

Sewer Authority Mid-Coastside
SAM

CEAP Presentation

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June 7, 2019



SEWER AUTHORITY MID-COASTSIDE

SAM

Regional Wastewater Treatment Facility

Half Moon Bay, California



Who is S.A.M.



- JPA created in Feb 1976
- Member agencies: City of HMB, Granada Community Services District and Montara Water and Sanitary District
- Board comprises of two members from each agency
- SAM owns treatment plant, 8 miles of transition line, 3 pump stations and ocean outfall line



History of SAM



- Operation began in 1984 providing secondary treatment with capacity of 2 million gallons per day
- Upgraded in 1999 to expand capacity to 4 million gallons per day and increased plant's ability to handle peak wet weather flows
- In 2002, Walker tank with capacity of 430,000 added at Montara Pump Station for holding capacity during wet weather
- In 2012, Wet weather storage of 200,000 gallons at Portola added for further holding capacity during wet weather

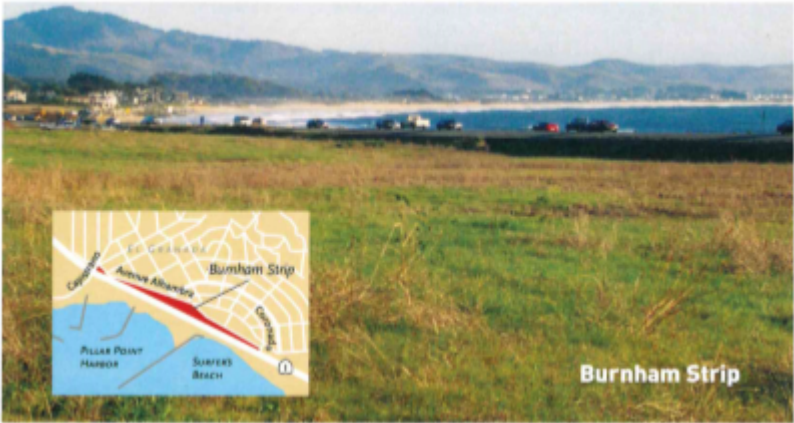


Montara Walker Tank, 430,000 Gal Capacity



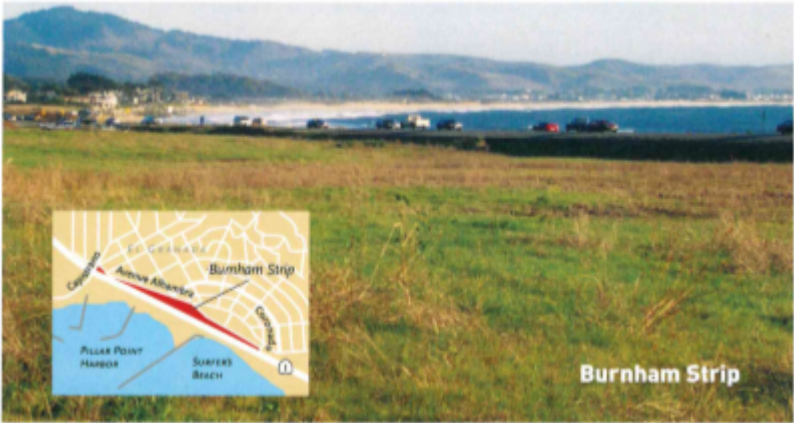
The Burnham Strip tanks, 2000,000 Gal Capacity

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The Burnham Strip tanks, 2000,000 Gal Capacity

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Construction



Construction



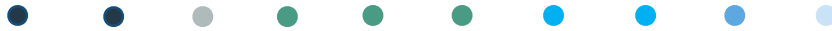
Recent Improvements



- In 2013, 1500 feet of force main was rehabilitated with cure in place pipe on certain failed sections
- In 2016, 2700 feet of force main was replaced in northern most section along Vallemar street in Montara by HDPE. Also replaced air relief valves and installed a new pump at Montara Pump Station
- In 2017/18, 5700 feet of force main was replaced with HDPE in region between El Granada and Half Moon Bay.



