



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

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December 8, 2021

Thomas Knuckey, P.E., Director
Department of Public Works and Utilities
City of Bremerton
100 Oyster Bay Avenue N.
Bremerton, WA 98312

Re: Bremerton Wastewater Treatment Plant (NPDES Permit No. WA0029289)
Tracyton Beach Road Sewer Improvements Project (WQC-2023-BremPW-00148)
Approval of Report

Dear Thomas Knuckey:

The City of Bremerton (City) submitted "Bremerton Tracyton Beach Road Sewer Alternative Evaluation Technical Memo.", dated December 3, 2021 (prepared by Kennedy Jenks) in electronic format to the Department of Ecology (Ecology) for review and approval on December 3, 2021.

In accordance with the Revised Code of Washington (RCW) 90.48.110 and Chapter 173-240 Washington Administrative Code (WAC), Ecology APPROVES the above-referenced document. A copy of the approved title page is enclosed for your records. Ecology's review and approval is limited to assuring compliance with the State water quality laws and regulations listed above. Nothing in this approval shall be construed as satisfying other applicable federal, state or local statutes, ordinances or regulations.

You must submit and receive Ecology's approval for plans and specifications for projects described in this engineering report before starting construction. Ecology will not approve plans and specifications which deviate from the approved engineering report unless Ecology has approved an amendment to the report.

If you have any questions concerning this approval, please contact Kevin Leung at kevin.leung@ecy.wa.gov or (206) 594-0168.

Sincerely,

A handwritten signature in cursive script that reads "Rachel McCrea".

Rachel McCrea
Water Quality Section Manager
Northwest Regional Office

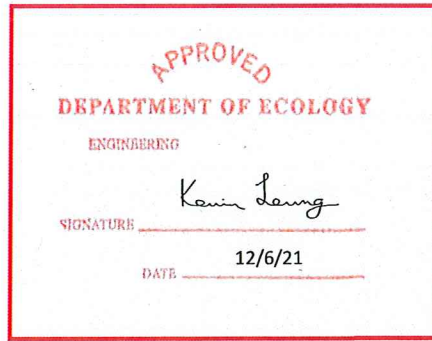
Enclosure: As noted
(ecc: continued to next page)

Thomas Knuckey, P.E.

December 8, 2021

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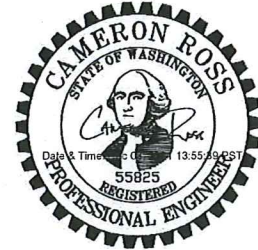
ecc: Eric Burris, Wastewater Manager, City of Bremerton
Bill Davis, P.E., Managing Engineer, City of Bremerton
Cameron Ross, P.E., Project Manager, Kennedy Jenks
Kevin Leung, P.E, Permit Manager, Department of Ecology
Department of Ecology, PARIS, Bremerton WWTP, WA0029289
Department of Ecology, EAGL, WQC-2023-BremPW-00148



December 3, 2021

Tracyton Beach Road Sewer Improvements Technical Memorandum

To: City of Bremerton
From: Cameron Ross, PE, John Cartwright, EIT
Reviewed By: Jeff Foray, PE, Michael Lubovich, PE
Subject: Tracyton Beach Road Sewer Improvement Alternatives Evaluation
KJ 2197012*00



Introduction

The sanitary sewer along Tracyton Beach Road (TBR) was installed in the early 1990s and is experiencing ongoing maintenance issues. The sewer is a gravity-pressure main with the following characteristics: 4,000 lineal feet, 8-inch diameter, and constructed of ductile iron. The sewer main is located near the Port Washington Narrows, a water body that connects Sinclair Inlet and Dyes Inlet. An overflow resulting from a surcharge of the TBR sewer could discharge to these water bodies and impact the marine environment. The sewer main as it is currently constructed will require maintenance for the foreseeable future. The gravity sewer main was installed to serve residential development occurring on the hillside located above TBR and upland collection systems discharge into the main at several locations. The design uses a siphon concept to convey upstream flow to the downstream location near Sheridan Road. The sewer main is always under pressure since the elevation of the upstream and downstream end are similar, and upstream pressure is required to force the sewage through the sewer main. There are cleanouts located along the main that are always under pressure, and not currently used for cleaning. The pipe slope is low and reverse slopes at two locations, creating local low points. Figure 1 shows the existing system layout.

The flow velocity in the pipe is low, as there is low sewage flow from the upland collection systems draining into the pipe and the low pipe slope used for design. Because of the low flow velocity, solid deposition occurs and there is no scouring of the pipe. Current peak flows are likely between 100 gpm and 200 gpm which is below the minimum velocity to achieve scouring in an 8-inch pipe. Upland sewage could potentially back up and surcharge, which could lead to a sanitary sewer overflow (SSO) with the current flows.

To keep sewage moving through the pipe and to prevent an SSO, the gravity sewer main requires ongoing weekly maintenance, which is expensive and prevents the City's operation and maintenance (O&M) staff from performing other urgent maintenance work. Currently four (4) members of the sewer O&M crews dedicate Friday mornings to maintaining this main using jetting and vactor equipment. The crew of 4 includes 2 vactor truck operators, 2 flaggers, and a vactor truck. Maintenance is performed at two locations. At the downstream end where the main