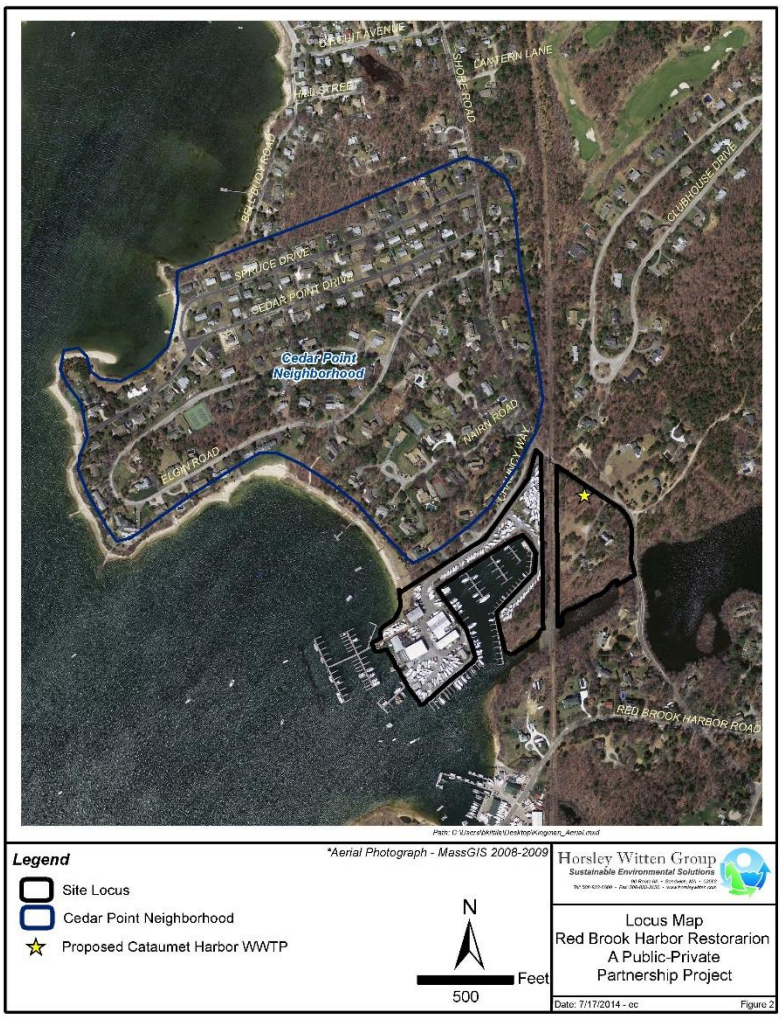
Buzzards Bay Coalition
114 Front Street, New Bedford, MA 02740
21 Luscombe Avenue, Woods Hole, MA 02543
(508) 999-6363
www.savebuzzardsbay.org



Red Brook Harbor Restoration
A Public-Private Partnership

Final Report – June 30, 2015

Prepared by,

The Buzzards Bay Coalition in partnership with
Horsley Witten Group, Inc.
Kingman Yacht Center
Lipman Development Strategies

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Introduction and Project Objective

Red Brook Harbor, a picturesque and active recreational asset in Bourne, Massachusetts, is threatened by excessive nitrogen inputs. The Buzzards Bay Coalition's long-term water quality monitoring data illustrate that nitrogen pollution, primarily from nearby on-site septic systems, is degrading water quality in Red Brook Harbor. Fortunately, the opportunity to act to reduce nitrogen pollution is ripe. By forming a unique partnership between Cape Cod's largest commercial marina (Kingman Yacht Center), a new residential townhome development (Red Brook Harbor Club Properties) and an existing neighborhood directly to the north of the marina (Cedar Point), dramatic reductions in nitrogen will be possible. The Cataumet Harbor wastewater treatment facility (Cataumet Harbor WWTF, LLC, hereinafter referred to as the WWTF) will serve the wastewater treatment needs of both Red Brook Harbor Club Properties and Kingman Yacht Center, which currently uses only septic system treatment. In addition, the system will be built with excess capacity to also serve the wastewater treatment needs of an additional ~ 150 bedrooms in the adjacent Cedar Point neighborhood. This opportunity has the potential to significantly reduce nitrogen flowing to Red Brook Harbor from those existing homes.

The Cedar Point neighborhood, Kingman Yacht Center and the Red Brook Harbor Club all share a common interest in restoring and protecting water quality in Red Brook Harbor. Indeed, it is the proximity to the harbor that makes these places special and desirable. The Kingman Yacht Center relies on the harbor for its business. Water quality is of great importance to boating customers. The residents of Red Brook Harbor Club townhomes as well as those in the existing Cedar Point neighborhood choose to live here to enjoy the beauty of the harbor as well as the opportunities for swimming, boating and fishing. But serious nitrogen pollution problems from existing septic waste has resulted in degradation to the ecological function of the harbor.

This project brings these users together to reduce nitrogen inputs to the harbor. The primary objectives of this project were to:

- Identify a watershed-based legal entity to bring together this common interest to achieve nitrogen reductions to Red Brook Harbor. This entity, still to be created, must have the ability to finance and implement the project by extending sewer from the new privately owned wastewater treatment facility to homes in the existing Cedar Point neighborhood, which currently treats wastewater on-site through a mix of Title 5 septic systems and cesspools.
- Develop conceptual engineering plans for the wastewater collection system for the Cedar Point neighborhood in a manner that optimizes the location of the collection system to yield the highest nitrogen reductions.
- Outline a public outreach strategy to introduce the partnership.

Red Brook Harbor Water Quality

The Buzzards Bay Coalition's (Coalition's) long-term water quality monitoring data illustrate that increasing nitrogen concentrations measured in the inner Red Brook Harbor are leading to more significant algae outbreaks and substandard water quality. Red Brook Harbor's former excellent water quality has been significantly degraded as the result of nitrogen pollution from septic systems, leaving the waters murky and impaired. These impacts are now clearly visible to everyone who visits the harbor, which is home to the largest commercial marina on Cape Cod. The provision of advanced wastewater treatment will reduce the amount of nitrogen currently discharged and therefore serve to

enhance ecosystem function through improved water clarity, better eelgrass habitat, fewer algae blooms, and improved aesthetic value. See Figure 1.

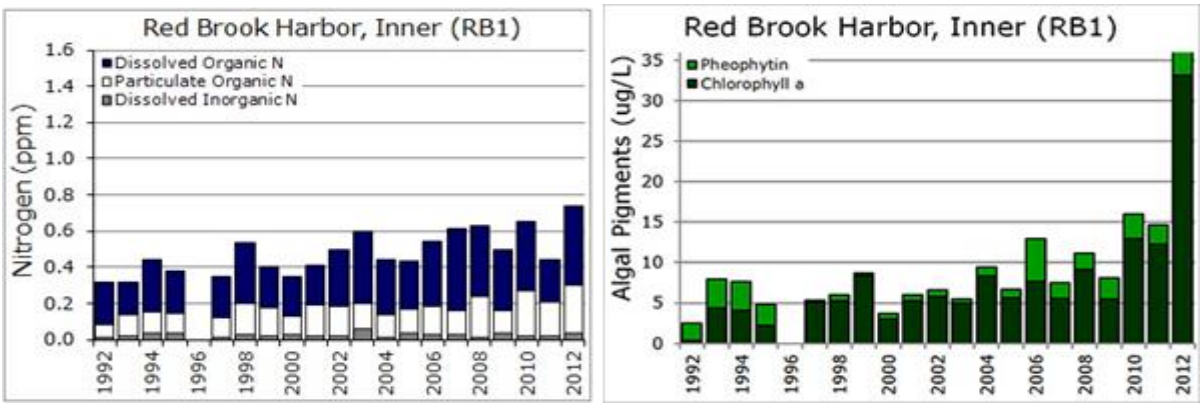


Figure 1. Buzzards Bay Coalition Water Quality Monitoring Date for Red Brook Inner Harbor. 1992-2012

The Massachusetts Department of Environmental Protection ("MassDEP") recognized the threat to Red Brook Harbor from nitrogen pollution and included the harbor as part of the Massachusetts Estuaries Project ("MEP") for nutrient TMDL development. The MEP analysis has not yet been completed, however, and the specific excess nitrogen loadings have not been determined. Yet the Coalition's water quality data documents impairment and it is important to take steps now to reduce nitrogen inputs and restore water quality in Red Brook Harbor. Using the analysis from MEP reports for similarly situated Harbors on the eastern side of Buzzards Bay, the Coalition can confidently extrapolate that the total nitrogen levels in Red Brook Harbor should be about 0.35mg/L for good water quality. For example, the MEP report for the nearby Phinneys Harbor system, also in Bourne just north of Red Brook Harbor, sets the nitrogen threshold level at 0.35mg/L.[1] The MEP report for West Falmouth Harbor, south of Red Brook Harbor in Falmouth, also sets the nitrogen threshold level at 0.35mg/L.[2] As shown in figure 1 above, data collected by the Coalition demonstrates that current nitrogen concentrations in Red Brook Harbor have recently exceeded 0.7mg/L – double the recommended concentration for similar bays.