2017 - 2018 Force Main Replacement Project



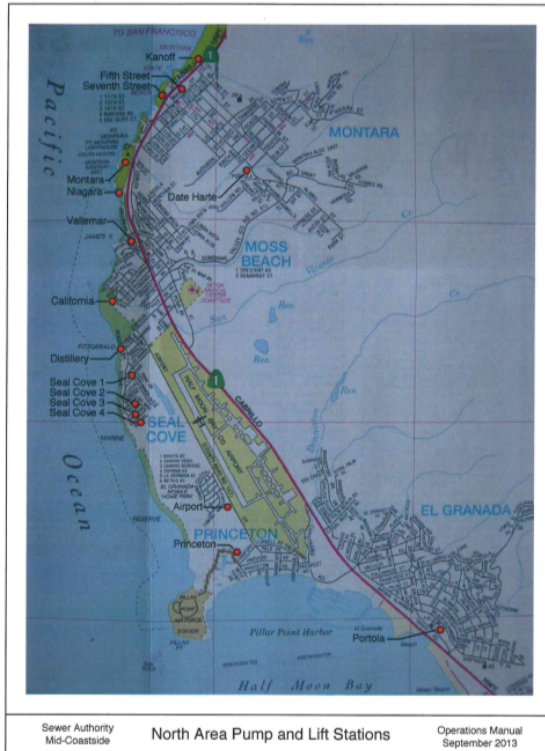
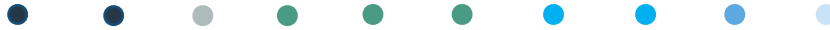
How does it get there?



- SAM cleans approximately 103 miles of gravity sewer annually and maintains a total of 17 lift stations for member agencies
- Typically, gravity sewers are designed to flow at rate of 2 ft/sec
- Lift station / pump station pump wastewater from low elevation to higher elevation



