JOHNSON'S UP-ON-TOP MESA

Grand County, Utah

Preliminary Plat
Preliminary Master Plan
Planned Unit Development
Use on Review for Wilderness Lodge
Special Exceptions

Presented to Grand County Planning & Zoning Commission
Grand County Council

Presented by Moab Mesa Land Company LLC

February 6, 2001

Preliminary Plat & Preliminary Master Plan

The Preliminary Plat & Preliminary Master Plan describe a planned community for a wilderness lodge and rural residential development at Johnson's Up-On-Top Mesa. The Preliminary Plat & Preliminary Master Plan conform with the Sketch Plan approved on December 6, 2000, and respond to the issues raised by the Planning & Zoning Commission at that time. Refinements have been made to the infrastructure layout and to the planning concept for clustering the lodge and single-family residences, to provide larger contiguous open spaces. The Mesa Rim Conservation Zone is greatly expanded to protect Mill Creek Canyon. The equestrian center has been moved east, beyond the primary groundwater recharge zone.

The plan provides for 80% natural open space and clustering the development on the remaining property. Table 1 illustrates the clustering planning concept.

Table I
Grand County Zoning Requirements
Comparison with Clustered Development

Use	Required By Zoning				Cluster	
	Units	Density	Acres	% of Development	Acres	% of Development
Open Space					1545	79.9
Wilderness Lodge (rooms)	225	2.5/ac.	562.5	29.1	97	5.0
Residential Condominiums	150	5/ac.	750	38.8	incl. above	
Homesites	110	5/ac.	550	28.4	220	11.4
Parking (stalls)	525	400	5	0.3	5	0.3
Roads			43	2.2	43	2.2
Equestrian Center	1		12	0.6	12	0.6
Recreation Area			7.5	.04	7.5	0.4
Utilities			5	0.3	5	0.3

Total			1935	100	1935	100

This Preliminary Master Plan utilizes the cluster subdivision concept described in the Grand County General Plan with the clustering of *56* of the 110 single family homesites into seven courtyard villages focused around a central plaza. These courtyard villages add a new element to the residential mix, complimenting the large lot and condominium housing. The 110 lots now vary in size from 1 acre to 8 acres as illustrated in Table 2.

Table 2
Clustering of the Single Family Residences

Lot Size	***Number of lots***
1 acre	56
2 acre	36
4acre	13
8 acre	5
Total	110

Architectural & engineering designs are shown in Exhibits 1-17.

Building locations and phasing plans are shown in Exhibit 2.

Phase 1 Lodge architectural plans & elevations are shown in Exhibits 6-9.

All submittal requirements are included on the Preliminary Plat and Preliminary Master Plan drawings.

Planning Issues

The goal of the Johnson's Up-On-Top Mesa Preliminary Master Plan and Plat is to develop a wilderness lodge and rural residential community with minimum impact. A Special Exception Permit creates Subdivision Standards to concentrate the development on the smallest possible footprint.

The Private Lane leading from the site entry to the lodge serves as the main access road, requires hard surface treatment, and a centerline radius designed at *75* feet to avoid excessive scarring of the rim landscape. The lane generally follows the existing dirt road alignment. The travel surface will meet county requirements consistent with a geotechnical report submitted with the Final Plat.

Private Lanes that access the large lot single family and courtyard village homes are designed with a travel surface of 4-inch road base of native materials re-compacted with a soil stabilizer.

Public Access is provided for pedestrian, bicycle and horseback use through a recreational permit system.

Public utilities are provided and paid for by the developer, designed to county standards. A piped sewer system connects with the Grand County Water & Sewer District.

The Traffic Impact Study measured off site impacts to the transportation system and concluded that no mitigation measures are required.

The Groundwater Geologic Report studied issues relating to the underlying aquifer. The hydrologic study found

no adverse effects to the aquifer and concluded that specified uses meet the approval of applicable regulatory agencies.

The Mesa Rim Conservation Zone protects rim areas in their natural state. The zone has been enlarged from 252 acres to 377.5 acres, to include the rim area along Mill Creek.

Provisions for employee housing are included in the lodge infrastructure.

Other reports and documentation supporting the design drawings are attached to this complete application. The exhibits are presented in scales that best communicate the information as directed by Planning Staff

Conclusion

Moab Mesa Land Company LLC respectfully requests that the Planning & Zoning Commission and the Grand County Council approve the Preliminary Plat and Preliminary Master Plan for the Johnson's Up-On-Top Mesa.