The Partnership

1. **Cataumet Harbor WWTF, LLC**

Cataumet Harbor WWTF, LLC (WWTF) is a private wastewater treatment facility constructed to serve the existing facilities at Kingman Yacht Center and the 15 new townhomes at the Red Brook Harbor Club, generating ~12,500 gpd of wastewater. The system, however, is designed with a total capacity of 32,430 gpd -- far in excess of what is needed to treat the waste from Kingman Yacht Center and the planned development. The ~20,000 gpd excess capacity was designed to be available to provide

[1] Howes, B., S.W. Kelley, J. S. Ramsey, R. Samimy, D. Schlezinger, E. Eichner (2006). Linked Watershed-Embayment Model to Determine Critical Nitrogen Loading Thresholds for the Phinneys Harbor – Eel Pond – Back River System, Bourne, Massachusetts at 117.

[2] Howes, B., S.W. Kelley, J. S. Ramsey, R. Samimy, D. Schlezinger, E. Eichner (2005). Linked Watershed-Embayment Model to Determine Critical Nitrogen Loading Thresholds for West Falmouth Harbor, Falmouth, Massachusetts at 133.

wastewater treatment for approximately 50 single family homes in the surrounding neighborhood. The WWTF, permitted in May of 2015, will limit the amount of nitrogen discharged within the Red Brook Harbor watershed. At full capacity, this will result in a reduction of nitrogen loading over existing conditions of more than 2,000 lbs per year.

2. Cedar Point Neighborhood

The Cedar Point neighborhood is a long-established seaside community of residential homes, served by onsite septic systems, typical of the Buzzards Bay watershed and the Cape Cod region. Relatively small lots with shallow depths to ground water are prevalent in the neighborhood. Several properties are located in the flood zone and along the coast. It is well established that Title 5 septic systems and cesspools, similar to those existing in the neighborhood, do little in the way of nitrogen treatment. The accepted, estimated concentration of nitrogen from septic systems is approximately 35mg/L. Based on Title 5 flows for a 3-bedroom home of 330 gpd and a nitrogen concentration of 35mg/L, the Coalition estimates that the current nitrogen load to Red Brook Harbor from the 50 single family homes in Cedar Point is approximately 1,828 lbs/year. The WWTF will reduce the average nitrogen concentration to 5mg/L and the nitrogen loading from these homes to 261 lbs/year – a net reduction of 1,567 lbs/year.

The overall nitrogen load reduction to Red Brook Harbor made possible by the creation of this partnership and the construction of the WWTF and collection system includes the 50 homes in the Cedar Point area, the Kingman Yacht Center, and the Red Brook Harbor Club will be more than 2,000 lbs of nitrogen per year.

I. Wastewater Collection System Design

A. Needs Analysis for Cedar Point Neighborhood Wastewater Collection System

The engineering team reviewed the Town of Bourne's Board of Health (BOH) records and available topographic data to gather information to conduct a needs analysis. The needs analysis evaluated several factors related to the parcels in the Cedar Point neighborhood and compiled all available information on existing conditions. These factors included number of existing homes, number of bedrooms, age of on-site septic system, type of on-site septic system (cesspool, traditional Title 5 or alternative/innovative), ease of connecting to proposed sewer, and estimated costs of connecting to proposed sewer. Points were assigned for each of these categories and the parcels were ranked for priority connection to the proposed sewer system. A copy of the matrix showing this analysis is included as Attachment 1.

Parcels closest to the harbor and in the flood plain have a need for sewer due to constraints that will make it difficult or impossible to design and construct septic systems pursuant to the requirements of Title 5. The owners of these parcels will likely be faced with high costs of installing needed repairs or replacements to their existing on site wastewater disposal systems. Therefore, these property owners are likely to welcome an opportunity to connect to a sewer system, as the availability of advanced treatment will eliminate septic system challenges and enhance property value while at the same time achieving nitrogen pollution reductions and water quality improvements. Unfortunately, it is also true

that the cost of sewer may be higher in these areas. This is due to increased costs of laying out additional sewer lines and pumping sewage to higher locations from low lying areas. Costs were considered as an important factor in the Needs Analysis because it was recognized that in order to be accepted and successful, the project must be affordable. Therefore the ranking of these parcels did not always end up a highest priority due to higher costs. Ultimately, the primary purpose of this project is to reduce nitrogen from existing on-site septic systems in the Cedar Point neighborhood. In the end, although the provision of sewer may be more important to some of the homeowners depending on their location, the sewering of any of the neighborhood homes will yield roughly the same nitrogen benefit. In order to balance the cost with the need, the matrix was used as a guide to draft three preliminary sewer design scenarios and cost estimates. The cost estimates are presented in terms of cost per bedroom. This cost breakdown was chosen to provide both flexibility and equity to the property owners in the neighborhood. Importantly, this model will also serve as a marketing tool. It is anticipated that the connections on a per bedroom basis would be offered on a first come-first served basis, allowing some homeowners to add a bedroom to their home for an additional cost under this concept.

B. Preliminary Sewer Design – Three Options

The engineering team considered all the need factors and the results of the matrix analysis in developing a conceptual sewer system design for the Cedar Point neighborhood. The team used these results to design three options as concept plans. Preliminary cost estimates were also developed for these three options. All three options are based on the assumption that 150 bedrooms from the neighborhood can be connected to the sewer system. The flow from 150 bedrooms reflects the 22,000 gpd of extra treatment capacity that has been built into the WWTF. The team recognizes that some homeowners have a greater need and incentive to connect to the sewer based on property constraints like location in a flood zone and difficulties meeting the requirements of Title 5 and therefore have a greater demand and willingness to pay for sewer extension. The three options present different cost and complexity scenarios and were designed to offer possibilities of sewer connection to different sections of the neighborhood at varied costs.

Each option can be further refined in response to interest from the neighborhood. The objective of this project is to reduce nitrogen loading to Red Brook Harbor and while all three options serve different sections of the neighborhood, all provide similar nitrogen reductions and water quality benefits.

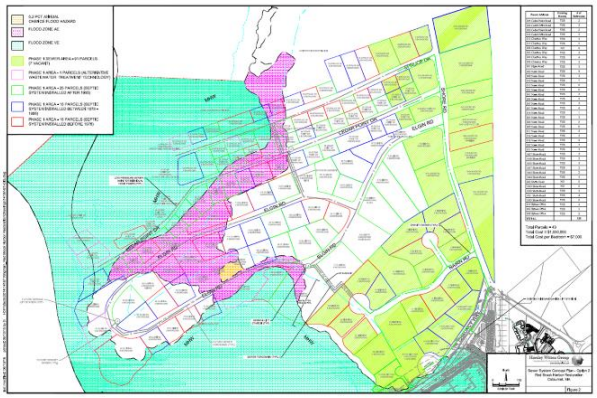
The sewer options developed are as follows:

1. A simple cost effective gravity flow sewer system,
2. A more comprehensive system that extends further towards the flood zone, but incorporates force mains, lift stations and easements, and
3. A comprehensive system that reaches more properties in the flood zone and adjacent to the shore where there may be the most demand for sewer.

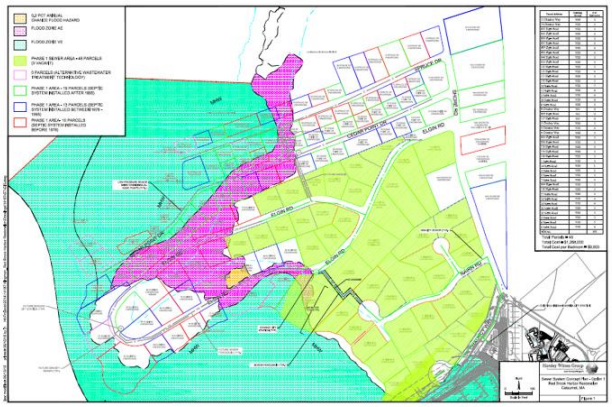
All options presented were designed with the expectation that the sewer network would be expanded in the future if additional treatment capacity and discharge becomes available.

The cost estimates are presented on a per bedroom basis to provide flexibility and fairness.

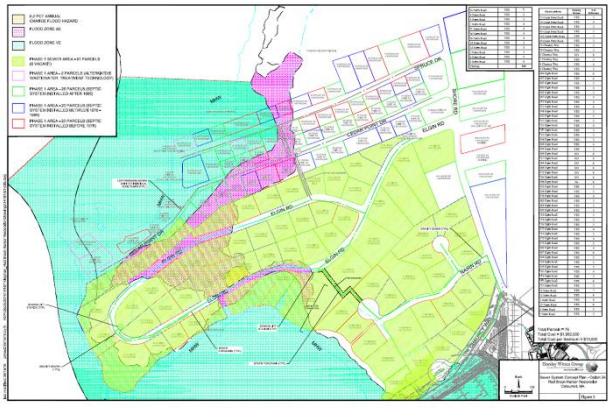
1. Option One represents the most affordable alternative and serves the portions of the neighborhood that can be served by gravity sewer lines, with no need for pumps, force mains or lift stations. This option is the most straightforward and the least costly. If there is sufficient interest in this area of the neighborhood, this could be a relatively easy way to begin to achieve real nitrogen reductions. The cost of this option would be approximately $7,000 per bedroom. This option reaches further into the neighborhood with short spurs on Cedar Point Road and Spruce Road for future connections. Option One is attached here as Attachment 2.



