

Paraiso is currently performing all appropriate testing for the various water sources that will supply both the potable water, irrigation water and fire protection water. Pools and baths will use the natural water flow on the property. The update to this section will be submitted in the future when all tests are completed.

### **Grading/Erosion Control/Drainage**

#### ***Grading***

The conceptual grading plan produces the approximate quantity of earthwork cuts and fills. Please see CH2MHILL technical memo titled "Paraiso Springs Resort: Preliminary Site Earthwork Report" found in Appendix A. As indicated in this report, the cuts and fills essentially balance.

#### ***Erosion Control***

The majority of the planned development will impact approximately 50 acres of the 240 acre project site. Within the development envelope the existing ground gradients vary from approximately 8% at the relatively flat eastern end of the site, to approximately 12% at its western end. The existing ground in the north-central timeshare development areas of the site has slopes up to approximately 33%. The terrain surrounding the development envelope and above the envelope has even steeper slopes. The main drainage is a defined channel which traverses the middle of the development from west to east, with several smaller, steeper drainage swales entering the development area from the north to south. Refer to CH2MHILL technical memo titled "Paraiso Springs Resort: Preliminary Erosion Protection Measures" incorporated in this general development plan as Appendix B.

#### ***Drainage***

The project site is shown on the Flood Insurance Rate Map (FIRM) for Monterey County, California (Unincorporated Areas), Panel Number 060195 0350 D, dated January 30, 1984. This Map indicates that the Project Site is in Zone C – areas of minimal flooding. Approximately 23 acres of the project site will contain impermeable surfaces because this is such a small % of the overall drainage basin at 2% no significant increase in outflow is anticipated. The main drainage channel that runs west to east through the development envelope has an approximate width of 50'. The current bank full capacity of the primary drainage channel is approximately 4000 cfs. It is estimated that approximately 400 cfs of runoff would be generated from the watershed above the east boundary of the project site during a 1% (100 year) storm event. Therefore the existing channel should have adequate capacity to convey upstream flows through the site. Please refer to CH2MHILL technical memo "Paraiso Springs Resort: Existing Hydrologic and Hydraulic Site Conditions" found in Appendix C.

## **Biological Survey**

The property is comprised of developed areas that contain buildings, trails, roads, wells, landscaping plants, eucalyptus, and palm trees, areas of live oak woodland, Diablan sage scrub, and Baccharis scrub, riparian and annual grasslands. Many species inhabit the area including deer, rabbits and wild turkeys. The majority of the proposed development will be done in areas that are already developed or disturbed. No rare plant species were found during the surveys. The Monterey dusky-footed woodrat nests were noted during the surveys in the lower willow riparian area. The Monterey dusky-footed woodrat is a California Species of Concern. The Areas in which they were found are not proposed for development. The main wetland pond on the property will be preserved and enhanced during the development process. Refer to the Biological assessment report provided by Rana Creek Habitat Restoration the project biologist.

## **Aesthetics**

Paraiso Hot Springs is located at the western terminus of Paraiso Springs Road on the eastern slope of the Sierra de Salinas foothills about seven and a half miles north-northwest of the city of Soledad. The site consists of about 240 acres nestled in the mouth of a canyon extending westward into the foothills. The surrounding land is designated as farmlands and rural grazing and is currently used for agriculture and vineyards where slope allows, and grazing and watershed in the steeper areas. Several residences are located below (east of) the resort on Paraiso Springs Road. However, topography and vegetation screens the resort from those residences. The site is only visible on the approach from Paraiso Springs Road above the residences, where it can be identified by several tall palm trees. Existing structures include several mobile homes, a lodge, pool house, conference room, pump and tool sheds, and bath-houses. None of these structures are visible until one arrives at the site. It should be noted that these structures also have existing nighttime lighting.

## **Noise**

Paraiso Springs is nestled in a canyon extending westward into the eastern slope of the Sierra de Salinas foothills. The property is only visible on approach from Paraiso Springs Road. Geographic isolation and topography minimize noise impacts associated with the new development. To minimize any increase in noise to the residents along Paraiso Springs Road generated by any additional traffic the spa/resort will implement the following vehicle reduction strategies: 90% of the employees will be shuttled from the Soledad park and ride, 20% of the visitors will make use of the resort provided shuttle to and from the airport, most guests will be on a 4-day or 7-day programs, electric carts will be utilized by guests on-site and no private vehicles will be permitted on roads surrounding hotel units. With the above strategies in place the noise levels should not exceed previous historic levels.

## **Energy Resources/Conservation**

PG&E currently supplies electricity to three locations at Paraiso Hot Springs. Suburban Propane currently provides propane service to the property. The spa/resort will use alternative energy sources where appropriate. While the spa/resort will remain connected to the power grid to insure a constant power source, a net metering program will be explored with the California Department of Energy. Alternative energy sources that are viable options at Paraiso include both passive and active solar solutions and wind energy. During the detailed design phase an in-depth investigation and design of alternative energy will be conducted and instituted where feasible. Other energy conservation measures will be implemented during the design such as the specification of energy saving construction materials which could include but not be limited to the use of thermo-pane windows, weather stripping around doors, windows, wrapped heating ducts and hot water plumbing.

## **Transportation**

Paraiso Springs Road is a two lane county road which terminates at Paraiso Hot Springs. The Paraiso Springs Development Plan is accompanied by a detailed traffic analysis report prepared by Higgins Associates that concludes that with the development of the proposed project an adequate level of service on Paraiso Springs Road will be maintained, that there is ample capacity, and that there are no congestion problems for the foreseeable future.

## **Air Quality**

Monterey County is part of the North Central Coast Air Basin. The air quality in the area is generally favorable. The spa/resort will employ several transportation management strategies such as shuttling of the employees from the Soledad Park and ride, providing a shuttle for guests to and from the Monterey Airport and use of emission free (electric) golf carts on site. Clean burning gas sources such as propane will be used in any new fireplaces.

## **Hazards**

### ***Fire***

The property is located in an area subject to high fire hazards. Soledad is the closest fire department. The State Department of Forestry also serves the area. Current fire protection on site consists of fire hydrants, three (3) on site wells and storage tanks (totaling 23,000 gallons), hoses, alarms, fire pump and extinguishers. The project will implement a fire protection plan which will include a wet hydrant network, supplied by a dedicated fire water pipeline system that will be separate from the spa/resort's potable water system, a "Fire Safety Plan" will be instituted at the resort, use of fire resistant building materials, commercial sprinkler systems in all structures and a detailed maintenance plan for the maintaining all existing/new equipment and fire breaks. Please reference the CH2MHILL technical memo titled "Paraiso Springs Resort: Preliminary Fire Protection Plan" attached as Appendix D. The above referenced technical memo was developed through consultation with Frank Royos (CA Dept. of Forestry) and Art Black (Carmel Valley Fire Protection Consultants).

