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June 7, 2017

Ms. Sherry R. Kirkpatrick, P.E.
District Engineering Manager
Rainbow Municipal Water District
3707 Old Highway 35
Fallbrook, CA 92028

RE: Water and Sewer Capacity Fee Review

Dear Ms. Kirkpatrick:

Raftelis Financial Consultants (RFC) was engaged by Rainbow Municipal Water District (RMWD) to review and calculate the water and sewer capacity fees. After reviewing data related to RMWD's water and sewer system asset values, capital improvement plans, existing debt, reserve balances, and consumer characteristics, we have updated the capacity fees for both utilities. We believe the new capacity fees are fair and equitable for new water and sewer customers. The proposed capacity fees are commensurate with the cost of providing water and sewer service to new customers, and are compliant with Government Code 66000 et seq. Capacity fees are one-time charges paid by new development, for system facilities needed to serve the new development. RMWD's capacity fees are assessed on a basis of equivalent dwelling units (EDUs), where an EDU is assumed to use 545 gallons per day (GPD) of water and 180 GPD of wastewater. This level of usage and wastewater generation is based on FY 2015 data which is representative of longer term characteristics of an EDU.

New users will benefit from existing capacity (buy-in); to ensure that they pay their fair share, we follow the "equity buy-in" method for existing capacity in the current facilities available to new users. This ensures that new development contributes to the costs of excess capacity from existing facilities. RMWD may then use these revenues to finance ongoing replacement and refurbishment projects.

We use the following formula to determine equity buy-in capacity fees:

$$\frac{(Asset\ Value - Debt) + Reserves}{Existing\ Use}$$

Water Capacity Fees

The Asset Value is obtained from Schedule 4-6 of *the Appraisal Report, Appraisal of the Water and Wastewater Systems Owned by Rainbow Municipal Water District*, dated July 13, 2016, prepared by Willdan Financial Services and Hartman Consultants. Costs related to Water Connections, Meters and Services is excluded because new customers will install these at their own cost. This formula provides for exclusion of the principal on existing debt as new users will pay for debt service in their rates and includes the reserves balance of existing water utility, which new development is "buying into," in the total buy-in value calculation represented by the numerator.

The formula also applies a revised per-EDU average annual daily flow (AADF) figure based on FY 2015 water usage. The total FY 2015 usage is divided by the AADF for each EDU (545 GPD) to determine the annual capacity in EDUs. This EDU capacity figure is used as the denominator in our formula. The water capacity fee calculation is presented below in Table 1.

Table 1
Water Capacity Fee Calculation

Water Capacity Fee	
Asset Value: Replacement Cost Less Depreciation	
Land and Land Values	\$5,595,648
Water Storage Facilities	\$86,245,467
Water Booster Pump Stations	\$2,172,818
Water Pressure Regulating Stations	\$1,790,822
Water Transmission & Distribution Mains	\$236,663,832
Meters	\$0
Services / Connections	\$0
Total Water System Assets	\$332,468,587
Less Debt SRF 2012C107	(\$9,618,008)
Less Debt SRF 2012C106	(\$7,257,536)
Plus Reserves Dec 31, 2016 (1)	\$5,760,750
Total Adjusted Assets	\$321,353,793
AADF FY 2015 Usage, GPD	16,827,389
GPD per EDU (5/8" & 3/4" Meters)	545
Capacity (EDUs)	30,896
Capacity Fee (per EDU)	\$10,401
Capacity Fee (per GPD)	\$19.10
(1) Reserves as of Dec 31, 2016	

Implementation of Water Capacity Fees

Once we have identified the capacity fee for an EDU, we need to define how we will charge different types of customers with varying levels of usage. RMWD has several classes of customers with varying levels of use and within any class, for a single meter size there is a substantial difference in use. It is therefore appropriate to design capacity fees based on use instead of meter size because of the diversity of use for different classes and use. RMWD would like to disaggregate meter size from capacity in order to assign a customer an appropriate size meter depending on use patterns and capture meter usage efficiently.

RFC reviewed the usage for FYs 2013-14, 2014-15 and 2015-16. The majority of FY 2015-16 data was not considered to be appropriate to analyze usage patterns because of the mandatory drought restrictions. Similarly, FY 2014-15 data was not used because of usage reductions as a result of conservation because of the drought. We have used the usage in FY 2013-14 to provide the maximum capacity for calculation of capacity fees; in fact, use of this data will result in more generous allocations to customers because conservation is expected to become a way of life in California. An analysis of the average use by meter size and customer class for FY 2013-14 is shown Table 2 below.