2. Option Two represents a plan that includes homes closest in proximity to the WWTF and extends towards the flood zone. Due to the topography of this area, force mains and lift stations are needed to supplement gravity sewer lines. This design also relies on the acquisition of easements. The easements allow the sewer pipes to be laid out in a more cost effective manner than if only street rights of way were utilized. The estimated cost of this design is $9000 per bedroom. Option two is attached here as Attachment 3.



3. Option Three is a combination of gravity sewer and a smaller area to be served by force mains and lift stations. This option also relies on the acquisition of easements to minimize construction costs. It provides sewer access to a greater number of parcels in and near the flood zone and adjacent to the shore as it is anticipated that these properties would have a greater need for sewer. This is the most costly option, with the estimated cost at $13,000 per bedroom. Not all properties along this sewer network will be allowed to connect due to the limited 150 bedroom capacity, thus creating a first come first serve demand scenario. Option Three is attached here as Attachment 4.



All options are designed to accommodate future connections, should the capacity and funding to extend the collection system become available.

II. Establish Legal Framework for Implementation

A legal framework to govern the partnership between the neighborhood and WWTF to expand sewer is required for implementation. The private entities, together with existing residents, are uniquely situated geographically and desire to restore Red Brook Harbor. All parties are considering the formation of an entity which can finance and implement a wastewater project that dramatically reduces the amount of nitrogen flowing to the Harbor. The partnership recommended here allows the neighborhood to capitalize on private investment, thereby reducing the overall wastewater infrastructure costs. This will result in the first step towards an affordable water quality improvement project in Red Brook Harbor.

The project's legal team considered available legal, institutional, and financial frameworks in developing its recommendation. The goal was to establish an entity that can provide affordable wastewater collection and treatment services to the residential properties in the Cedar Point Neighborhood at a reduced cost by capitalizing on the reserve wastewater treatment capacity available at the proposed WWTF. The legal team considered the ability of the entity to finance the construction of the wastewater collection system, including a sewage lift station, through private and/or public sources. Consideration was given to public procurement and construction laws and prevailing wage laws. The goal of establishing the entity will be to maximize the use of available private funds and assets and at the same time gain access to sources of public funding.

A. Phase 1 Recommendation – Private Partnership Between Neighborhood and WWTF

After consideration of the available legal entities and the size of the project, the team concluded that a private contractual agreement between property owners within the Cedar Point neighborhood and the WWTF is the appropriate first step to achieve nitrogen reductions to Red Brook Harbor. The private partnership approach is a simple and straightforward legal arrangement well suited to the scale and complexity of the project. It will allow the project to proceed on an expedited time scale.

1. Legal Authority

Private contractual agreements are subject to the principles of contract law and, apart from obtaining the requisite permits, avoid the uncertainty of town meeting approvals. This private partnership agreement can move forward independently.

This framework can work in one of two ways. Private agreements can be made with each property owner with the WWTF for connection and treatment, or the WWTF can enter into an agreement with one or more previously established homeowners associations. Homeowners associations in Massachusetts are typically established either as trusts or not-for-profit corporations. They have the authority to establish rules and regulations governing their operation, including the authority to collect dues and use the proceeds for common purposes subject to a vote of their membership. Typically, homeowner associations are responsible for maintenance of shared roads and facilities. This existing structure makes homeowners associations well situated to contract with the WWTF for the construction of a collection system.

There are three established homeowners associations in the Cedar Point neighborhood: the Red Brook Harbor Homeowners Association, the Cedar Point Association and the Handy Point Association. All were

originally incorporated as not-for-profit corporations in Massachusetts. The Red Brook Harbor Homeowners Association lists as its corporate purpose:

> "To provide the benefits arising from a home owners ' association for its members; to own, hold, acquire, build, operate and maintain facilities, including, but not necessarily limited to, streets, footways and paths, docks, beaches, tennis courts, swimming pools and things appurtenant thereto; to improve and maintain beaches and land owned by it; to do those things deemed appropriate for the maintenance and preservation of Red Brook Harbor, its waters, shores and wildlife; and to engage in any of the activities permitted an organization formed under Chapter 180 of the General laws of the Commonwealth of Massachusetts."

The corporate purposes of the Red Brook Harbor Homeowners Association are very much in line with the goals of this project. It appears that the Red Brook Harbor Homeowners Association and the other existing homeowners associations have the necessary control of private roads and common areas. Thus they would be authorized, with the appropriate votes of their membership, to undertake the design and construction of a sewer collection system in partnership with the WWTF. Two of the roads in the neighborhood, Cedar and Spruce, are town roads. The town's initial involvement would likely be minimal when compared to other options. The town's approval would be needed for construction work in the town road right-of-ways. Construction of the sewer collection system would also have to comply with any applicable town regulatory standards.

It is recommended that the primary agreement will be with one or more of the homeowners associations. The homeowners associations control access private roads and common areas in the neighborhood. The agreements will define who bears the responsibility for permitting, final design, operation, and maintenance of the both the sewer collection system and the wastewater treatment plant. The agreements will also define the costs to the parties. A draft contract between the WWTF and the private homeowners associations is provided as Attachment 5.

2. Project Cost and Ability to Finance

Managing this project as a private construction project keeps the overall cost lower. It is well established that a private construction project saves approximately 30% on overall cost as compared to a publicly funded project, since private projects are typically not subject to formal bidding or prevailing wage law requirements. It was also assumed that 100% of the cost to expand the collection system into the Cedar Point neighborhood, together with the hook-up costs, would be borne by the participating property owners. The small scale of the project made a split betterment option at town meeting unrealistic. In other words, it was determined unlikely that the town would shoulder a portion of the cost of a project which benefited a small number of homes, i.e., 50 homes.

The estimated costs of a private construction project range from $1,030,000 to $1,952,000, depending on the ultimate sewer layout. This translates into a cost of $7,000 to $13,000 per bedroom.

The overall cost of the project may be reduced in several different ways. For example, because Red Brook Harbor Association is organized as a not-for-profit corporation in Massachusetts, it may have access to funding from private foundations that support environmental causes. Also, it may be able to apply for and receive grant funds that would not be available to individual homeowners. The Red Brook

Harbor Homeowners Association routinely collects dues from its members. It could propose an increase in dues to its membership to raise some of the funds needed for the sewer collection system.

While a private project is ineligible for State Revolving Fund (SRF) loans under current law, this project may be eligible for a long-term, low-interest loan pursuant to the United States Department of Agriculture (USDA) Rural Development Loan Program. (http://www.rd.usda.gov/programs-services/water-waste-disposal-loan-grant-program) The USDA offers loans for wastewater disposal in rural areas and towns with populations below 10,000 and a median household income which meets certain guidelines. The loan term can be as long as 40 years. Private non-profits such as the above-mentioned homeowners associations are eligible applicants. Consideration of this funding source may trigger public procurement requirements. The ramifications of that would have to be taken into account in final decision making. Finally, homeowners associations are positioned to apply for bank financing.

The extension of the sewer line to the Cedar Point neighborhood is only financially viable if most of the homeowners either agree to or are required to connect within one or two years. Financing and operating the system with only a few homes is not feasible. This makes public outreach and acceptability a critical component to the success of this project.

Summary of the benefits of a private partnership:

- Minimal town action needed.
- Efficiencies of time and cost. No public bid or prevailing wage requirements.
- Possible access to funding from private donors or foundations.
- Possibility of public loans and private financing.
- Focused approach appropriate for small scale of neighborhood.

Drawbacks of this approach may include:

- Homeowners associations may not have access to SRF or other public funds-may be difficult to fund project.
- Associations must have support of their membership to proceed.

B. Phase 2 Recommendation - Establish a Municipal Sewer District

Many of the legal entities evaluated as part of this project contemplated a much larger scale sewer service area making them less appropriate for the initial phase. Therefore the scale of this project in large part drove the recommendation of a private partnership. However, the completion of Phase I of the sewer project as a private partnership will both result in substantial reductions of nitrogen to Red Brook Harbor and will also position the community and town to expand sewer infrastructure in the future to further reduce nitrogen from existing septic systems around Red Brook Harbor. This project recommends the future establishment of a municipal sewer district to implement a Phase 2 infrastructure project.

Currently, the factors limiting the scale of this project are treatment and discharge capacity. Because of this limited capacity, the WWTF is limited as to the number of existing homes it is able to connect. However, the wastewater treatment plant is modular in design; with a moderate capital investment, the treatment capacity may be increased to accommodate a larger sewer project in the future, so long as an

additional discharge area is found. Locating a discharge site for increased flow is a challenge, but the acquisition of future discharge sites to accommodate a Phase II expansion is in the concept phase.

Finally, the updated 208 Area Wide Water Quality Management Plan requires the town of Bourne, as the designated Waste Management Agency, to develop a watershed plan to restore water quality in Red Brook Harbor. Following, the initial phase of this project, the town should be positioned to assume the operation of the WWTF and plan for further expansion.

1. Legal Authority to Establish a Limited Sewer District.

The formation of a sewer district can be accomplished several ways.

a. Creation of a Limited Sewer District under Chapter 83.

Chapter 83 of the Massachusetts General Laws gives a municipality the authority through eminent domain, acquisition or otherwise, to create common sewers in public or private ways within its jurisdiction. MGL c. 83 §1. Chapter 83 section 1A applies specifically to the creation of a sewer district to reduce or eliminate the impacts of nutrient enrichment. Adoption of a sewer district under section 1A requires a majority vote of town meeting of the municipality to construct and operate a system pursuant to an approved comprehensive wastewater management plan (CWMP). Section 1B requires that owners of land abutting a common sewer, whether upon a private or public way are required to connect to the sewer if the land is within the areas identified in the DEP-approved CWMP. A municipality may adopt a general bylaw creating the sewer district and lay it out through maps or street listings. MassDEP must approve the sewer district.

