

2 SEWER

2.1 INTRODUCTION

This sewer system technical appendix provides information to support the 25-acre Palomino Place Community Centered Housing development by Dave Taormino. The project site is adjacent to the City of Davis municipal sewer system and will connect to the City system for sanitary sewer services.

2.2 EXISTING SEWER INFRASTRUCTURE

The City of Davis maintains sewer collection systems for the northeastern portion of Davis including 6" pipes in Caravaggio to the west, 8" pipes in Monarch to the south, and the 42" trunk main to the north along the northside of the Wildhorse Golf Course. The existing infrastructure in Caravaggio and downstream has limited capacity and shallow depths that do not allow for gravity connection with the Palomino Place project. The sewer infrastructure to the south in Monarch utilizes an existing sewer lift station; at this time the capacity of this lift station and the downstream lines are unknown thus, will not be utilized for the Project.

The project proposes to connect to the existing 42" sewer trunk main to the north. This will require approximately 2,270 LF of sewer pipe routed through the edge of the existing agricultural buffer, crossing the Wildhorse golf course drainage channel and connecting to an existing manhole on the 42" trunk main.

The project area is currently served by a septic tank, with no connection to the City system. The existing septic system will be abandoned in accordance with City and County requirements as a part of this project.

2.3 SEWER DEMAND

The City of Davis Average Day Sewer Generation Rates for Residential, Recreation, Office and Retail are summarized below:

Unit Wastewater Demand Factors		
Type of Use	Design Flow (gallons)	Unit
Single Family Residential	330	Gallons Per DU-day
Cottages	230	Gallons Per DU-day
Multi-Family Residential	230	Gallons Per DU-day
Pentathlon/Aquatic Center	55	Gallons per Member

Table 2-1: City of Davis Public Works Design Standards - September 1991

These generation rates are based on 1991 typical usage within the City of Davis.

As identified in the water system technical appendix, the proposed project will pursue water efficient fixtures and water conservation throughout the development in accordance with the 2019 California Green Building Standards as adopted by the City of Davis. The project does not anticipate any high use facilities or functions that will generate a large amount of



waste water. As a result of this effort, the project is pursuing an alternate to the City of Davis 1991 water demand factors and a similar reduction of 20% is proposed for the sewer generation rates. Based on a reduction to the City Standard generation rates, Table 2-2 below summarizes the proposed wastewater unit demand factors for the proposed Palomino Place Community.

Unit Wastewater Demand Factors		
Type of Use	Design Flow (gallons)	Unit
Single Family Residential	264	Gallons Per DU-day
Cottages	185	Gallons Per DU-day
Multi-Family Residential	185	Gallons Per DU-day
Pentathlon/Aquatic Center	44	Gallons per Employee

Table 2-2: 20% reduction in City of Davis Public Works Design Standards

2.3.1 WASTE WATER GENERATION SUMMARY

The proposed unit generation factors identified above represent the Average Day Demand for the proposed project. The Maximum Day peaking factor is based on the peaking equation ($PF=7.67 \times ADDF^{0.093}$) in accordance with the City of Davis Public Works Design Standards. Infiltration and Inflow allowance has also been accounted for at 600 gallons per acre per day. The Peak Daily Wet Weather Flow for the proposed project is summarized in Table 2.3 below.

Land Use Designation	Acres	Average Daily Dry Weather Flows (gpd)	Infiltration and Inflow Allowance (gpd)	Peak Daily Wet Weather Flows (gpd)
Cottages	0.97	3,500	600	13,200
Half-Plex Townhomes	2.53	7,700	1,500	27,200
First Move-Up	3.53	8,200	2,100	29,300
Second Move-Up	7.16	13,500	4,300	47,100
Apartments	0.72	8,300	400	27,900
Update Ranch Style Home	0.48	300	300	1,700
Pentathlon Center	1.40	1,800	800	7,700
Public Streets	5.33	-	3,200	3,200
Covell Blvd ROW Dedication	0.41	-	-	-
Open Space	2.76	-	-	-
Trail Connections	0.46	-	300	300
Total	25.75	43,300	13,500	157,600

Table 2-3 – Peak Daily Wet Weather Flows

Based on the proposed peak wet weather flows for the Palomino Place Community, no downstream sewer improvements are anticipated with the project.

The City of Davis is currently conducting a study of the downstream conveyance facilities and capacities at the wastewater treatment plant for impacts from this project and the cumulative impacts from other proposed projects in the City of Davis. Should inadequacies be



found within the existing 42" trunk main or within the Waste Water Treatment Facility, additional offsite sewer infrastructure may be required.

2.4 SEWER INFRASTRUCTURE

Figure S1 attached identifies the preliminary sewer infrastructure layout for the proposed Palomino Place Community. Based on the 157,600 gallons per day peak wet weather flow, the peak flow is approximately 0.24 cfs. The sewer infrastructure onsite will utilize 8" pipes to serve the development and a 12" pipe extending north to the trunk main. A future study will need to be conducted to further refine the proposed pipe sizes throughout the development in order to meet the peak flows. The triggers for the proposed infrastructure will also be defined in this future study to confirm adequate flow can be provided with each phase of the development.

