



# Town of South Kingstown, RI

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## PUBLIC SERVICES DEPARTMENT

November 1, 2019

Mr. Eric Prive, PE, Senior Project Manager  
DiPrete Engineering Associates, Inc.  
Two Stafford Court  
Cranston, RI 02920

Subject: Sewer Feasibility Study Review; A.P. 57-2, Lot 59  
Hillside Commons  
76 Kelley Way  
South Kingstown, RI

Dear Mr. Prive:

The Department of Public Services (DPS), having completed a review of the following documents as they relate to the feasibility of sanitary sewers for a proposed 18 unit condominium project located at 76 Kelley Way (AP 57-2, Lot 59), offers the following comments on the Hillside Commons Sewer Feasibility Study entitled:

"Hillside Commons Sewer Feasibility Study & Downstream carrying Capacity Analysis, South Kingstown, Rhode Island"; Prepared by DiPrete Engineering Associates, Inc., dated Revised October 31, 2019.

The following DPS review comments are shown in italics and follow your opinion for each sewer feasibility study criteria.

### (i) Conformity to Town of South Kingstown Comprehensive Plan

The proposed residential project is within the Future Sewer Service area which is depicted within Figure 6.2 of the Town's Comprehensive Community Plan (CCP). This is an area of the Town where public sewer service is recommended for any significant new development. The Town of South Kingstown Comprehensive Community Plan specifies that individual developments must be reviewed on a case-by-case basis in order to determine if it is feasible to extend public sewers.

***DPS Response: In accordance with Sec. 19-115 (1) of the Town Code, sanitary sewers are encouraged for parcels within the existing or future sewer service area. To wit, "Any parcel of land located within the existing and/or future sewer service area as defined in figure 6.2 entitled "Sewer Service Areas" of the Town of South Kingstown Comprehensive Community Plan, may be required to connect to the sanitary sewer system."***

**Section 19-115, (1), 1, (i): Conformity to the Town of South Kingstown Comprehensive Plan**

***The proposed land development project lies within the present and future sewer service district, which is depicted within Figure 6.2 of the Comprehensive Community Plan (CCP). The sewer feasibility study concludes the project should be connected to the sanitary sewer system. This office concurs with that conclusion.***

**(ii) Areas of ISDS Problems or Failures**

Areas of existing OWTS problems and failures proves not to be applicable to this project. Existing information shows that the area surrounding the site is already serviced by public sewer. Using the Town of South Kingstown's Comprehensive Community Plan, it has been determined that the project is to utilize public sewer. This is further confirmed by The State of Rhode Island and Providence Plantations Department of Environmental Management's Rules Establishing Minimum Standards Relating to Location, Design, Construction and Maintenance of Onsite Wastewater Treatments Systems establishes in Rule 250-RICR-150-10-16.15 E. that OWTS systems would not be approved for this project.

Rule 250-RICR-150-10-16.15 E. is as follows:

*E. Connection to a Public Wastewater System - An OWTS application shall not be approved if such OWTS is proposed to serve a premises for which a public wastewater system is reasonably accessible as determined by the Director, and for which permission to enter the public wastewater system can be obtained from the authority having jurisdiction. The Director shall require the owner or occupant to connect the structure to a public wastewater system within a specified period of time if the following occur:*

- 1. The OWTS is failing;*
- 2. Public wastewater system is reasonably accessible as determined by the Director; and*
- 3. Permission to connect to the public wastewater system can be obtained from the authority having jurisdiction over it*

Using local and state regulations it is believed that OWTS systems for the project are not a viable option and that connecting to public sewer is the best option for the project.