The appropriateness of a limited sewer district created pursuant to chapter 83 depends on the Town of Bourne's willingness to invest in the creation and management of a sewer district for Red Brook Harbor. In addition to managing, operating, and constructing the expanded collection system for the homes in the Cedar Point neighborhood, the town must also invest in the completion of a CWMP for Red Brook Harbor in order to avail itself of the ability and authority to create a sewer district for the purposes of nutrient reduction under section 1A of chapter 83.

Summary of the benefits of this approach include;

- Each home within the defined district is required to connect.
- District managed by a municipal department.
- 50-year betterment term makes this more affordable for homeowners.
- SRF financing.
- Sewer district could include Cedar Point Neighborhood, Kingman Yacht Center, Red Brook Harbor Development and the Cataumet Harbor WWTF. Otherwise, it might only include the collection system through the Cedar Point Neighborhood with the authority to contract with the Cataumet Harbor WWTF for wastewater treatment and disposal.

Summary of the drawbacks of this approach include:

- Dependent on the Town of Bourne to create and manage the sewer district.
- Contingent on town meeting approval.
- Dependent on Mass-DEP approved CWMP.

b. Creation of a Limited Sewer District by the Town Through Special Legislation

Special legislation which authorizes a municipality to create a sewer district is common. Typically, the district boundaries are not defined in the special legislation. Rather the district is defined by bylaws passed at town meeting. The sewer district is governed by the municipality through either the board of selectmen as sewer commissioners or through the election of sewer commissioners. The infrastructure is managed through the municipal public works department. Members of the sewer commission must be residents of the town but do not have to be residents of the ultimate sewer district.

Some examples of town-managed sewer districts include:

- The Town of Cohasset created a sewer district pursuant to Chapter 65 of the Acts of 1962. The district serves 1,090 people, or approximately 405 homes and charges $1,032/ year.
- The Town of Hingham sewer districts serve approximately 6,200 people, or 2,279 homes, at an annual cost of $912/year.

Special legislation creating a town-managed sewer district can give the town the authority to require the homes within the district to connect to the sewer system. The Plum Island Service Area was created in the City of Newburyport and Town of Newbury in 2003 pursuant to Chapter 103 of the Acts of 2003. This special act states, “the owners of all buildings located in the Plum Island Service Area. . . which generate wastewater shall connect the buildings to the common sewer system to be constructed . . . within 60 days after receipt of written notice. . .”.

Generally, sewer districts created by special legislation are large making this a more suitable option for a phase 2 sewer expansion. Draft special legislation is attached here as Attachment 6.

Summary of the benefits of this approach include:

- A town-managed sewer district, either by the Board of Selectmen or an elected Board of Sewer Commissioners has the benefit of administrative efficiency and expertise.
- Sewer district could include Cedar Point Neighborhood, Kingman Yacht Center, Red Brook Harbor Development and the Cataumet Harbor WWTF. Otherwise, it might only include the collection system through the Cedar Point Neighborhood with the authority to contract with the Cataumet Harbor WWTF for wastewater treatment and disposal.
- Each home within the defined district can be required to connect.
- SRF financing.

Summary of the drawbacks of this approach may include:

- Dependent on the town taking action and the state legislature passing a special act.

2. Project Cost and Ability to Finance

A Phase 2 sewer expansion is contemplated as a municipal project and will therefore be eligible for SRF funding. While it is likely that the overall cost of the project will be approximately 30% higher due to public procurement and prevailing wage requirements, municipalities have the ability to avail themselves of low interest or no interest government loans. A large municipal project is also more likely to receive town-wide support where a percentage of the project cost can be spread across the town’s

tax base. The likelihood of this type of project will increase due to the upfront private investment made by the private WWTF and private partnership agreement.

Section 1D of Chapter 83 allows a municipality to make assessments upon abutters only at the time of the actual connection to the common sewer. MGL c. 83 §1D. Furthermore, a town may establish an account for funds from property owners for the difference in cost between a title 5 system and the cost of a nitrogen reducing system if that property is within the CWMP plan. Those funds can be used for construction, maintenance and operation of wastewater treatment and collection and shall be applied to connection and betterments. MGL c. 83 §1G. A town adopting the provisions of chapter 83 section 1A may borrow and assess betterments for a term not to exceed 50 years. MGL. C. 83 §1H.

Other applicable legal frameworks for an expanded phase 2 sewer project are included in Attachment 7.

III. Public Outreach

Public outreach is perhaps the biggest component of this project. Initial meetings with town officials including the BOH Agent and Town Administrator made it clear that the town would not unilaterally require the connection of the Cedar Point neighborhood to the WWTF. The success of this project lies with the neighborhoods willingness to voluntarily act.

In addition to reducing nitrogen pollution from existing on-site systems and helping water quality in Red Brook Harbor rebound, the team evaluated other considerations to increase the likelihood that the Cedar Point neighborhood would independently act.

A. Enhanced Value to Real Estate by Extending Sewer.

In addition to significantly reducing nitrogen to Red Brook Harbor from on-site septic systems, extending sewer can be an investment in the long-term value of the property. To determine property value enhancement and to help support the public acceptability of the project, project partners requested an Advisory Letter from LandVest to assess the effect of sewer service availability on market value in the Cedar Point Neighborhood. The Advisory Letter is attached here as Appendix 8.

The Advisory Letter made the following conclusions.

- Connection to a sewer may allow the property owner to add an additional bedroom where one may not otherwise be possible due to Title V restrictions. This opportunity may add an average of $138,000 of value to a home.
- Improved water quality from reduced eutrophication can increase property values over time.
- A sewer connection is a long-term investment against the cost of septic maintenance and compliance in the future.

The LandVest analysis reviewed the market dynamics of several neighborhoods around Buzzards Bay where sewer service has been provided in the past 10 years. Isolating the availability of sewer as the only factor affecting property value was difficult given the number of factors impacting a coastal market including water frontage, water views, flood zones, non-conformity of the lot, and size of home.

The Advisory Letter also found that the cost of connecting to the sewer (betterment plus connection fee – assumed to be between $25,000 and $30,000) has an inverse relationship to the current value of the property. The lower the value of the property, the higher the effect of the betterment and connection

costs. The higher the value of the property, the lower the perceived effect the costs had. Understanding this inverse relationship can affect the public acceptability of the project. Property owners where the value of the property is lower may find it more difficult to accept the financial obligation of $25,000, whereas the property owner with a much higher property value may not be as concerned or burdened. However, in the case of waterfront, or water-view homes in the Cedar Point neighborhood, the market values are higher and thus the betterment as a percentage of the property value is lower and the effect on market value limited.

This analysis guided the recommendation to finance the project on a per bedroom cost versus a per house cost. The ability to add a bedroom to an existing home may make this project more attractive to homeowners because of the positive influence adding a bedroom has on home value.

B. Opportunity for the Community to Voluntarily Act Together.

The community has the opportunity to tailor the nitrogen reduction solution to neighborhood need. In the event that no action is taken, regulatory agencies are more likely to compel the town to act and prescribe a solution that may be more expensive and lack community input. The opportunity exists for the community to act together with a community based solution towards real water protection measures and forestall a top down requirement.

C. Presentation to Cedar Point Neighborhood

Once the three preliminary sewer options were defined, and a legal framework established, it was time to invite the community in to assess their reaction and seek feedback.

Approximately 75 invitations to an informational event hosted at the Kingman Yacht Club were sent out in the beginning of June. (Invitation attached as Attachment 9). The invitations were also handed out at local restaurants and coffee shop.

On June 18, 2015, the project principals held the neighborhood meeting at Kingman Yacht Club to discuss the three wastewater treatment options to connect the Cedar Point neighborhood to the Red Brook Harbor Club wastewater treatment facility. Approximately 25 people attended the meeting. The attendees were also members of three neighborhood associations: the Cedar Point Association, the Red Brook Harbor Association, and the Handy Point Association.

Using a Powerpoint presentation, attached hereto as Attachment 10, the audience was briefed on the problem of nitrogen pollution from septic systems surrounding Red Brook Harbor and how the expansion of sewer could solve this pollution problem.

The presenters pointed out that wastewater treatment may someday be mandated by the state or EPA, and that participating in this privately-funded option would be much less expensive than connecting to a

public system when mandated, primarily because Kingman Yacht Center is paying for a large part of the capital investment.

The presentation included detailed graphics showing the Cedar Point neighborhood under the three different wastewater options. Each scenario has different costs per bedroom for connections. Depending on the layout, course, and reach of the wastewater collection system, connection costs ranged from $7,000 per bedroom to $13,000 per bedroom. Once connected, treatment costs ran about the same for all scenarios, conservatively estimated at $400 per bedroom per year.

Representatives of the three homeowners associations were present for the meetings. As a result, the project principals will attend both of the upcoming summer meetings. A Draft two-page fact sheet has been prepared for that purpose and is included as part of this report as Attachment 11.

Comments from the audience were generally supportive, characterizing the project as “a no brainer”. Not surprisingly, the greatest support was for an option that fell in the $7,000/bedroom range and a request that annual fees be based on water use versus number of bedrooms. More detailed notes of the presentation are attached here as Attachment 12.

