A G E N D A

SPECIAL MEETING
SAN RAFAEL SANITATION DISTRICT
BOARD OF DIRECTORS
THURSDAY – FEBRUARY 17, 2022 - 9:00 A.M.
Join Zoom Meeting at https://us06web.zoom.us/j/85656363629

Meeting ID: 856 5636 3629

Or by Phone:
One tap mobile
+16699006833,, 85656363629# US (San Jose)

Dial by your location
+1 669 900 6833 US (San Jose)
Meeting ID: 856 5636 3629
Find your local number: https://us06web.zoom.us/u/kdquzglzbI

CORONAVIRUS (COVID-19) ADVISORY NOTICE

Consistent with the provisions in Assembly Bill 361, this Board meeting will be held virtually using Zoom.

Public comments for this meeting can be submitted via email to the District Clerk at Cindy.Hernandez@cityofsanrafael.org. The public comment period opens when the agenda is posted online and will close two hours prior to the start of the meeting. Include your name and the item you would like to provide written comment on.

To provide comments during the meeting, please use the "raise hand" feature in the Zoom Meeting and the host will notify and unmute you when it is your turn to speak.

If you experience an issue providing comments in the meeting or want to comment via phone, please call 415-485-3132.

Members of the public may speak on Agenda items.

1. **ROLL CALL**

2. **OPEN PERIOD**

   Opportunity for the public to address the Board on items not on the agenda. (Presentations are generally limited to 2 minutes.)

3. **OLD BUSINESS**
   a. Discussion on Bayside Acres Beach Sewer Improvement Project. (David Nicholson)

4. NEW BUSINESS

a. None

5. INFORMATIONAL ITEMS

6. DIRECTOR REPORTS/REQUESTS FOR FUTURE AGENDA ITEMS

7. ADJOURNMENT

The next scheduled meeting is March 3, 2022.

SAN RAFAEL SANITATION DISTRICT
Agenda Item No. 3.a.

DATE: February 17, 2022

TO: Board of Directors, San Rafael Sanitation District

PREPARED BY: David Nicholson, Senior Civil Engineer

APPROVED BY: Doris Toy, District Manager/District Engineer

SUBJECT: Discussion on Bayside Acres Beach Sewer Improvement Project

---

SUMMARY:
District staff presented an update on the progress of this project during the last Board meeting of February 3, 2022, whereby project costs were briefed. Needing more information on project costs and what they involve was determined to be in order at the close of the meeting. As a result, staff has requested this special Board meeting to discuss project alternative costs and to attain Board guidance on project direction that can be communicated to the involved properties at the proposed public meeting in March. This report comprises cost findings for the alternatives and staff recommendation on the most feasibly alternative.

To review the alternatives, the first one was to rehabilitate the existing sewer main in place. This is determined as being infeasible due to the higher cost and adverse environmental impacts. Alternative-2 was to construct an elevated support structure along the shoreline that would support a new sewer main and was also determined infeasible due to high cost, poor aesthetics and FEMA restrictions. Alternative-3 proposes to install a shared pump system that one to four private properties would share, where the installation, operation and maintenance costs would be bourn by the District. District staff believe that this alternative is also infeasible primarily due to the need of new private and public easements, potential FEMA requirements needed, anticipated push-back from the property owners who will need to have a pump placed on their property and added long-term District O&M costs. The last of the four alternatives is not only the most feasible, but also the industry standard. It proposes to relocate the sewer main into the streets and reconnecting all existing private sewer laterals to the new sewer main. This involves installing individual private sumps, pumps, laterals and electrical upgrades as needed. The costs of each alternative are outlined in Table 1.

Table 1. Bayside Acres Sewer Replacement Alternatives Summary.

Alternative	Description	Time Element	Cost
		years	
1	Existing System in place	3 to 4[1]	$3,238,000.00
2	Beam & Pile w/Cat-Walk	-	Infeasible
3	Shared Pump System	2 to 3[2]	$1,990,000.00
4	Individual Pump System	1 to 2	$1,607,000.00

1. Includes time needed for acquiring environmental studies and permitting.
2. Includes time needed for acquiring easements.