Planned Unit Development Johnson's Up-On-Top Mesa

Zoning District "RG"

Purpose: All development within the "RG" zoning district is required to be approved through the Planned Unit Development Process. This process is designed to provide flexibility to accommodate innovative development proposals. In this application, the developer requests approval to develop the property by clustering the wilderness lodge, condominium residential units and single family residences.

This clustering planning concept will result is keeping 5O % of the mesa as open space preserving the natural and scenic qualities of the mesa. All of the required densities for the proposed land uses are in compliance with the standard "RG" zoning of the Land Use Code.

Variation from zoning standards: In order to achieve the stated purpose for this development plan, the applicant is requesting that the minimum lot area, setbacks and lot width be reduced to accommodate the clustering plan as submitted. The benefit from these variations is directed to preserving the environmental qualities of the landscape. The planning concept of clustering the same density of development within a smaller area of a large parcel is a widely supported planning practice for preserving a natural landscape.

General requirements: The exhibits submitted with the Preliminary Plat and Preliminary Master Plan provide the information necessary to illustrate the planning concept, the required site plan, the architectural plan and the landscape plan.

Required findings for approval: This planned unit development complies with the required findings for approval. The plan is consistent with the Grand County General Plan as identified in the Sketch Plan submittal. The plan maintains consistency with the character of the surrounding land uses by keeping 80% of the land in natural open space and through architectural design using indigenous landscape forms and materials. The surrounding area will not be adversely affected so as to limit future development. Specific traffic studies have concluded no off-site impacts from this development. Also, ground water studies have identified aquifer recharge zones and associated restricted land uses. None of the land uses proposed in this plan present a danger of contamination to the aquifer.

Conclusion

Moab Mesa Land Company LLC respectfully requests that the Planning Commission and the Grand County Council approve the "Planned Unit Development" for a wilderness lodge and residential community as submitted on Johnson's Up-On-Top Mesa.

Use on Review Permit Johnson's Up-On-Top Mesa Wilderness Lodge

Proposed Use: Wilderness Lodge
Units: 225 rooms
Zoning District: RG

Project Description: The clustered wilderness lodge offers an appropriate land use for Johnson's Up-On-Top Mesa, more sensitive that the standard RG zoning provisions for dispersing 1 home on every *5* acres. The high-end positioning of the lodge, along with the full range of services and amenities provided, including an adventure and exploration program and comprehensive spa, will diversify the offerings of the Grand County tourism economy.

Architectural Design: The architecture of the lodge is best described as a series of pavilions that take their geometry from the natural landscape, low in profile and natural in their materials. The ancient architecture of the Southwest, as specifically found at the archeological sites of Mishongnovi, Shongopavi and Walpi, serves as inspiration for the form, function and design. The building materials include rammed earth (dirt with 6% concrete), indigenous stone, natural wood and weathered steel. The buildings will have flat roofs and earth tone walls to minimize the contrast with the surrounding landscape. Articulation of the walls and surfaces will create light and shadow patterns to further blend the structures with the landscape. Outdoor lighting will conform to the newly adopted county standards.

Parking Design: Parking will be screened with native landscaping and earth-tone trellises. Parking surface will be gravel with a naturally colored chip seal.

Density Requirement: The Land Use Code requires *2.5* acres of land per unit, or *562.5* acres for 225 units. The lodge is instead densely clustered on approximately 26 acres, to devote the remainder to natural open space. No bonus densities as permitted in the Land Use Code are requested.

Unit Size: Average lodge unit size will be 1,000 square feet. A Special Exception application has been submitted requesting an exception to the design standard to exceed the 600 square feet average unit size.

Public Utilities: The proposed water and sewer system will provide the necessary utility services to the lodge.

Accessory Facilities: Accessory facilities include restaurants, spa, gift shop, equestrian center, creek pavilion, event amphitheater, recreational amenities, and a hiking & biking center.

Phasing Plan: A four-phase plan is outlined .in the attached Building Summary Table, which describes phasing, building program and land coverage. The Preliminary Plat describes the initial 48-room lodge.

Conclusion

Moab Mesa Land Company LLC respectfully requests that the Planning & Zoning Commission and the Grand County Council approve the Use on Review Permit for a wilderness lodge on Johnson's Up-On-Top Mesa.