Table 2

WATER USAGE - FY 2013-14
Average Annual Monthly Use Summary, CCF

Meter Size	Customer Class							
	Single Family	Commercial	Institutional	Multi-Family	TSWAR Commercial	TSWAR Domestic	Agricultural Domestic	Agricultural
	SF	CM	IS	MF	SC	SD	AD	AG
5/8	12.74	17.00	-	-	25.27	267.25	57.67	1.00
3/4	20.61	16.49	10.28	13.42	94.33	81.23	44.70	106.47
1	35.38	51.14	19.46	9.25	143.20	103.03	53.14	172.44
1 1/2	54.00	68.22	232.84	118.04	424.56	203.28	64.91	264.65
2	115.81	280.03	82.22	148.75	1,020.38	499.30	83.09	327.24
3	18.36	359.25	1,015.67	430.64	1,647.26	1,962.61	-	659.38
4	-	1,153.33	-	1,528.56	644.66	6,219.50	-	5,813.26
6	-	-	-	-	-	-	-	637.92

This data shows wide variability of use in each class by meter size. For example, we generally have a reasonably good pattern of use in the Single Family class (SFR), however, because many SFR customers are using water for irrigation/agricultural purposes, the average usage varies significantly. We defined the usage based on max day demand factors. The *Water and Wastewater Master Plan Update*, dated March 2016, has used a max day factor of 1.9 (page 2-1). The max day factor is the maximum use in any one day of the year. Using this max day factor on the average monthly use to determine the maximum monthly usage will provide ample capacity to the large majority of users. Table 3 below shows the maximum monthly usage by meter size and customer class.

Table 3
Maximum Allowable Monthly Usage Capacity, CCF/Mo

FY 2014 Monthly Use Analysis								
Customer Class	5/8"	3/4"	1.0"	1.5"	2.0"	3.0"	4.0"	6.0"
Single Family								
Average Use	17	26	40	66	176	18		
Based on Max Day	32	49	77	126	334	35		
Multi Family								
Average Use		13	10	118	149	431	3,022	
Based on Max Day		25	19	224	283	818	2,904	
Agriculture Domestic								
Average Use	58	50	60	65	170			
Based on Max Day	110	94	114	123	322			
Agriculture								
Average Use	1	120	182	330	565	915	12,254	638
Based on Max Day	2	228	346	628	1,073	1,738	11,045	1,212
Commercial								
Average Use	17	25	66	87	313	793	1,792	
Based on Max Day	32	48	126	166	594	1,507	2,191	
Industrial								
Average Use		10	19	233	305	1,016		
Based on Max Day		20	37	442	580	1,930		
TSWAR Domestic								
Average Use	267	90	123	300	595	1,963	6,220	
Based on Max Day	508	171	234	570	1,131	3,729	11,817	
TSWAR Commercial								
Average Use	25	218	197	479	1,020	1,647	1,915	
Based on Max Day	48	415	374	910	1,939	3,130	1,225	

Since the capacity fees are based on the SFR usage, we have used the maximum month usage for each SFR meter size to define the allowable use. For example, the ¾" meter is the standard meter size for SFR customers, and the maximum capacity for that meter size and customer class is 49 ccf/mo. This figure is rounded up to 50 ccf/mo. Similarly, we defined capacities based on the usage in the other meter sizes up to 2". We did not use the 3" SFR meter because it is not representative of that size; instead we incremented the 2" capacity by 300 ccf/mo for the next unit of capacity and 400 ccf/mo for additional unit of capacity. The results are shown in Table 4 and include maximum monthly usage in CCF and in AF/year along with the ratio of the allowable usage compared to the smallest unit of capacity, 50 ccf/mo. The capacity charge incurred at the different levels of usage is shown in the last column in Table 4. Table 4 also shows the hydraulic capacity ratios of the different meter sizes in Column [3] using the ¾" meter (with 50 ccf/mo) as one unit. The AWWA ratio tracks the ratio of the maximum usage fairly well up to the 4" meter. Columns [4], [5], [6] show the maximum capacity based on max day factor and max month usage in ccf/mo, AF/yr and the ratio at each level of usage compared to the smallest unit of usage (50 ccf/mo). The District intends to use the Capacity Class defined by the maximum usage in Column [5] rather than meter size to determine the capacity fees for customers and the appropriate meter size to serve customers. Capacity Class, capacity fees, and meter sizes in excess of maximum usages of 1000 ccf/mo will be determined on a case by case basis.

