



February 9, 2004

Mr. Thomas L. Bolich
Director of Public Works
Santa Cruz County
701 Ocean Street
Santa Cruz, CA 95060

Subject: Santa Cruz County Service Areas Nos. 2, 5, 7, 10, 20 and 57
Residential Flow Studies

Dear Mr. Bolich:

We are pleased to submit the attached report of residential wastewater flows for Santa Cruz County Service Areas Nos. 2, 5, 7, 10, 20 and 57. These flows may be used by the County in 2004/05 to update the single family and townhome/condominium fees in each service area.

We appreciate the assistance of County staff in obtaining and compiling the basic water use information from the water service providers. Thank you for the opportunity to provide these services for Santa Cruz County. If you have any questions about this report or require additional information, please do not hesitate to contact me at (408) 377-5824.

Sincerely,

Hornberger Engineering

Gary Hornberger

Santa Cruz County Service Areas Nos. 2, 5, 7, 10, 20 and 57
Residential Flow Study
February 2004

Introduction

The County of Santa Cruz provides wastewater collection and treatment services to six separate County Service Areas (CSAs), including the following:

- CSA No. 2, Place de Mer
- CSA No. 5, Sand Dollar and Canon del Sol
- CSA No 7, Boulder Creek
- CSA No. 10, Rolling Woods
- CSA No. 20, Trestle Beach
- CSA No. 57, Graham Hill

All of the customers in these service areas are residential, with the exception of CSA No. 7, which also serves a golf club and restaurant. Annual fees for sewer service for the CSAs in fiscal year 2004/05 will be based on the average wastewater discharge for each classification of residential customer. The two residential classifications are single family residences and townhomes/condos. Annual fees for the commercial customers in CSA No. 7 will be based on individually metered usage.

Fees for sewer service based on average wastewater discharges for residential customer classes and individual usage for commercial customers are the most common form of fees adopted by agencies in California. This form provides that all customer classes pay for collection and treatment services in proportion to their use of the systems. Typically, water usage during the four wettest months of the winter is used to establish wastewater discharge, as irrigation is minimal. In some cases, total yearly water usage is appropriate where winter occupancy is low. The development of wastewater discharges for each CSA is described below.

Methodology

Three agencies supply water to the customers in the CSAs. The Soquel Creek Water District (SCWD) serves CSA Nos. 2, 5 and 20. The Big Basin Water Company serves CSA No. 7. The City of Santa Cruz Municipal Utilities (SCMU) serves CSA Nos. 10 and 57.

Discussions were held with these agencies in which they were requested to provide individual water use data at a minimum for the past two winters, 2001/02 through 2002/03. In some cases usage for 2000/01 and prior years was also available. Water use was requested for the two bimonthly billings that capture the usage in the four winter months of December through March.

The individual usage information received from the water agencies was further classified and sorted by County staff. This required cross-referencing service addresses used by the water agencies with parcel numbers used by the County. Townhomes and condominiums were identified by Assessor's Use Codes and separated from other single family dwellings for the purpose of this study.

Water use information was unavailable for some customers in CSA Nos. 2, 5, 10 and 20 as their service is not provided by SCWD. Usage in these CSAs is based only on the available information for customers served by SCWD. Winter water use was not available for customers in CSA No. 57 as this is a community of recently constructed single family homes. The average wastewater discharge in CSA No. 57 is based on similar customers in sanitation districts operated by the County.

CSA No. 2 - Place de Mer

CSA No. 2 includes a total of 78 wastewater customers in Zones, A, T and P. An additional 15 customers are in Zone H, however they are on septic systems. Zone A includes eight condominiums, none of which are served by SCVW. Water use is available for 40 of the 46 customers in Zone T and 18 of the 24 customers in Zone P. The average winter water use in Zones T and P and the overall average for CSA No. 2 is shown in Table 1. Since the known averages for both zones are similar and the overall average is typical of condominium usage, an average wastewater discharge of 3.5 HCF per month may be used for all customers.

**Table 1
CSA No. 2 Winter Water Use Averages**

Zone	Customers		Average Winter Usage		Two Year Average (HCF/month)
	Total (No.)	Usage Available (No.)	2001/02 (HCF/month)	2002/03 (HCF/month)	
A	8	0	N/A	N/A	N/A
T	46	40	2.9	3.5	3.2
P	24	18	4.1	4.4	4.3
Total CSA No. 2	78	58	3.2	3.8	3.5

CSA No. 5 - Sand Dollar and Canon del Sol

CSA No. 5 includes 183 wastewater customers the Sand Dollar and Canon del Sol zones. Water use is available for 71 of the 86 customers in Sand Dollar and 81 of the 97 customers in Canon del Sol. The average winter water use in both zones is shown in Table 2. The average wastewater discharges are 4.3 HCF per month for Sand Dollar and 3.5 HCF per month for Canon del Sol.