IV. Conclusion

The preferred alternative for this project is for a private partnership to be established to implement Phase 1 of the sewer collection and treatment project. This will involve a private contract between one or more of the existing homeowners associations and the WWTF. In order to proceed with this contract, further input from the Cedar Point Neighborhood is required. The homeowners associations have upcoming association meetings scheduled for this summer. These meetings present opportunities to bring the project plans to the attention of more of the property owners and refine the sewer layout as needed. It is anticipated that a clear preference for one of the conceptual plans will emerge from these meetings. Once an option is chosen, final design can be completed and costs can be refined. At the same time, bedroom capacity will be offered to property owners on a first come-first serve basis.

The team appreciates the opportunity to pursue this important work to reduce nitrogen from Red Brook Harbor. We will continue to work with the community towards full implementation.

Attachment 1

Needs Analysis Matrix
Cedar Point Neighborhood

PARCEL ADDRESS	Existing Homes	# OF BDRMS	Neighborhood Community	Capital Cost	Ease of Connecting to Sewer System	Flood Zone	Existing Septic System	Resource Buffer Area	Total
10 Cedar Point Road	YES	3	Cedar Point	3	1	0	1	0	**5**
50 Cedar Point Road	YES	3	Cedar Point	1	-2	2	2	1	**4**
83 Cedar Point Road	YES	3	Cedar Point	1	-2	2	2	1	**4**
100 Cedar Point Road	YES	3	Cedar Point	1	-2	2	2	1	**4**
5 Cedar Point Road	YES	2	Cedar Point	3	1	0	-1	0	**3**
6 Cedar Point Road	YES	3	Cedar Point	3	1	0	-1	0	**3**
9 Cedar Point Road	YES	2	Cedar Point	3	1	0	-1	0	**3**
105 Cedar Point Road	YES	3	Cedar Point	1	-2	2	1	1	**3**
22 Cedar Point Road	YES	3	Cedar Point	1	-1	0	2	0	**2**
41 Cedar Point Road	YES	2	Cedar Point	1	-1	1	1	0	**2**
45 Cedar Point Road	YES	3	Cedar Point	1	-2	1	2	0	**2**
47 Cedar Point Road	YES	3	Cedar Point	1	-2	1	2	0	**2**
76 Cedar Point Road	No	0	Cedar Point	1	-2	2	0	1	**2**
80 Cedar Point Road	No	0	Cedar Point	1	-2	2	0	1	**2**
15 Cedar Point Road	YES	2	Cedar Point	1	-1	0	1	0	**1**
19 Cedar Point Road	YES	2	Cedar Point	1	-1	0	1	0	**1**
25 Cedar Point Road	YES	4	Cedar Point	1	-1	0	1	0	**1**
36 Cedar Point Road	YES	2	Cedar Point	1	-1	0	1	0	**1**
51 Cedar Point Road	YES	3	Cedar Point	1	-2	1	1	0	**1**
52 Cedar Point Road	YES	2	Cedar Point	1	-2	2	-1	1	**1**
56 Cedar Point Road	YES	3	Cedar Point	1	-2	2	-1	1	**1**
59 Cedar Point Road	YES	3	Cedar Point	1	-2	2	-1	1	**1**
65 Cedar Point Road	YES	3	Cedar Point	1	-2	2	-1	1	**1**
71 Cedar Point Road	YES	2	Cedar Point	1	-2	2	-1	1	**1**
75 Cedar Point Road	YES	3	Cedar Point	1	-2	2	-1	1	**1**
79 Cedar Point Road	YES	4	Cedar Point	1	-2	2	-1	1	**1**
93 Cedar Point Road	YES	3	Cedar Point	1	-2	2	-1	1	**1**
40 Cedar Point Road	YES	3	Cedar Point	1	-1	1	-1	0	**0**
0 Cedar Point Road	No	0	Cedar Point	1	-2	0	0	1	**0**
0 Cedar Point Road	No	0	Cedar Point	1	-2	0	0	1	**0**
0 Cedar Point Road	No	0	Cedar Point	1	-2	0	0	1	**0**
87 Cedar Point Road	YES	2	Cedar Point	1	-2	1	-1	1	**0**
102 Cedar Point Road	YES	5	Cedar Point	1	-2	2	-2	1	**0**
104 Cedar Point Road	YES	5	Cedar Point	1	-2	2	-2	1	**0**
14 Cedar Point Road	YES	3	Cedar Point	1	-1	0	-1	0	**-1**
20 Cedar Point Road	YES	2	Cedar Point	1	-1	0	-1	0	**-1**
26 Cedar Point Road	YES	3	Cedar Point	1	-1	0	-1	0	**-1**
30 Cedar Point Road	YES	2	Cedar Point	1	-1	0	-1	0	**-1**
33 Cedar Point Road	YES	3	Cedar Point	1	-1	0	-1	0	**-1**
35 Cedar Point Road	YES	2	Cedar Point	1	-1	0	-1	0	**-1**
55 Cedar Point Road	YES	3	Cedar Point	1	-2	1	-1	0	**-1**
4 Chauncy Way	YES	4	Chauncy	3	1	0	1	1	**6**
6 Chauncy Way	YES	3	Chauncy	3	1	0	1	1	**6**
12 Chauncy Way	YES	3	Chauncy	3	1	2	-1	1	**6**
14 Chauncy Way	YES	5	Chauncy	3	1	2	-1	1	**6**
2 Chauncy Way	YES	3	Chauncy	3	1	0	1	0	**5**
8 Chauncy Way	NO	0	Chauncy	3	1	0	0	1	**5**
001 Elgin Road	YES	3	Elgin	3	1	0	-1	0	**3**
009 Elgin Road	No	0	Elgin	3	-1	0	0	0	**2**
087 Elgin Road	YES	8	Elgin	-2	-1	2	2	1	**2**
005 Elgin Road	YES	3	Elgin	3	-1	0	-1	0	**1**
083 Elgin Road	YES	3	Elgin	-2	-1	2	1	1	**1**
095 Elgin Road	YES	4	Elgin	-2	-1	2	1	1	**1**
059 Elgin Road	YES	5	Elgin	-2	-2	2	2	1	**1**
075 Elgin Road	YES	4	Elgin	-2	-2	2	2	1	**1**
076 Elgin Road	YES	4	Elgin	-2	-1	1	1	1	**0**
079 Elgin Road	YES	2	Elgin	-2	-1	0	2	1	**0**
080 Elgin Road	YES	4	Elgin	-2	-1	0	2	1	**0**
115 Elgin Road	YES	3	Elgin	-2	-1	1	2	0	**0**
071 Elgin Road	YES	4	Elgin	-2	-2	2	1	1	**0**
102 Elgin Road	YES	4	Elgin	-2	-2	1	2	1	**0**
110 Elgin Road	YES	3	Elgin	-2	-2	1	2	1	**0**
111 Elgin Road	YES	6	Elgin	-2	-2	1	2	1	**0**
044 Elgin Road	YES	3	Elgin	-2	-1	0	2	0	**-1**
084 Elgin Road	YES	3	Elgin	-2	-1	0	1	1	**-1**
098 Elgin Road	No	0	Elgin	-2	-1	1	0	1	**-1**
119 Elgin Road	YES	3	Elgin	-2	-1	1	1	0	**-1**
130 Elgin Road	YES	3	Elgin	-2	-1	0	2	0	**-1**
032 Elgin Road	YES	3	Elgin	-2	-1	0	1	0	**-2**
036 Elgin Road	YES	2	Elgin	-2	-1	0	1	0	**-2**
091 Elgin Road	YES	6	Elgin	-2	-1	2	-2	1	**-2**

