

**SAN JUAN COUNTY
HEARING EXAMINER**

FINDINGS, CONCLUSIONS, AND DECISION

Applicant(s): Dane A. Armstrong
95 Laurel Point Lane
Friday Harbor, WA 98250

Agent: in care of Permit Resources
Teri Williams
PO Box 1001
Eastsound, WA 98250

File No.: PSJ000-14-0018

Request: Shoreline Substantial Development Permit

Parcel No: 351314004

Location: 95 Laurel Point Lane, Friday Harbor, San Juan Island

Summary of Proposal: Application for a shoreline substantial development permit
for a private single-family residential desalination facility

Land Use Designation: Rural Residential

Public Hearing: June 18, 2015

Application Policies and Regulations: SJCC 18.35.130 Aquatic fish and wildlife habitat
conservation areas (FWHCCAs)
SJCC 18.50.350 Utilities
SJCC 18.80.110 Shoreline Permit procedures

Decision: Approved subject to conditions

**S.J.C. DEPARTMENT OF
JUL 20 2015
COMMUNITY DEVELOPMENT**

2. Request for review by local, state, and federal agencies
3. Mitigated Determination of Non-Significance, issued May 20, 2015
4. Land Use Project Permit Application and attached materials including:
 - a. Project Narrative
 - b. Correspondence from Applicant representative, April 23, 2015
 - c. SEPA Environmental Checklist
 - d. Preliminary Eelgrass and Macro Algae Habitat Survey, prepared by Jen-Jay Diving, October 29, 2014, with vicinity maps 1, 2, and 3
 - e. Site Plans:
 - 1) General Site Plan
 - 2) Shoreline Site Plan
 - 3) Pier, Ramp, & Floating Dock Profile
 - 4) Submersible Pump Detail
 - 5) Ramp Piping detail
5. Geotechnical Report Waiver Request
6. Agency comment letters, including:
 - a. UW Friday Harbor Labs, May 8, 2015
 - b. San Juan County Health & Community Services, May 13, 2015
7. Biological Evaluation, prepared by Jen-Jay Diving, March 2015, with attached Joint Aquatic Resources Permit Application
8. Map Showing well agreement tank, together with Quit Claim Deeds, legal descriptions, and recitals (16 pages)

Upon consideration of the testimony and exhibits submitted at the open record public hearing, the Hearing Examiner enters the following findings and conclusions:

FINDINGS

1. The Applicant requested a shoreline substantial development permit to authorize the installation of a private desalination facility for the single-family residence at 95 Laurel Point Lane, Friday Harbor, San Juan Island. *Exhibits 1 and 4.*
2. The subject property has a Rural Residential land use designation. It abuts developed residential parcels to the east and south and fronts Friday Harbor to the north and west. There are several private dock systems to either side of the subject site, and a public marina is located approximately 570 feet to the southwest. Situated along the south east shoreline of Friday Harbor, the property has a rocky shoreline coming to a point at the northwest segment. Vegetation is characterized by madrone and fir trees with open grassy areas on the rocky point. *Exhibits 1, 4.d.3, and 7.*
3. Existing development on-site includes a house, guest house, bunkhouse, garage, and a dock. The existing single-family residence on-site is served by an approved on-site septic system and a private well. The well occasionally draws brackish water. The proposal is intended to provide an alternate source of domestic water for the residence. *Williams Testimony; Exhibits 1 and 4.a.*

4. The proposed desalination system would consist of the installation of a submersible saltwater pump attached subsurface to the dock float. A one-inch seawater intake line would transport salt water upland to the eight- by eight-foot desalination building next to the garage. A two-inch utility conduit would be required. The intake pipe and utility conduit would run from the submersible pump to along the inside of the dock float to the head of the ramp and continue along the dock ramp and pier. A one-inch saltwater return pipe would run from the head of the pier adjacent to the intake pipe. At the saltwater discharge, a diffuser would be attached to the underside of the dock float ending a maximum of one foot below the waterline. From the head of the pier, the intake, utility conduit, and return pipes would run in a trench approximately 100 feet long to the desalination building, which structure would house the desalination equipment components. Treated water would be piped underground 200 feet to the below-grade storage tank proposed to be installed near the existing well. There is no construction start date presently scheduled; the application has been filed proactively on the part of the property owner. All trenching would be conducted upland outside of tidal waters. *Exhibits 4.a, 4.e, and 7; Williams Testimony.*
5. Shorelands within 200 feet of the ordinary high water mark (OHWM) of Friday Harbor is subject to the jurisdiction of the Washington State Shoreline Management Act as implemented through the San Juan County Shoreline Master Program (SMP). Pursuant to the SMP, the subject property's shorelines are designated as Urban shoreline environment. A shoreline substantial development permit is required for the portions of the project within this area. Other portions of the project, including a proposed underground water storage tank and connecting lines, would be outside shoreline jurisdiction and subject to building but not shoreline permits. *Exhibit 1; Thompson Testimony.*
6. Department of Community Development Staff circulated the application and supplemental materials to review agencies for comment. *Exhibit 2.* The San Juan County Health and Community Services Department did not note health code requirements for this application but recommended the desalination treatment system be designed by a qualified, licensed engineer and installed to ensure that the finished water quality meets standards outlined in San Juan County Code 8. 06. *Exhibit 6.b.*
7. UW Friday Harbor Labs was the other agency to submit comments on the proposal, summarized in the staff report as follows:

