Wastewater Feasibility Study

NEW LIFE COMMUNITY ADVENTIST CHURCH USE PERMIT
P16-00210-UP

CMP Civil Engineering & Land Surveying
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Wastewater Feasibility Report

for the

New Life Community Adventist Church

1451 American Canyon Road

American Canyon, CA 94503

APN: 059-100-002

Prepared By:

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(707) 815-0988

Date: 12/2/2016

Table of Contents

Contact Information	
Property Owner:	New Life Community Adventist Church, c/o John Wambaa
Owner Address:	219 Sandy Neck Way Vallejo, CA 94591
Owner Phone:	(707) 373-1106

Site Map

Please see the Use Permit Site Plan for the subject project which has been included with this submittal. The said map shows the proposed wastewater system location.

Narrative

This project involves a proposed church located on a 1.83 acre parcel at 1451 American Canyon Road in Napa County. The property owners are proposing to build a church with a maximum of 150 attendees. Services will be held once a week on Saturdays, all other days the church will be vacant except for a possible special event of which a maximum of 4 per year are proposed with a maximum of 250 attendees. There is one existing residence on the property that will be demolished before the church is constructed. There is one 35,000 gallon water tank proposed to serve the church. The tank will be filled by an existing onsite well which is located on the general southeast portion of the lot. See the site plan for additional details.

Wastewater Feasibility

- Existing use:

Listed below are the subject parcels existing uses and associated wastewater flows: (e) 3-5 bedroom main residence - flow = 450 gal / day. The existing residence is to be demolished as part of this development.

- Proposed additional use:

1. 150 seat church
   - 1.1. Peak domestic flow = 7 gal/seat x 150 seats x (1 - 20% reduction for low flow fittings = 840 gal / day
   - 1.2. Because the church will only be generating wastewater flow one day a week a metering tank is going to be utilized to time delay the release of the effluent to the field. The metering tank will be sized at 2000 gallons which will hold multiple days of peak flow. The tank will be equipped with a metering pump which will be set to release no more than 375 gallons per day. Thus the design flow for the leach field will be 375 gal / day.

- Primary domestic wastewater leach field calculations:

Given the soil conditions documented during the site evaluation conducted by CMP engineering on 9/25/2015, a standard type wastewater system is acceptable in the proposed leach field area. Given this location a soil infiltration rate of 0.25 gallons per square foot of trench sidewall per day is appropriate when using a chamber type leach field. Based on the above design flow the required trench length is as follows:

(375 gal/day) / (0.25 gal/day/sf) = 500 feet

As shown in on the site map, the proposed septic area can accommodate this 500 feet of leach trench.

- Reserve domestic wastewater leach field area calculations:

The following reserve area calculations are based on having an engineered drip type reserve wastewater system. The reserve area will need to accommodate both the existing and proposed domestic flows. Below is the calculation showing the required amount of reserve area to do this:

Infiltration rate = 0.6 gal/sf/day
Total flow = 840 gal
Required area = (840 gal/day / 0.6 gal/sf/day) x 200% = 2800 square feet

The proposed reserve area shown on the site plan is more than the 2800 sf required.

Determination

Given the above calculations and the details shown on the site plan it has been determined that the subject parcel can facilitate the wastewater treatment needs for the proposed use.

Calculations

Please see the attached calculations in Appendix "A".

Attachment "A"

Wastewater
Use Calculations

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Winery Wastewater Flow Calculations

for the

New Life Community Adventist Church

Located at:

1451 American Canyon Road

American Canyon, CA 94503

Date: 5/42016

Project # 000177

Legend

Requires Input
Automatically Calculates
Important Value Automatically Calculates
Important Value Requires Input

Hit ctrl + alt + shift + F9 when finished to recalc all formulas

Church Waste Flow Summary

The existing system is designed to treat domestic waste from a church with a maximum of 150 seats. Large events will be serviced by portable temporary bathroom facilities.

Church Domestic Waste Peak Flows

% Water savings from low flow fittings =	20%	percent
Typical Saturday (Service Day)		
Number of attendees =	80	#
Event people count serviced by this system =	0	#
Attendees estimated domestic waste flow =	448.00	gal/day
Event daily domestic waste flow =	0.00	gal/day
Church Dimestic Flow =	448.00	gal/day
Max Attendence Saturday (Service Day		
Number of attendees =	150	#
Event people count serviced by this system =	0	#
Attendees estimated domestic waste flow =	840.00	gal/day
Event daily domestic waste flow =	0.00	gal/day
Church Dimestic Flow =	840.00	gal/day
All other days		
Number of attendees =	0	#
Event people count serviced by this system =	0	#
Attendees estimated domestic waste flow =	0.00	gal/day
Event daily domestic waste flow =	0.00	gal/day
Church Dimestic Flow =	0.00	gal/day
Total Domestic Waste Peak Flows =	**840.00**	**gal/day**

Church Waste Annual Volume Calculations

Typical Saturday (Service Day)		
Number of attendees =	80	#
Attendees estimated domestic waste flow =	448.00	gal/day
Number of Flow Days =	40.00	days/yr
Annual Domestic Waste Volume =	17920	gal/year
Max Attendence Saturday (Service Day		
Number of attendees =	150	#
Attendees estimated domestic waste flow =	840.00	gal/day
Number of Flow Days =	12.00	days/yr
Annual Domestic Waste Volume =	10080	gal/year
All other days		
Number of attendees =	0	#
Attendees estimated domestic waste flow =	0.00	gal/day
Number of Flow Days =	313.00	days/yr
Annual Domestic Waste Volume =	0	gal/year

Special Event Visitor Volumes	visitors	days/yr	flow/day	gallons
Large Events =	250	4	8	8000
Medium Events =	0	0	8	0
Other =	0	0	8	0
Other 2 =	0	0	8	0
Total Annual Event Visitor Waste Volume =	8000	gal/year		

Total Annual Church Domestic Waste =	**36000**	gal/year	**0.11**	af/year