Having met with each property owner over the past year and discussing the various alternatives, when the individual private pump alternative was brought up, the main question on their minds was who is going to front its cost for installation, operation and maintenance. Based on other similar projects, such as the Woodland Place Sewer relocation project, staff would like to propose that the District pay for the purchase of materials and installation for each pump system and lateral to the new sewer mains, as well as any needed electrical panel upgrades to accommodate the new pump system. After installation of the private pumping systems, all maintenance and operation costs would be turned over to the property owner. Also, as a good faith effort, the District may propose to assist property owners with operations and maintenance guidance for the fist year of operation to ensure they have a smooth transition to the active system.

District Staff will be conducting a public meeting to the 19 property owners directly affected by this change in March 2022. An information package has been produced that will be sent to each property owner two weeks prior to the meeting. The package comprises all our findings for the four alternatives. Staff intends to receive comments and feedback from the public that will presented in the April 7th Board meeting, and whereby a final decision on a project scope will be determined by the Board.

ACTION REQUIRED:

The Board has the following options to consider for the fourth alternative (individual pump system):

1. Tentatively Approve the District responsibility for the cost of purchase, installation and one-year support for new private active sewer laterals at the 19 properties currently being served by the gravity sewer main needing rehabilitation.
2. Determine a shared cost between District and property owner.
3. District staff to return with more information.

Attachments: DRAFT-Project alternatives information package for Bayside Acres property owners

San Rafael Sanitation District

DRAFT

You Are Invited to a Public Meeting

San Rafael Sanitation District is undertaking a two-step process to safeguard against sewer spills in the Bayside area. First, the District will replace an aging sewer pipeline in the Bay with a new, secure pipeline in nearby streets. Second, it will replace the aging sewer laterals that connect 19 area homes and redirect those laterals to the new sewer main. The District is evaluating two alternative approaches for the laterals and pumps. The District is seeking input from affected property owners and other stakeholders before it selects one of the options and moves forward with construction.

Although it is not accessible for inspection, we believe that the 50-year-old main sewer pipeline in the Bay is deteriorating and must be replaced before a break or clog spills raw sewage into the Bay. In addition, we know that the affected private lateral pipelines from the homes are deteriorating.

Two Meetings Will Be Held

Both meetings will provide identical information. Attend the one that is most convenient for you.

Tuesday February 22, 2022, at 1:00 PM
OR
Wednesday February 24, 2022, at 6:00 PM

TO BE CHANGED FOR MARCH MEETINGS

Purpose of the Meeting

District staff will explain the project's purpose, present the project alternatives and provide details.

You will have an opportunity to ask questions and get answers from District staff.

For More Information:

Call Dave Nicholson at: 415-458-5369

Email: davidn@cityofsanrafael.org

Web: *https://www.cityofsanrafael.org/sanitation-district-projects/*

SEPERATE WEBSITE FOR THIS PROJECT TO BE SETUP

DRAFT

Bayside Acres Sewer Rehabilitation Project

There is a half-century-old main sewer pipeline located in the Bay near Point San Pedro Rd., Beach Rd., Marine Dr., and Oak Dr. in the Bayside Acres Development that is aging and must be replaced.

Aging, Corroded, Main Sewer Pipeline and Manholes in the Bay. The District has been unable to properly inspect or maintain the underwater sewer pipeline due to high tides, corroded manhole lids, and general inaccessibility. The District is increasingly concerned about the manholes. The original four-to-six-inch-thick concrete structure protecting the manholes has been corroded down to about two inches. Wave action will eventually cause a break in the manholes and pollute the Bay, lead to regulatory fines, and require costly cleanup and repair.

In addition, the private lateral pipelines that run from homes to the main sewer pipeline in the Bay are also corroding and some are leaking. Leaking laterals are allowing sea water to enter the sewer system and causing corrosion. These laterals must be replaced and, in most cases, redirected to a new, secure sewer main in the streets.

A corroded manhole in the Bay.

A non-corroded manhole on land.

The District is developing a plan to seal the old pipeline and manholes in the Bay, install a new pipeline in the streets, install new laterals and pumps from homes to the new pipelines.

Project Alternatives

Move Sewer Mains Out of the Bay. The District has conducted several surveys and engineering evaluations of the Bayside sewer and developed alternative approaches for upgrading or replacing it. The two alternatives that retain a pipeline within the Bay or along the shoreline have been determined infeasible. This is due to environmental permitting difficulties, excessive cost, and poor aesthetics.

The two remaining alternative require installation of new main sewer pipes in Oak Drive, Marine Drive and Point San Pedro Road. Therefore, the District will install new pipelines in these streets to receive the sewage.