Building Summary Chart

Type	# of Units	SF	# of Units	SF	# of Units	SF	# of Units	SF	# of Units	SF
Units/Housing - Interior										
Lodges	48	38,600	27	22,950	75	79,688	75	79,688	225	220,925
Condominiums	0	0	0	0	75	109,125	75	108,375	150	217,500

Employee Housing	0	0	0	0	55	46,250	0	0	55	46,250
Total	48	38,600	27	22,950	205	235,063	150	188,063	430	484,675
Services - Interior										
Lodges		33,250		0		50,000		50,000		133,250
Condominiums		0		0		20,000		20,000		40,000
Total		33,250		0		70,000		70,000		173,250
TOTAL Interior		**71,850**		**22,950**		**305,063**		**258,063**		**657,925**
Units/Housing - Exterior										
Lodges	48	38,600	27	22,950	75	63,750	75	63,750	225	189,050
Condominiums	0	0	0	0	75	43,800	75	43,200	150	87,000
Employee Housing	0	0	0	0	55	0	0	0	55	0
Total	48	38,600	27	22,950	205	107,550	150	106,950	430	276,050
Services - Exterior										
Lodges		127,150		20,000		10,000		10,000		167,150
Condominiums		0		0		26,500		26,500		53,000
Total		127,150		20,000		36,500		36,500		220,150
TOTAL Exterior		**165,750**		**42,950**		**144,050**		**143,450**		**496,200**

Special Exception Johnson's Up-On-Top Mesa

Request: Road Design Exception

The Private Lane leading from Spanish Valley to the top of the mesa will comply with the design standards for a private lane with one exception. The Grand County Construction Standards require a minimum horizontal and alignment radius of 150 feet. This portion of the private lane is designed with a 75-foot radius to avoid excessive cuts and fills and scarring of the natural rim landscape. The road alignment generally follows the existing road avoiding new road construction on the mesa rim.

Findings: A private lane with a *75-foot* horizontal radius can maintain a design speed of 20 miles per hour. Approving this special exception will not be detrimental to public health, safety or general welfare. The strict imposition of the 150-foot horizontal radius would affect the scenic quality of the mesa rim.

Conclusion: Moab Mesa Land Company LLC respectfully requests that the Planning & Zoning Commission approve the Special Exception request for a minor road design exception.

Request: Lodge Unit Average size of 1,000 square feet Design Exception

Article III (h) (4) of the Land Use Code sets the average size of wilderness lodge accommodation at 600 square feet. The minutes of the Planning Commission describe the intent to follow "industry rules of thumb" and to set a number that "would allow financially viable development of a destination resort". This number chosen is now obsolete, as new hotel construction over past decade has created rooms of substantially larger size. This is especially true for non-urban resorts and lodges. Two factors affecting room size increases are the heightened competitive nature of the hospitality market, and the increased number of families traveling together, requiring more in-room space.

Three properties that have opened over the past five years that are directly competitive to the proposed wilderness lodge have an average room size of 1347 square feet. Our requested increase is substantially less.

Table 1
Competitive New Construction Destination Resorts Room Size (Square Feet)

	Amanjena Marrakech	***Four Seasons Nevis***	***Four Season Ka 'upulehu***
Number of Rooms	40	196	243
Range of Sizes	900 1500 1800	770 1020 1200 2130	670 1124 1169 2483
Average Size	1400	1280	1361
Combined Average	1347		

The requested increase to an average unit size of 1,000 square feet is substantially less than 1,500 square feet, the maximum allowable square footage equivalent allowed by the Land Use Code, making use of the one unit per acre density. Additionally, the maximum allowable square footage has a greater impact than the proposed special exception.

Table 2
Accommodation Unit Square Footage Comparisons

Zoning	Density	Total Equivalent Square Footage
Standard Zoning	1 unit per 2.5 acres	600 Square Feet
Maximum Zoning	Bonus density of 1 unit per 1 acre	1,500 Square Feet
Special Exception Request	*1 unit per 2.5 acres*	*1,000 Square Feet*

The project satisfies the ten requirements, as applicable, for granting the maximum equivalent square footage.

Findings: The special exception is compatible with the overall land use. In fact, the special exception request provides a smaller level of building mass than the maximum allowable by the Land Use Code.

The granting of the special exception will not materially affect adjacent land uses. With 80% open space, the project is substantially buffered and set back from all surrounding properties.

