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To: Whom it may concern

From: John Pruyn, RLA, ASLA

Re: Narrative Concerning Landscape Water Usage at Homewood Resort Date: 13 May 2010

As directed by JMA Ventures Inc., L+P DesignWorks offers the following summary of the method and approach used to calculate the estimated landscape water usage at the proposed renovation of Homewood Resort. It is important to note that the estimated water use of 10.8 acre/ ft. should decline significantly after the first two growing seasons in which plants are able to establish. It is also important to note that the several proposed water usage at this time, and therefore, there is further potential of decreasing the current estimation of 10.8 acre/ft. Assumptions have been made in the calculations regarding an appropriate final design and correct implementation to ensure water conservation while maintaining plant health.

Area take-offs were performed in AutoCad by defining hydrozones on a digital survey for each areas of the mountain requiring irrigation- north lodge, south lodge, and midmountain. The hydrozones were broken down into three groups based on their Plant Water Use Type- high, medium, and low. Areas of high visibility or use such as near site and building entries were labeled as 'high'; areas of lesser visibility received a 'medium'; and re-vegetated areas further out from activities and including areas of slope disturbance were labeled as 'low'. The latter hydrozone accounted for the most area for the project site and should not depend on irrigation after 2-3 years if the proper native and adapted seed mixture(s), water application, mulch, and amended soil are applied. The 'medium' zone is the second largest zone and consists of transitional planting which includes native and adapted species from both 'high' and 'low' hydrozones. The smallest zone is the 'high' zone which may include more ornamental planting or turf areas, spray irrigation for perennial/ annual plantings, and larger size plants. These areas are limited to high activity areas and entries.

Plant Water Use Types are further defined by a Plant Factor of 0.0-1.0. 'Low' varies between 0-0.3, 'medium' between 0.4-0.6, and 'high' between 0.7-1.0. A recreational turf grass, for example, would receive a factor of 1.0 and would not decrease much over time, whereas a native drought-tolerant plant would receive a factor of 0.2 and would decrease after a period of time. The factors for each are then multiplied by their hydrozone area for an estimated total water use in gallons per acre/ ft. For this project and stage in the design process, an average was used for each plant factor range. However, we believe they can be even lower if the proper plant species, soil amendment, water and mulch applications are applied.

The approach for the Homewood Resort Project in calculating landscape water usage was from a landscape rehabilitation focus. We understood that the proposed project is ultimately trying to achieve a very natural and native visual experience while achieving erosion control, fire safety, water quality and water conservation. With that in mind, we assumed that 100 percent of plant species including seed mixtures ultimately specified for the project will be native or adapted species approved by the TRPA, the majority of which are drough-tolerant after establishment. Samples of species we assumed for hydrozones are listed below.

#### High Hydrozone Species:

Quaking Aspen River Birch Dogwood species Willow species Cherry species Crabapple species Pine species Incense Cedar Thimbleberry Native perennial/ annual beds Native grasses/ wildflowers Small turf area Lilac species

### Medium Hydrozone Species:

Pine species Incense Cedar Dogwood species Willow species Currant species Spiraea species Manzanita Tobacco Brush Sage species Lilac species Blue Elderberry Rabbit Brush Bitter Brush Thimbleberry Wild Rose Native grasses/ wildflowers

#### Low Hydrozone Species:

Pine Species Wild Rose Bitter Brush Rabbit Brush Sage species Currant species Manzanita Tobacco Brush Native grass mix Native wildflower mix



## North Base Area

Estimated Total Water Use

Equation:

 $ETWU = (ET_{o}) \times (0.62) \times [(PF \times HA/IE) + SLA]$ 

Enter values in Pale Blue Cells		WATE OF CALIFOR
Tan Cells Show Results Messages and Warnings		
Enter Irrigation Efficiency (equal to or greater than 0.71)	0.83	
Irrigation Efficiency Default Value	0.71	

Plant Water Use Type	Plant Factor
Low	0 - 0.3
Medium	0.4 - 0.6
High	0.7 - 1.0
SLA	1.00

Hydrozone	Plant Water Use Type (s) (low, medium, high)	Plant Factor (PF)	Hydrozone Area (HA) (ft²)	PF x HA (ft²)
1	High	0.80	0	0
2	High	0.70	45,734	32,014
3	Medium	0.40	171,605	68,642
4	Low	0.30	0	0
5	Low	0.10	16,280	1,628
				0
				0
				0
				0
				0
				0
				0
				0
				0
				102,284
	SLA	0	0	0
•		Sum	233,619	

Results	

Ν	= AWAN	3,599,368	ETWU=	2,712,369	Gallons	ETWU complies with MAWA
				362,592	Cubic Feet	
		ſ		3,626	HCF	
		ſ		8.32	Acre-feet	
		ſ		2.71	Millions of Gallo	ons



# South Base Area

### Estimated Total Water Use

Equation:

 $ETWU = (ET_{o}) \times (0.62) \times [(PF \times HA/IE) + SLA]$ 

Enter values in Pale Blue Cells		STATE OF CALLE
Tan Cells Show Results Messages and Warnings		
Enter Irrigation Efficiency (equal to or greater than 0.71)	0.83	
Irrigation Efficiency Default Value	0.71	

Plant Water Use Type	Plant Factor
Low	0 - 0.3
Medium	0.4 - 0.6
High	0.7 - 1.0
SLA	1.00

Hydrozone	Plant Water Use Type (s) (low, medium, high)	Plant Factor (PF)	Hydrozone Area (HA) (ft²)	PF x HA (ft²)
1	High	0.80	0	0
2	High	0.70	8,249	5,774
3	Medium	0.40	38,368	15,347
4	Low	0.30	0	0
5	Low	0.10	49,895	4,990
				0
				0
				0
				0
				0
				0
				0
				0
				0
				26,111
	SLA	0	0	0
		Sum	96,512	

Results				
MAWA =	1,486,960	ETWU=	, .	
			92,563	Cubic Feet
			926	HCF
			2.12	Acre-feet
			0.69	Millions of Gallons



# Mid Mountain Area

### Estimated Total Water Use

Equation:

 $ETWU = (ET_0) \times (0.62) \times [(PF \times HA/IE) + SLA]$ 

Enter values in Pale Blue Cells		PATE OF CALVO
Tan Cells Show Results Messages and Warnings		
Enter Irrigation Efficiency (equal to or greater than 0.71)	0.83	
Irrigation Efficiency Default Value	0.71	

Plant Water Use Type	Plant Factor
Low	0 - 0.3
Medium	0.4 - 0.6
High	0.7 - 1.0
SLA	1.00

	Hydrozone	Plant Water Use Type (s) (low, medium, high)	Plant Factor (PF)	Hydrozone Area (HA) (ft²)	PF x HA (ft²)
	1	High	0.80	0	0
	2	High	0.70	0	0
	3	Medium	0.40	10,952	4,381
	4	Low	0.30	0	0
	5	Low	0.10	0	0
					0
					0
					0
					0
					0
					0
					0
					0
					0
					4,381
		SLA	0	0	0
			Sum	10,952	
Results					

Results					
MAWA = 1	68,737	ETWU=	116,170	Gallons	ETWU complies with MAWA
			15,530	Cubic Feet	
			155	HCF	
			0.36	Acre-feet	
			0.12	Millions of Gallo	ons