***DPS Response: This office concurs with RIDEM Rule 250-RICR-150-10-16.15 E., which requires connection to public sewers if reasonably accessible. Since this study recommends connection to sanitary sewers, no further investigation relative to failed OWTS is warranted.***

(iii) – Soil Conditions not Suitable for ISDS Placement

RIDEM OWTS Regulations Rule 14.5 states that OWTS systems are not an option for this project as shown in the previous section. However, the soils information for this project have been added to this report for reference. Information from Soil Evaluations that were performed on site show that ledge depths on site are greater than 8 feet. There are two different soil types located in the area of the Site as mapped by the USDA Soil Conservation and the soil types are described as follows:

BrB Broadbrook silt loam, 3 to 8 percent slopes C  
RaB Rainbow silt loam, 3 to 8 percent slopes C

The RI Soil Survey describes these soils as follows:

BrB – Broadbrook silt loam, 3 to 8 percent slopes - This gently sloping, well-drained soil is on the side slopes of glacial upland hills and drumlins. The permeability of this soil is moderate in the surface layer and subsoil and slow or very slow in the substratum. This soil is suitable for community development. The main limitation is the slow or very slow permeability of the substratum. Onsite sewage disposal systems need special design and installation to prevent effluent from seeping to the surface, and roads and streets need careful design to prevent frost heaving.

RaB – Rainbow silt loam, 3 to 8 percent slopes - This gently sloping, moderately well drained soil is on side slopes of glacial upland hills and drumlins. The permeability of this soil is moderate in the surface layer and subsoil and slow to very slow in the substratum. This soil is suitable for community development. The main limitations for this use are the slow to very slow permeability in the substratum and the seasonal high water table. Onsite sewage disposal systems need special design and installation. Subsurface drains can be used to help prevent wet basements, and roads

***DPS Response: This office agrees that the soils meet the RIDEM general requirements for OWTS. However, depth to groundwater noted in section vii of this report is marginal, whereby sanitary sewers would be the preferred method of providing sanitary disposal for the subject parcel.***

(iv) Proximity to Wetlands, Coastal Ponds, Groundwater Resources and Other Environmentally Sensitive Areas

The proposed development is approximately 2.97 Acres and is located on Kelley Way, which is west of Route 1 and north of Old Tower Hill Road. There are no wetlands located on the parcel.

This site is not located within any of the following areas: Natural Heritage Areas (RIDEM), Narrow River Special Area Management Plan (CRMC), Salt Ponds Special Area Management Plan (CRMC), Groundwater Protection Overlay District (Town).

The Site is within the Indian Run Brook Watershed. A RIDEM-based study of the watershed has been developed for Copper, Zinc, and Fecal Coliform which exceeds the states standards for water quality, placing the river on the State's 303(d) list of Impaired Waterbodies. (Pathogen TMDL for Saugatucket River, Mitchell Brook, Rocky Brook, and Indian Run Brook, RIDEM, 2003; Indian Run Brook Dissolved Metals Total Maximum Daily Loads, RIDEM, 2008).

The residential development is not proposed with OWTS and the project will not contribute additional pathogens to Indian Run Brook. A Rhode Island Pollutant Discharge Elimination System permit (File No.RIR101821) has been obtained to ensure that the project complies to the program regulations for stormwater water quality treatment and mitigation.

***DPS Response: It should be noted that a large wetlands complex lies approximately 600 feet to the west and down-gradient of the proposed development. However, since this study recommends connection to sanitary sewer, any potential pollutant load associated with OWTS has been mitigated.***

(v) – Existing and/ or Planned Municipal Potable Waterline Locations

The site is serviced by municipal public water. Public utilities exist adjacent to the Site along Kelley Way. Suez Water Rhode Island Inc. (SWRI) is the authority with jurisdiction over access to public water in the area of the development. A connection to the existing 12" water main on Kelley Way is proposed for servicing the Site. Confirmation has been received via letter from Suez Water New York Inc. Director of Engineering, NY Division, Paula McEvoy, that both domestic water service and fire protection is available from the Kelley Way water main.

***DPS Response: This office concurs that the subject land development project be serviced by SUEZ Water. Water pressure issues in the area of Town were recently solved by SUEZ upon completion of the new "Prout" elevated water tank. Further, SUEZ has confirmed they can service the subject project with potable water.***

(vi) Economic Feasibility

There are no reasonable alternatives to the proposed sewer connection to the main located in Kelley Way. As such, economic feasibility is not a consideration for this project. The proposed sewer system has been designed as a gravity system with manholes at all major bends and intersections to provide inspection/maintenance access locations. Below is the Schedule of Values for the proposed sewer system:

