

Drainage Reports

Abbreviated Water & Sewer Need Reports

Water Study

Wastewater Study

Stormwater Waiver Application



COTTONWOODS RESORT & SUITES
SEWER SYSTEM ASSESSMENT
August 2016

Project Description:

The existing site was developed with a one-story building serving as the Cottonwoods Resort lobby and a restaurant. The building that once served as the lobby and restaurant was recently demolished however, the existing sewer service lines remain in place. There is currently an 8-inch sewer main in Rose Lane that discharges to another 8-inch sewer in Scottsdale Road at a slope of 0.33%, which serves the Cottonwoods Resort, Alamos, the Marriot, and the Borgata. This sewer system assessment evaluates the future demand for development of the existing Cottonwoods Resort lobby and restaurant property.

Site Information:

APN#: 174-65-012G

Site Address: 6160 N Scottsdale Rd
Paradise Valley, AZ 85253

Site Area: 115,782 sq. ft. (2.6 acres)

Sewer Demand Calculations:

To determine the unit wastewater loads, the following references were used:

- City of Scottsdale Digital Zoning Map
- Table 8-22: "Unit Daily Design Flow For Sewer – Per Land Use" in the Town of Gilbert Public Works And Engineering Standards 2015.
- Table 8-23: "Wastewater Flow Peaking Factor" in the Town of Gilbert Public Works And Engineering Standards 2015.
- ADEQ Bulletin No. 11

In accordance with the City of Scottsdale Zoning Map, the subject property is currently located within Zone R-R4, Resort/Townhouse Residential District. The property is in the process of being re-zoned to Zone C-1, Neighborhood Commercial. There currently is not a plan in place for the development of the subject property, so assumptions were made to determine future sewer flows based on acreage of the site and zoning designation. Since the City of Scottsdale does not have a sewer demand for gallons per acre per day, a sewer demand from the Town of Gilbert Public Works and Engineering Standards was used. Utilizing this information, it can be determined from Table 8-22 of the Town of Gilbert Public Works and Engineering Standards 2015 manual that the design unit wastewater load for property zoned with a commercial land use is 707 gallons per acre per day.



The existing Average Daily Flow is:

Total Average Daily Flow = (707 gal. per acre per day) x (2.6 acres)
= 1,838 gal/day (1.28 gal/min)

A peaking factor of 2.9 was determined per Town of Gilbert Design Standards & Policies Manual.

Total Peak Factor = (2.9) x (1,838 gal/day) = 5,331 gal/day (3.70 gal/min)

Pipe Velocity and Capacity Calculations:

Sewer Size (D):	8	inches	
Mannings n-value (n):	0.013		
Slope (S):	0.0033	ft./ft.	
Hydraulic Radius (R):	0.167	ft.	R=D/4 (full pipe)
Manning Equation:	$V=(k/n) \times (R)^{2/3} \times (S)^{1/2}$		k = 1.486
Velocity (V), full pipe:	2.0	ft./sec	Min. = 2.0 ft./sec Per ADEQ Bulletin No. 11 Max. = 10.0 ft./sec
Pipe Capacity:	0.69	cfs	Q = V x A
	<u>448,629</u>	<u>gal/day</u>	<u>OK</u>

Note: Upon final development of the subject property, a new sewer design report shall be prepared and submitted in accordance with City of Scottsdale design guidelines and requirements.

