MCR ENGINEERING
1242 DUPONT COURT • MANTECA, CALIFORNIA 95336 • TEL: 209.239.6229 • FAX: 209.239.8839

Yosemite Avenue

Sewer Analysis

CITY OF MANTECA, SAN JOAQUIN COUNTY, CALIFORNIA

PREPARED BY:

MCR ENGINEERING
www.mcreng.com

MCR ENGINEERING, INC.
1242 Dupont Court
Manteca, California 95336
(209) 239-6229

PREPARED FOR:

PSS Group LLC
2473 El Fresco Drive
Bay Point, CA 94565

January 16, 2025

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PURPOSE:
The purpose of this report is to assess the feasibility and implications of connecting the PSS Apartments to the existing sewer system via the 6" Sewer line located north of our property on Yosemite Avenue. Specifically, this report aims to determine whether the existing system has the necessary capacity to manage the additional flow from the proposed high-density residential development. This analysis is critical to ensuring that the infrastructure can support the increased demand without compromising service to existing users or the functionality of the system.

SUMMARY OF EXISTING DESIGN:
The existing sewer system that serves the area west of Airport Way on Yosemite Avenue, including the Parcels: 241-300-580, 241-300-680, and 198-170-360.

The Sewer system begins at the intersection of Swanson Road and Yosemite Avenue and continues east on Yosemite towards Airport way.

To assess the current capacity and functionality of the system, MCR Engineering performed detailed hydraulic calculations and conducted research using both city-provided records and the 2024 Wastewater Master Plan. This comprehensive approach ensured that our analysis considered the latest data and planning considerations.

According to the Wastewater Master Plan, the existing infrastructure has available capacity in the connecting sewer systems, with a range from 0.5 million gallons per day (MGPD) to 2.0 MGPD. This available capacity suggests that the system is not currently operating at its maximum potential, leaving room for additional flows from new developments like the PSS Apartments.

FINDINGS:
The assessment of the existing sewer system and its available capacity, in conjunction with the proposed connection of the PSS Apartments, has yielded several important findings:

1. **Flow Calculation for Yosemite Apartments:**
   Based on the City of Manteca's design standards and the fixture units provided, the total estimated flow from the PSS Apartments was calculated and used in the existing analysis and proposed analysis see figure 2 and 4.
2. **Existing System Flow Calculation:**
   Three different parcels discharge into this sewer system. Their flows were calculated using the sewer master plan values per land use type, as well as the acreages for each site.
3. **Existing System Capacity:**
   The existing system is lacking in slope on the segment of pipe located directly north of property which is causing the system be in adequate in sizing.

4. **Feasibility of Future Connections:**
   The analysis confirms that the proposed connection for the PSS Apartments is feasible within the existing infrastructure. The proposed invert elevation aligns with the existing system, allowing for a smooth connection without requiring significant modifications to the pump station or the main sewer lines. This finding supports the viability of the project from an engineering perspective.

RECOMMENDATIONS:
To ensure the successful integration of the PSS Apartments into the existing sewer system, we recommend the following actions:

- **Replacement of Pipe segment 4-3:** We recommend replacing 397 linear feet of pipe at the city minimum slope requirement of 0.0048 in order to ensure the city's 2 feet per second design standard is met.
- **Consideration of Future Capacity Needs:** While the current system can accommodate the additional flow from the PSS Apartments, future developments may further increase demand. It is advisable to consider potential upgrades to the pump station or the sewer system to prepare for future growth in the area.

CONCLUSION:
In conclusion, the existing sanitary sewer system, has sufficient capacity to accommodate the proposed PSS Apartments. The hydraulic analysis confirms that the existing system has capacity available as long as the pipe directly north of our proposed development is replaced at the minimum acceptable design slope.