### ***Earthquakes***

To minimize damage from earthquakes the spa/resort will implement best practices in both building and site design as stated in the Geological and Geotechnical Report provided by Landset Engineers on the Paraiso Resort Project.

## **Security/Police Protection**

Paraiso Hot Springs is located in County Sheriffs Patrol Beat 10. This Beat covers a large area and is sparsely populated, and therefore has relatively long response times. An increased number of visitors at the resort may increase the likelihood of crime. Paraiso anticipates that the project will have on-site security and that all visitors will pass thru a manned gated entrance. The county Sheriff's department at that point would be a second responder to any crime at Paraiso. Paraiso management (John M. Thompson) communicated in detail the intentions of the project with the King City Sheriff's office (Sergeant Bass) on June 7, 2005 and found that the on-site security and manned gated entrance were consistent with what the Sheriff's department would have suggested for crime prevention. The Sheriff's department also noted that Paraiso was located in an already low crime area.

## Solid Waste/Sewage

### Solid Waste

The spa/resort will adopt a composting procedure for all kitchen waste, a solid recycling and separation facility will be established and trash will be disposed of by Rural Garbage and Disposal Service Company.

### Sewage

The current resort uses a septic tank with leach field to treat and dispose of all wastewater generated by the resort. The redevelopment of the spa/resort will result in an increase in the amount of wastewater generated by the project. It is not feasible to use a standard septic system with leach field technology due to the land area that is required for disposal. The project will implement an enhanced on-site treatment system with subsurface irrigation as the method of disposal of the effluent. Reference the technical memo provided by CH2MHILL title "Paraiso Springs Resort: Wastewater Treatment System" included as Appendix E.

## Alternative Development Opportunities

Because of the unique natural resources located on the property and the existing resort uses, no other alternative development opportunities exist.

## Consistency Analysis to the Policies of the Central Salinas Valley Plan

<b>Central Salinas Valley Plan Policy</b>	<b>Consistency Analysis</b>
<b>5.1.2.1 (CSV)</b> Development shall be designed to maintain groundwater recharge capabilities on the property.	<b>The Paraiso Springs Development Plan</b> calls for recharging of groundwater by taking secondary treated water and using drip irrigation throughout the development to promote reuse of water and water percolation. Therefore, the Paraiso Springs Development Plan is <b>consistent</b> with this policy
<b>6.1.3 (CSV)</b> New development shall be phased to ensure that existing groundwater supplies are not committed beyond their safe-long term yields in areas where such yields can be determined by both the Director of Environmental Health and the Flood Control and Water Conservation District. Development levels which generate a water demand exceeding the safe-long term yields of local aquifers shall only be allowed when additional-satisfactory water supplies are secured.	<b>The Paraiso Springs Development Plan</b> is submitted with water demand calculations for the resort in its entirety. Primary sources for all water are located on the property. These sources are believed to have safe long term yields that can meet the demands of the new development. Therefore, the Paraiso Springs Development Plan is <b>consistent</b> with this policy.
<b>14.3.1 (CSV)</b> The County should encourage energy-efficient business and agricultural practices.	<b>The Paraiso Springs Development Plan</b> calls for the resort to be energy efficient and if possible energy independent. During the detailed building design phase detailed studies will be done to incorporate into design energy efficient technologies inclusive of but not limited to solar energy, thermo-pane windows, weather stripping around doors, windows, and wrapped

	<p>heating ducts.</p> <p>Therefore the Paraiso Springs Development Plan is <b>consistent</b> with this policy.</p>
<p><b>14.3.2 (CSV)</b> The County should encourage the development and utilization of renewable energy sources such as solar, wind generation, and biomass technologies in the Central Salinas Valley.</p>	<p><b>The Paraiso Springs Development Plan</b> states that based on all currently available information that active and passive solar energy could be a viable source of energy for Paraiso. During the detailed design phase an in depth investigation and design of heating and electrical power systems using the latest solar energy technology will be instituted. Therefore, the Paraiso Springs Development Plan is <b>consistent</b> with this policy.</p>
<p><b>16.2.1.1 (CSV)</b> Site plans for new development shall indicate all flood plains, flood hazards, perennial or intermittent streams, creeks, and other natural drainages. Development shall not be allowed to occur within these drainage courses nor shall development be allowed to disturb the natural banks and vegetation along these drainage courses, unless such disturbances are approved by the Flood Control and Water Conservation District. Development shall adhere to all regulations and ordinances related to development in flood plains.</p>	<p><b>The Paraiso Springs Development Site Plan</b> clearly shows the primary east-west drainage axis for the property and clearly shows that no development will happen within the drainage course excepting any bridges or roads that traverse the axis. These bridges or roads will be designed to keep flow rates consistent and eliminate any blockages from debris flow. The project site is not located in any flood plains and the project site is shown on the Flood Insurance Rate Map for Monterey County in Zone C-areas of minimal flooding. The Paraiso Springs Development Plan calls for the natural east-west drainage axis to be maintained and in the future design phase and working with the appropriate agencies, enhanced to manage future debris flows, prevent debris blockages and limit continued erosion of the main drainage channel. Therefore, the Paraiso Springs Development Plan is <b>consistent</b> with this policy.</p>
<p><b>21.1.2.1 (CSV)</b> Groundwater recharge areas must be protected from all sources of pollution. Groundwater recharge systems shall be designed to protect groundwater from contamination and shall be approved by both the Director of Environmental Health and the Flood Control and Water Conservation District.</p>	<p><b>The Paraiso Springs Development Plan</b> will protect groundwater recharge from all sources of pollution and contamination. However, due to the isolation of the property and its self containment these issues are expected to minimal and easily manageable. Therefore, the Paraiso Springs Development Plan is <b>consistent</b> with this policy.</p>
<p><b>21.3.1.4 (CSV)</b> Development shall meet both water quality and quantity standards expressed in Title 22 of the California Administrative Code and Title 15.04 of the Monterey County Code subject to review of the Director of Environmental Health.</p>	<p><b>The Paraiso Springs Development Plan</b> anticipates that the development will meet water quality and quantity standards expressed in Title 22 and Title 15.04. The current use of the resort does in fact meet those standards. Therefore, the Paraiso Springs Development Plan is <b>consistent</b> with this policy.</p>
<p><b>21.3.1.5 (CSV)</b> New development shall meet the</p>	<p><b>The Paraiso Springs Development Plan</b> does</p>