Two Alternatives to replace existing gravity laterals with new pressurized laterals and pumps:

Shared pumps. New laterals from groups of two to four homes would be installed and sent to shared pumps that would pump sewage to the new sewer mains in the streets above.

Individual private pumps. New private laterals and individual private pumps would be installed for each home and send sewage to the new main sewer pipelines in the streets.

More detail on the four Alternatives is presented later in this document.

Decision-Making Process and Timeline

This February, the District will provide property owners within the project detailed information about the alternatives in a public meeting, to answer questions and listen to comments. The District will also provide general outreach to the broader community. Staff will consider the public input with all the engineering, financial, regulatory, and other parameters and make a recommendation to the District Board.

We expect the District Board to select an alternative in March and direct staff to implement it.

What is driving the project timing? We know that private laterals are deteriorating from visual inspections and believe the 50-year-old main sewer in the Bay is also deteriorating and must be replaced before a break or clog spills sewage into the Bay. In addition, the County is resurfacing Point San Pedro Road this summer, which will start a 10-year moratorium on any construction in that street. Any sewer work in the road must be done before then or wait another decade.

New Main Sewer Pipeline Installation Timeline. Construction of new pumps systems and laterals at homes would begin in the fall of 2022.

February	March	April	May	June	July	August
Hold Public Meetings.	Board selects an alternative.	Select sewer pipeline contractor.	Sewer pipeline construction. Work with property owners on lateral details.			County road sealing.

DRAFT

Main Sewer Pipeline Options Considered

ALTERNATIVE-1 *(Infeasible)*: Rehabilitate the Existing Main Sewer Pipeline in Place Underwater

Rehabilitating the existing pipeline is infeasible due to the difficulty of obtaining permits, the risk of a spill that could immediately contaminate the Bay, and the visual impact caused by new manholes that would rise about 10 feet above the waterline.

ALTERNATIVE-2 *(Infeasible)*: Construct a New Above-Water Main Sewer Pipeline

The above-water (along the shoreline) main sewer pipeline is infeasible due to the difficulty of obtaining permits, the risk of a sewer spill that could lead to immediate contamination of the Bay, and the visual impact caused by an elevated structure needed to secure the pipeline that would rise 10 feet or more above the shoreline along the pipeline's entire length.

ALTERNATIVES-3 & 4 *(Recommended by Staff)*: Install New, Secure Main Sewer Pipelines in the Streets

With these Alternatives, new sewer main pipes will need to be installed in Oak Drive, Marine Drive and Point San Pedro Drive. This new sewer main pipe project is being designed now and is expected to be approved by the Board in March.

Pump and Lateral Alternatives

3. Shared Residential Pumps

Install new laterals to newly installed shared pumps and sumps that would pump the sewage from a group of homes to the main sewer pipeline in the street.

Shared pump and sump locations are chosen to allow the laterals from each home to flow by gravity to the central pump and sump serving that home. These pump/sump locations have been determined most feasible and cannot be changed. However, the District would work with the property owners on any aesthetic actions to hide the pumps and control panels.

Install new main sewer pipelines in Point San Pedro Rd, , Marine Dr, and Oak Dr.

The District would pay all construction and maintenance costs.

The District would be responsible for maintenance and would conduct on-site inspections up to three times per week as it does for all its pump stations. Additionally, District staff would need 24/7 access to the pump/sump stations to address any maintenance issues.

Some property owners would need to obtain easements for their laterals to cross their neighbors' properties. The District has no authority here but could provide some help.

The District would need to obtain easements for the pumps and control panels and for the pressurized lines that go to the main sewer in Point San Pedro Road, , Marine Drive, and Oak Drive.

Easements would increase the cost and could extend the project timeline, which would increase the risk of a spill in the existing main sewer pipe. Easement delays could add substantial time before the risky main sewer pipeline in the Bay could be secured.

4. Individual Private Pumps

Install new private laterals and private individual sump and pump systems at each residence that would pump sewer water to newly installed gravity sewer main lines in Oak Drive, Marine Drive and Point San Pedro Road. The District will work with each homeowner to determine the specific location and design of the pump and sump units, laterals and controls, and any aesthetic solutions to hide equipment.

The District would consider paying most or all construction costs.

Post construction, homeowners would be responsible for operating and maintaining their own pump systems.