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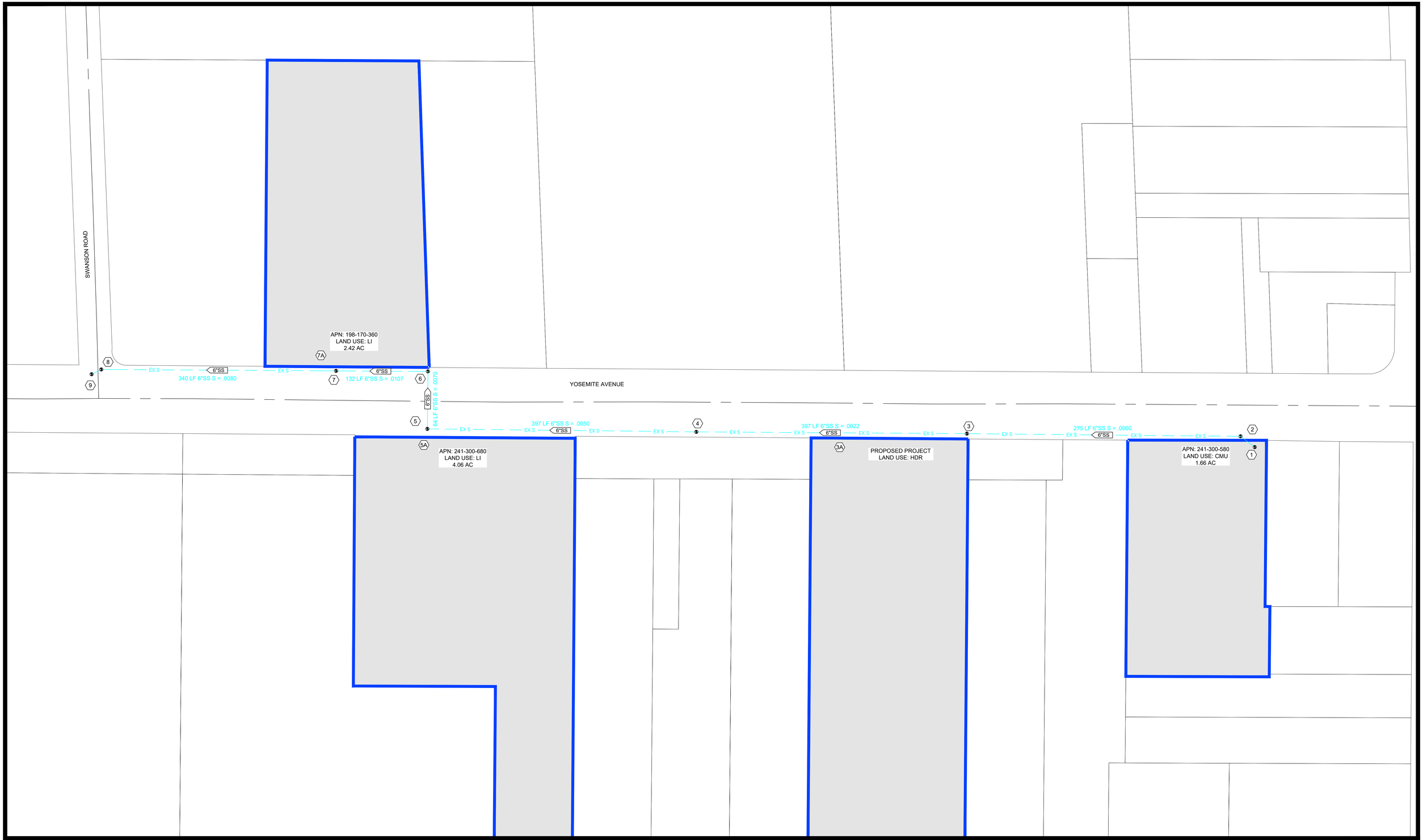
FIGURE 1: EXISTING SEWER SYSTEM



EXISTING SEWER YOSEMITE AVENUE

DATE: JANUARY, 2025

PSS APARTMENT COMPLEX

MANTECA, CA

0 60 30 120

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FIGURE 2: EXISTING SEWER SYSTEM SEWER ANALYSIS

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SANITARY SEWER SYSTEM DESIGN

Yosemite Sewer Analysis
Manteca, CA

Flow Based on Unit Values (See Unit Flowrates)
Mannings "n" = 0.013 PVC

Date: 1/16/2025
By: MTT

DESCRIPTION	Inlet Pipes	Intersect Type	FROM	INV.	TO	INV.	Invert Δ	Invert Δ	APN/Land use	Parcel Design	Flow / Unit	Units	Pipe Dia.	LENGTH	Average Flow	Average Accu. Flow	Peak Factor	Peak Accu. Flow	SLOPE	Full Velocity	Capcity Full	Actual Velocity	Design Depth	% Full
	#	#	MH	ELEV	MH	ELEV	(FT.)	(FT.)		(Descr.)	#	(GPD)	(IN.)	(FT.)	(GPD)	(GPD)		(GPD)	FT/FT	(FPS)	(GPD)	(FPS)	%	
Dead-End MH	0		1	26.30	2	24.30	0.00		CMU	COM	2473	1.66	6	100	4,105	4,105	5.98	24,530	0.0200	4.05	513,991	2.074	0.15	5%
	1		2	24.30	3	22.65	0.00	2.45	241-300-580				6	275	0	4,105	5.98	24,530	0.0060	2.22	281,524	1.359	0.20	9%
Dead-End MH	0		3A	21.20	3	20.20	0.00		Proposed Project	HDR	195	164	6	100	31,980	31,980	5.81	185,936	0.0100	2.87	363,446	2.865	0.51	51%
Junct-2	2	P	3	20.20	4	19.32	0.09						6	397	0	36,085	5.79	208,974	0.0022	1.35	171,245	#VALUE!	#VALUE!	122%
	1		4	19.23	5	17.23	0.00						6	397	0	36,085	5.79	208,974	0.0050	2.03	258,021	2.254	0.69	81%
Dead-End MH	0		5A	25.23	5	17.23	0.00		Light Industrial	COM	2010	4.06	6	400	8,157	8,157	5.95	48,544	0.0200	4.05	513,991	2.541	0.21	9%
Junct-2	2		5	17.23	6	16.78	0.00	0.04	241-300-680				6	64	0	44,242	5.75	254,211	0.0070	2.40	304,081	2.675	0.70	84%
	1		6	16.74	7	15.33	0.02						6	132	0	44,242	5.75	254,211	0.0107	2.96	375,952	3.169	0.60	68%
Dead-End MH	0		7A	17.93	7	15.33	0.02		Light Industrial	COM	2010	2.42	6	130	4,864	4,864	5.97	29,044	0.0200	4.05	513,991	2.182	0.16	6%
Junct-2	2		7	15.31	8	12.59	0.10		198-170-360				6	340	0	49,106	5.72	280,855	0.0080	2.56	325,076	2.873	0.72	86%