Description	Unit	Quant.	Unit \$ Cost	Pre Recording Cost	Post Recording Cost	Total Cost
4' precast sewer manhole	Each	9	2,400	21,600	0	21,600
SMH Frame & Cover	Each	9	640	5,760	0	5,760
Sewer Clean Out	Each	1	160	160	0	160
6" SDR 35 Pipe	LF	450	60	27,000	0	27,000
8" SDR 35 Pipe	LF	730	60	43,800	0	43,800
3/4" crushed stone bedding	CY	110	36	3,960	0	3,960
Sewer tests	LS	1	500	500	0	500
Traceable sewer tape	LS	1	80	80	0	80
Subtotal				102,860	0	102,860

***DPS Response: This office does not concur that economic feasibility is not a consideration for this project since other means of sanitary disposal (ex.: OWTS) are possible. However, it is more appropriate to indicate that no other cost analyses were completed for other sanitary sewer options since connection to sanitary sewers is proposed.***

vii – Lot Size

The Site includes a total of approximately 2.97 acres with frontage on Kelley Way. The Site is located on Assessor's Plat 57-2 Lot 59 and is Zoned Route 1 Special Management District (SMD). The project is proposed as an 18 unit condominium development that will not result in subdivision of the lot.

While public sewers are available in Kelley Way, we analyzed the alternative for the feasibility/potential for an Onsite Wastewater Treatment System (OWTS) on the property. Soil evaluations were performed by an RIDEM Class IV Licensed Soil Evaluator and were determined to be 24"-48" throughout the site. RIDEM criteria for minimum seasonal high groundwater table to support an OWTS is 24" depth, so it is feasible on the property. Also, the site is not located within any RIDEM Critical Resource Areas nor near any wetlands, therefore a conventional leachfield can be utilized. Also, the subject property and surrounding properties are serviced by public water through Suez Water, therefore additional setback requirements to private/public wells are not required.

The following calculations provide a rough sizing for an OWTS on the property:

- 18 condominium units @ 2-bedrooms per unit = 36 bedrooms total
- 36 bedrooms @ 115 gallons per day (gpd)/bedroom (per RIDEM OWTS Regulations) = 4,140 gpd
  - \*Note: 4,140 gpd is below the RIDEM “Large System” Criteria of 5,000 gpd\*
- Assuming a soil loading rate of 0.61 square feet (sf) per gallon for sandy loam, the leachfield size would need to be a minimum of 6,787 sf ( $4,140 \text{ gpd} / 0.61 = 6,787 \text{ sf}$ )

At a minimum leachfield size of 6,787 sf (or 5.2% of the total property area), there is more than adequate space for a proposed leachfield area, if it were necessary. Given that the leachfield is an underground system (not an above-ground structure), the leachfield could be located within the 100' setback (required by the Route 1 Special Management District) along Kelley Way.

***DPS Response: Since public sanitary sewers are proposed, there is less conflict with respect to potable water and OWTS component horizontal separation, which becomes more problematic with smaller lots. As such, the lot size for the proposed project utilizing sanitary sewers is of lesser concern than a conventional subdivision with small lot sizes that are serviced by OWTS.***

#### **Criteria (viii) – Impact on Area of Proposed Sewer Main Extension**

##### **Future Service Area**

According to Figure 6.2 of the Town's Comprehensive Community Plan (CCP) the site is located in a Future Sewer Service Area and is to utilize public sewer.

##### **Property Value**

Connection to the existing sewer main will not require an easement and will not diminish the property value of adjacent properties.

##### **Overall Wastewater Flow Rates**

The Technical Review Committee (TRC) comments from Department of Public Services also requested that a downstream carrying capacity analysis be performed to determine the ability of the existing wastewater infrastructure to handle the proposed flows. The existing sewer line within Kelley Way is an 8" diameter gravity main with a 3% slope. The existing 8" gravity sewer main within Kelley Way can transmit approximately 2.1 cubic feet per second (cfs) of flow, which equates to approximately 1,357,261 gallons per day (gpd). Hillside Commons is proposing an 18 unit condominium development with an estimate average daily flow of 100 gpd per bedroom. The Route 1 Special Management District zoning requirement allows for a maximum of 2 bedrooms per units; therefore, we have calculated a proposed average daily flow of 3,600 gpd for the development. The 3,600 gpd flow represents 0.3% of the pipe capacity proving to be a negligible impact on the system.