Desalination plants are a controversial issue and are likely to remain so into the future, as fresh water becomes scarcer. [Dr. Megan Dethier] was surprised to see so little attention paid to this issue. She included the broad types of concern here:

- Discharge of brine to receiving waters
- Chemicals used in pre- and post-treatment of water, for example clearing of membranes used in the RO process

- Impingement (marine animals killed or injured as they collide with screens at the intake)
- Entrainment (marine life sucked into the system with seawater)
- Noise from pumps
- Energy required for generating the pressure differences required for desalination by reverse osmosis
- Leaking of brine from pipes or other spills on land into groundwater
- Installation of the desal plant near the shoreline, including potential impacts from impervious surfaces and removal of vegetation near the shoreline
- Other impacts of development or water intensive uses in areas that otherwise could not support them

[Dr. Dethier] goes on to say that the small size of the project makes most of these issues of very little concern and many of them are addressed in the biological evaluation. The one issue that she feels is not adequately addressed is return of brine into the harbor. Discharged brine, which is of greater density because of its greater salinity, sinks below water of lower (normal) salinity and may sink to the seafloor, where in some cases it can form a stable pool that resists mixing. The high salinity itself or the decrease in oxygen in these briny pockets can then kill marine animals and plants. This pooling will not happen in areas where there is good current flow and therefore flushing, as is the case of most desal plants in operation in the County. The Biological Evaluation states that in other studies, the brine rapidly dissipated—but that is not necessarily true here. The waters of Friday Harbor itself do not necessarily flush well, and the fact that most of the substrate in the subtidal survey for this site is listed as “mud” indicates that this is a very low-energy site (i.e., minimal wave and current energy).

Exhibit 1, page 7.

8. The Applicant commissioned a professionally prepared preliminary eelgrass and macro algae habitat survey for the aquatic portions of the project. The survey noted a mixture of macro algae species with zero to 30% cover. One patch of eelgrass was found southwest of the existing float. This study noted that the project site has solid rock in the intertidal zone and does not contain potential forage fish habitat. *Exhibit 4.d.*
9. The same consultant also prepared a biological evaluation (BE) of the project’s potential impacts to species listed as threatened or endangered pursuant to the federal Endangered Species Act (ESA). Species potentially found within the project action area include Marbled Murrelet, Leatherback Sea Turtle, Green Sea Turtle, Loggerhead Turtle, Humpback Whale, Southern Resident Killer Whale, Chinook Salmon, Bull Trout, Steelhead, Bocaccio Rockfish, Yellow-eye Rockfish, Canary Rockfish, and Golden Paintbrush. The BE defined the action area as 25 feet beyond the boundaries of the existing dock system and inside the property boundary. Potential direct effects

considered included: construction noise in water and upland; placement of the equipment in the aquatic environment; potential deleterious material entry into the water from upland work; and localized salinity increase. Foreseen indirect effects are colonization by macro algae on system components and potential change in marine flora and fauna as a result of the increased salinity. The BE stated that the discharge would measure 37.5 parts per thousand saline, citing information from a manufacturer that this should not be detectable in the saltwater environment. The BE concluded the project would result in the following: No effect to listed turtles, Humpback Whales, and Golden Paintbrush; and May Affect but Not Likely to Adversely Affect Chinook, Steelhead, Bull Trout, Bocaccio, Yellow-eye, or Canary Rockfish, and Killer Whales. The BE included a list of eight conservation measures, which were incorporated into the mitigation required through State Environmental Policy Act review. *Exhibit 7.*