Table 4**Capacity Charges Based on Maximum Monthly Usage**

[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
CAPACITY CLASS	Reference Meter Size	AWWA		BASED ON FY 2013-14 MAX DAY			Capacity Charge
		AWWA Capacity Ratios	Maximum Capacity, CCF/mo	Maximum CCF/mo	Maximum AF/yr	Ratio	
A	3/4 in.	1.00	50	50	1.38	1.00	\$10,401
B	1 in.	1.67	83	80	2.20	1.60	\$16,642
C	1 1/2 in.	3.33	167	130	3.58	2.60	\$27,043
D	2 in.	5.33	267	300	8.26	6.00	\$62,406
E	3 in.	11.67	583	600	16.53	12.00	\$124,812
F	4 in.	21.00	1,050	1,000	27.55	20.00	\$208,020

Sewer Capacity Fees

The sewer capacity fees are calculated similarly; however, we calculate two components: collection and treatment. New sewer users will benefit from available capacity in the existing system but will also need some collection system facilities to be expanded to meet their needs. The District is planning to replace and upsize several collection system facilities as shown below in Table 5 below that will benefit current and future customers.

Table 5**Capital Projects for Future Customers**

Project Number	Description	Construction
		Total Cost
<u>Wastewater Collection System</u>		
N/A	Equalization Basin	\$4,192,800
N/A	Repair Outfall LS2 to Stallion	\$500,000
S9A 201040	Lift Station 1 Replacement and Upgrade	\$8,200,000
S10A 201260	San Luis Rey Interceptor Replacement from Mission Road to LS 1	\$3,200,000
S11A	San Luis Rey Interceptor Replacement from LS 1 to LS 2	\$3,000,000
Subtotal Wastewater Collection System		\$19,092,800

The total capacity provided by these projects is the ultimate capacity of 1.64 mgd therefore the unit cost of this capacity is

$$\frac{\$19,092,800}{1,640,000 \text{ GPD}} = \$11.64 \text{ per GPD}$$

Additionally, new users will receive benefit from the existing system. The remaining capacity fee for both the collection system and the treatment is based on the equity buy-in method. Both calculations consider the value of existing available capacity as well as existing cash reserves. We calculate the collection component using the following formula as there is no current debt:

$$\frac{\text{Asset Value} + \text{Reserves}}{\text{Average Flow}} * \text{Gallons per Day per EDU}$$

The asset values are from Schedule 4-11 of the Appraisal Report previously referenced. The value of the facilities to be upsized are excluded from the current asset value. The cost of laterals is excluded from the calculations as new users will bear those costs. The updated collection component is determined on a basis of average daily flows rather than capacity; sewers are designed for ease of maintenance and typically have peaking capacity. Dividing the total value by total average flow returns the average cost per GPD, which is then multiplied by the estimated GPD per EDU as shown in Table 6 below. Note that the sewer utility does not have outstanding debt service; otherwise this amount would be subtracted from the asset values as in the water capacity fee calculation.

Table 6
Sewer Capacity Fee – Collection Component Calculation

Sewer Capacity Fee - Collection	
Asset Value: Replacement Cost Less Depreciation	
Less 6" and 8" sewers	\$0
Wastewater Conveyance Mains	\$32,100,258
Wastewater Laterals	\$0
Wastewater Pump Stations	\$1,047,286
Wastewater Force Mains	\$921,162
Total Sewer Collection System Assets	\$34,308,637
Less Debt	\$0
Plus Reserves Dec 31, 2016 (1)	\$9,014,756
Total Adjusted Assets	\$43,323,393
Average Flow (gpd)	700,000
Capacity fee per GPD	\$61.89
Capacity fee of Expansion facilities	\$11.64
Total Capacity fee for Collection	\$73.53
GPD per EDU	180
Capacity fee component (per EDU)	\$13,236

(1) Reserves as of Dec 31, 2016

The treatment component is calculated similarly. The District has capacity rights in the City of Oceanside’s San Luis Wastewater Treatment Plant. The District is currently using about 0.7 MGD of the total treatment capacity of 1.5 MGD; therefore, new users will be able to use the available capacity. We calculate the treatment component using the following formula:

$$\frac{\text{Value of Existing Capacity}}{\text{Total Capacity}} * \text{Gallons per Day per EDU}$$

The value of available capacity is determined as follows:

Value of 1.5 MGD = \$7,416,124 or \$4.94 per GPD. For 180 GPD per EDU this represents a capacity fee of \$890 per EDU as shown below.

