



ENGINEERING DIVISION

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January 9, 2020

Jon R. Schock, Director of Public Services
Town of South Kingstown
509 Commodore Perry Highway
Wakefield, RI 02879

**RE: AP 47-2, Lot 32
Curtis Corner Road
South Kingstown, RI**

Dear Mr. Schock,

The Curtis Corner Road Estates development is located on AP 47-2, Lot 32 along the northerly side of Curtis Corner Road. The applicant is proposing a subdivision of this property into three (3) buildable residential single-family lots with frontage on Curtis Corner Road. The entire parcel of land has a total area of 3.42 acres and is located within the future sewer service area. At this time, the applicant is proposing to service each new house lot via private on-site wastewater treatment systems (OWTS). This report describes how this development addresses each of the nine (9) required criterion outlined in the Town's Wastewater ordinance and analyzes two alternatives for the disposal of wastewater: 1) Sewer main extension from an existing manhole located at the intersection of Curtis Corner Road and Sweet Allen Farm Road and 2) Individual OWTS systems to service each lot in the development. This sewer feasibility report was analyzed using the criteria set forth in the Code of Ordinances for the Town of South Kingstown, Chapter 19, Article II, Section 19-115. b.2.

(i) Conformity to Town of South Kingstown Comprehensive Plan

The proposed land development project lies within the present and future sewer service district, which is depicted on Map 2 of the Comprehensive Community Plan (CCP). The sewer feasibility study contemplates economic feasibility versus Comprehensive Community plan compliance with each applicable guideline. The Comprehensive Community Plan recommends proposed land development projects within the sewer service area be serviced by municipal sewers however it states that individual



developments must be reviewed on a case-by-case basis in order to determine if any necessary sewer extension would be feasible.

The proposed three (3) lot residential development is located at the westerly limits of the sewer service area within South Kingston’s R30 zone and features lots all comprised of at least 30,000 square feet of land area. The Applicant is respectfully requesting that this development be reviewed for private OWTS systems since public gravity sewers are not available along any portion of the property’s frontage (approximately 426 feet). In addition, the nearest off-site location to connect a potential main extension requires significant cost and construction challenges which would compromise economic feasibility and overall viability of the project.

The closest option to connect to public sewer based on total linear footage is approximately 350 feet east of the property’s southeastern-most corner. This connection point would be an existing sewer manhole in Curtis Corner Road at the intersection with Sweet Allen Farm Road. Due to the configuration of the subdivision lots, an approximate 750 linear feet of sewer main would be required to connect all lots to this location. Although the existing depth of the sewer line at this existing manhole (approximately 6.5 feet) appears adequate for gravity sewer, the existing road elevations west of the manhole location through the property frontage have areas where the elevations are 2’-3’ below the rim of existing manhole. Therefore, an extension of the existing sewer main is not likely to accommodate a gravity main with adequate pipe coverage even utilizing a minimum pipe slope.

(ii) Areas of existing OWTS problems or failures

The immediate surrounding areas to the subject property are primarily serviced by private OWTSs. RIDEM research was completed for years post-1990 relative to the properties along Curtis Corner Road that if not already connected to public sewer could potentially connect if a sewer were extended west, beyond Sweet Allen Farm Road. There are 8 total properties identified that meet the criteria, not including the proposed subdivision property. Out of the 8 existing parcels, two (2) properties have a record of an upgraded or replaced OWTS due to cesspool phaseout and/or systems being beyond the useful life, four (4) properties had systems installed as a result of new building construction and two (2) properties have no records available. A summary of the documented data is provided in the table below.

Plat	Lot	Address	OWTS year after 1990	New/Repair
39-3	14	421 Curtis Corner	2002	Repair
39-3	13	427 Curtis Corner	2010	Repair
39-3	12	435 Curtis Corner	No Record	No Record



47-2	50	442 Curtis Corner	1994	New
47-2	29	458 Curtis Corner	1994	New
47-2	49	466 Curtis Corner	1994	New
47-2	48	474 Curtis Corner	1994	New
47-2	31	488 Curtis Corner	No Record	No Record

*The three (3) new subdivision lots intended for AP 47-2 Lot 32 are not referenced in the above table.

(iii) Soil Conditions not suitable for OWTS development

Soil evaluations were completed by a DEM Class IV soil evaluator and the groundwater elevations and soil conditions are suitable for an OWTS on each proposed lot. Water table depths within all 6 documented soil evaluations were a minimum 4 feet from existing grade. Conventional OWTS designs for each lot in the proposed subdivision will follow the RIDEM Rules Establishing Minimum Standards Relating to Location, Design, Construction and Maintenance of Onsite Wastewater Treatment Systems without any variances.

(iv) Proximity to wetlands, coastal ponds, groundwater resources, and other environmental sensitive areas.

The proposed development is located on 3.42 acres of land located on the north side of Curtis Corner Road. A forested wetland wooded swamp (<3 acres in size) is located on the property at the southeaster corner. This wetland system does not have a jurisdiction wetland perimeter due to its size. An additional jurisdictional wetland resource area exists off of the northerly property line of Lot 32. Although this site is located within the Saugatucket River TMDL, it is not located within a Natural Heritage Area (RIDEM), Narrow River Special Area Management Plan (CRMC), Salt Ponds Special Area Management Plan (CRMC) or within the Groundwater Protection Overlay District (Town).

(v) Existing and/or planned municipal potable water line locations

The site is located within an area covered by Suez Water. Suez Water has water infrastructure located within Curtis Corner Road along the property frontage therefore the proposed lots will be serviced with by public water laterals.