<p>minimum standards of the Regional Water Quality Control Basin Plan when septic systems are proposed. The minimum lot size shall be one acre. New development shall provide evidence to the Director of Environmental Health that any proposed septic systems will not adversely affect groundwater quality. Inclusionary and clustered housing shall also meet the 1 acre/unit density when septic systems are proposed.</p>	<p>not propose any septic tanks and instead proposes an on-site waste treatment system. Therefore, the Paraiso Springs Development Plan is <b>consistent</b> with this policy.</p>
<p><b>26.1.4.3 (CSV)</b> A standard tentative subdivision map and/or vesting tentative and/or Preliminary Project Review Subdivision map application for either a standard or minor subdivision shall not be approved until:</p> <p>(1) The applicant provides evidence of an assured long term water supply in terms of yield and quality for all lots which are to be created through subdivision. A recommendation on the water supply shall be made to the decision making body by the County's Health Officer and the General Manager of the Water Resources Agency, or their respective89 designees.</p> <p>(2) The applicant provides proof that the water supply to serve the lots meets both the water quality and quantity standards as set forth in Title 22 of the California Code of Regulations, and Chapters 15.04 and 15.08 of the Monterey County Code subject to the review and recommendation by the County's Health Officer to the decision making body.</p>	<p><b>The Paraiso Springs Development</b> plan provides in the associated drawing set a Preliminary Vesting Tentative Map. Also, we hereby incorporate answers from 6.1.3 CSV and 21.3.1.4 CSV listed above. Therefore, the Paraiso Springs Development Plan is <b>consistent</b> with this policy.</p>
<p><b>CSV Policy 28.1.1.1</b> states:</p> <p>Recreation and visitor serving land uses for the Paraiso Hot Springs property may be permitted in accordance with a required comprehensive development plan. The resort may include such uses as a lodge , individual cottages, a visitor center, recreational vehicle accommodations, restaurant, shops, stables, tennis courts, aquaculture, mineral water bottling, hiking, trails, vineyards, and orchards,. The plan shall address fire safety, access, sewage treatment, water quality, water quantity, drainage, and soil stability issues.</p>	<p><b>The Paraiso Springs Development Plan</b> herein submitted is a comprehensive plan that addresses fire safety, access, sewage treatment, water quality, water quantity, drainage, and soil stability. In this plan specifically, the existing drainage pattern and riparian areas on the property are preserved and to the extent that that drainage pattern contributes to the riparian area below the property then that area would also be undisturbed. The proposed resort uses are also consistent with this policy. Therefore, the Paraiso Springs Development Plan is <b>consistent</b> with this policy.</p>
<p><b>28.1.1.2 (CSV)</b> Recreation and visitor-serving commercial uses shall only be allowed if it can be proven that:</p> <p>1. areas identified by the Flood Control and Water Conservation District as prime-groundwater recharge areas can be preserved and protected from sources of pollution as determined by the Director of Environmental Health and the Flood Control and Water Conservation District;</p> <p>2. proposed development can be phased to ensure that existing groundwater supplies are not committed beyond their safe-long term yields where such yields can be determined by both the Director of Environmental Health</p>	<p><b>The Paraiso Springs Development Plan</b> herein submitted includes plans for addressing recharge and pollution issues, demonstrating a long term water supply and water balance, handling runoff and riparian areas. See also responses to Policies 6.1.3, 21.3.1.4, 26.1.4.3, and 28.1.1.1. Therefore, the Paraiso Springs Development Plan is <b>consistent</b> with this policy.</p>

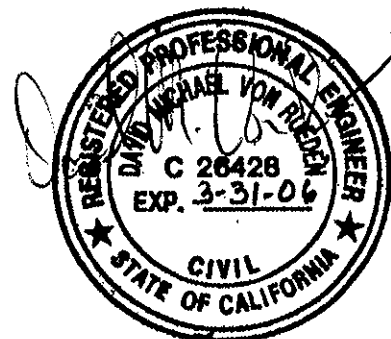
<p>and the Flood Control and Water Conservation District;</p> <p>3. the main channels of either the Arroyo Seco River or the Salinas River will not be encroached on by development because of the necessity to protect and maintain these areas for groundwater recharge, preservation of riparian habitats, and flood flow capacity as determined by the Flood Control and Water Conservation District;</p> <p>4. the proposed development meets both water quality and quantity standards expressed in Title 22 of the California Administrative Code and Title 15.0.4 of the Monterey County Code as determined by the Director of Environmental Health;</p> <p>5. the proposed development meets the minimum standards of the Regional Water Quality Control Basin Plan when septic systems are proposed and also will not adversely affect groundwater quality, as determined by the Director of Environmental Health; and</p> <p>6. the proposed development will not generate levels of runoff which will either cause erosion or adversely affect surface water resources as determined by the Flood Control and Water Conservation District Recreation and visitor-serving commercial uses shall only be allowed if</p>	
<p><b>28.1.1.3 (CSV)</b> All recreation and visitor-serving commercial land uses shall require a use permit on sites of 10 acres or less. On sites greater than 10 acres, visitor serving recreation and commercial uses may be permitted in accordance with both a use permit and a required comprehensive development plan. The comprehensive development plan shall address hydrology, water quantity and quality, sewage disposal, fire safety, access, drainage, soils, and geology.</p>	<p>The Paraiso Springs Development Plan calls for development greater than 10 acres. The comprehensive plan addresses hydrology, water quantity and quality, sewage disposal, fire safety, access, drainage, soils, and geology. Therefore, the Paraiso Springs Development Plan is <b>consistent</b> with this policy.</p>



## **APPENDIX A: PRELIMINARY SITE EARTHWORK REPORT**

# Paraiso Springs Resort: Preliminary Site Earthwork Report

PREPARED FOR: Thompson Holdings L.L.C.  
 PREPARED BY: David Von Rueden/CH2M HILL  
 COPIES: Steve Ronzone/CH2M HILL  
 Kris Hansen/EDSA  
 Andrea Ramage/CH2M HILL  
 DATE: July 15, 2005  
 PROJECT NUMBER: 327806.TK.02



The purpose of this memorandum is to provide a preliminary analysis of cuts and fills and mass grading quantities for the proposed Paraiso Springs Resort, based on the conceptual Project Grading Plan prepared by EDSA and delivered in electronic format to CH2M HILL on April 7, 2005. The Grading Plan depicts conceptual contour grading for the site, which includes a 103-room Resort Hotel with Spa and Fitness Center facilities; a Hamlet Day Spa; 17 -for-sale Single Family Home Lots; 60 for-sale condominiums; 310 parking spaces, and approximately 11,100 linear feet of private roadways. The total property area is approximately 240 acres, with approximately 50 of those acres impacted by earthwork operations.

