
Appendix M

Technical Memorandum



WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

To: Gyan Kalwani, Sheldon Business Park LTD.
Bryan Wilson, Sheldon Business Park LTD.

From: Tom Balbierz, PE **CC:** Tim Denham, Wood Rodgers

Date: March 19, 2025

Subject: Summer Villas
Sewer Flow Assessment

Introduction

The purpose of this analysis is to confirm that proposed project sewer flows can be accommodated through a combination of existing and proposed sewer infrastructure.

The project site is located on the southeast corner of Waterman Road and Sheldon Road in the City of Elk Grove. The property encompasses approximately 111 acres and is bounded by Sheldon Road to the north, Waterman Road to the west, an existing rural residential lot to the east, and Laguna Creek and existing rural residential/industrial development to the south. Laguna Creek bisects the site north to south. Multiple existing overhead power lines also traverse the site north to south along Waterman Road. The site is proposed for development of a medium density residential retirement community occupying developable area both east and west of Laguna Creek.

Based on the SASD 2020 System Capacity Plan, the project site is located within the BR Bond Sheldon Trunk Shed. This shed encompasses the rural residential Sheldon area to which the subject project site is a part of. As described in System Capacity Plan, SacSewer (formerly SASD) was previously informed by the City of Elk Grove that this rural development area is not planned to be served by public sewers. Subsequently, existing backbone gravity sewer with sufficient depth and/or capacity to serve the project is not available in proximity to the site. Assumed flows from the project site are assumed to be 0 ESDs in the SASD 2020 System Capacity Plan.

Since gravity sewer service to the site is not feasible, public sewer service to the site can be managed by constructing an on-site sewer lift station and corresponding off-site sewer force main which discharges to an existing SacSewer gravity sewer network with sufficient residual capacity to support the project. We anticipate the subject lift station would be located in proximity to the northwest corner of the site. Based on modeling results from SacSewer staff (reference attached SacSewer Tech Memo), the closest viable force main discharge points are at MHs 280-179-1006 or 282-179-1014 located in Elk Grove-Florin Road approximately one mile west of the site. Approximately 6,500 linear feet of force main (4-6" diameter size estimated) would be required to be installed in Sheldon Road and Elk Grove-Florin Road to support the project. Modeling by SacSewer assumed an intake of about 0.68 mgd (based on an estimated 941 ESDs) at one of the two manholes listed above.

Sewer Flow Comparison

SacSewer uses Peak Wet Weather Flow (PWWF) to size gravity collection systems. The following equations are used by SacSewer to determine design flows:

- $PWWF \text{ (mgd)} = (ADWF * PF)$
- $ADWF \text{ (mgd)} = (310 \text{ gpd} / \text{ESD}) * (\# \text{ ESDs} / \text{acre}) * (\# \text{ of acres}) / 1,000,000$
- $PF = 3.5 - 1.8 * ADWF^{0.05}$ where ADWF is in mgd, and a minimum value of PF is 1.2
- $I/I \text{ (mgd)} = 1,600 \text{ gpd/acre} * (\# \text{ acres}) / 1,000,000$

Where

PWWF = Peak Wet Weather Flow

ADWF = Average Dry Weather Flow

PF = Peaking Factor

ESD = Equivalent Single Family Dwelling

I/I = Inflow and Infiltration

mgd = million gallons per day

gpd = gallons per day

As indicated in the equation above, ADWF is based upon ESD units and a design domestic flow factor of 310 gallons/day/ESD. The ADWF is calculated as the largest of the following methods: a) 6 ESDs per acre; b) The number of units for a project; or c) The most recent zoning, if the number of units is unknown.

Table 1 below presents a comparison between flows modeled by SacSewer for assessment of viable discharge locations for the project's proposed sewer force main and estimate flows associated with the current project as detailed by the Summer Villa SPA.