One of the properties within the neighborhood has already installed a pump system and has been running it reliably for the past 30 years. *More details on these pumps are on pages 5 and x.*

DRAFT

Shared Pump Plan for Alternative 3, Shared Pump Stations

(Beach Dr. and Oak Dr.)

ADDRESS	PUMP	PUMP LOCATION	ACTIONS
50 Beach Drive	Existing Beach PS	Existing Manhole Located After End of Beach Dr.	None: No Change to Lateral Location
51 Beach Drive			
53 Beach Drive			
193 Oak Drive	SP01	New Easement Between 191 and 193 Oak Drive	Redirect Lateral To New Easement *Who to Who
191 Oak Drive			
189 Oak Drive			Redirect The Lateral On-Site Reword More Plain
187 Oak Drive			
185 Oak Drive			None, No Sewer Service
183 Oak Drive	SP02	Back Yard	Redirect the Lateral on-Site
181 Oak Drive	Existing manhole being converted to SP03	Existing Location on the Bluff Between 181 Oak and 179 Oak	No Changes to Lateral Locations
179 Oak Drive			
177 Oak Drive			

(Pt. San Pedro Rd. and Marine Dr.)

ADDRESS	PUMP	PUMP LOCATION	NOTES
11 Marine Drive	SP05	Back Yard	No Change to Lateral Location
9 Marine Drive			
800 Pt. San Pedro Rd.	SP06	Back Yard	
816 Pt. San Pedro Rd.	SP07	Property Line	Redirect the Lateral on-Site
824 Pt. San Pedro Rd.		Back Yard	3 Units, 2 Additional Pumps
828 Pt. San Pedro Rd.	SP08	Under House	Requires Protection?
832 Pt. San Pedro Rd.			~~Redirect Lateral~~
836 Pt. San Pedro Rd.	SP09	Back Yard	

DRAFT

What Shared Pumps Look Like

The pumps are housed in a sump, which is like a barrel to hold sewage and provide backup storage.

The picture below shows a pump and sump combination under the blue lid. The control panel is the gray box on the wall. The pump and sump is buried underground and can be hidden behind fences, landscaping, painted, etc. Note that pumps at sites near sea level will need to be above ground.

DRAFT

Individual House Pumps Plan for Alternative 4

(Marine Drive and Point San Pedro Road.

ADDRESS	PUMP	PUMP LOCATION	NOTES
11 Marine Drive	EP13	Under House	
9 Marine Drive	EP14	Back Yard/under deck	
800 Pt. San Pedro Rd.	EP15	Under House	
816 Pt. San Pedro Rd.	EP16	Under House	Requires Protection
824 Pt. San Pedro Rd.	EP17	Back Yard	2 Units, 2 Pumps
828 Pt. San Pedro Rd.	EP18	Under Deck	Requires Protection
832 Pt. San Pedro Rd.	EP19	Under House	
836 Pt. San Pedro Rd.	EP20	Under House	

(Beach Drive and Oak Drive

ADDRESS	PUMP	PUMP LOCATION	NOTES
50 Beach Dr.	EP01	Side Yard	
51 Beach Dr.	EP02	Front Yard	
53 Beach Dr.	EP03	Under Stairwell	
193 Oak Dr.	EP04	In Basement	
191 Oak Dr.	EP05	Under House	Requires Protection
189 Oak Dr.	EP06	Back Yard Underground	
187 Oak Dr.	EP07	Back Yard Underground	
185 Oak Dr.	EP08	None	
183 Oak Dr.	EP09	Back Yard Under Deck	
181 Oak Dr.	EP10	Back Yard Underground	
179 Oak Dr.	EP11	Side Yard Underground	
177 Oak Dr.	EP12	Front Yard Underground	

DRAFT

Individual Pump System Questions and Answers

from a Neighbor with 30 Years' Experience Having a Pump in Their Home

One of the properties within the affected neighborhood installed a pump system 30 years ago and has been running it without incident since then. We asked the property owner about their pump; their answers are below. *Minor edits and additons for clarity from District staff are shown with underlined text.*

The pump has a low operating and maintenance cost estimated at about $5 per month for electricity and an annual inspection by a plumber. Over the past 30 years of operation, this homeowner never had any issues during power outages.

1. **Q: How long has the pump been in place and functioning?**

   A: Over 30 years

2. **Q: Have you experienced any issues since installing the pump (needs to rebuild or replace a pump)?**

   A: Once over 20 years ago the pump was upgraded to a larger one because the first pump was too small.