## SUMMARY

The conceptual Grading Plan produces the approximate quantities of earthwork cuts and fills shown in the table below:

VOLUMES SUMMARY							
Region	Total SF	Raw Cut CY	Raw Fill CY	Fill Factor	Net Cut CY	Net Fill CY	Net Difference
Stripping Resuse	2,083,521	38,584	0		38,584	0	38,584
Earthwork	2,083,521	123,489	109,871	1.150	123,489	126,352	-2,863
<b>Job Total</b>	<b>2,083,521</b>	<b>162,073</b>	<b>109,871</b>	<b>1.150</b>	<b>162,073</b>	<b>126,352</b>	

As indicated, the cuts and fills essentially balance. The 2,863 cubic yards of excess fill is a minor amount of material at only 2-3% of the cut volume. This volume of "import" can easily be avoided by minor adjustments to the site grades.

The earthwork balance does not include disposal of the topsoil strippings, which total approximately 38,584 cubic yards. These strippings typically contain organic materials such as grass, weeds, shrubs and roots and are therefore not acceptable as engineered fill material

for construction. The stripped material should be stockpiled for possible use in landscape areas, the vineyard, on-site disposal, or sale off-site.

The fill heights range up to a maximum of approximately 14 feet, with the highest fills needed to construct the main Hotel complex and adjacent Hamlet, and the roadway leading to the western-most cluster of condominiums.

The depths of cut generally are less than 10 feet throughout the site. However, deep cuts of up to 25 feet are required for the parking area south of the Hamlet and the adjacent roadway. Significant retaining walls or upper slope benching will likely be required in this area. Input from the Geotechnical Engineer will be required for supplemental grading design of these cut areas and the higher fill areas.

## METHODOLOGY

The earthwork volumes noted above were calculated by a computer program specifically designed to compute cuts and fills for land development projects similar to the Paraiso Springs Resort Project. The computer program computes the vertical differences between the existing terrain model developed from the aerial topography for this Project provided by Bestor Engineers, and the finish graded surfaces across the site that are defined by the conceptual Grading Plan provided by EDSA. The vertical differences are computed as cubic yards of cut and fill. The computations were done under CH2M HILL's direction, by EARTHCALC Incorporated, a vendor who specializes in site earthwork quantity calculations.

## ASSUMPTIONS

The earthwork computations reported herein are based on the following assumptions:

- 1) Six (6) inches of topsoil stripping will be required at all construction areas. The actual amount of stripping may vary from this assumed value, and should be determined by the Geotechnical Engineer, based on site conditions at the time of construction .
- 2) A shrinkage factor of 15% has been applied to the fill quantity to address the potential density differential between soil excavated on-site and subsequently placed as compacted engineered fill. The final shrinkage factor should be recommended by the Geotechnical Engineer, based on actual soil conditions and soil types, and construction methods.
- 3) All roadway pavement sections were assumed to have a structural section one (1) foot thick. This structural section is assumed to contain the driving surface material(s) and all imported subgrade material (ie; baserock, etc.). As of this date, pavement sections have not yet been designed. Actual pavement sections should be designed by the Geotechnical Engineer, based on subgrade soil "R" values and surface materials selected by the Owner (ie: concrete; asphalt concrete; stone pavers, etc.).
- 4) All building foundation sections were assumed to be one (1) foot thick concrete slab-on-grade, including concrete slab and sand/gravel subgrade materials. Actual foundations sections will likely vary from this assumption, based on the different building types. No architectural construction details for foundations are available at this time.

- 5) All recommendations contained in the Geologic and Soils Engineer's Feasibility Report, dated December 2004, and prepared by Landset Engineers, Inc, will be followed during final design and construction.
- 6) All existing, on-site buildings and related structures will be demolished, prior to earthwork operations.
- 7) All earthwork operations will be essentially completed in a single construction operation, such that stockpiling/borrowing of soil materials will not be required to support future grading operations. No analysis was done to determine quantities of earthwork materials required for project phasing.

#### **SUPPORTING DATA**

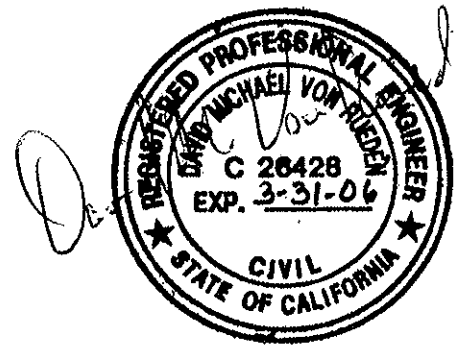
Supporting data for this earthwork analysis includes the previously referenced site topographic survey, conceptual Project Grading Plan and Geotechnical Engineer's Report. These documents are not attached to this memorandum, but are available separately.

The earthwork quantity take-off from EARTHCALC, displayed as a cut/fill map, is shown on Sheet CG1.1 – Proposal Excavation and Embankment Plan, bound separately.

## **APPENDIX B: PRELIMINARY EROSION PROTECTION MEASURES**

# Paraiso Springs Resort: Preliminary Erosion Protection Measures

PREPARED FOR: Thompson Holdings L.L.C.  
PREPARED BY: David Von Rueden/CH2M HILL  
COPIES: Steve Ronzone/CH2M HILL  
Kris Hansen/EDSA  
Andrea Ramage/CH2M HILL  
DATE: July 15, 2005  
PROJECT NUMBER: 327806.TK.06



The purpose of this Memorandum is to provide a preliminary description of proposed erosion protection measures that will be implemented for the planned development of the Paraiso Springs Resort, as shown on the conceptual Site Plan and Grading Plan prepared by EDSA.

## SUMMARY

Construction of the planned development will impact approximately 50 acres of the 240 acre Project Site. Within this construction zone, existing ground gradients vary from approximately 8% at the relatively flat eastern end of the site, to approximately 12% at its western end. Existing ground in the north-central condominium development areas of the Site has slopes up to approximately 33%. Existing terrain surrounding and above the construction zone has even steeper slopes. One major drainage in a defined channel traverses the middle of the development from west to east, with several smaller, steeper drainage swales entering the development area from the north and south.