Table 1: Sewer Flow Comparison

Land Use	Development Area (acres) ¹	ESDs/Acre	Total ESDs based on ESD/acre factor	Total ESDs based on total project Lot Count	Total Sewer Flow (mgd)
SacSewer Modeled Flows ¹	156.8 ²	6	941	N/A	0.68
Proposed Summer Villas Project ³	111 ⁴	6	666	529 ⁵	0.54
Proposed Summer Villas Project ⁶	71.7 ⁷	10	717	529 ⁴	0.51

- 1 Preliminary SacSewer modeled flows as presented in the attached Tech Memo used for assessment of sewer force main discharge locations.
- 2 Preliminary project acreage assumed by SacSewer prior to development of Summer Villa SPA.
- 3 Estimated project sewer flows based on gross development area at 6 ESDs per acre.
- 4 Gross acreage of Summer Villas project based on June 2024 Summer Villas SPA resubmittal.
- 5 Total ESDs based on a maximum residential lot count of 499 units plus a 5 acre clubhouse site at 6ESD/acre.
- 6 Estimated project sewer flows based on net developable acreage at 10 ESDs per acre for medium density residential.
- 7 Net developable acreage of Summer Villas project based on June 2024 Summer Villas SPA resubmittal.

Conclusions

As indicated by Table 1, the sewer force main discharge points identified by SacSewer are expected to be more than adequate to serve the anticipated sewer flows from the project. The SacSewer estimated sewer flow of 0.68 mgd used for their modeling effort is in excess of that estimated for the project based on the latest Summer Villa SPA submittal (June 2024).

Attachments:

SacSewer Memo – Summer Villas Sewer Connection





Administrative Office
10060 Goethe Road
Sacramento, CA 95827
Tel 916.876.6000

EchoWater Facility
8521 Laguna Station Road
Elk Grove, CA 95758
Tel 916.875.9000

March 19, 2025

Tom Balbierz, PE, GE
Wood Rodgers, Inc.
3741 Douglas Road, Suite 150
Roseville, CA 95661

Subject: Summer Villas Sewer Connection - APN 127-0010-077

Dear Mr. Balbierz,

The Summer Villas project is located within the City of Elk Grove's Rural Residential area and is currently not intended to be served by public sewers. Because of this, SacSewer's 2020 System Capacity Plan BR Bond Sheldon Trunk Shed does not identify a plan for sewer connection and this area is accounted for at 0 ESDs/acre.

In November of 2022, SacSewer was asked to assess the potential of accepting sewer flows from the Summer Villas site (delivered from project site via sewer lift station and force main) based on a potential rezone to support a proposed age restricted active adult community concept. SacSewer proceeded to model the effects of connecting the Summer Villas development to public sewer. Below is a list of model assumptions used.

- 10-yr design storm
- Total acres: 156.78
- ESD density: 6 ESD/Ac
- Total ESDs: 940.70
- PWWF Flow (10-yr design flow): 0.6827 mgd

Based on the model results, SacSewer identified two potential force main discharge locations, both located at/near the Sheldon Road and Elk Grove Florin Road intersection approximately one mile west of the project site. Model results indicate the 12-inch trunk (MH 280-179-1006) in Elk Grove Florin Road at Sheldon Road will have enough capacity for the 0.6827mgd flow generated from the parcel under the 10-yr design storm. However, if the proposed flow is higher, or if the pump discharges at a higher rate, connection to the 15-inch mainline (MH 282-179-1014) in Elk Grove Florin Road approximately 700 feet to the north may be required. See Exhibit A.

SacSewer understands that a planning application in support of the Summer Villas Special Planning Area (SPA) was submitted to the City of Elk Grove (latest resubmittal June 2024). This SPA is proposed as an approximate 116 acre active adult residential community consisting of a maximum of 499 residences and a clubhouse. Assuming approval of SPA, if public sewer

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connection is desired within the City of Elk Grove's Rural Residential area, please have the City send SacSewer the revised boundaries. If the revised boundaries exclude the subject parcel only, please submit a sewer study to proceed. If the revised boundaries include areas in addition to the subject parcel only, a new modeling analysis will need to be performed.

SacSewer does not guarantee sewer service or system capacity, either permanent or interim, to the property until the property obtains proper permits to connect to the system and pays all facility impact (capacity) fees.

If you have any questions regarding these comments, please call me at 916-876-6336 or email at lewis@sacsewer.com.