**Table 2
CSA No. 5 Winter Water Use Averages**

Zone	Customers		Average Winter Usage		Two Year Average (HCF/month)
	Total (No.)	Usage Available (No.)	2001/02 (HCF/month)	2002/03 (HCF/month)	
Sand Dollar	86	71	4.2	4.3	4.3
Canon del Sol	97	81	3.4	3.6	3.5

CSA No. 7 – Boulder Creek

CSA No. 7 includes 97 single family customers, 164 condominiums and two commercial accounts. Water use is available for 85 single family customers and 161 condominiums. The average winter water use for both types of residential customers for three years and the annual condominium usage in the latest year are shown in Table 3. An average wastewater discharge of 7.4 HCF per month may be used for single family customers. Since this is a recreational area with higher condominium occupancy in the summer, an average wastewater discharge of 4.0 HCF per month is more representative of wastewater discharge from condominiums.

**Table 3
CSA No. 7 Water Use Averages**

Classification	Customers		Average Winter Usage			Annual Usage	Three Year Winter Average (HCF/month)
	Total (No.)	Usage Available (No.)	1999/00 (HCF/month)	2000/01 (HCF/month)	2001/02 (HCF/month)	2002/03 (HCF/month)	
Single Family	97	85	7.3	7.2	7.6		7.4
Condominium	164	161	3.5	3.5	3.5		3.5
	164	154				4.0	

CSA No. 10 – Rolling Woods

CSA No. 10 includes 30 single family customers. Water use is available for 24 of these customers. The average winter water use for three years is shown in Table 4. An average wastewater discharge of 8.7 HCF per month may be used for all customers.

**Table 4
CSA No. 10 Winter Water Use**

Classification	Customers		Average Winter Usage			Three Year Average (HCF/month)
	Total (No.)	Usage Available (No.)	2000/01 (HCF/month)	2001/02 (HCF/month)	2002/03 (HCF/month)	
Single Family	30	24	7.5	8.7	9.8	8.7

CSA No. 20 – Trestle Beach

CSA No. 20 includes 21 condominiums. Water use is available for 19 of these customers. The average winter water use for two years is shown in Table 5. An average wastewater discharge of 3.3 HCF per month may be used for all customers.

**Table 5
CSA No. 20 Winter Water Use**

Classification	Customers		Average Winter Usage		Two Year Average (HCF/month)
	Total (No.)	Usage Available (No.)	2001/02 (HCF/month)	2002/03 (HCF/month)	
Condominium	21	19	3.5	3.1	3.3

CSA No. 57 – Graham Hill

CSA No. 57 includes single family homes that are currently under construction. Winter water usage is not available at this time. In 2002 the County conducted a wastewater discharge study of residential customers in the Santa Cruz County Sanitation District. The results of this study indicated that the average discharge from 8,900 single family customers served by the SQWD was 8.3 HCF per month. This average wastewater discharge may be used for all customers in CSA No. 57 until actual usage information is available.

Summary

The wastewater discharges for each of the six CSA in this residential flow study are shown in Table 6. These may be used to develop annual fees for sewer service for fiscal year 2004/05.

Table 6
Recommended Wastewater Discharges

CSA No.	Location	Customers	Recommended Wastewater Discharge (HCF/month)
2	Place de Mer	All Zones	3.5
5	Sand Dollar Canon del Sol	All	4.3
		All	3.5
7	Boulder Creek	Single Family	7.4
		Condominiums	4.0
10	Rolling Woods	All	8.7
20	Trestle Beach	All	3.3
57	Graham Hill	All	8.3



Professional History

Gary Hornberger, P. E.

Education

Master of Business Administration
University of California at Berkeley, 1970

Bachelor of Science in Civil Engineering
University of Santa Clara, 1968

Annual Regulatory Studies Program
National Association of Regulatory Commissioners
Michigan State University, 1985

Registration

Registered Professional Engineer in California

Experience

Hornberger Engineering Utility Rate Consultants

Managing Partner (1980-1984 and 1986-Present)
Responsible for all projects in the areas of utility rates and
industrial wastewater.

State of Utah

Division of Public Utilities

Rate Engineer in Gas and Water Section (1984-1986)
Responsible for investigating and testifying in rate cases of regulated
natural gas utilities. Testified on behalf of ratepayers in local
distribution matters before Utah Public Service Commission and in
interstate gas transmission matters before the Federal Energy
Regulatory Commission. Developed state positions on gas
transmission regulations.

Consoer Townsend & Associates

Consulting Engineers

Project Engineer (1972-1980)
Responsible for development of sewer utility revenue programs and
rate studies for public agencies in California and Washington.
Prepared these studies in accordance with state and federal
regulations for construction grants.