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FIGURE 3: PROPOSED SEWER SYSTEM AND CONNECTION

SWANSON ROAD

APN: 198-170-360
LAND USE: LI
2.42 AC

7A

8

9

EX S — 6"SS — EX S

340 LF 6"SS S = .0080

6"SS

7

132 LF 6"SS S = .0107

6

64 LF 6"SS S = .0070

YOSEMITE AVENUE

5

EX S — 397 LF 6"SS S = .0050 — 6"SS — EX S — EX S

4

397 LF 6"SS S = .0048 — 6"SS

3

EX S — EX S — 275 LF 6"SS S = .0060 — 6"SS — EX S — EX S

2

1

5A

APN: 241-300-680
LAND USE: LI
4.06 AC

3A

PROPOSED PROJECT
LAND USE: HDR

APN: 241-300-580
LAND USE: CMU
1.66 AC

PROPOSED SEWER YOSEMITE AVENUE

DATE: JANUARY, 2025

PSS APARTMENT COMPLEX

MANTECA, CA

0 60 30 120

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FIGURE 4: PROPOSED SEWER SYSTEM ANALYSIS

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SANITARY SEWER SYSTEM DESIGN

Yosemite Sewer Analysis
Manteca, CA

Flow Based on Unit Values (See Unit Flowrates)
Mannings "n" = 0.013 PVC

Date: 7/28/2026
By: KRL

DESCRIPTION	Inlet Pipes	Intersect Type	FROM	INV.	TO	INV.	Invert Δ	Invert Δ	APN/Land use	Parcel Design	Flow / Unit	Units	Pipe Dia.	LENGTH	Average Flow	Average Accu. Flow	Peak Factor	Peak Accu. Flow	SLOPE	Full Velocity	Capacity Full	Actual Velocity	Design Depth	% Full
	#	#	MH	ELEV	MH	ELEV	(FT.)	(FT.)		(Descr.)	#	(GPD)	(IN.)	(FT.)	(GPD)	(GPD)		(GPD)	FT/FT	(FPS)	(GPD)	(FPS)	%	
Dead-End MH	0		1	26.30	2	24.30	0.00		CMU	COM	2473	1.66	6	100	4,105	4,105	5.98	24,530	0.0200	4.05	513,991	2.074	0.15	5%
	1		2	24.30	3	22.65	0.00	2.45	241-300-580				6	275	0	4,105	5.98	24,530	0.0060	2.22	281,524	1.359	0.20	9%
Dead-End MH	0		3A	22.23	3	21.23	0.00		Proposed Project	COM	2400	1	6	100	2,400	2,400	5.99	14,366	0.0100	2.87	363,446	1.387	0.14	4%
Dead-End MH	0		3B	22.23	3	21.23	0.00		Proposed Project	HDR	195	164	6	100	31,980	31,980	5.81	185,936	0.0100	2.87	363,446	2.865	0.51	51%
Junct-3	3	P	3	21.23	4	19.32	0.09						6	397	0	38,485	5.78	222,358	0.0048	1.99	251,803	2.233	0.73	88%
	1		4	19.23	5	17.23	0.00						6	397	0	38,485	5.78	222,358	0.0050	2.03	258,021	2.280	0.72	86%
Dead-End MH	0		5A	25.23	5	17.23	0.00		Light Industrial	COM	2010	4.06	6	400	8,157	8,157	5.95	48,544	0.0200	4.05	513,991	2.541	0.21	9%
Junct-2	2		5	17.23	6	16.78	0.00	0.04	241-300-680				6	64	0	46,642	5.73	267,388	0.0070	2.40	304,081	2.695	0.73	88%
	1		6	16.74	7	15.33	0.02						6	132	0	46,642	5.73	267,388	0.0107	2.96	375,952	3.205	0.62	71%
Dead-End MH	0		7A	17.93	7	15.33	0.02		Light Industrial	COM	2010	2.42	6	130	4,864	4,864	5.97	29,044	0.0200	4.05	513,991	2.182	0.16	6%
Junct-2	2		7	15.31	8	12.59	0.10		198-170-360				6	340	0	51,506	5.71	293,911	0.0080	2.56	325,076	2.887	0.75	90%

Note: For the proposed project's commercial sewer demand we used 1200 gallons per acre. The Commercial area is approximately 1.1acres, so we doubled the 1200 gallon number and used 2,400 gallons respectively.