3. **Q: How often and how much maintenance has it required since installed? Do you do have any yearly preventative maintenance?**

   A: Yes, we check it out under the house to make sure it's not clogged. We are very diligent about NOT throwing anything other than biodegradable toilet paper down the toilet.

4. **Q: What kind of maintenance is typically needed/encountered?**

   A: Not much maintenance is needed. All we do to ensure it's working, we set a certain time for it to go off every day and listen for the faint humming sound when it turns back on. There have been no problems with it.

5. **Q: How many gallons is the sump container?**

   A: It's about 36x30. – Calculating the volume, that's about 132 gallons.

6. **Q: How have power outages affected its operation? And, how long can you use water during an outage before the holding tank fills up?**

   A: There has been no problem with a power outage. When electricity comes back on, it resets itself.

   The sump is designed to hold about 3-days of light sewage use as a backup, and the pump has battery backup.

7. **Q: Do you have a backup generator to power the pump during an outage?**

   A: We have found no need for a backup generator. However, we have one but haven't needed to use it.

8. **Q: How has having the pump affected your monthly electric bill?**

   A: Don't realize any additional cost. However, I'm sure there has to be, but it's minimal.

9. **Q: When you installed the pump, did you need to make any upgrades to your electric panel and/or add any circuits?**

   A: We didn't but that would be whatever additions your system would need.

10. **Q: Are there any odors associated with the system?**

    A: A little smell inside the pump room under the house when the system is churning the waste disposal, but not within the house.

11. **Q: How and where do you vent the sump?**

    A: For ventilation within the pump room itself we have a large cement cellar with a door, of course, and windows. For venting the pump and sump, a pipe vents outside.

12. **Q: Have you had any issues with the lateral (pressurized pipe between pump and sewer main)?**

    A: No, never.

13. **Q: Can you hear the pump while inside your home? Does its operation interrupt your daily lives?**

    A: No daily interruption

14. **Q: Do you have any alarms on the pump system and if so how often do they go off? (examples: pump fail, high water alarm, power outage, etc.)**

    A: Yes we have an alarm on all of the system. Only has gone off a couple of times in 25 years when the power went out.

15. **Q: Are you more mindful about what gets flushed down the toilet, such as wipes, dental floss, or feminine products, etc.?**

    A: Yes, you have to be prudent in maintaining your system. None of the above except biodegradable toilet paper.

16. **Q: Overall, are you glad you installed the pump? Were there any options to avoid installing the pump?**

    A: We didn't see any other option. Very happy with the system that was installed.

17. **Q: What does it cost to maintain and operate the pump.**

    A: The cost for electricity at PG&E's average peak rate of $0.34/kwh would be about $68 per year or about $5.67 per month. Manufactures recommend an annual inspection by a plumber and claim that typical pumps last 20 to 30 years before requiring replacement. Local plumbers tell us that an annual inspection would cost about $X.

DRAFT

What Individual Home Pumps May Look Like

The picture below shows a duplex with two pumps in the ground and control panels on the wall.