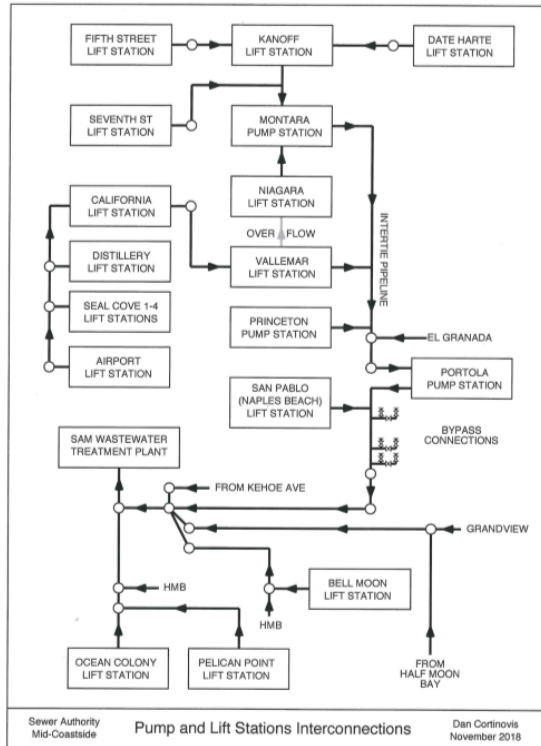
Stations to the North



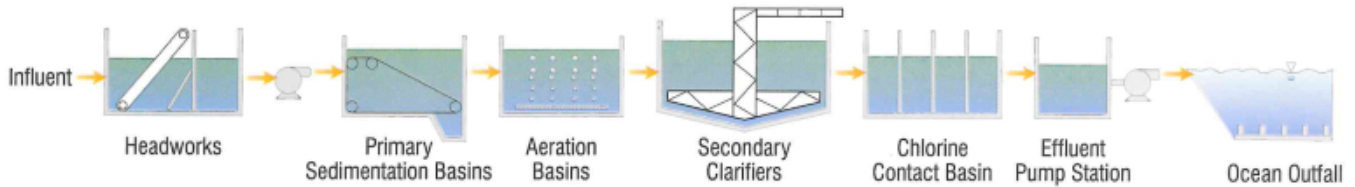
Stations to the South



Station Flow Chart



Next Step - Treatment Process

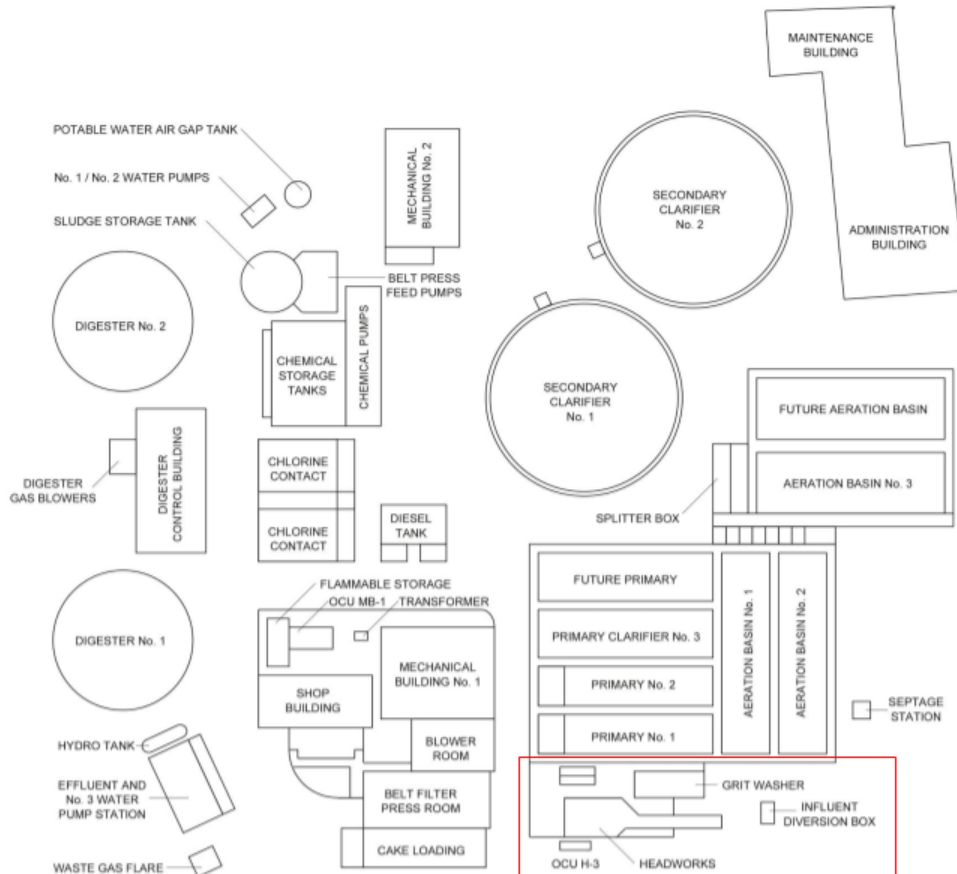


Treatment - Headworks



- Sewer enters the plant through headworks
- Two mechanical bar screens remove large debris that can harm the downstream process
- Eight influent pumps (three large and five small) pump the wastewater from the wet well to the next process similar to a lift station





Treatment - Grit Removal



- Wastewater is pumped to the aerated grit chambers from the headworks
- Grit chamber uses air bubbles to separate inorganic material from wastewater such as sand and pebbles
- Organic material passes through for further treatment