The site surface soils are erodible, as noted in the Geologic and Soil Engineering Feasibility Report, dated December 2004, prepared by Landset Engineers Inc. In addition, the Report states that the steep hillside areas above the development are susceptible to landslides and debris flow. These areas are generally delineated on the *Relative Geologic Hazards Map* included in the Report.

Proposed erosion control measures for the Project include temporary measures to prevent erosion and sedimentation from construction operations, and permanent measures. The temporary erosion control measures will include Best Management Practices (BMPs) for construction activities, such as:

- Construction vehicle access pads at the County Road project entrance and at access points off any constructed roadways
- Material hauling
- Construction material storage
- Dust control
- Construction vehicle maintenance and fueling
- Hazardous materials storage
- Use of hay bales, straw mats and waddles at new cut and fill slopes
- Hydroseeding cut and fill slopes prior to rainy season
- Contractor employee training
- Settling basins for dewatering areas
- Concrete truck wash out basins

An NPDES Notification for this Project will have to be filed with the Water Resources Control Board, and a site-specific Stormwater Prevention Plan prepared, prior to construction activities beginning.

The permanent erosion control measures should include the following features:

- Debris walls, diversions or basins constructed in the upper portions of the drainage swales leading to the development site, as recommended in the previously referenced Geologic and Soil Engineering Feasibility Report. Based on the *Relative Geologic Hazards Map*, there appear to be five (5) drainages above the site that could contribute significant debris flows to the Project area, and should be addressed. Design of these facilities will require additional soils, hydraulic and site investigations, and should be done in conjunction with the site storm drainage design.
- Interceptor drainage ditches on hillsides above the development, to divert upland surface runoff around single-family lots, buildings, spa/fitness facilities, and retaining walls. Drainage ditches should also be constructed on the uphill sides of perimeter roadways and trails to collect runoff and channel it to collection points. These ditches should be grass-lined swales to the extent possible, to encourage water percolation and blend in aesthetically with surrounding areas. However, ditches with longitudinal slopes greater than 4-5% will require harder surfacing such as rock, cobblestone or concrete.
- Roadway/parking lot gutters, constructed to collect and convey roadway/parking drainage to a storm drainage system.
- Benches with drainage ditches, above large cut/fill slopes, as directed by the geotechnical engineer.
- Jute netting, erosion control mats, or hydroseeding, in conjunction with landscape planting on all steep (greater than 4:1) finish slopes.
- Hydroseeding or landscaping on all areas of the Project that are disturbed by construction.
- Storm drainage collection system, including roof gutters/leaders, lined/landscaped swales, catch basins and underground pipe collection system for the entire Project area.
- Appropriate agricultural soil conservation measures to limit erosion/runoff from the Vineyard Area.
- Channel invert and bank stabilization measures, such as rock or biomechanical slope protection, for the main drainage channel through the Project site. These features should

be designed to be compatible with the landscape design theme for the drainage area, and must safely incorporate storm drainage outfalls from site drainage facilities. It is likely that design of this drainage facility must be coordinated with and permitted by the CA Dept. of Fish and Game.

### **ASSUMPTIONS**

The following assumptions pertain to the preliminary erosion protection plan described above:

- All recommendations of the geotechnical engineer will be followed regarding slope stability and subsurface drainage, within the Project
- A master storm drainage plan will be prepared to further evaluate drainage conditions around and through the site.
- Pervious materials will be used to the extent possible for roadways, walkways and parking areas.

### **SUPPORTING DATA**

The Project Site Plan prepared by EDSA and the Geologic and Soil Engineering Feasibility Study were used in the development of this Memorandum.



## **APPENDIX C: EXISTING HYDROLOGIC AND HYDRAULIC SITE CONDITIONS**

## Paraiso Springs Resort: Existing Hydrologic and Hydraulic Site Conditions

PREPARED FOR: Thompson Holdings L.L.C.  
(with Attachment)

PREPARED BY: David Von Rueden/CH2M HILL  
Erika E. Powell/CH2M HILL  
Kathy Rosinski/CH2M HILL

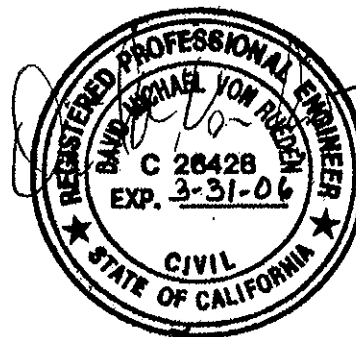
COPIES: Steve Ronzone/CH2M HILL  
(with Attachment)

Kris Hansen/EDSA  
(with Attachment)

Andrea Ramage/CH2M HILL  
(with Attachment)

DATE: July 15, 2005

PROJECT NUMBER 327806.TK.03



This Memorandum provides a preliminary analysis of the current hydrologic and hydraulic conditions of the Paraiso Springs Resort (Project) Watershed and the potential for site flooding.

### SUMMARY

#### Watershed Description

The Project is located south of Soledad and east of Greenfield, in Monterey County California. The Paraiso Springs drainage, which flows through the proposed development, begins on the eastern slopes of the Sierra de Salinas Mountains and in the westerly portion of the Arroyo Seco Watershed, travels northeasterly to the Arroyo Seco Valley floor, where flows are collected and enter the Arroyo Seco River. The Arroyo Seco River is a major tributary to the Salinas River.

The primary drainage basin, tributary to the Paraiso Springs channel, extends from the southwest, at elevation 2400 feet (NGVD), to the northeast project boundary, at elevation 1000 feet. The basin is approximately 1160 acres in size, and is surrounded by mostly undeveloped and rural agricultural land uses. The mountains and hillsides that are the primary sources of flows to the creek are covered by a mixture of native oak savannas, sycamore river valleys, grasslands, and scrub chaparral. The average slope of the hills to the southwest of the project site is 0.40 ft/ft. The average slope of the hills to the west of the

project site is 0.36 ft/ft. Topographic contour patterns show that there are four points within the basin that collect and transfer flows from the higher areas of the basin to the existing stream.

### **Precipitation & Historical Flows**

As discussed below, hydrologic data utilized in this memorandum was not compiled by the authors and could be confirmed or modified through direct measurement utilizing rainfall and stage gages present near or at the project site.