10. The Applicant's consultant appeared at hearing and provided testimony in response to Friday Harbor Labs' concerns. Noting that concentrated saline as a result of desalination system discharge is a valid concern, he added that increases in salinity can build up where entrapment is possible. He indicated that on-site the current brings in a large volume of sediments and it is possible to see where discharge would pool by where the sediment drops out of the current. The project location is up on a cliff with a drop off 100 feet. If discharge occurred near the substrate, the discharge could pool and flow downhill towards the channel where flushing is active. The project would discharge up in the water column where there is a high current rather than on the seabed and the consultant is convinced that the discharge would be dispersed. His opinion is based on the fact that he has been monitoring a similar desalination system off of Cattle Point where he was hired to do a study of salinity at beginning of discharge. He estimated that discharge from the Cattle Point system disperses within a distance of not more than 15 feet. That site, which has similar conditions, has shown no difference in flora and fauna since discharge began and the discharge is completely covered in vegetation. He further stated that he would expect no impacts to eelgrass, because the denser salinity would have to flow uphill. Regarding cleaning solution, all system wash water would be collected and taken to an off-site facility. *Betcher Testimony.*
11. Planning Staff determined the submitted Biological Evaluation adequately represents the known impacts desalination systems could have and proposed design and construction recommendations/parameters that adequately address the requirements of the SMP. Staff noted that the primary outstanding concern is that cleaning fluids not released into salt water source. *Thompson Testimony.*
12. Stormwater construction methods would be required during construction, and ensured through the building permit process, to control erosion and pollution along the shoreline. The twelve elements of minimum requirement #2 must be followed during construction. Any disturbed areas would be required to be restored with native vegetation to match pre-project conditions. If approved, the Applicant would also be required to obtain and abide by conditions imposed in a hydraulic project approval (HPA) from the Washington Department of Fish and Wildlife prior to construction. *Exhibit 1.*

13. Consistent with the State Environmental Policy Act (SEPA), San Juan County Department of Community Development assumed lead agency status for review of the proposal's environmental impacts. IN reaching the environmental threshold determination, the Responsible Official reviewed the complete application materials, the SEPA checklist, and the Biological Evaluation prepared by Jen-Jay Inc., dated March 2015. After review of the environmental checklist and other materials on file with the Department, the SEPA Responsible Official determined that the proposal could be conditioned to the point that it would not result in probable, significant, adverse impacts on the environment. A mitigated determination of non-significance (MDNS) was issued May 20, 2015 imposing the following mitigation measures:

1. Securing the pipes to the existing dock system to minimize the length of pipe that could be placed into marine waters.
2. Constructing during appropriate tides minimizing sediment disturbance during construction activities.
3. Ensuring that no deleterious material enters marine waters.
4. Disposing of all construction material at an approved upland disposal site.
5. Cleaning the RO system on the recommended schedule, collecting the cleaning solution and rinse water in a portable tank, and disposing of the water at an approved upland site.
6. Using the RO system to provide future fresh water needs for the tax parcel.
7. Planning so that burying the pipes takes the least amount of time to reduce or eliminate the chance of soil eroding into marine water.
8. Reduce potential impacts to salmon and forage fish by working within the work window of 16 July through 15 February. The work window is designed to reduce the chance of salmon or forage fish spawn from being present in the project area during construction.

As of the hearing date, no appeal had been filed on the MDNS, and none was offered in the record after close of hearing, meaning the MDNS became final. Planning Staff recommended that the MDNS measures be made conditions of permit approval. *Exhibits 1 and 3.*

14. The application was submitted December 29, 2014 and determined to be complete on April 22, 2015. Notice of the application was mailed to surrounding property owners on April 20, 2015, posted on-site on April 21, 2015, and published on April 22, 2015. The County received no comments on the proposal. *Exhibit 1; Thompson Testimony.*
15. Upon review of the complete application materials, Planning Staff determined that the proposal can comply with all applicable criteria in the Unified Development Code, the Comprehensive Plan, and the Shoreline Master Program and recommended approval with

conditions. *Thompson Testimony; Exhibit 1.* The Applicant representative waived objection to the recommended conditions. *Williams Testimony.*

CONCLUSIONS

Jurisdiction

The Hearing Examiner is granted jurisdiction to hear and decide applications for conditional use permit pursuant to Chapter 36.70.970 of the Revised Code of Washington and Chapters 2.22 and 18.80 of the San Juan County Code.