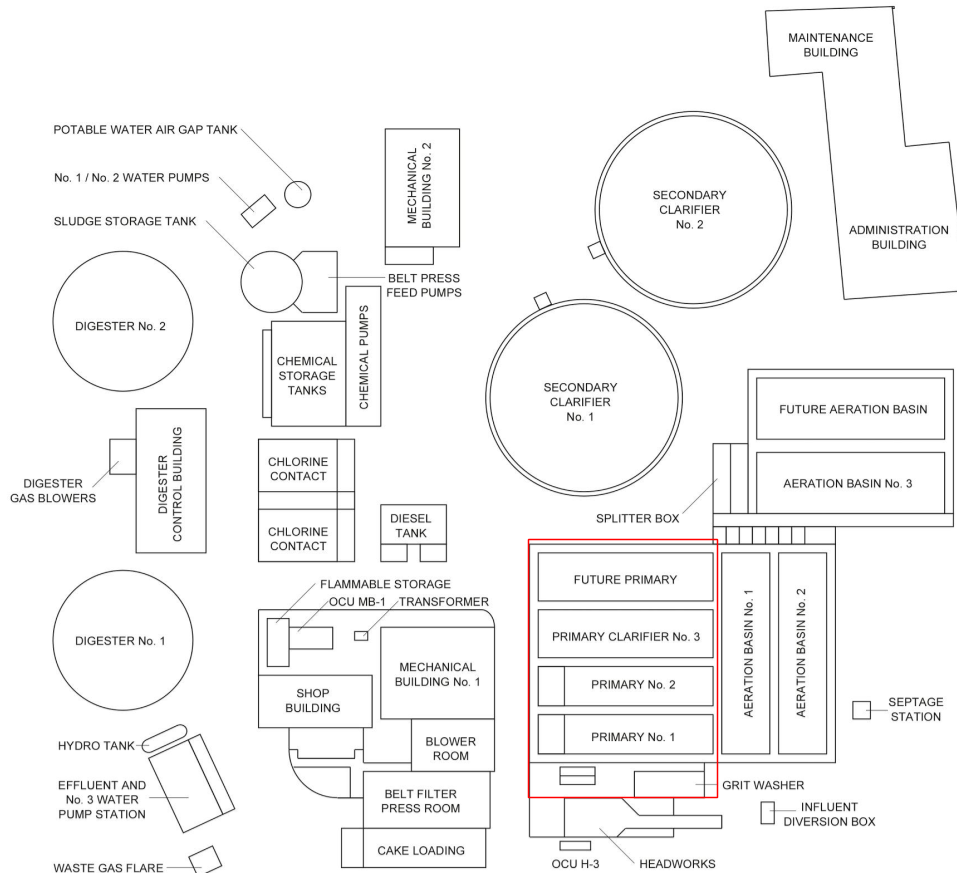


Treatment - Primary Clarifiers



- Wastewater flows from grit chamber to primary clarifiers
- Three primary clarifiers slow the flow to approximately 2 ft/min
- Slower flow rate allows separation of heavier organic to settle and lighter to float
- Both pumped to digester for further treatment





Treatment - Aeration Basin



- Flow from primaries is combined with the activated organisms and is known as mixed liquor
- Air is fed continuously to the basins to create oxygen rich environment for the micro organisms
- Microorganisms will reproduce in the basin

