

# **GUIDELINES FOR SUBMITTING AN APPLICATION FOR AN ORDER OF APPROVAL FOR A MARINE SEWAGE PUMPOUT FACILITY**

## **INTRODUCTION**

These guidelines for the submittal of a proposed marine sewage pumpout facility are drafted to aide the applicant in the procurement of an Order of Approval. This will insure that the initial submittal will meet the minimum requirements of the Rhode Island Department of Environmental Management, Office of Water Resources - Permitting Section (RIDEM). Please be advised that there may be other programmatic requirements if the applicant is seeking federal or state funding assistance. After initial review of the submittal, RIDEM may issue review comments, which need to be addressed by the design engineer prior to RIDEM issuing an Order of Approval.

## **GENERAL SUBMITTAL REQUIREMENTS**

- Submittal of a completed "Application for Order of Approval - Marine Sewage Pumpout Facility and Associated Holding Tank or Sewer System Expansion/Modification" form (copy enclosed).
- A photocopy of the submitted Application Fee Form (copy enclosed) and check in the amount of \$300.00 made payable to the General Treasurer of the State of Rhode Island. **The original form and application fee shall be submitted directly to:**

Department of Environmental Management  
Office of Management Services  
235 Promenade Street  
Providence, R.I. 02908

- Two complete sets of construction plans and specifications.
- Note that plans and specifications submitted for an Order of Approval require a Rhode Island Professional Engineer's stamp and signature on each page (title page only for specifications).
- All appropriate design computations.

## **APPLICATION**

- Unless the marine sewage pumpout facility is proposed to discharge to an on-site holding tank, the Application must be signed, under the Regulatory/Administrative Section (page 2), by the appropriate municipal or sewer commission official(s) responsible for reviewing and approving sewer system expansions and/or modifications. These signatures certify that the flows are accepted for conveyance to and treatment at the receiving Wastewater Treatment Facility (WWTF).

## **DESIGN PLANS**

- The level of effort in the presentation of design plans shall be commensurate with the level of complexity of the project.

- Locus map of the area in concern, highlighting the area of the facility.
- General site plan detailing all components of the proposed system. This should include the direction of the flow.
- Detailed Plans as described below;

#### Plan Views:

- a) Geographical features including topographical contour elevations (minimum of 4 ft. contour intervals), streams or water bodies, north arrow, scale, etc.
- b) The 100 year flood plain boundary and elevation where appropriate.
- c) Existing or proposed streets and names.
- d) Existing utilities.
- e) Proposed facilities, holding tank(s), pipes, direction of flows.
- f) Designated/committed docking space for pumpout accessibility
- g) Depth survey of area surrounding designated docking space

#### Profile Views:

- a) Elevation of existing ground level, proposed grading, appropriate water elevations and depths.
- b) Elevations of existing utilities, proposed piping, holding tanks and appurtenances.
- c) Appropriate stationing.
- d) Labeled slopes, pipe sizes and materials.
- e) Elevations of test borings and ground water elevations if deemed necessary by the designer.

#### Typical Construction Details:

Include "typical" and "special" construction details and supplementary views.(i.e., paving cross-sections, trench cross-sections, manholes, pipe jointing, holding tank, etc). **A detail of the connection of the proposed system to the existing sewer system, if applicable, must also be provided.**

- When the marine sewage pumpout unit is proposed to be located adjacent to gas pumps or other fuel supplies, a reasonable separation (15-20 ft.) between the pumpout unit and any fuel pump should be maintained, if practicable. If site constraints make a reasonable separation impossible, then the pumpout unit must be supplied and installed with explosion proof electrical components.

## SPECIFICATIONS

- Construction techniques and requirements.
- Testing requirements and conditions of acceptance.
- Material and appurtenance specifications.

- The above-mentioned may be included as part of the design plans as general notes and typical details, if appropriate.
- May include product information and "cut-sheets" if the proposed manufacturer or supplier has already been selected.