Average annual rainfall in the Project area is approximately 11-inches. Storms are few and infrequent and primarily occur in January and February. Two recent flood events occurred in January and in March of 1995, when almost 10-inches of rain fell in the watershed over five days. Using the Monterey County Rainfall Intensities Chart, the March 1995 storm was approximated to be between a 10- and 20-year event. Some damage to the pools and the road on the site was reported. This damage included a culvert whose capacity was greatly reduced by debris, brush and rocks.

### **Channel Characteristics**

The main drainage channel through the Project site has an approximate width of 50 feet. The adjacent lands southerly of this channel are relatively flat and extend several hundred feet beyond the top of bank. The Soil Engineering Feasibility Report discusses existing soil conditions and the potential for landslides and debris production within the project area. This Report indicates that sediment and debris produced in the steeper portions of the drainage basin will migrate into the channel and will require management.

The channel slope upstream of the Project site (approximately 50 percent of its total length) is 0.25 ft/ft. The channel slope in the valley section of the channel (the length of the Project site) is approximately 0.112 ft/ft. The expected average channel velocity, within the Project site, is in the order of 27 ft/sec, at a full bank flow condition. This velocity, in combination with existing soil conditions, illustrates a potential for channel erosion during infrequent storm events.

### **Flood Zone**

The Project site is shown on the Flood Insurance Rate Map (FIRM) for Monterey County, CA (Unincorporated Areas), Panel Number 060195 0350 D, dated January 30, 1984. This Map indicates that the Project Site is in Zone C – areas of minimal flooding. Although this indicates the Project site is not within a flood hazard area, FEMA requires all new construction to be built at the base flood elevation, which is 1-foot above the elevation of the top of bank, for undesignated flood hazard areas.

### **Paraiso Resort Site**

The Project site, approximately 240 Acres, encompasses 21 percent of the total basin area. Only approximately 23 acres of the Project site is expected to contain impermeable surfaces. Because this is such a small percentage of the overall drainage basin at 2%, no significant increase in outflow from the basin is anticipated. However, because the project is to be built

in the flatter lands that are tributary to the drainage channel, an impact to the current drainage patterns can be expected. Flows that are now delivered to the main channel via the four collection points, as discussed in Watershed Description, and overland sheet flow, will require collection and routing via culverts, piped storm drainage systems, or ditches with erosion protection. The appropriate sizing, locations and erosion protection measures for the drainage systems will be developed during subsequent Project design phases. Likewise, emergency surface drainage releases, for flow volumes beyond the design capacity of the drainage systems, will need to be provided to divert sheet flows around buildings.

The current, bankfull capacity of the primary drainage channel is approximately 4,000 cfs, excluding any existing culverts. It is estimated that approximately 400 cfs of runoff will be generated from the watershed, above the west boundary of the Project site, during a 1% (100-year) storm event. Therefore, the existing channel should have adequate capacity, with freeboard, to convey upstream flows through the site, provided that all roadway crossings of the creek provide a waterway opening that is comparable to the existing channel section. Also, erosion protection measures, such as bed stabilization, toe protection and bridge scour protection, should be implemented for the channel to preserve the channel cross section and minimize sedimentation downstream.

## Conclusions

Subsequent design phases for the Project should consider the following:

- The Project is situated in an area tributary to a natural drainage channel and has the potential to impact the current site drainage patterns.
- The Project Site is not subject to flooding from a 1% (100-year) storm event, provided that the existing channel waterway cross section is maintained.
- Water surface elevations and velocities in the channel will need to be determined. Grading required for building pads and /or the foundations of all structures will be one (1) foot above the drainage channel banks. The grading or construction required for flood protection throughout the development area will be fully coordinated with the site's tree preservation requirements.
- There is a potential for significant sediment and debris production from the upper watershed. Debris basins upstream of the development should be implemented and a maintenance plan prepared.
- Efforts to control possible flooding should be considered, including:
  - diversion and/or containment of runoff above developed areas
  - measures to limit erosion of the main drainage channel
  - maintenance of the channel to prevent blockage
  - overland flow patterns should be established around proposed buildings, as part of the finish grading plan

## **METHODOLOGY AND ASSUMPTIONS**

The preliminary hydrology data presented in this Memorandum were developed using a rough analysis of the SCS Curve Number method. Storm distributions for a duration of 24 hours were developed by SCS from U. S. National Weather Service data as typical design storms. In the SCS method, the intensity of rainfall varies considerably during the storm period. A Type 1 storm is used for areas in Central California. Runoff is affected by ground cover, soil type, and topography.

## **SUPPORTING DATA**

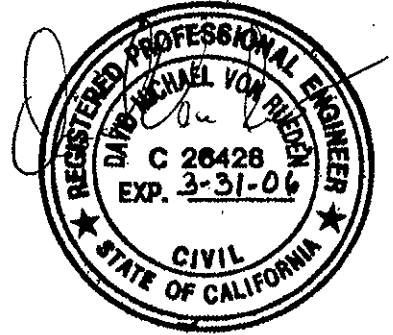
Assumptions for soil type, ground cover and topography were based on cursory reviews of the Geology and Soil Engineering Feasibility Report for the Project, USGS Quadrangle maps, and field visits. A Watershed Map, based on a USGS Quadrangle Map, is attached.



## **APPENDIX D: PRELIMINARY FIRE PROTECTION PLAN**

## Paraiso Springs Resort: Preliminary Fire Protection Plan

PREPARED FOR: Thompson Holdings L.L.C. (with Attachment)  
PREPARED BY: David Von Rueden/CH2M HILL  
COPIES: Steve Ronzone/CH2M HILL (with Attachment)  
Kris Hansen/EDSA (with Attachment)  
Andrea Ramage/CH2M HILL (with Attachment)  
DATE: July 15, 2005  
PROJECT NUMBER: 327806.TK.07



This Memorandum provides a description of the fire protection systems that will support the planned development of the Paraiso Springs Resort, as shown on the conceptual Site Plan and Grading Plan prepared by EDSA (Project).

### SUMMARY

The fire protection system for the Project will be a wet hydrant network, supplied by a dedicated fire water pipeline system that will be separate from the Project's potable water system. Each hydrant will have one four-inch and two, two and one-half-inch connections. A total of sixteen (16) hydrants will be provided and located throughout the site as indicated on the attached map. The flow capacity for each hydrant will be 1,000 gallons per minute (gpm).

In addition to the wet hydrant system, all buildings on site will be sprinklered. A commercial sprinkler system will be provided for the Hotel/Spa Resort Complex, the Hamlet and the condominiums, and it will be supplied by the fire water pipeline system. Requirements for fire flow are based on sprinkler demand for the Project's largest building (Hotel Conference Center Wing @ 25,000 sf), along with one adjacent hydrant. Based on this building size, up to 500,000 gallons of fire water storage will be provided for the on-site fire suppression system. The precise storage volume for the Project will be established through detailed engineering studies preformed during the Design Development phase of the Project.