### **Impact on Receiving Wastewater Treatment Facilities**

Flow from this development ultimately discharges to the South Kingstown Regional Wastewater Treatment Facility (WWTF). The South Kingstown Regional Wastewater Treatment Facility serves Narragansett, South Kingstown, and the University of Rhode Island (URI). Although the Regional WWTF has an average design capacity of 5.0 MGD, according to the Town's RIPDES permit issued by RIDEM, available capacity at the Regional WWTF is based upon the highest three (3) consecutive months of wastewater flow. The highest three (3) months of flow for the past two years is as follows: 71.59% in FY 2017-18 and 76.04% in FY 2018-19. The proposed development design flow of 3,600 gpd is an approximate 0.3% increase to the available capacity (3,600 gpd/1.2 MGD = 0.3%). The Regional WWTF will not be impacted by the proposed 18 unit condominium development.

### **Relation to Previous Sanitary Sewer Impact Analysis**

The Wakefield Meadows development, consisting of a 142 unit age-restricted residential community, a hotel, and a conference center, is located within 250 feet of the Site. As part of the approval for that development, a report titled "Sanitary Sewer Impact Analysis for Wakefield Meadows; Tower Hill Road (Route 1); South Kingstown, RI; December 2004" prepared by Crossman Engineering, Inc. for John Haddad of 2790 South County Trail, East Greenwich, RI 02818 was submitted. The report includes potential future flow from nearby undeveloped land including, but not limited to, Lots 57, 58, and 59 on Assessor's Plat 58-1. The report demonstrates that the existing sewer network would be able to handle a total projected flow from these parcels of 52,500 gpd in addition to the total projected flow from the Wakefield Meadows development. The proposed design flow of 3,600 gpd from Hillside Commons would account for 6.8% of the total projected flow for these parcels, which is within the assumed future values.

***DPS Response: Hydraulic improvements to the Old Tower Hill Road sanitary sewer main were completed by the developer of the Wakefield Meadows land development project to address hydraulic constraints and associated pipe carrying capacity issues. Further, the downstream carrying capacity analysis performed for the Wakefield Meadows land development project took into account future sanitary flows for this parcel under consideration for 18 condominium units. The proposed wastewater flow for the 18 unit condominium project is less than what was accounted for in the Wakefield Meadows downstream carrying capacity analysis.***

***In accordance with the Town's RI Pollutant Discharge Elimination Permit (RIPDES), the Town must commence wastewater treatment facility (WWTF) expansion design once 80% of design capacity is reached for 90 consecutive days. Although the highest annual WWTF flow is approaching 80%, there is adequate WWTF capacity to accommodate the proposed land development wastewater flow.***



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(ix) Potential Effect on Private or Municipal Groundwater Wells

It has been determined that a proposed sewer connection would not affect any groundwater wells being that there are none in the area. RIDEM OWTS regulations state in Rule 250-RICR-150-10-6.15 E. that OWTS systems are not feasible options for this project which entirely rules out the potential effect on groundwater wells by OWTS systems. Information from RIDEM and the Town of South Kingstown was used for this determination.

***DPS Response: Since potable water service by SUEZ Water RI and municipal sanitary sewer service is proposed for the subject project, any potential impact to existing or future potable water supply wells has been mitigated.***

DPS Finding and Determination

Given the proposed Hillside Commons project being located within the future sanitary sewer service area and the sewer feasibility study recommending sanitary sewer service in lieu of on-site wastewater treatment systems (OWTS), it is my finding and determination that the proposed residential land development project shall be required to connect to municipal sewers at the developer's expense.

Please feel free to contact me at 789-9331, extension 2250, should you have any additional questions relative to this matter.

Sincerely,



Jon R. Schock  
Public Services Director

cc: Richard Bourbonnais, PE, Town Engineer  
Kathy Perez, Wastewater Superintendent  
Kaela Gray, Acting Planning Director  
Jason Parker, Principal Planner