(vi) Economic feasibility

This economic feasibility section incorporates two alternatives for sewage disposal resulting from the proposed Curtis Corner Road Estates project. A summary of each alternative and associated costs is provided. Construction costs are based on RIDOT Weighted Average Unit Price Cost for 2019. Alternative 2 for individual OWTSs is the only economically feasible option for this project.



Alternative 1 —Sewer Main Extension west from Sweet Allen Farm Road*

***Note – Per section (i) above, a gravity sewer main to service the subject subdivision lots is not likely and thus projected costs could be even higher with consideration of a pump station and force main system.**

Alternative 1 - Sewer Main Extension and associated roadway restoration

Sewer Costs	Amount	Unit	Unit Cost	Total
8" PVC Sewer Line	750	LF	\$80.00	\$60,000.00
Precast Manhole 4' Diameter	3	EA	\$3,200.00	\$9,600.00
4' Round Frame and Cover - TSK Standard	3	EA	\$800.00	\$2,400.00
Sewer Laterals	275	LF	\$70.00	\$19,250.00
Temporary Road Patching	85	Ton	\$200.00	\$17,000.00
Road Restoration – Base Course	365	Ton	\$95.00	\$34,675.00
Road Restoration – Finish Course	220	Ton	\$100.00	\$22,000.00
Traffic Control	1	Allowance	\$7,500.00	\$7,500.00
			SUBTOTAL	\$172,425.00
Survey & Engineering Costs				
Engineering Costs			\$15,000.00	\$15,000.00
Survey Costs			\$5,000.00	\$5,000.00
			SUBTOTAL	\$20,000.00

TOTAL	\$192,425
CONTINGENCY (15%)	\$28,864
TOTAL OPINION OF PROBABLE CONSTRUCTION COSTS	\$221,289



Alternative 2 — Individual OWTS for three (3), 3-bedroom residential dwellings

Alternative 2 - Private OWTS for 3-bedroom homes (345 gpd per home)

Onsite Wastewater Treatment Costs	Amount	Unit	Unit Cost	Total
Individual OWTS	3	LF	\$18,000.00	\$54,000.00
			SUBTOTAL	\$54,000.00
Survey & Engineering Costs				
Engineering Costs (design, inspection and conformance)			\$2,000	\$6,000.00
Survey Costs (layout of OWTS)			\$500.00	\$1,500.00
			SUBTOTAL	\$7,500.00

TOTAL	\$61,500
CONTINGENCY (15%)	\$9,225
TOTAL OPINION OF PROBABLE CONSTRUCTION COSTS	\$70,725

(vii) Lot Size

The size of the entire subdivision parcel is 3.42 acres and each proposed lot conforms to the minimum 30,000 square foot zoning requirement and will have connection to the public water system. The parcels have sufficient area to support an OWTS that meet all Town and RIDEM required setbacks.

(viii) Impact on areas in the vicinity of the proposed main extension

Alternate 1: This alternative proposes a gravity sewer main which would start from the sewer stub out of the existing manhole within Curtis Corner Road at Sweet Allen Farm Road. The main extension would continue west in Curtis Corner Road and allow connection for the three (3) proposed frontage lots. This proposal would require approximately 750 ft of sewer main installation with associated road restoration to service each of the frontage lots in the proposed subdivision. Although the main extension has a potential for future connections of other lots within the area, a gravity system is likely not feasible given the road elevations and in general, the associated costs to be incurred by the private developer due to the overall limits of work causes the project to be economically unfeasible. In addition, there is no substantial documented evidence that the existing



property owners would immediately have a need to connect into the sewer that would pass by their properties as failures of existing OWTS in the area are not prolific.

Alternate 2: This alternative proposes private on-site waste water treatment facilities (OWTS). The OWTS's would be installed for each of the three (3) proposed lots. The OWTS designs would follow RIDEM Rules Establishing Minimum Standards Relating to Location, Design, Construction and Maintenance of Onsite Wastewater Treatment Systems and in this scenario individual private property owners would be responsible for all operation and maintenance of each of their respective OWTS that is proposed.

Private OWTS's will not impact any adjacent areas as designed. The wastewater flows generated from the types of users in this zoning designation, on the lot sizes proposed will be minimal. In addition, there will be no impact on any other wastewater treatment facilities and the Town of South Kingstown will not have any responsibility for the operation and maintenance of the utilities that would service this site.

(ix) Potential effect on private or municipal potable water groundwater wells within the future

As noted in "(v)" above, Suez Water has an existing water main in Curtis Corner Road. The areas surrounding the property are likely connected to the same water main in Curtis Corner Road main if they front immediately on Curtis Corner Road. Groundwater wells either private or municipal are not located in the general proximity of the development and therefore associated impacts are not projected.

(x) Summary

This sewer feasibility study outlines the development's conformity with the South Kingstown Comprehensive Plan and the requirements detailed in the Code of Ordinances, Chapter 19, Article II, Section 19-115. b.2. The preferred alternative to service the development is a private OWTS's for each of the three (3) single-family residential lots proposed. The Town of South Kingstown will have no operation or maintenance responsibilities with this alternative. The alternative scenario including a public sewer main extension is not a feasible option give the high capital cost versus the number of proposed connections. Thus, the Applicant respectfully requests the Town's concurrence with the OWTS alternative as the preferred option for this development property.

Sincerely,
Principe Engineering, Inc.



Joshua Rosen, P.E.

xc: Town of South Kingstown Planning Department; John Dagostino; File