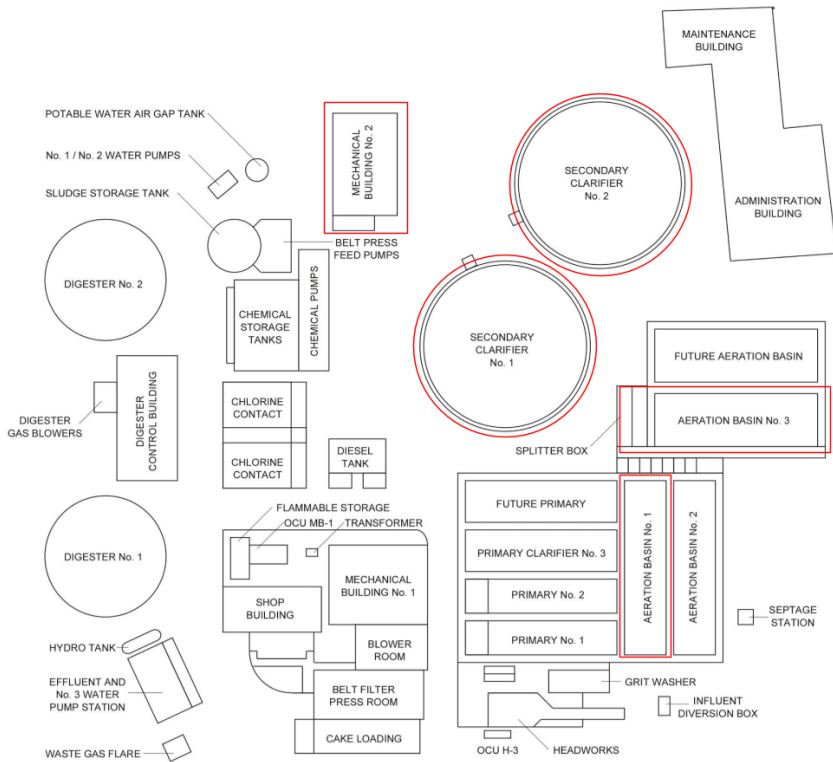


Treatment - Secondary Clarification



- Secondary clarifiers act as settling basins for mixed liquor
- Again, flow is slowed for mixed liquor to settle now known as activated sludge
- Microbes continuously reproduce
- Daily lab testing done to balance the amount of bugs we keep to match the food source coming in.
- Activated sludge is either sent back to aeration basin or wasted out of the system



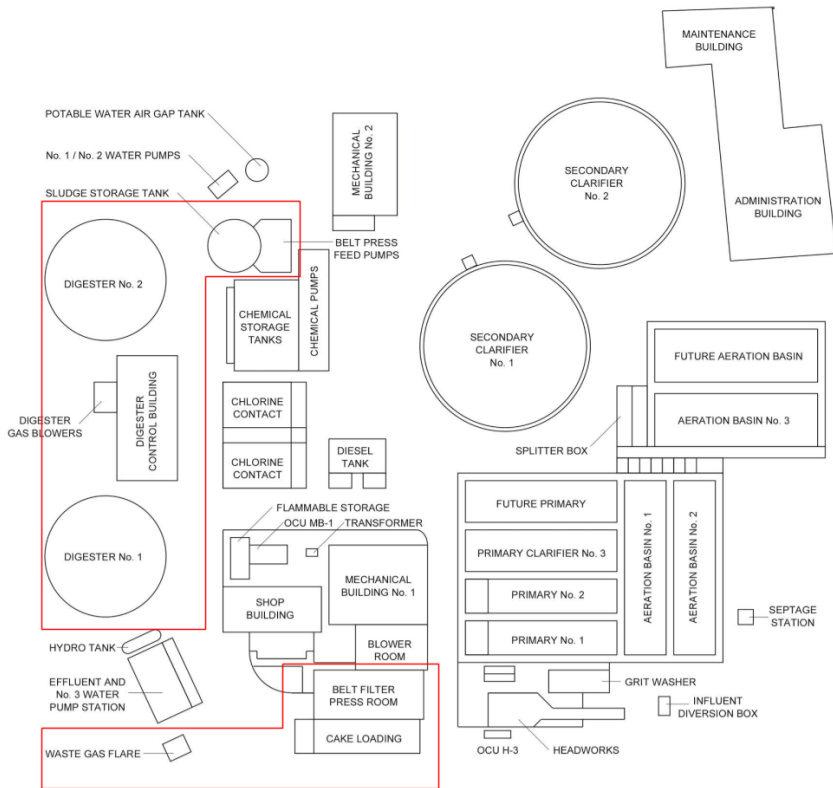


Treatment - Anaerobic Digestion



- Combined waste and primary sludge fed to the anaerobic digester maintained at 95 deg.
- The micro organisms work in an anaerobic (without oxygen) state
- Two main organisms are formed: acid forming bacteria and methane forming bacteria
- Volatile acids are produced by acid forming bacteria
- Methane forming bacteria use volatile acids as food source and produce methane
- Methane is used to heat water, which in turn heats digester
- Excess gas is flared





SAM RWTF O&M
2016

PLANT SITE LAYOUT

SCHEMATIC 1
NOT TO SCALE

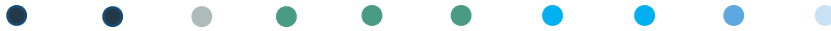
Treatment - Solids



- After digestion, solids are dewatered by a 2m filter belt press
- Sludge is sent to landfill for alternate cover fill
- In 2018, approximately 3,459,420 lbs of sludge were sent to landfill



Treatment - Chemical Addition



- 12.5% hypochlorite is used for disinfection of wastewater like a bleach solution
- Disease causing organisms like Salmonella, Typhoid, Hepatitis, Giardia, E.Coli and Cryptosporidium are killed
- After chlorination, water is dechlorinated with sodium bisulfite
- This neutralizes residual chlorine before discharge to Ocean from our 2,200 ft outfall



Before and After



Here is a picture of Influent wastewater and the water as it leaves the facility



What can you do to help ?