Needs Analysis Matrix
Cedar Point Neighborhood

PARCEL ADDRESS	Existing Homes	# OF BDRMS	Neighborhood Community	Capital Cost	Ease of Connecting to Sewer System	Flood Zone	Existing Septic System	Resource Buffer Area	Total
118 Elgin Road	YES	3	Elgin	-2	-1	0	1	0	**-2**
126 Elgin Road	YES	3	Elgin	-2	-1	0	1	0	**-2**
015 Elgin Road	YES	4	Elgin	-2	-1	2	-1	1	**-1**
064 Elgin Road	No	0	Elgin	-2	-2	1	0	1	**-2**
068 Elgin Road	No	0	Elgin	-2	-2	1	0	1	**-2**
072 Elgin Road	No	0	Elgin	-2	-2	1	0	1	**-2**
106 Elgin Road	No	0	Elgin	-2	-2	1	0	1	**-2**
114 Elgin Road	YES	3	Elgin	-2	-2	1	1	0	**-2**
094 Elgin Road	YES	3	Elgin	-2	-1	0	-1	1	**-3**
127 Elgin Road	No	0	Elgin	-2	-1	0	0	0	**-3**
056 Elgin Road	YES	3	Elgin	-2	-2	2	-1	0	**-3**
060 Elgin Road	YES	4	Elgin	-2	-2	1	-1	1	**-3**
063 Elgin Road	YES	8	Elgin	-2	-2	2	-2	1	**-3**
003 Elgin Road	YES	4	Elgin	-2	-1	0	-1	0	**-4**
007 Elgin Road	YES	5	Elgin	-2	-1	0	-1	0	**-4**
011 Elgin Road	YES	4	Elgin	-2	-1	0	-1	0	**-4**
048 Elgin Road	YES	3	Elgin	-2	-1	0	-1	0	**-4**
122 Elgin Road	YES	3	Elgin	-2	-1	0	-1	0	**-4**
123 Elgin Road	YES	4	Elgin	-2	-1	0	-1	0	**-4**
131 Elgin Road	YES	3	Elgin	-2	-1	0	-1	0	**-4**
135 Elgin Road	YES	3	Elgin	-2	-1	0	-1	0	**-4**
052 Elgin Road	YES	5	Elgin	-2	-1	0	-1	0	**-4**
18 Nairn Road	YES	4	Nairn	3	1	0	2	1	**7**
20 Nairn Road	YES	3	Nairn	3	1	0	2	1	**7**
22 Nairn Road	YES	3	Nairn	3	1	0	2	1	**7**
3 Nairn Road	YES	3	Nairn	3	1	0	2	0	**6**
6 Nairn Road	YES	5	Nairn	3	1	0	2	0	**6**
9 Nairn Road	YES	6	Nairn	3	1	0	2	0	**6**
11 Nairn Road	YES	4	Nairn	3	1	0	2	0	**6**
16 Nairn Road	YES	4	Nairn	3	1	0	2	0	**6**
1 Nairn Road	YES	3	Nairn	3	1	0	1	0	**5**
4 Nairn Road	YES	2	Nairn	3	1	0	1	0	**5**
5 Nairn Road	YES	3	Nairn	3	1	0	1	0	**5**
7 Nairn Road	YES	4	Nairn	3	1	0	1	0	**5**
14 Nairn Road	YES	1	Nairn	3	1	0	1	0	**5**
23 Nairn Road	YES	6	Nairn	3	1	0	-1	1	**4**
2 Nairn Road	YES	4	Nairn	3	1	0	-1	0	**3**
8 Nairn Road	YES	3	Nairn	3	1	0	-1	0	**3**
10 Nairn Road	YES	7	Nairn	3	1	0	-1	0	**3**
15 Nairn Road	YES	6	Nairn	3	1	0	-1	0	**3**
1035 Shore Road	YES	2	Shore Road	3	1	0	2	0	**6**
1019 Shore Road	YES	3	Shore Road	3	1	0	1	0	**5**
1051 Shore Road	YES	4	Shore Road	3	1	0	1	0	**5**
0 Shore Road	No	0	Shore Road	3	1	0	0	0	**4**
1029 Shore Road	No	0	Shore Road	3	1	0	0	0	**4**
1007 Shore Road	YES	3	Shore Road	3	1	0	-1	0	**3**
1018 Shore Road	YES	2	Shore Road	3	1	0	-1	0	**3**
1025 Shore Road	YES	3	Shore Road	3	1	0	-1	0	**3**
1027 Shore Road	YES	2	Shore Road	3	1	0	-1	0	**3**
1043 Shore Road	YES	2	Shore Road	3	1	0	-1	0	**3**
1044 Shore Road	YES	4	Shore Road	3	1	0	-1	0	**3**
8 Spruce Drive	YES	2	Spruce	3	1	0	2	0	**6**
2 Spruce Drive	YES	5	Spruce	3	1	0	1	0	**5**
7 Spruce Drive	YES	2	Spruce	3	1	0	1	0	**5**
44 Spruce Drive	YES	3	Spruce	1	-1	1	2	1	**4**
50 Spruce Drive	YES	3	Spruce	1	-2	2	2	1	**4**
46 Spruce Drive	YES	3	Spruce	1	-2	2	1	1	**3**
62 Spruce Drive	YES	2	Spruce	1	-2	2	1	1	**3**
69 Spruce Drive	YES	4	Spruce	1	-2	2	1	1	**3**
15 Spruce Drive	YES	2	Spruce	1	-1	0	2	0	**2**
16 Spruce Drive	YES	3	Spruce	1	-1	0	2	0	**2**
25 Spruce Drive	YES	6	Spruce	1	-1	0	2	0	**2**
33 Spruce Drive	YES	2	Spruce	1	-1	0	2	0	**2**
34 Spruce Drive	YES	2	Spruce	1	-1	0	2	0	**2**
35 Spruce Drive	YES	3	Spruce	1	-1	0	2	0	**2**
39 Spruce Drive	YES	3	Spruce	1	-1	0	2	0	**2**
40 Spruce Drive	YES	2	Spruce	1	-1	1	1	0	**2**
0 Spruce Drive	No	0	Spruce	1	-2	2	0	1	**2**
14 Spruce Drive	YES	4	Spruce	1	1	0	-1	0	**1**
18 Spruce Drive	YES	4	Spruce	1	-1	0	1	0	**1**
21 Spruce Drive	YES	3	Spruce	1	-1	0	1	0	**1**

Needs Analysis Matrix
Cedar Point Neighborhood

PARCEL ADDRESS	Existing Homes	# OF BDRMS	Neighborhood Community	Capital Cost	Ease of Connecting to Sewer System	Flood Zone	Existing Septic System	Resource Buffer Area	Total
26 Spruce Drive	YES	3	Spruce	1	-1	0	1	0	**1**
47 Spruce Drive	YES	3	Spruce	1	-2	2	-1	1	**1**
53 Spruce Drive	YES	3	Spruce	1	-2	2	-1	1	**1**
58 Spruce Drive	YES	3	Spruce	1	-2	2	-1	1	**1**
59 Spruce Drive	YES	3	Spruce	1	-2	2	-1	1	**1**
65 Spruce Drive	YES	2	Spruce	1	-2	2	-1	1	**1**
43 Spruce Drive	YES	3	Spruce	1	-1	1	-1	0	**0**
57 Spruce Drive	YES	4	Spruce	1	-2	2	-2	1	**0**
66 Spruce Drive	YES	3	Spruce	1	-2	2	-2	1	**0**
29 Spruce Drive	YES	2	Spruce	1	-1	0	-1	0	**-1**
30 Spruce Drive	YES	3	Spruce	1	-1	0	-1	0	**-1**

Note: Parcels with highest numerical ranking demonstrate highest priority for sewer conection based on all factors.

Attachment 2

0.2 PCT ANNUAL CHANCE FLOOD HAZARD

FLOOD ZONE AE

FLOOD ZONE VE

PHASE 1 SEWER AREA - 45 PARCELS (3 VACANT)

0 PARCELS (ALTERNATIVE WASTEWATER TREATMENT TECHNOLOGY)

PHASE 1 AREA - 19 PARCELS (SEPTIC SYSTEM INSTALLED AFTER 1995)

PHASE 1 AREA - 12 PARCELS (SEPTIC SYSTEM INSTALLED BETWEEN 1978 - 1995)

PHASE 1 AREA- 11 PARCELS (SEPTIC SYSTEM INSTALLED BEFORE 1978)

Parcel Address	Existing Homes	# of Bedrooms
005 Cedar Point Road	YES	2
006 Cedar Point Road	YES	3
009 Cedar Point Road	YES	2
010 Cedar Point Road	YES	3
012 Chauncy Way	YES	3
014 Chauncy Way	YES	5
008 Chauncy Way	NO	0
002 Chauncy Way	YES	3
004 Chauncy Way	YES	4
006 Chauncy Way	YES	3
001 Elgin Road	YES	3
002 Nairn Road	YES	4
008 Nairn Road	YES	3
010 Nairn Road	YES	7
015 Nairn Road	YES	6
023 Nairn Road	YES	6
001 Nairn Road	YES	3
004 Nairn Road	YES	2
005 Nairn Road	YES	3
007 Nairn Road	YES	4
014 Nairn Road	YES	1
003 Nairn Road	YES	3
006 Nairn Road	YES	5
009 Nairn Road	YES	6
011 Nairn Road	YES	4
016 Nairn Road	YES	4
018 Nairn Road	YES	4
020 Nairn Road	YES	3
022 Nairn Road	YES	3
1007 Shore Road	YES	3
1018 Shore Road	YES	2
1025 Shore Road	YES	3
1027 Shore Road	YES	2
1043 Shore Road	YES	2
1044 Shore Road	YES	4
000 Shore Road	NO	0
1029 Shore Road	NO	0
1019 Shore Road	YES	3
1051 Shore Road	YES	4
1035 Shore Road	YES	2
014 Spruce Drive	YES	4
7 Spruce Drive	YES	2
15 Spruce Drive	YES	2
002 Spruce Drive	YES	5
008 Spruce Drive	YES	2
TOTAL		**142**

Total Parcels = 45
Total Cost = $1,030,000
Total Cost per Bedroom = $7,000

LOW PRESSURE SEWER MAIN FOR INDIVIDUAL HOME PUMPS (TYP.)

SEWAGE LIFT STATION (TYP)

GRAVITY SEWER (TYP.)

SEWER FORCEMAIN (TYP.)

20' EASEMENT

300' BUFFER TO MHW TYP.