A water reservoir of up to 500,000 gallons will be provided on-site to support the hydrant and commercial building sprinkler systems. The potential reservoir options are:

- A steel tank, located at the west end of the development, above the western-most condominium units. Assuming a pressure of 40 psi will be required at the highest hydrant (elevation approximately 1305 ft), this tank will need to be located above elevation 1410 ft.



- An on-site artificial lake or storage pond. In conjunction with this artificial lake, a fire pump would be utilized, because most likely, the lake would be located at an elevation below most of the development and therefore gravity flow would not work. The fire pump would be approximately 2,000 gpm capacity.

The water for the fire protection system will be from an on-site source.

The condominiums and single-family homes will also be sprinklered. Most likely, these sprinklers will be connected to the potable water system, on the homeowner's side of their water meter.

A series of Fire Department Connections (four total) will also be installed around the Hotel building and entrance, as shown on the attached map. The commercial and residential fire sprinkler systems, along with the hydrant system, will be designed by a licensed Fire Protection Engineer.

Other fire protection Project elements include:

- Twelve (12) foot wide (minimum) access roads by the Spa, Fitness Center and condominiums,
- Adequate vehicle turn-arounds at end of roadways,
- Access Road Bridge across creek must be designed for highway loading standards (HS-44).

## METHODOLOGY

The technical data contained in this Memorandum is based on information received from Mr. Frank Royos/CA Dept. of Forestry and Mr. Art Black/Carmel Fire Protection Association<sup>22</sup>, who have fire protection jurisdiction for the Paraiso Springs area of Monterey County.

## ASSUMPTIONS

The following assumptions pertain to the preliminary fire protection system described above:

- 1) A water reservoir, either a steel tank or an artificial lake, can be located on the project site and constructed in conformance with recommendations from the Geotechnical Engineer. The reservoir will have a storage volume of up to 500,000 gallons, which will be maintained at all times.
- 2) The on-site source is capable of supplying enough water to fill the fire water reservoir on a regular basis, for an indefinite period of time, within an acceptable timeframe after reservoir drawdown.
- 3) The Project fire suppression system layout and capacity will be verified during subsequent Project design phases.

## SUPPORTING DATA

Refer to the attached map for a general layout of fire hydrants and fire department connections. This data was provided by Frank Royos in March 2005, and Art Black in May 2005.



## **APPENDIX E: WASTEWATER TREATMENT SYSTEM**

## Paraiso Springs Resort: Wastewater Treatment System

PREPARED FOR: Bill Thompson/Thompson Holdings  
John Thompson/Thompson Holdings

PREPARED BY: Andrea Ramage/CH2M HILL  
Doug Berschauer/CH2M HILL  
Steve Ronzone/Consultant

DATE: July 13, 2005

PROJECT NUMBER: 327806.TK.04

This memorandum describes the proposed wastewater collection, treatment, and disposal system for the 240-acre Paraiso Springs Resort. The proposed enhanced onsite treatment (EOT) system was selected for its ability to meet several important design and performance criteria, including:

- Compliance with state and county water quality requirements
- High reliability and ease of maintenance
- Low operations and maintenance costs
- Very low to no odors
- Capability of below-ground installation
- Small footprint
- Ability to handle daily and seasonal variations in wastewater flow

## Background and Assumptions

The following paragraphs summarize key background information and assumptions that influenced the choice of treatment technology and preliminary design and performance characteristics.

### Wastewater Load

The wastewater load was estimated by assigning Monterey County code-defined sewage flow rates<sup>1</sup> to each of the facility types contained in the Paraiso Springs Resort Data Table. The basis of this information is the Project Master Plan prepared by EDSA and the March 16, 2005 Hill Glazier Architects Building Program provided to CH2M HILL. The building program includes a resort hotel with spa and fitness center facilities; a hamlet day spa and retail facilities; single-family home lots; condominiums; and other miscellaneous facilities.

The total estimated wastewater load is 57,660 gallons per day, as shown in Table 1, below.

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<sup>1</sup> Monterey County Codes: Title 15, Chapter 15.20 Sewage Disposal, Section 15.20.070 Standards and Specifications, Table C: Quantities of Sewage Flow. Obtained from web site at <http://municipalcodes.lexisnexis.com/codes/montereyco>.

TABLE 1: ESTIMATED WASTEWATER LOAD FOR PARAISO SPRINGS RESORT

Facility	Number of Units	Unit Load (gallons/day)	Total Load (gallons/day)
Hotel Guestrooms (accounts for guest use as well as Institute meeting rooms, banquet rooms, back of house food, beverage, and laundry, and hotel support facilities)	103 rooms	60	6,420
Hotel Restaurants	205 seats	1,000 + 30/seat	7,150
Hotel Bar	20 seats	15 gal/seat	300
Spa Restaurant	33 seats	1,000 + 30/seat	1,990
Hamlet Coffee Bar	50 seats	1,000 + 30/seat	2,500
Institute Culinary School	1 school	1,000	1,000
Institute (second phase construction)	10 people	15	150
Hamlet Stores	5 stores	1,000	5,000
Hamlet Day Spa	50 guests	35	1,750
Pet Spa	1 unit	1,000	1,000
Wine Pavilion	30 guests	15	1,000
Teahouse	10 guests	15	1,150
Spa and Fitness Facilities	150 guests	35	5,250
Hillside Condos	60 units	250	15,000
Single Family Residences	17 units	250	4,250
Resort Employees	250 people	15	3,750
<b>TOTAL</b>			<b>57,660</b>

The calculations assume full occupancy and therefore represent the maximum estimated load. Note that the calculation does not double-count wastewater loading from hotel guests' and employees' use of toilet, shower, kitchen, and other wastewater-generating facilities. For example, the wastewater load for guest rooms includes (1) guest use of hotel rooms, (2) hotel guest use of restaurants & meeting and conference rooms, (3) hotel administrative staff needed to serve the guests, and (4) support functions such as hotel laundry.