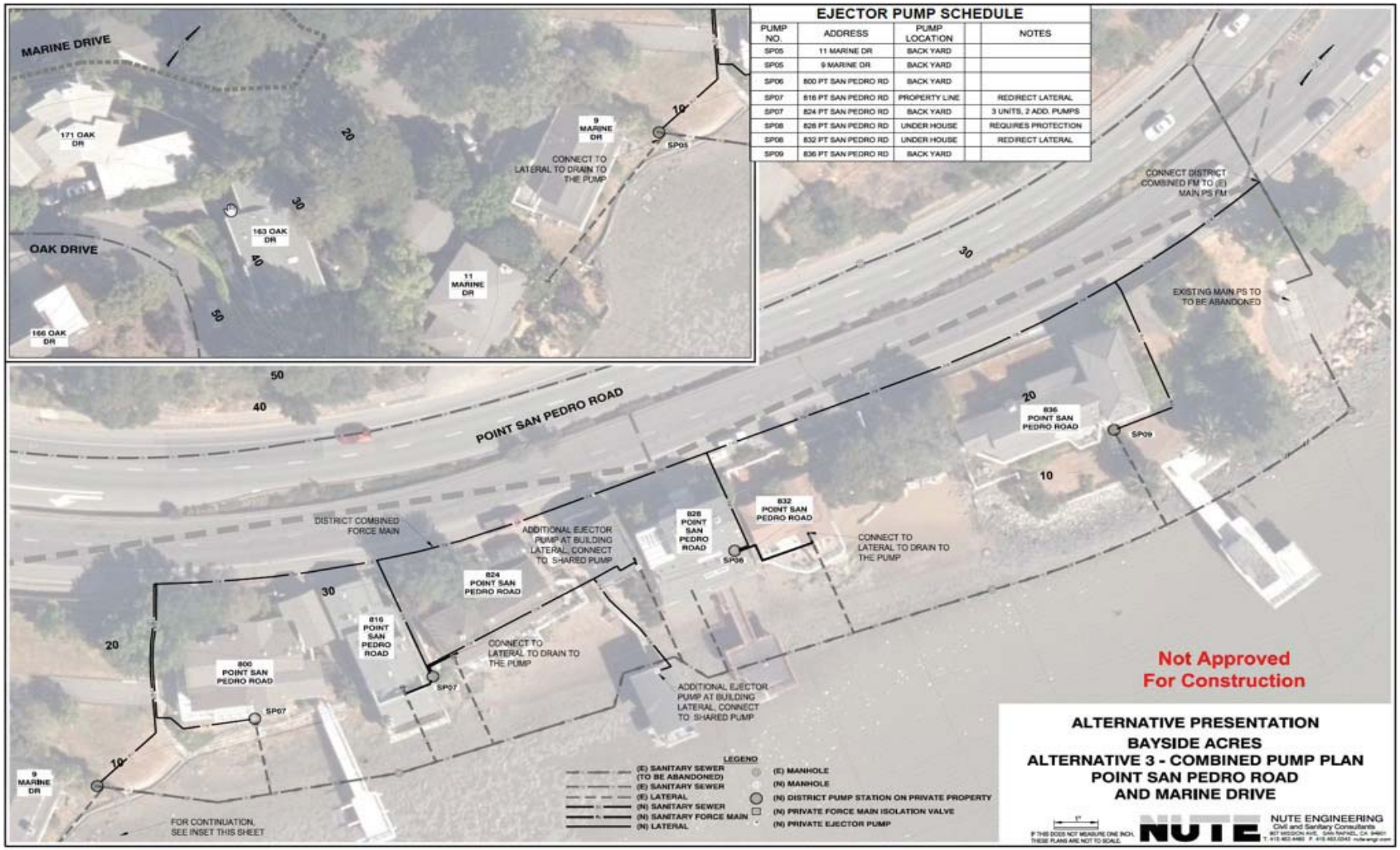
Pump and sump combinations can be hidden. Here is a sump/pump under a house.