Criteria for Review

Pursuant to SJCC 18.80.110.H, a shoreline substantial development permit shall be granted only when the applicant meets the burden of proving that the proposal is:

1. Consistent with the policies of the Shoreline Management Act and its implementing regulations, Chapter 90.58 RCW and Chapter 173-27 WAC, as amended;
2. Consistent with the policies and regulations of the Shoreline Master Program in Chapter 18.50 SJCC;
3. Consistent with this chapter;
4. Consistent with the applicable sections of this code (e.g., Chapter 18.60 SJCC);
5. Consistent with the goals and policies of the Comprehensive Plan; and
6. All conditions specified by the hearing examiner to make the proposal consistent with the master program and to mitigate or avoid adverse impacts are attached to the permit.

San Juan County Shoreline Master Program: Applicable Polices and Regulations

SJCC 18.50.350 Utilities

A. Regulations—General.

1. In shoreline areas, utility transmission lines, pipelines, and cables must be placed underground unless demonstrated to be infeasible. Further, such lines must utilize existing rights-of-way whenever possible. Proposals for new corridors in shoreline areas involving water crossings must fully substantiate the infeasibility of existing routes.
2. Utility development must, through coordination with government agencies, provide for compatible multiple use of sites and rights-of-way. Such uses include shoreline access points, trails, and other forms of recreation and transportation systems, providing such uses will not unduly interfere with utility operations of endanger public health and safety.
3. Sites disturbed for utility installation must be stabilized during and following construction to avoid adverse impacts from erosion.

4. Immediately following the completion of utilities installation of maintenance projects on shorelines, disturbed areas must be restored to project configurations, replanted with local vegetation, and the vegetation maintained until it is firmly established.
 5. Utility lines, pipes, stations, plants, and other apparatus shall not be installed in shoreline areas unless there is no feasible alternative.
 6. Utility lines shall be installed underground. Desalination intake and discharge lines shall be located underground wherever feasible, except for that portion located underneath or along any docks, piers, walkways, stairs, or other shoreline improvements located on the site.
 7. Underwater cables which must cross shorelines shall be installed underground from the water line to the tree line, unless otherwise authorized by the County. The County shall authorize variances from this regulation only for good cause.
 8. Where installation of utility lines, pipes, or other apparatus in shoreline areas is approved, clearing shall be confined to that which is absolutely necessary to permit the installation and to prevent interference by vegetation once the system is in operation.
 9. Where utility lines, pipes, or other apparatus must cross shoreline areas, they shall do so by the route which will cause the least damage to the shoreline, both physically and visually.
 10. Drainage and surface runoff from utility installation areas shall be controlled so that pollutants will not be carried into water bodies.
 11. Applications for outfalls and underwater pipelines that transport substances harmful or potentially harmful to aquatic life or water quality shall not be approved unless the applicant has demonstrated that no significant adverse impacts will result. Desalination and reverse osmosis brine discharge is not considered to be potentially harmful to aquatic life or water quality provided all required state and federal requirements are met.
- B. Regulations–Desalination.
1. Desalination lines must be located along existing paths, trails, or connected to existing docks and beach access structures wherever feasible.
 2. Desalination and reverse osmosis systems on shorelines that are known or demonstrated to be eroding bluffs, unstable bluffs, eroding beaches, or exposed cliffs, will require design and engineering which will assure that no significant visual or environmental impacts will be created and that effects on the natural shoreline conditions will be minimized.
 3. All desalination and reverse osmosis production equipment and necessary pumping equipment, utility connections, and pipelines must be located and designed to blend in

with the natural surroundings to the extent feasible to reduce visual impacts. Existing vegetation and terrain features must be used whenever possible for screening.

4. Desalination and reverse osmosis facilities must not impede public access to public tidelands or materially interfere with normal public use of public waters.
5. Desalination and reverse osmosis systems will not be allowed for the purposes of providing the primary water supply within new subdivisions and short subdivisions. Such facilities may be allowed for the purpose of supplying water for an established community water system.
6. Desalination intake and discharge lines shall be located underground wherever feasible, except for that portion located underneath or along any docks, piers, walkways, stairs, or other shoreline improvements located on the site.
7. Desalination and reverse osmosis brine discharge is not considered to be potentially harmful to aquatic life or water quality provided all required state and federal requirements are met.
8. All desalination and reverse osmosis installations shall comply with the following regulations:
 - a. The intake and discharge lines must be trenched, run, or located together except where necessary to provide adequate separation between intake and discharged water.
 - b. The intake and discharge lines must be engineered so as to not materially interfere with normal public use of public tidelands or navigation. The intake point shall not float on the surface.
 - c. Intake and discharge lines must not be placed through or over any known or discovered archaeological resources, unless the location is approved by the Washington Office of Archaeology and Historic Preservation.
 - d. The use of existing wells with salt water contamination or intrusion as the intake source for desalination or reverse osmosis systems is prohibited unless specifically authorized by the County department of health and community services.
 - e. The use of pre-filtration beach wells located landward of the line of mean lower low water is allowed provided all state and federal requirements are met.