## **DESIGN COMPUTATIONS**

- An estimation of flows expected from the proposed pumpout facility. This should take into account the capacity of the proposed pumping unit (gallons per minute), the volume of the average holding tank, the maximum pumpout requirement during the peak of the boating season. This is actually a conservative estimation of the expected flow so as not to limit the capacity of the facility for future expansion but meanwhile providing an estimation of the expected flows to the WWTF in situations where connection to a municipal wastewater collection system is proposed. The Order of Approval will be issued with a value of the Seasonal Maximum Daily Flow.
- Calculations demonstrating the capability of the pumps to overcome the associated suction and discharge heads.
- Calculations demonstrating the hydraulic capacity of the proposed conveyance piping from the pumpout facility to either a municipal wastewater collection system or an on-site holding tank. In situations where flows will be conveyed to a municipal wastewater collection system, calculations should also be provided which demonstrate that the associated downstream piping, pumping stations and WWTF are adequately sized to handle the proposed flows.
- Calculations showing sufficient cleansing velocities in proposed force mains (>3 fps) and gravity piping (>2 fps).

## **HOLDING TANKS**

- **Holding tanks will only be approved in locations where direct connection to an existing sewer system is not possible.**
- Holding tanks should always be buried and should be accessible to a pumper truck.
- When considering flotation, the water table elevation should be assumed to be at grade level whenever the holding tank is located within the 100-year floodplain or in the coastal flood zone. Anti-flotation calculations should be submitted as part of the design computations. The means proposed to counteract flotation should be indicated on the drawings.
- Should specify "tight" construction, as in septic tank installation. Bedding materials and installation techniques must be specified and a detail should be indicated on the drawings.
- If the buried holding tank is to be located in an area subject to vehicular traffic, the plans should indicate that the tank specified is designed to handle the anticipated superimposed loads (i.e., H-20). One way this may be accomplished is by indicating a tank make and model number on the plans and providing a

catalog cut of that tank which verifies that the specified tank is designed for the anticipated loadings.

- Holding tanks should be specified to include a system of sensors and alarms to signal marina personnel when the tank is approaching its capacity. The use of two (2) level sensors inside the tank is suggested. One sensor would be set at the **eighty percent (80%)** full elevation. When activated, this sensor would set off an audio-visual alarm, indicating that the tank needs to be emptied soon. Some level sensing equipment currently on the market has the ability to silence the audible alarm, while the visual alarm remains active as long as the wastewater level in the tank remains at or above the 80% level. The visual alarm should consist of a flashing light situated very conspicuously at or near the holding tank. A second sensor would be set at the **ninety-five percent (95%)** full elevation. When this second alarm (may also be audio-visual) is activated, the power supply to the pumpout unit would be cut off so that no additional sewage could be pumped to the holding tank until the tank is emptied and the alarm system reset.

- Venting of the holding tank is absolutely necessary. The location of the vent pipe should be carefully considered. The vent pipe could run up the side of a building or utility pole nearby and should be protected from vandalism and traffic-related damage. The elevation of the vent pipe outlet must be at or above the 100-year flood elevation in order to prevent extraneous water from entering the holding tank under most severe weather situations.

- Marinas should provide one or more holding tanks having a total storage capacity of not less than 5,000 gallons. An area adjacent to the proposed holding tank(s), for use as a future location for additional holding tanks, should be so indicated on the design plans either by a note or by dashed line delineation. This location must be large enough for an additional 5,000 gallons of storage capacity. The basis for providing a minimum of 5,000 gallons of storage capacity is as follows:

8 hour day X 4 boats/hour\* X 25 gallons/boat holding tank = 800 gallons per day maximum rate to be pumped during the peak boating season. Assume use is 7 days per week, the maximum volume of waste to any one pumpout holding tank in one week would be 800 X 7 = 5,600 gallons per week.

The above mentioned flow estimate is very conservative based on present demand for pumpout facilities, but when the entire Narragansett Bay becomes a designated "zero discharge zone", then these maximum daily flows may be realized. The marina owner should realize that they may have to pump weekly in the height of the boating season as use of the pumpout unit increases.

\*It typically takes 15 minutes per boat to dock, hook up to pumpout unit, pump out boat holding tank, and leave the area. Therefore, a maximum of 4 boats per hour can conceivably utilize a pumpout unit.