DRAFT

INSERT SOUTH COMBINED PUMP SYSTEM MAP HERE

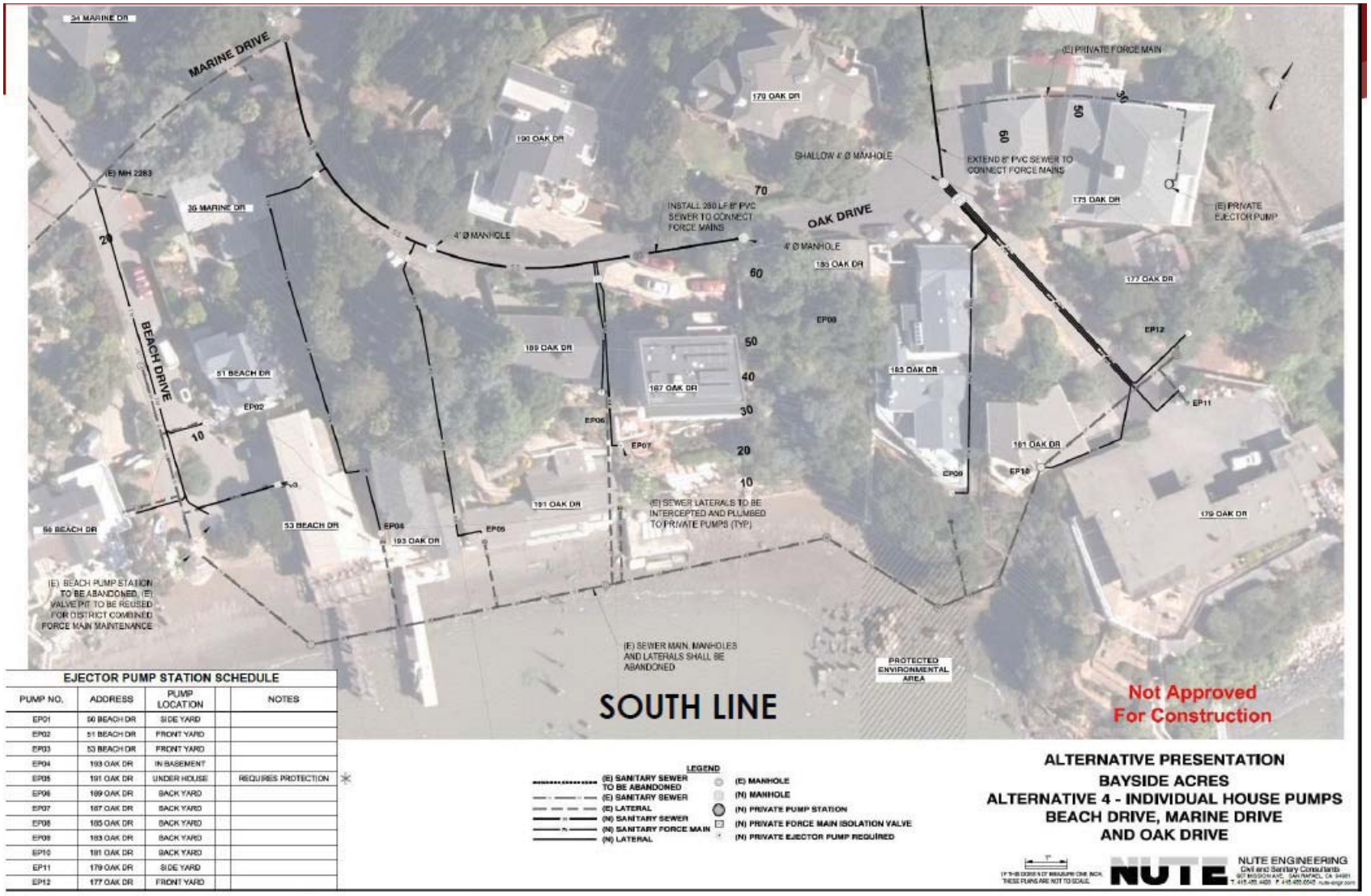
DRAFT

Combined Residence Pump Station and Force Mains View – NORTH LINE



DRAFT

Individual Private Pumps – SOUTH LINE



EJECTOR PUMP STATION SCHEDULE

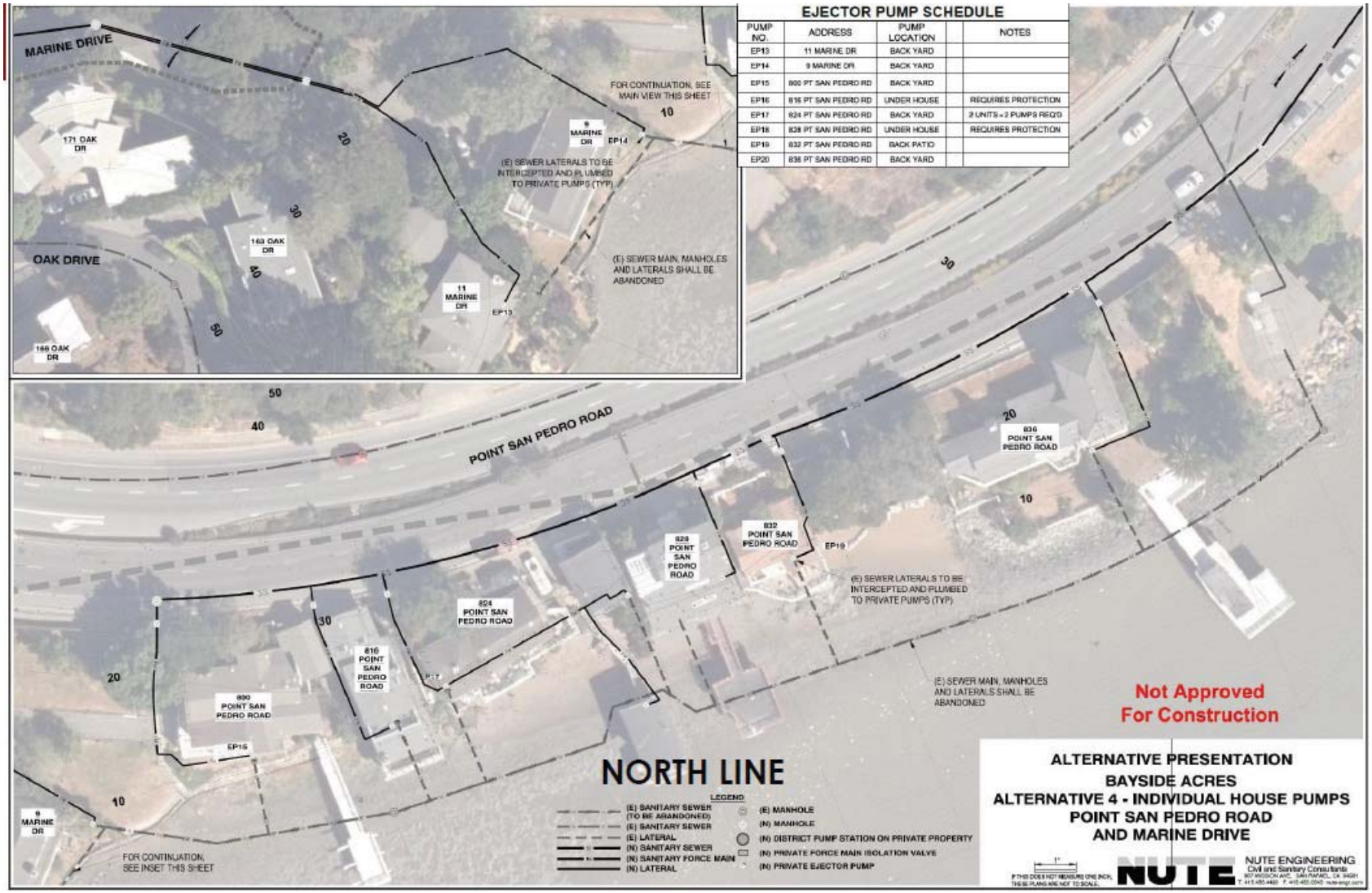
PUMP NO.	ADDRESS	PUMP LOCATION	NOTES
EP01	50 BEACH DR	SIDE YARD	
EP02	51 BEACH DR	FRONT YARD	
EP03	53 BEACH DR	FRONT YARD	
EP04	193 OAK DR	IN BASEMENT	
EP05	191 OAK DR	UNDER HOUSE	REQUIRES PROTECTION
EP06	189 OAK DR	BACK YARD	
EP07	187 OAK DR	BACK YARD	
EP08	185 OAK DR	BACK YARD	
EP09	183 OAK DR	BACK YARD	
EP10	181 OAK DR	BACK YARD	
EP11	179 OAK DR	SIDE YARD	
EP12	177 OAK DR	FRONT YARD	

LEGEND

- (E) SANITARY SEWER TO BE ABANDONED
- (E) SANITARY SEWER
- (E) LATERAL
- (N) SANITARY SEWER
- (N) SANITARY FORCE MAIN
- (N) LATERAL
- (E) MANHOLE
- (N) MANHOLE
- (N) PRIVATE PUMP STATION
- (N) PRIVATE FORCE MAIN ISOLATION VALVE
- (N) PRIVATE EJECTOR PUMP REQUIRED

DRAFT

Individual Private Pumps – NORTH LINE



DRAFT

Matrix Comparing the Options and Alternatives:

	MAIN SEWER PIPELINE OPTIONS			PUMP / LATERAL ALTERNATIVES	
	Rehabilitate in place	New Above Water	In the Streets	1. Shared Pumps	2. Individual Pumps
Permitting & Risk	X Sewer in the Bay	X Sewer above the Bay	+	=	=
Low Visual Impact	X Manhole above water	X Catwalk above water	+	– District staff inspections in yards	+
Ease of obtaining Easements (Timing)			+	X Public & Private Easements	+ No Easements
Construction Cost	$3.3 million	$X million	+ $X thousand	– $1.99 Million	+ $1.64 Million
DISTRICT Maintenance low cost & impact			+	– $185,000/Year $9.25M/50 Years	+ $1,000/Year $50,000/50 Years
CUSTOMER Maintenance low cost & impact			+	+ No Cost	+ <$300/Year $15,000/50 Years
Timing before street paving			+	=	=
Design and construction challenges	X	X Remove asbestos pipe	+	=	=

KEY TO THE TABLE X (infeasible) = (equivalent) + (superior) – (inferior)