C. Regulation by Environment.

1. Urban. Utility facilities shall be permitted in the urban environment subject to the policies and regulations contained in this master program.
5. Aquatic. Utility transmission and collection facilities shall be permitted in the aquatic environment subject to the policies and regulations contained in this master program; provided, that no feasible alternative exists. Desalination and reverse osmosis systems shall be permitted in the aquatic environment subject to the policies

and general regulations contained in this master program.

Conclusions Based on Findings

1. As conditioned, the proposed secondary water source to serve an existing parcel of record where the existing well intermittently provides brackish water would not be inconsistent with the Shoreline Management Act (SMA). The policy of the SMA, as set forth in RCW 90.58.020, is to “provide for the management of the shorelines of the state by planning for and fostering all reasonable and appropriate uses.” This policy “contemplates protecting against adverse effects to the public health, the land and its vegetation and wildlife, and the waters of the state and their aquatic life, while protecting generally public rights of navigation and corollary rights incidental thereto.” *RCW 90.58.020*. Pursuant to the County's Shoreline Master Program desalination facilities are allowed in both the Aquatic shoreline environment and utilities are allowed in the Urban shoreline environment. Compliance with the conservation measures in the Biological Evaluation, together with any mitigation measures imposed in the required HPA would ensure that adverse effects to the waters of the state would be avoided. *Findings 1, 3, 4, 5, 7, 8, 9, 10, and 15.*

2. The proposed intake and discharge lines would be installed underground, except that portion located on the existing pier, ramp, and float, and the ends of the service lines that come aboveground to provide access. The desalination building would be screened by existing vegetation and the storage tank would be buried. With all lines and system components underground, under the dock, or in the proposed desalination building there would be no visual impacts. No vegetation would be removed. The subject property is not an area of eroding or unstable bluffs, eroding beaches, or exposed cliffs; no digging along the beach is proposed. The site is private property and there would be no interference with public shoreline access. Hydraulic project approval would be required if this proposal is approved. There is no evidence in the record of known archeological resources. No underwater cable, outfall, or underwater pipeline is proposed. Desalination and reverse osmosis brine discharge is not considered to be potentially harmful to aquatic life or water quality provided all required state and federal requirements are met. As conditioned, the project would comport with applicable provisions of the SMP. *Findings 1, 2, 3, 4, 5, 7, 8, 9, 10, 13, and 15.*

3. Notice and other procedures were performed consistent with the requirements of SJCC 18.80. Compliance with 18.60 would be ensured through the building permit process. Planning Staff indicated the proposal is consistent with the Comprehensive Plan. The proposal was reviewed for compliance with SEPA and an MDNS was issued. *Findings 1, 4, 6, 11, 12, 13, 14, and 15.*

DECISION

Based on the preceding findings and conclusions, the request shoreline substantial development permit to authorize the installation of a private desalination facility for the single-family

residence at 95 Laurel Point Lane, Friday Harbor, San Juan Island is **APPROVED** subject to the following conditions applicable to the Applicant, agents, and successors:

1. Secure pipes to the existing dock system to minimize the length of pipe that could be placed into marine waters.
2. Construct during appropriate tides to minimize sediment disturbance during construction activities.
3. Ensure that no deleterious material enters marine waters.
4. Clean the RO system on the recommended schedule, and collect the cleaning solution and rinse water in a portable tank, then dispose of the water at an approved upland site.
5. Bury the pipes in the least amount of time to reduce or eliminate the chance of soil eroding into marine water.
6. Reduce potential impacts to salmon and forage fish by working within the work window of 16 July through 15 February. The work window is designed to reduce the chance of salmon or forage fish spawn from being present in the project area during construction.
7. Development shall comply with all applicable provisions of the Unified Development Code, Title 18 San Juan County Code.
8. The project shall obtain all other required state and federal permits and shall comply conditions imposed in those permits.

Decided July 16, 2015.

By: 

Sharon A. Rice
San Juan County Hearing Examiner