The granting of the special exception will not adversely affect property values and is generally consistent with the purposes of the Land Use Code.

Conclusion: Moab Mesa Land Company LLC respectfully requests that the Planning & Zoning Commission approve the Special Exception request for a design exception to allow a wilderness lodge unit average size increase.

Water System

Water Supply

Grand County Water and Sewer Service Agency is currently constructing water system facilities including a new 16-inch water line and a 3-million gallon water storage tank en route to the Johnson's Up-On-Top project site. These new facilities are shown on Exhibit 15. A 10-inch diameter stub-out connection should be included in the new tank to serve the project site.

Additional water lines, water storage tanks and pumping facilities are required to provide water service to the project site. New tanks will be hidden and screened to the extent practical with natural terrain or landscaping.

Water Distribution System

The water distribution system will consist of two new water tanks. One "upper" water storage tank will be located in the southeastern area of the project site. Currently, this tank is proposed with a base elevation near 5620 feet. A second "middle" tank is proposed with a base elevation of 5435 feet. This tank will serve as a "halfway" point between the two tanks. Water from the Grand County tank will be pumped to the ''middle" tank and then to the ''upper" tank.

The existing Grand County 3.0 million-gallon tank is located to the south of the site at elevation 5040 feet.

The Exhibit also shows three zones: Zones A, B and C. Zone A is the highest zone, fed by the upper tank. Zones B and C are created by using pressure reducing valves to lower the pressure to an acceptable level. The goal of the preliminary design was to provide pressures of the higher range (70-120 psi) for a majority of the sites. Generally speaking, those sites located at the top of each zone or at the highest elevations will have the lower pressures in the zone. As the topography lowers in elevation, pressures increase. Thus, after a certain difference in elevation, the pressure had to be reduced and a new zone created. The assumed maximum pressure from the distribution system into a site was 120 psi. Individual homes or facilities may each require additional prv's depending on the rating of their system.

Fire Protection Requirements

Water storage is a necessary element to serve the populations and to protect them in the event of afire. The quantity of water storage is determined based on two factors: required gallons per connection and quantity needed to fight the worst case fire.

Per State standards for type of connection, 75 gallons per room are required for the lodge and 300 gallons per connection are required for the condos and homesites. This equates to an approximate supply of 95,000 gallons for the site based on connections.

For Preliminary design fire flow requirements, we assumed a two-hour 2,000 gallon per minute fire flow for the lodge. The assumed fire flow for condominiums equals 1,000 gpm for a 2-hour fire. Based on square footage alone, the lodge controls the fire flow requirement, as it is the largest structure on the site and will require the largest flow. This flow equates to approximately 240,000 gallons of storage. Adding the demand supply and the fire flow supply results in a preliminary size of 350,000 gallons.

Because the lodge controls the amount of fire flow needed in the storage tank, 240,000 gallons of fire supply should be located in the upper tank. This upper tank supplies the Phase 1 lodge. Preliminary calculations of the required daily supply for the group of condos, lodges and facilities in the Phase I zone equal an additional

20,000 gallons. Thus, the upper tank is sized at an estimated 260,000 gallons. The middle tank is preliminarily sized at 100,000 gallons. A computer model and more detailed calculations will ultimately dictate the required size for each tank. Depending on the hydraulics of the system, the middle tank may benefit the system by having additional capacity.

Preliminary evaluation of the amount of fire flow required approximately a 12-inch diameter line from the 3-million gallon tank to the proposed 100,000-gallon and 260,000-gallon tanks. More detailed design of the booster pump stations and hydraulics of the system may require a larger pipe. A 12-inch line was assumed out of the tank down to the project area. Lines near the home sites are estimated as 5-inch diameter. The new water lines and tank shall be constructed so as to minimize disturbance to the existing terrain. The water lines are to be located along the same pathway as the roadways or trails to the extent practical. Facilities will be constructed in phases due to the development schedule of the project. The first phase will include the new water tanks, pump stations and water lines necessary to serve the early phases of development. Exhibit 15 shows the new lines as dashed lines for Phase 1.

Fire hydrants will be located as necessary adjacent to lodge and condominium areas to meet fire flow requirements. Grand County standards normally require a minimum 500 feet spacing between hydrants along collector roads. The ultimate location of all fire hydrants will be coordinated with the Fire Marshall.