Attachments:

- Table S1 – Waste Water Demand Calculations
- Figure S1 – Utility Infrastructure – Sewer



TABLE S1 Waste Water Demand

Land Use Designation	Land Use	Acres	Dwelling Units	Average Day Generation ⁽¹⁾ (gallons per unit)	Average Dry Weather Flow (gpd)	Peaking Factor ⁽⁴⁾	Peak Dry Weather Flow (gpd)	Inflow and Infiltration Flow ⁽⁵⁾ (gpd)	Peak Wet Weather Flow (gpd)
Single Family Residential	Cottages	0.97	19	185	3,500	3.59	12,600	600	13,200
	Half-Plex Townhomes	2.53	29	264	7,700	3.34	25,700	1,500	27,200
	First Move-Up	3.58	31	264	8,200	3.32	27,200	2,100	29,300
	Second Move-Up	7.27	51	264	13,500	3.17	42,800	4,400	47,200
	Update Ranch Style Home	0.48	1	264	300	4.51	1,400	300	1,700
Multi Family Residential	Apartments	0.72	45	185	8,300	3.31	27,500	400	27,900
Recreation	Pentathlon Center	1.4	-	1,760	1,800	3.82	6,900	800	7,700
Street	Public Streets	5.42	-	-	n/a	-	-	3,300	3,300
	Covell Blvd ROW Dedication	0.46	-	-	n/a	-	-	-	n/a
Open Space/Landscaping	Open Space	2.76	-	-	n/a	-	-	-	n/a
	Trail Connections	0.22	-	-	n/a	-	-	100	100
Total		25.80	176	-	43,300	-	144,100	13,500	157,600

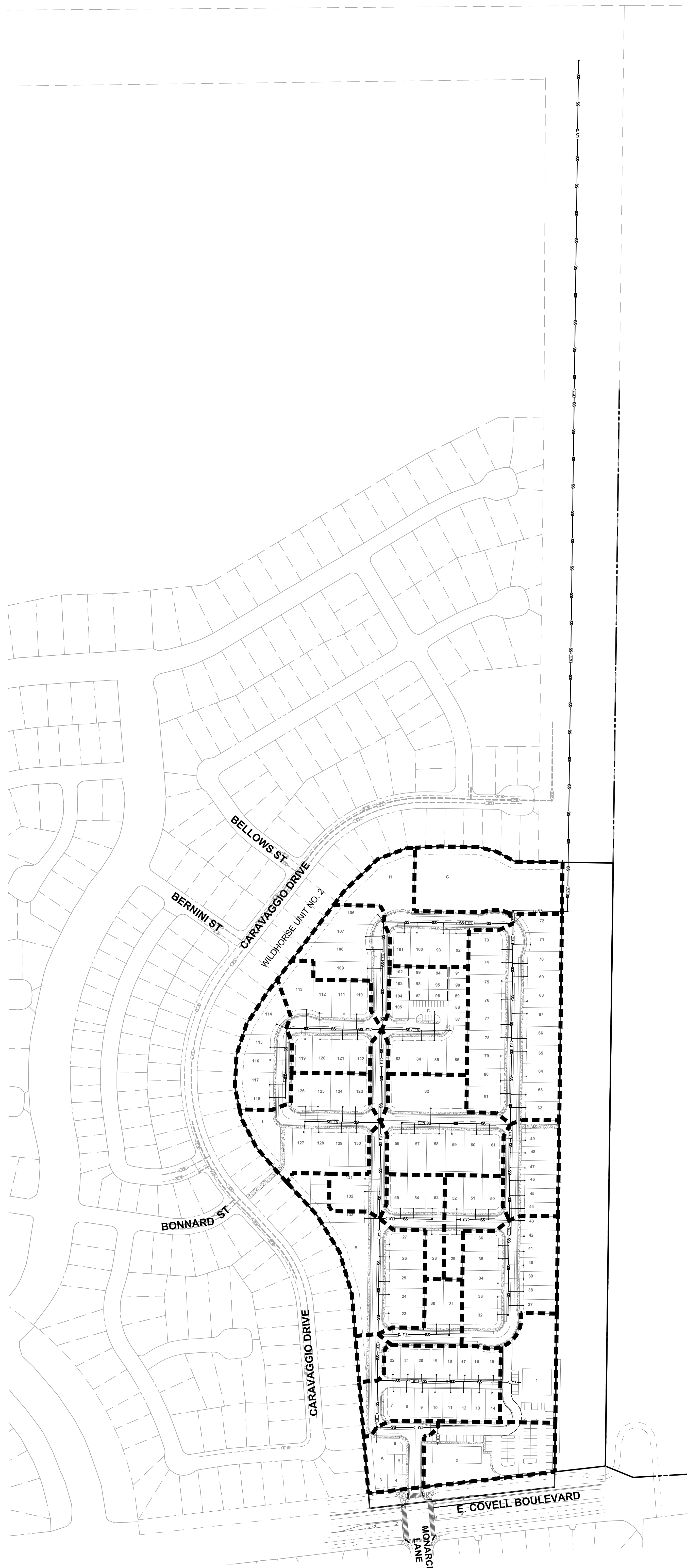
(1) Based on City of Davis Design Standards, Section VII.C.1&2, assumes 3 residents per SFR unit and 2.1 residents per MFR (ADU/cottage) at 110 gpd/person, plus 20% reduction

(2) Based on 70% of single family units including Assessorly units

(3) Pentathlon Center flows based 40 members at 55 gpd/member per City of Davis Design Standards, Section VII.C.5, plus 20% reduction

(4) City of Davis Design Standards, Section VII.E.a; $PF = 7.67 * ADDF^{-0.093}$

(5) City of Davis Design Standards, Section VII.F; I&I = 600 gallons per gross acre per day



ATTACHMENT S1

DESIGNED BY: ZH
 DRAWN BY: ZH
 CHECKED BY: BF

SCALE
 AS SHOWN

**PALOMINO PLACE
 SANITARY SEWER SYSTEM
 EXHIBIT**

DAVIS

CALIFORNIA



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NO.	DATE	REVISIONS	BY	APPD.

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 DATE: 01/22/24
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