EXISTING KINGMAN MARINA LIFT STATION

CONSERVATION RESTRICTION

SPRUCE DR

SHORE RD

CEDAR POINT DR

ELGIN RD

NAIRN RD

CHAUNCY WAY

MHW

Horsley Witten Group
Sustainable Environmental Solutions
www.horsleywitten.com

North
0 100
Scale in Feet

Sewer System Concept Plan - Option 1
Red Brook Harbor Restoration
Cataumet, MA

Figure 1

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Attachment 3

0.2 PCT ANNUAL CHANCE FLOOD HAZARD

FLOOD ZONE AE

FLOOD ZONE VE

PHASE 1 SEWER AREA - 45 PARCELS (3 VACANT)

0 PARCELS (ALTERNATIVE WASTEWATER TREATMENT TECHNOLOGY)

PHASE 1 AREA - 19 PARCELS (SEPTIC SYSTEM INSTALLED AFTER 1995)

PHASE 1 AREA - 13 PARCELS (SEPTIC SYSTEM INSTALLED BETWEEN 1978 - 1995)

PHASE 1 AREA- 10 PARCELS (SEPTIC SYSTEM INSTALLED BEFORE 1978)

Parcel Address	Existing Homes	# of Bedrooms
12 Chauncy Way	YES	3
14 Chauncy Way	YES	5
001 Elgin Road	YES	3
003 Elgin Road	YES	4
005 Elgin Road	YES	3
007 Elgin Road	YES	5
011 Elgin Road	YES	4
015 Elgin Road	YES	4
048 Elgin Road	YES	3
052 Elgin Road	YES	5
122 Elgin Road	YES	3
123 Elgin Road	YES	4
131 Elgin Road	YES	3
135 Elgin Road	YES	3
10 Nairn Road	YES	7
15 Nairn Road	YES	6
2 Nairn Road	YES	4
23 Nairn Road	YES	6
8 Nairn Road	YES	3
8 Chauncy Way	NO	0
009 Elgin Road	NO	0
127 Elgin Road	NO	0
2 Chauncy Way	YES	3
4 Chauncy Way	YES	4
6 Chauncy Way	YES	3
032 Elgin Road	YES	3
036 Elgin Road	YES	2
118 Elgin Road	YES	3
119 Elgin Road	YES	3
126 Elgin Road	YES	3
1 Nairn Road	YES	3
14 Nairn Road	YES	1
4 Nairn Road	YES	2
5 Nairn Road	YES	3
7 Nairn Road	YES	4
044 Elgin Road	YES	3
130 Elgin Road	YES	3
11 Nairn Road	YES	4
16 Nairn Road	YES	4
18 Nairn Road	YES	4
20 Nairn Road	YES	3
22 Nairn Road	YES	3
3 Nairn Road	YES	3
6 Nairn Road	YES	5
9 Nairn Road	YES	6
TOTAL		**153**

Total Parcels = 45
Total Cost = $1,268,000
Total Cost per Bedroom = $9,000

LOW PRESSURE SEWER MAIN FOR INDIVIDUAL HOME PUMPS (TYP.)

SEWAGE LIFT STATION (TYP)

GRAVITY SEWER (TYP.)

SEWER FORCEMAIN (TYP.)

20' EASEMENT

300' BUFFER TO MHW TYP.

EXISTING KINGMAN MARINA LIFT STATION

CONSERVATION RESTRICTION

FUTURE EASEMENT

SPRUCE DR

CEDAR POINT DR

ELGIN RD

SHORE RD

NAIRN RD

CHAUNCY WAY

MHW

LPS

FM

S

LS

North

0 100

Scale in Feet

Horsley Witten Group
Sustainable Environmental Solutions
www.horsleywitten.com

Sewer System Concept Plan - Option 2
Red Brook Harbor Restoration
Cataumet, MA

Figure 2

last modified: 06/26/15 printed: 06/29/15 by mc \\hw-file\HW-Server\Projects\2014\14187 Kingman_Red Brook Harbor Restoration\Drawings\14187-ST-GIS.dwg

Attachment 4

0.2 PCT ANNUAL CHANCE FLOOD HAZARD

FLOOD ZONE AE

FLOOD ZONE VE

PHASE 1 SEWER AREA -76 PARCELS (8 VACANT)

PHASE 1 AREA - 2 PARCELS (ALTERNATIVE WASTEWATER TREATMENT TECHNOLOGY)

PHASE 1 AREA - 26 PARCELS (SEPTIC SYSTEM INSTALLED AFTER 1995)

PHASE 1 AREA - 20 PARCELS (SEPTIC SYSTEM INSTALLED BETWEEN 1978 - 1995)

PHASE 1 AREA - 20 PARCELS (SEPTIC SYSTEM INSTALLED BEFORE 1978)

LOW PRESSURE SEWER MAIN FOR INDIVIDUAL HOME PUMPS (TYP.)

GRAVITY SEWER (TYP.)

SEWAGE LIFT STATION (TYP)

SEWER FORCEMAIN (TYP.)

20' EASEMENT

300' BUFFER TO MHW TYP.

SPRUCE DR

CEDAR POINT DR

ELGIN RD

SHORE RD

NAIRN RD

CHAUNCY WAY

MHW

CONSERVATION RESTRICTION

14 Nairn Road	YES	1
4 Nairn Road	YES	2
5 Nairn Road	YES	3
7 Nairn Road	YES	4
11 Nairn Road	YES	4
16 Nairn Road	YES	4
18 Nairn Road	YES	4
20 Nairn Road	YES	3
22 Nairn Road	YES	3
3 Nairn Road	YES	3
6 Nairn Road	YES	5
9 Nairn Road	YES	6
TOTAL		**255**

Parcel Address	Existing Homes	# of Bedrooms
75 Cedar Point Road	YES	3
79 Cedar Point Road	YES	4
87 Cedar Point Road	YES	2
93 Cedar Point Road	YES	3
105 Cedar Point Road	YES	3
83 Cedar Point Road	YES	3
12 Chauncy Way	YES	3
14 Chauncy Way	YES	5
8 Chauncy Way	NO	0
2 Chauncy Way	YES	3
4 Chauncy Way	YES	4
6 Chauncy Way	YES	3
063 Elgin Road	YES	8
091 Elgin Road	YES	6
001 Elgin Road	YES	3
003 Elgin Road	YES	4
005 Elgin Road	YES	3
007 Elgin Road	YES	5
011 Elgin Road	YES	4
015 Elgin Road	YES	4
048 Elgin Road	YES	3
052 Elgin Road	YES	5
122 Elgin Road	YES	3
123 Elgin Road	YES	4
131 Elgin Road	YES	3
135 Elgin Road	YES	3
056 Elgin Road	YES	3
060 Elgin Road	YES	4
094 Elgin Road	YES	3
009 Elgin Road	NO	0
127 Elgin Road	NO	0
064 Elgin Road	NO	0
068 Elgin Road	NO	0
072 Elgin Road	NO	0
106 Elgin Road	NO	0
098 Elgin Road	No	0
032 Elgin Road	YES	3
036 Elgin Road	YES	2
076 Elgin Road	YES	4
083 Elgin Road	YES	3
084 Elgin Road	YES	3
095 Elgin Road	YES	4
118 Elgin Road	YES	3
119 Elgin Road	YES	3
126 Elgin Road	YES	3
071 Elgin Road	YES	4
114 Elgin Road	YES	3
075 Elgin Road	YES	4
079 Elgin Road	YES	2
080 Elgin Road	YES	4
087 Elgin Road	YES	8
044 Elgin Road	YES	3
130 Elgin Road	YES	3
059 Elgin Road	YES	5
102 Elgin Road	YES	4
110 Elgin Road	YES	3
111 Elgin Road	YES	6
115 Elgin Road	YES	3
10 Nairn Road	YES	7
15 Nairn Road	YES	6
2 Nairn Road	YES	4
23 Nairn Road	YES	6
8 Nairn Road	YES	3
1 Nairn Road	YES	3

Total Parcels = 76
Total Cost = $1,952,000
Total Cost per Bedroom = $13,000

North

0 100

Scale in Feet

Horsley Witten Group
Sustainable Environmental Solutions
www.horsleywitten.com

Sewer System Concept Plan - Option 3A
Red Brook Harbor Restoration
Cataumet, MA

Figure 3

last modified: 06/30/15 printed: 06/30/15 by mc H:\Projects\2014\14187 Kingman_Red Brook Harbor Restoration\Drawings\14187-ST-GIS.dwg

Attachment 5

Sample Agreement

This Agreement is made by and between the Cataumet Harbor WWTF, LLC (the "WWTF") and the Red Brook Harbor Home Owners Association, Inc. ("Red Brook"). The WWFT owns and operates a wastewater treatment facility located at _____, with a mailing address of _____. Red Brook is a homeowner's association, established as a not for profit corporation pursuant to M.G.L.c.180, , with a mailing address of _____. Whereas Red Brook wishes to make sanitary sewers available to its members and WWTF wishes to accept such sewage for treatment at its facility, the parties agree as follows:

1. Red Brook will complete final design and construction plans based on an agreed concept plan entitled "_____", dated _____. Plans shall conform to all applicable codes, regulations and laws,.
2. Red Brook will finance and build a sewer collection system as shown on the plans entitled "_____", dated _____, to service its members.
3. WWTF will accept up to _____ gallons per day (GPD)of sewage from Red Brook.
4. WWTF will be responsible for all treatment of the sewage it accepts from Red Brook.
5. At all times WWFT will be responsible for obtaining all applicable permits and will act pursuant to all applicable permits, regulations and laws that govern the treatment of sewage.
6. WWTF will maintain and operate the sewer collection system. Red Brook authorizes WWFT to gain access to the sewer collection system as necessary to perform routine maintenance and operations.
7. Red Brook will pay a total of $_____ monthly to WWTF . The cost will be determined by the WWTF on annual basis.
8. Red Brook will be responsible for any required major improvements to the sewer collection system. WWTF will manage any required improvements and invoice Red Brook for the same.
9. Each party represents that it has the authority to enter into this Agreement.
10. This Agreement shall be governed by the laws of the Commonwealth of Massachusetts.