Waste Water System

Wastewater Flows

The wastewater flows from the proposed development will be typical domestic sewage from residences, condominiums and the lodges. Flow values used to calculate the average daily flow were 300 gallons per residence/ condominium per day and 75 gallons per room per day for the lodge. Two restaurants were assumed with a seating capacity for 50 people each and 35 gallons per day per seat. These values match the water use values indicated in the State of Utah Administrative Code for this type of recreational development. Using these values the average daily flow for wastewater was calculated to be approximately 98,400 gallons per day. This flow would not be realized until build-out. Therefore much lower wastewater flows would be generated in the first phases of development. With subsequent development, additional sewer infrastructure would be constructed, and wastewater flows will increase incrementally.

Outfall

This design requires the development to join the Grand County Water and Sewer Agency. The developer will build a sewer-collection line extending from the existing developed area near East Bench Road. The wastewater would then flow through the existing Grand County sewer lines to the treatment plant in Moab City.

Collection System

The collection system for the development will be designed like a traditional wastewater collection system. The mains will consist of 5-inch diameter pipes that flow by gravity to an outfall that connects to an existing sewer line in Spanish Valley. Laterals from each residence, condominium, or lodge unit will be connected to the main. Junctions and changes in grade or alignment will require manholes to be spaced at a maximum of 400 feet.

Pump Stations

A sewer lift station will be required near the lodge site. Another sewer lift station may be required near the north end of the Mesa, depending upon final locations for residences. Back up power supply systems will be provided for the pump stations in accordance with State regulations.

The wastewater system will go through the standard review and approval process with Utah Department of Environmental Quality, Grand County Sewer and Water Agency and the Grand County Health Department. This will insure the quality, safety and efficacy of the system. The system will meet requirements of Utah Administrative Code R3 17-3.

Preliminary Stormwater Management Plan

Summary

The Preliminary Stormwater Management Plan identifies natural drainage features, illustrates drainage basin delineation based upon existing topography, establishes concentration points for 100-year stormwater flows for existing (historic) conditions and provides recommendations for on-site stormwater management and erosion control facilities. The overall stormwater management philosophy for this project will be composed of the following principles:

- Limit off-site stormwater runoff and erosion to historic levels
- Ensure adequate protection of on-site facilities from flooding and erosion
- Minimize impacts to natural drainage channels

Drainage Basin Description

The 2000-acre site was divided into ten (10) drainage basins, all of which drain to off-site locations. Due to the geographic nature of the mesa top, there is no off-site stormwater component to the on-site analysis. The project site is located outside of the detailed study area for the Federal Emergency Management Association (FEMA) Flood Insurance Rate Maps (FIRM), therefore no base flood elevations have been established.

On-site topography is characterized by moderate to steep slopes that drain from the mesa top down the sides through networks of dry washes and deeply incised intermittent channels. Existing vegetation consists of natural desert landscaping including sagebrush, grasses and some juniper trees. On-site soils vary from sand and gravel on the moderate slopes of the mesa top to exposed rock on the rim and steep side slopes. All soils identified in the soils map fall into either hydrologic soil group B (soils with good to moderate drainage capability, i.e., sand or gravel) or D (soils with poor drainage capability, i.e. rock outcroppings). For preliminary purposes, an average soil condition, C, was used, which resulted in a runoff curve number of 81.

Hydrology

Estimates of the 100-year stormwater flows were obtained by employing the Soil Conservation Service (SCS) Unit Hydrograph Method Type II Distribution within the Pondpack watershed modeling software package produced by Haestad Methods, Inc. Rainfall depths were obtained from the NOAA Atlas 2 Precipitation Frequency Maps for Utah. Values of 1.64 and 2.58 were used for the 10-year 24-hour and 100-year 24-hour storms, respectively. Times of concentration were estimated using the procedures outlined in Hydraulic Engineering Circular No. 22 (NEC 22). Areas of each basin along with 100-year flows and concentration points are shown on the preliminary stormwater management plan, drawing number Exhibit 13.

Recommendations

Based upon the preliminary information provided in this report, stormwater management recommendations are as follows:

- Provide stormwater detention basins, infiltration basins and/or recharge trenches in areas of higher density development and parking lots
- Design adequately sized conveyance systems and erosion control measures at roadway/channel crossings
- Provide necessary roadway cross slopes and side drainage to minimize ponding, erosion and damage to roadway surfaces
- Establish a development setback/buffer (except for roadway/channel crossings and trail locations) for

natural washes and channels to increase protection from flooding and erosion