This formula returns the total cost of treatment capacity per EDU available to new users in the existing treatment plant and is shown in Table 7 below.

Table 7

Sewer Capacity Fee – Treatment Component Calculation

Sewer Capacity Fee - Treatment Component	
Value of available capacity	\$7,416,124
Available capacity, gpd	1,500,000
Unit Cost (\$/gpd)	\$4.94
Gallons per day per EDU	180
Capacity fee component (per EDU)	\$890

We have not included the cost of acquiring additional treatment capacity, which the District is planning because there appears to be adequate available capacity now.

Finally, we sum the collection and treatment components to arrive at a single sewer capacity fee as shown in Table 8 below.

Table 8

Sewer Capacity Fee

Sewer Capacity Fee - Total	
Collection Component	\$13,236
Treatment Component	\$890
Sewer Capacity Fee (per EDU)	\$14,126
Sewer Capacity Fee (per GPD)	\$78.48

The revised sewer capacity fee under our methodology is \$14,126 per EDU. This fee represents a per-GPD charge of \$78.48.

Implementation of Sewer Capacity Fees

The District defines an EDU as a house with a living area between 1,251 and 2,000 sq ft. Living areas with other sizes are charged as shown in Table 9 below.

Table 9
Residential Sewer Capacity Fee

Land Use Factor	Living Area (SqFt)	EDU	Capacity Fee
House	≤1,250	0.8	\$11,301
House	1,251 to 2,000	1.0	\$14,126
House	2,001 to 3,000	1.2	\$16,951
House	3,001 to 4,500	1.5	\$21,189
House	4,501 to 6,000	2.0	\$28,252
House	≥6,000	Case by Case	

RMWD may use the estimated flows in Table 10 to charge non-residential users. The estimated usage for each building type is obtained from data from the city of Los Angeles and Los Angeles County Sanitation Districts. Wastewater generation from non-residential customers can vary significantly, while Table 10 provides a guide, the District may need to work with customers to identify the amount of wastewater and the capacity fees to be charged on a case by case basis.

RFC is confident that the revised capacity fees are compliant with the requirements of Government Code 66000 and fairly charge new users for the services they will receive from the water and sewer system. We hope that the revised formulas will be useful for RMWD in the calculation of future capacity fees as capital improvement plans, usage patterns, and utility financial characteristics change in the future.

Policy Issues

To ensure that capacity charges are collected appropriately from customers that are putting demand on the system, the District is proposing the following qualifying requirements for the 5/8" and 3/4" meters:

- The District proposed to reinstate the 5/8" meter capacity to provide relief for small users. To qualify for the 5/8" meter users should meet the following characteristics:
 - Lot size should be less than 5,000 square feet (0.11 acre)
 - Irrigation area should be less than 1,000 square feet
- To qualify for a 3/4-inch meter
 - Lot area should be less than 21,780 square feet (0.5 acre)

Table 10**Sewer Capacity Fees for Non-Residential Customers**

Type of Customer	WW Flow per 1000 sq. ft, gpd	Capacity Fee
Office	150	\$11,771
Warehouse	20	\$1,570
Store, Dry Light Industrial	80	\$6,278
Restaurant	600	\$47,086
Bars, Night Clubs	360	\$28,252
Church	50	\$3,924
Private Schools	80	\$6,278
Deli (No Cooking)	300	\$23,543
Medical Clinics/Hospitals	250	\$19,619
Supermarkets w/ Garbage Dispc	150	\$11,771
Auto Steam Cleaner	80	\$6,278
Laundromat (per machine)	170	\$13,341
Gas Station	100	\$7,848
Gym	250	\$19,619
Bank	80	\$6,278
Coffee Shop	280	\$21,973
Shopping Center Mini-Mall	80	\$6,278
Shopping Center Regional	100	\$7,848
Hotels (per room)	130	\$10,202
Theatre	125	\$9,810

It has been my pleasure to assist in the revision of RMWD's capacity fees. If you have any questions, please don't hesitate to contact me.

Sincerely,



Sudhir Pardiwala, PE,
Executive Vice President
RAFTELIS FINANCIAL CONSULTANTS, INC.