Be contentious of what you put down the drain

In the kitchen

Clogged sink drains can ruin your home, too! Keep all sinks in your home clog-free by following these simple steps:

- Fruit and vegetable stickers belong in the trash, not the drain.
- Always pour or scrape cooled fats, oils and grease into a covered, disposable container and throw it into your garbage. Never pour fats, oils or grease down sink drains or toilets.
- Soak up remaining oils and grease with an absorbent material such as paper towels and throw into your garbage or yard/food waste bin.
- Before you wash dishes, scrape food scraps, fats, oils and grease into your garbage or compost.

San Mateo County wants your hazardous waste!

Common household products become "Hazardous Waste" when poured down a drain or flushed down a toilet because they harm our environment and wreak havoc on the sewer system.

Never dump paint, paint thinner, cleaning chemicals, pesticides, fertilizer, root killer or any product that has a CAUTION-WARNING-DANGER-POISON label. Instead, bring these materials to:

San Mateo County Household Hazardous Waste Program: www.smchealth.org/hhw

THINK BEFORE YOU FLUSH

Protect Your Family and Pets from Sewage Backups and Overflows!

© 2011 Calumet Design Agency, Inc.

What can you do to help ?

Educate the people you know

The only thing that should go in your toilet are the three P's.

Pee

Poop

Toilet Paper

An overflowing toilet can ruin your home in an instant!
Just a small amount of household waste flushed down the toilet (or dumped down the drain or garbage disposal) can clog pipes and cause nasty messes in your home, and expensive sewer backups.

AVOID CLOGS BY KEEPING THIS STUFF OUT OF YOUR TOILET!

Items shown as clog-causing: Baby & facial wipes, Tampons & applicators, Bandages & sticker backs, Cleaning Wipes, Whitening strips & their wrappers, Maxi pads & their wrappers, Prescription and OTC medications, Hair, Condoms & their wrappers, Kitty litter, Dental floss, Cotton swabs & makeup pads, Dental floss.

Did you know?
"Flushable Wipes" are the biggest problem for sewer backups in our community. That's right, even if the package says "flushable", they should NEVER be flushed. They belong in the trash.

Flush ONLY toilet paper. Put trash in the trash can.



Fats, Oil, and Grease

Fats, oil and grease should not be put down your sink drains.

Collect them in a proper container and dispose of them in the trash

obstruidos y derrames de las alcantarillas:

1. Pour cooled fats, oils and grease into a covered, disposable container and throw it into your garbage. Never pour fats, oils or grease down sink drains or toilets.

Coloque las grasas y los aceites fríos en un recipiente desechable con tapa y arréjelo a la basura.



2. Soak up remaining oils and grease with an absorbent material such as paper towels, and throw it into your garbage.

Absorbe las grasas y los aceites restantes con servilletas de papel y deshúgase de ellas junto con los restos de comida y desechos de basura.



3. Before you wash dishes, scrape food scraps, fats, oils and grease into your garbage.

Antes de lavar los platos, arroje los restos de alimentos, grasas y aceites en su basura.

4. Use sink strainers to catch any remaining food waste while washing dishes.

Utilice coladores para fregaderos al lavar los platos para atrapar los restos de comida.

For more information, contact the Sewer Authority Mid-Coastside at (650) 726-0124 or visit us at samcleanswater.org

Para obtener más información, Sewer Authority Mid-Coastside at (650) 726-0124 or samcleanswater.org



Protecting the Receiving Waters



Think of us as protectors of the environment. In 2018 SAM processed and treated 551.255 M gal's of wastewater.

Our primary function is to protect the receiving waters for aquatic life and recreational uses.

If everyone chips in a little, the end result will be cleaner beaches and receiving waters for the whole community.



If you would like further information, please feel free to contact the Sewer Authority and arrange for a tour (650)-726-0124

Bring a group, it's all about sharing the information



Thank You