## Landscaping Plan

The landscaping plan includes the following areas:

TABLE 2: LANDSCAPING AND IRRIGATION AREAS FOR PARAISO SPRINGS RESORT

Landscaping Location	Estimated Area (Sq. Feet)	Estimated Area (Acres)
Suites	80,000	1.8
Main Lobby & Hamlet	82,000	1.9
Institute	12,000	0.3
Spa	3,500	0.1
Sports Facility	52,000	1.2
Villas at Sports	46,000	1.1
Villas Hillside (w)	85,000	2.0
Villas Hillside (e)	75,000	1.7
Hillside Meadows	300,000	6.9
<b>Sub Total</b>	<b>735,500</b>	<b>17.0</b>

## Irrigation Rates

Preliminary calculations by EDSA (project landscape architect)<sup>2</sup> show that irrigation requirements, based on evapotranspiration data<sup>3</sup> for the preliminary planting plan described above, vary from 1.0 million gal/month (minimum) during winter to 3.59 million gal/month (maximum) during the growing season.

## Land Application Rate

An appropriate land application rate for subsurface irrigation was determined using an estimating tool provided by "Geoflow," a subsurface irrigation supplier. Using this tool, and based on previous and limited percolation tests by GeoSolutions LLC<sup>4</sup> in 1998, we have conservatively estimated onsite soils to be Class II "loam" soils with a hydraulic loading rate of 0.7 gal/square foot/day.

## Proposed System: Enhanced Onsite Treatment

Enhanced on-site treatment (EOT) improves upon septic/disposal field approaches by adding solids and grease removal and aerobic fixed media treatment.

<sup>2</sup> Irrigation requirement for preliminary planting plan estimates maximum 3.59 million gal/month during growing season and 1.0 million gal/month during winter season. Information conveyed by personal communication, Bill Thompson, June 15, 2005. Original data received by Bill Thompson from Kris Hansen/EDSA.

<sup>3</sup> Kris Hansen, EDSA. Personal communication, July 7, 2005. Also referencing website <http://www.itrc.org/etdata/etmain.htm>.

<sup>4</sup> "Percolation Evaluation Report, Paraiso Springs Resort, Paraiso Springs Road, Solodad Area of Monterey County, Paraiso Springs, California: Project SL00682-1. Prepared for Mr. Dave Watson/King Ventures. Prepared by Geosolutions LLC. December 1998.

## Description

The EOT system is described as follows:

1. Wastewater Conveyance: Wastewater will be conveyed by gravity to septic tanks, where solids will be collected. The liquid portion will be pumped or gravity-fed to the onsite treatment system. The soils onsite are generally well-drained, and infiltration and inflow into sewers is not anticipated to be a problem. Regardless, sewers will be constructed with care to ensure a "tight" system. Septic tanks will be cleaned regularly to remove solids.
2. Treatment Technology: The AdvanTex biological treatment process (by Orenco Systems Incorporated) uses a treatment tank and a pump to recirculate wastewater within the treatment unit and draw air in from the outside. Biomass attaches to a non-woven textile medium to provide a large surface area for biological treatment. Part of the treated effluent is recirculated into the tank and part is diverted for dispersal by irrigation (as described below).
3. Effluent Quality: The treatment process produces secondary effluent, which can be further improved with additional filtration and disinfection. The treatment system will meet County and state standards for wastewater treatment.
4. Dispersal Method: The treated effluent will be conveyed to subsurface irrigation systems through pressurized lines. The pressurized lines allow the dosing volume and duration of wastewater disposal to be regulated in predetermined subsurface irrigation zones, thereby increasing the effectiveness of the dispersal system. This type of dispersal system recycles water in two ways – by offsetting potable water needed for irrigation, and by recharging groundwater through infiltration.
5. Water Balance: According to estimated land application rate, with the given wastewater load, the EOT system will require 82,371 square feet (1.9 acres) for disposal by subsurface irrigation. With approximately 17 acres of planned landscaping, the site provides ample area for wastewater disposal; indeed, subsurface irrigation water must be supplemented with potable water to meet the total irrigation demand, for most of the year.
6. Nitrogen Loading: For raw sewage disposal in septic/disposal fields, Monterey County code limits nitrogen loading to less than 300 gallons per acre per day. The recommended system meets this criterion in two ways. First, the given wastewater load of 57,660 gal/day amounts to an average load of 240 gal/acre/day (over the 240-acre site). Second, by treating sewage to secondary levels, the recommended system significantly reduces the nitrogen load compared to septic/disposal systems.
7. Redundancy. The system will incorporate several levels of redundancy to ensure failsafe operation, such as:
  - **Effluent storage**: A diversion valve in the sanitary sewer line will be provided to route wastewater flows to the septic tanks during shutdown for maintenance or emergency procedures. The septic tanks would ordinarily be empty and available to store three full days of sewage flow. Small submersible pumps will

be installed in the septic tanks to empty effluent back into the collection system when the treatment plant comes back on line.

- **Power:** Emergency power to operate the treatment plant will be provided by an onsite emergency generator.
  - **Equipment:** Spare equipment will be kept on hand in the event of equipment failure.
8. **Monitoring:** Monitoring of the wastewater treatment system will be carried out in accordance with the Waste Discharge Requirements to be issued by the Regional Water Quality Control Board, in addition to specific items that may be requested by Monterey County.
  9. **Location:** The enhanced onsite treatment unit will be located at the eastern end of the site, near the entrance, downhill from the main resort area. Irrigation lines will extend into various landscaped areas, to be determined during design.

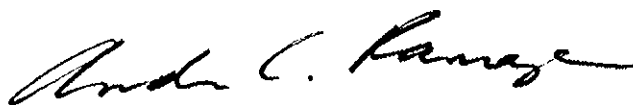
## Advantages

With reference to the selection criteria listed above, the advantages of this system are:

- The technology is simple and easy to maintain. For example, solids are removed from septic tanks every 5 to 7 years, compared to a much higher frequency for package treatment systems.
- Treatment units can be installed below ground.
- Modular configuration provides flexibility in design, an easy way to build in redundancy for reliability, and easy expansion in the future.
- The system can handle daily and seasonal variations in wastewater flow.
- Both types of enhanced on-site treatment systems described above are proven to be reliable and able to produce better-than-secondary type quality effluent, with lower nitrogen loading than conventional septic disposal systems.
- Energy consumption is low compared to package treatment plants.
- Very low to no odors.
- Some parts of the treatment system can be automated (blowers and pumps).
- Because this system provides a pressurized drip system, it can utilize steeper terrain than disposal fields.
- Backup storage is an integral part of the septic system connected to the enhanced onsite treatment system, thus not requiring additional storage capacity.

Please do not hesitate to contact me if you have any questions.

Sincerely,



Andrea C. Ramage, P.E.  
Director, Sustainable Solutions