Sincerely,

Yadira Lewis

Yadira Lewis, P.E.
Development Services

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Exhibit A – Vicinity Map

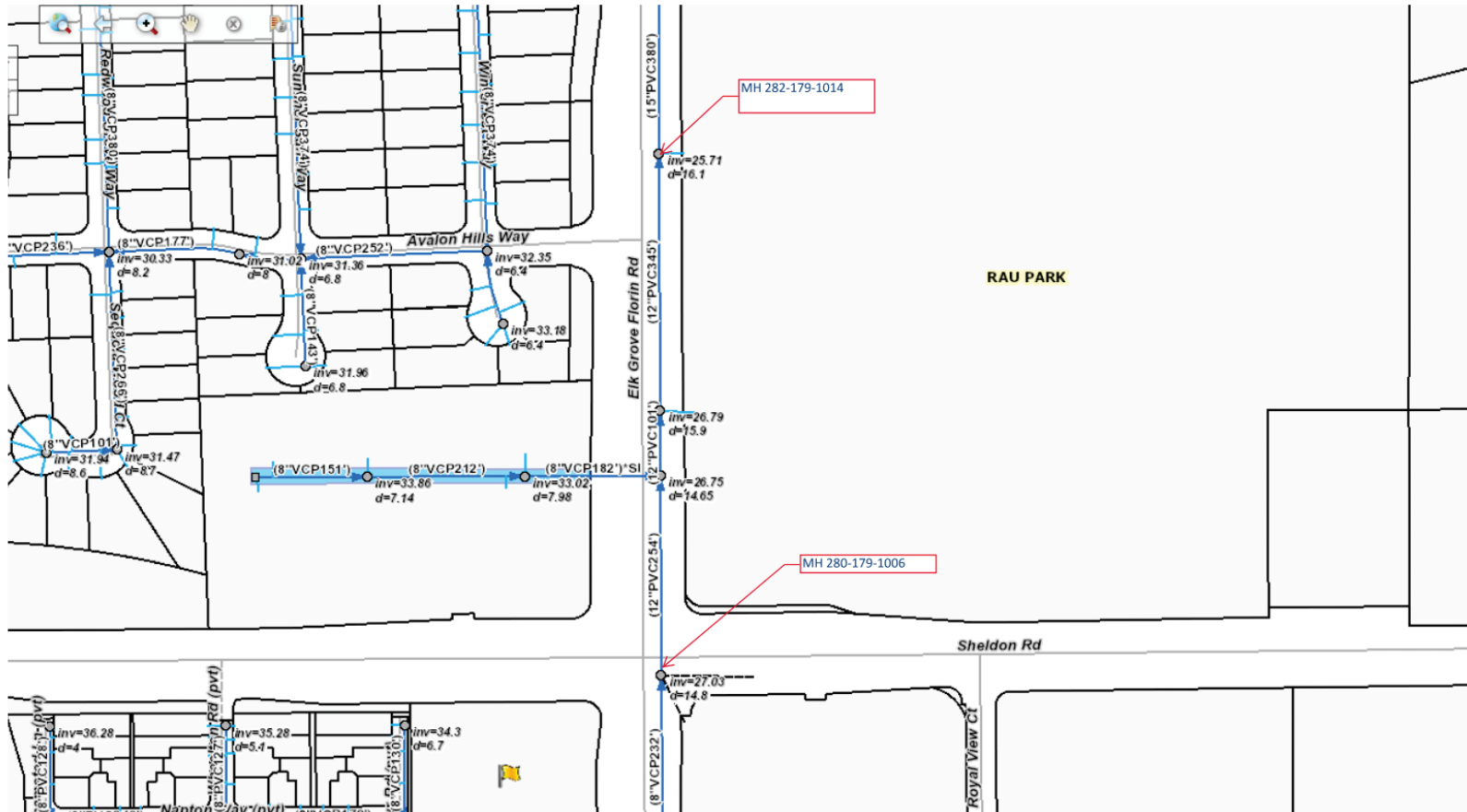


*Figure not OCR compatible.