

UTILITIES

Novato Sanitary District

The Novato Sanitary District Treatment plant is vulnerable just before 3 feet of sea level rise. By scenario 5, the lower half of the plant is covered by tidal waters. Storm conditions may impact the plant sooner. Much like SASM, the first buildings to be vulnerable are the shops and garages. However, the over flow basins are impacted early on. Next to be impacted are the UV Disinfection and Final Effluent Processing buildings. By 5 feet of sea level rise, tides reach the anaerobic digestion and clarification tanks. Adding a storm surge could also flood around the primary and secondary clarifiers altogether. The water will not likely be high enough to impact the process, however, electrical components may be lower and saltwater corrosion of the tanks and buildings could take a toll.

The district also has some facilities in Bel Marin Keys that are transitioning to submersible machines, and others at Gness Field Airport, Bahia, and the base of Deer Island that could be vulnerable to higher tides.

On-site Waste Water Treatment (OWTS)

The only community in the study area using OWTSs is Black Point. However, many of the built areas of these properties are at higher elevations and may be free from impacts from sea level rise. In the worst case, sea level rise could alter soil permeability and chemistry in the disposal field. If water levels are high and sustaining enough, effluent from the disposal field could contaminate the estuary waters. Even new shallow or above ground systems, with high water level kill switches, could be impacted by flood waters and affected by power outages. Erosion could also reduce land area available for percolation. Finally, if ground water rises under septic tanks it could have enough pressure to cause tanks to pop out of the ground.

These systems are privately managed by the land owner and regulated by Marin County and the Regional Water Quality Control Board. Septic systems in are regulated by the Marin Countywide Plan (CWP), the Marin County Development Code, and the State Water Control Board's Onsite Wastewater Treatment Systems Policy. More information on regulations can be found at <http://www.marincounty.org/depts/cd/divisions/env/ironmental-health-services/septic-systems>.

Table 37. OWTS System Vulnerabilities

Land Area	<ul style="list-style-type: none"> Erosion can reduce the land area available to percolate waste. Saltwater intrusion into the leach field could impact percolation rates and reduce useable area.
Materials/ Models	<ul style="list-style-type: none"> Older single field gravity systems are more susceptible to storm flooding than modern systems equipped with "flip" switches that turn off percolation when groundwater elevates too high. Newer systems are vulnerable to power outages.

Source: Marin County Environmental Health and Safety

Map 27. Black Point Properties with Potentially Vulnerable OWTSs



UTILITIES

Novato Sanitary District

The Novato Sanitary District Treatment plant is vulnerable just before 3 feet of sea level rise. By scenario 5, the lower half of the plant is covered by tidal waters. Storm conditions may impact the plant sooner. Much like SASM, the first buildings to be vulnerable are the shops and garages. However, the over flow basins are impacted early on. Next to be impacted are the UV Disinfection and Final Effluent Processing buildings. By 5 feet of sea level rise, tides reach the anaerobic digestion and clarification tanks. Adding a storm surge could also flood around the ~~primary and~~ secondary clarifiers altogether. The water will not likely be high enough to impact the process, however, electrical components may be lower and saltwater corrosion of the tanks and buildings could take a toll. The lower half of the plant is bordered by a concrete retaining wall and berm that protect against flood waters. The wall and berm can be extended vertically to provide protection from sea level rise. A 4-foot vertical addition to the wall and a 1 foot addition to the berm would protect against scenario 6.

The district also has some facilities in Bel Marin Keys that are transitioning to submersible machines, and others at Gness Field Airport that could be vulnerable to higher tides. However, the more submersed they are, the faster wear and tear could damage the machine.

On-site Waste Water Treatment (OWTS)

The only community in the study area using OWTSs is Black Point. However, many of the built areas of these properties are at higher elevations and may be free from impacts from sea level rise. In the worst case, sea level rise could alter soil permeability and chemistry in the disposal field. If water levels are high and sustaining enough, effluent from the disposal field could contaminate the estuary waters. Even new shallow or above ground systems, with high water level kill switches, could be impacted by flood waters and affected by power outages. Erosion could also reduce land area available for percolation. Finally, if ground water rises under septic tanks it could have enough pressure to cause tanks to pop out of the ground.

These systems are privately managed by the land owner and regulated by Marin County and the Regional Water Quality Control Board. Septic systems in are regulated by the Marin Countywide Plan (CWP), the Marin County Development Code, and the State Water Control Board's Onsite

Wastewater Treatment Systems Policy. More information on regulations can be found at <http://www.marincounty.org/depts/cd/divisions/environmental-health-services/septic-systems>.

Table 37. OWTS System Vulnerabilities

Land Area	<ul style="list-style-type: none"> Erosion can reduce the land area available to percolate waste. Saltwater intrusion into the leach field could impact percolation rates and reduce useable area.
Materials/ Models	<ul style="list-style-type: none"> Older single field gravity systems are more susceptible to storm flooding than modern systems equipped with "flip" switches that turn off percolation when groundwater elevates too high. Newer systems are vulnerable to power outages.

Source: Marin County Environmental Health and Safety

Comment [EB1]: We don't have any shops or garages at the lower end of the plant. Confusing us with the City's Corp Yard?

Comment [EB2]: All pump stations at BMK are submersible type, not transitioning.

Comment [EB3]: NSD does not have any facilities at Gness Field. Our northernmost facility on the east side of 101 is a gravity line that ends at the end of the cul-de-sac of Rush Landing Court.

Comment [EB4]: Suggest striking this paragraph altogether. The statement regarding submersible pumps is inaccurate. The submersible pumps are located in a wetwell (basically a deep vault) that is water tight (no groundwater infiltration). These pump stations are less susceptible than the old style wet well/dry well pump stations because the electrical components are all above ground. A vulnerability could exist if brackish water infiltrates the gravity sewer lines that drain into these pump stations. However, it is unclear from this report if that is a real possibility.