Agreed to,_____
Cataumet Harbor WWTF, LLC

_____
Red Brook Harbor Home Owners Association, Inc.
Date:

Attachment 6

Attachment 6

DRAFT MODEL Special Legislation for Cedar Point Sewer Service Area.

AN ACT RELATIVE TO THE CREATION OF THE CEDAR POINT SEWER DISTRICT IN THE TOWN OF BOURNE.

SECTION 1. The town of Bourne, acting by and through its board of sewer commissioners described in section 3, may lay out, plan, construct, maintain and operate a system of common sewers for parts or the whole of its territory, as may be defined and established from time to time by adoption by town meeting of by-laws, as a designated sewer district under the jurisdiction and control of the board of sewer commissioners, with such capacity limitations, connections, pumping stations, treatment plants and other works, as may be allocated in the by-laws to the sewer district as required for a sewage treatment and disposal system, and may construct, maintain and operate the sewers and related works in the sewer districts defined and established by by-law as may be necessary. No other sewers shall be constructed in any public ways in the town that are not within the limits of the designated sewer districts and which are not under the control of the board of sewer commissioners and no other sewers that are not within the limits of the designated sewer districts shall become part of or connected to any sewers, pumping stations or other works within the limits of the designated sewer districts.

SECTION 2: The town, acting by and through its board of sewer commissioners, may make and maintain in any way within a sewer district, defined and established pursuant to section 1, where common sewers are laid out or constructed, the connecting sewers within the limits of the way as may be necessary to connect any estate within the district that abuts upon a way within the district.

SECTION 3: Said town may, at the meeting when this act is accepted vote that the selectmen or water commissioners shall act as a board of sewer commissioners. If the town does not so vote at said meeting, the town shall elect by ballot, at any town meeting not later than the second annual meeting after the commencement of construction hereunder of a system or systems of sewerage and sewage disposal, a board of three sewer commissioners, hereinafter referred to as the board of sewer commissioners, who shall be registered voters of the town of Bourne and residents of the district, to hold office, one until the expiration of one year, one until the expiration of two years, and one until the expiration of three years, from such annual town meeting, and until their successors are qualified, or, if elected at a special meeting, one until the expiration of one year, one until the expiration of two years, and one until the expiration of three years from the next succeeding annual town meeting, and until their successors are qualified, and thereafter, at each annual town meeting when the term of a member expires, the town shall elect one member of the board to serve for three years and until his successor is qualified. Any selectmen or water commissioner shall be eligible to election to said board. In either case, whether the town votes that its selectmen or water commissioners shall act as a board of sewer commissioners, or elects a board of sewer commissioners, the town may at any time thereafter, by any or all the methods permitted by general law, provide for the election of a board of three sewer commissioners, or that the selectmen or water commissioners may act as a board of sewer commissioners, as the case may be.

SECTION 4: Said board of sewer commissioners, acting for and on behalf of said town, may take by eminent domain under chapter seventy nine of the General Laws, or acquire by purchase or otherwise, any lands, water rights, rights of way or easements, public or private, in said town, necessary for accomplishing any purpose mentioned in this act, and may construct such sewers under or over any

bridge, railroad, railway, and may enter upon and dig up any private land, public way or railroad location, for the purpose of laying such sewers and of maintaining and repairing the same, and may do any other thing proper or necessary for the purposes of this act.

SECTION 5: Until the board of sewer commissioners has first been elected as provided in this act or the selectmen or water commissioners have first been authorized by vote to act as such board, as the case may be, but not in any event late than the second annual meeting after the commencement of the work of construction authorized hereby, the town may carry on such work by a duly authorized committee of the town. The committee shall serve without pay and shall have all the powers and authority give to the board of sewer commissioners in this act or by general law. Whenever the phrase "said board of sewer commissioners" or "said board" hereinafter occurs, it shall mean and include the board of sewer commissioners, the selectmen or water commissioners acting as such or the committee of the town provided for in this section, as the case may be.

SECTION 6: Any person injured in his property by any action of said board of sewer commissioners under this act may recover damages from said town under said chapter seventy-nine.

SECTION 7: The town shall, by vote, determine whether it shall pay the whole or a portion of the cost of said system or systems of sewerage and sewage disposal and if a portion, what proportion. If the town votes to pay less than the whole cost, in providing for the payment of the remaining portion of the cost of said system or systems the town may avail itself of any or all of the methods permitted by General Laws, and the provisions of said General Laws relative to the assessment, apportionment, division, reassessment, abatement and collection of sewer assessments, to liens therefor and to interest thereon, shall apply to assessments made under this act, except that interest shall be at the rate of four percent per annum. At the same meeting at which it determines that any portion of the cost is to be borne by the town, it may by vote determine by which of such methods the remaining portion of said cost shall be provide for. The collector of taxes of said town shall certify the payment or payments of such assessments, or apportionments thereof to the sewer commissioners, or the selectmen or the water commissioners acting as such, who shall preserve a record thereof.

ALTERNATIVE SECTION 7: The financial operations of the sewer system shall be an enterprise fund within the meaning of section 53F1/2 of chapter 44 of the General Laws, except as modified herein, and any expenditure from the fund shall be made upon joint authorization by the board of sewer commissioners and the town manager, as defined by chapter 34 of the acts of 1997. The town shall, by vote at town meeting, determine whether it shall pay the whole or a portion of the cost of the sewerage and sewage disposal system; provided, however, if the town determines that it shall pay a portion, the town shall further determine what proportion it shall pay. If the town votes to pay less than the whole cost, in providing for the payment of the remaining portion of the cost of said system, the town, acting through its board of sewer commissioners, may avail itself of any or all the methods permitted by the General Laws, including any law relative to the assessment, apportionment, division, reassessment, abatement and collection of sewer assessments or the additional methods set forth in section 17, and as to liens therefor and to interest thereon, and those provisions shall apply to assessments made pursuant to this act by the board of sewer commissioners, except that interest shall be at the rate as may be established, from time to time, by the board of sewer commissioners. At the same meeting at which town meeting determines that any portion of the cost is to be borne by the town, the town meeting may, by vote, determine which methods shall be used to provide for the remaining portion of the cost.

The collector of taxes of the town shall certify the payment of any assessment or apportionments thereof to the board of sewer commissioners, who shall preserve a record thereof.

SECTION 8: For the purposes of paying the necessary expenses and liabilities incurred under this act, the town may from time to time, within five years after the passage of this act, borrow such sums as may be necessary, not exceeding, in the aggregate, one million dollars, and may issue bonds or notes therefor, which shall bear on their face the words Bourne Sewage Loan, Act of XXXX. Each authorized issue shall constitute a separate loan and such loans shall be payable in not more than thirty years from their dates. Indebtedness incurred under this act shall be in excess of the statutory limit, but shall, except as provided herein, be subject to chapter forty-four of the General Laws.

SECTION 9: The revenues received by the fund described in section 7 from sewer assessments, fees, charges, contributions from the town towards the costs of the sewer system as described in section 7 and the like as receipts or revenues, shall be applied to the payment of charges and expenses incident to the planning, permitting, design, construction, maintenance and operation of the sewerage and sewage disposal system, or the extensions thereof, to the payment of principal or interest upon bonds or notes issued for sewer purposes or to the payment or redemption of the bonds or notes.

SECTION 10: Said board of sewer commissioners may annually appoint a clerk and may appoint a superintendent of sewers who shall not be a member of the board, and shall define their duties. It may remove the clerk or superintendent at its pleasure. Said board may, in its discretion, prescribe for the users of said sewer system or systems such annual rentals or charges based on the benefits derived therefrom as it may deem proper, subject, however, to such rules and regulations as may be fixed by vote of the town.

SECTION 11: All contracts made by the board of sewer commissioners shall be made in the name of the town and shall be signed by the board, but no contract shall be made or obligations incurred by said board for any purpose in excess of the amount of money appropriated by the town therefor.

SECTION 12: The board of sewer commissioners may, from time to time, adopt and prescribe rules and regulations for the means of connection of estates and buildings with sewers and for inspection of the materials, construction, alteration and use of all connections entering to the sewers, but not including the expansion of districts except as provided in section 1 and 16, and may prescribe penalties, not exceeding $300 per day, for each violation of any rule or regulation so adopted or prescribed. The rules and regulations shall be available for public review at the board of sewer commissioner's designated office during regular office hours. Any changes, deletions, additions or revision to the rules and regulations deemed necessary by the board of sewer commissioners, shall take effect after a notice of change has been published at least once a week for two successive weeks in a newspaper of general circulation in the town. The notice of change shall detail where and when the revised rules and regulations may be viewed by the general public.

SECTION 13: Notwithstanding any general or special law to the contrary, owners of land not within the sewer districts defined and established pursuant to section 1, shall not be permitted to connect to the town's sewer system except as set forth in this act. The territory covered by the sewer districts may be amended from time to time by the board of sewer commissioners, after a public hearing conducted to consider the amendment, upon approval of the department of environmental protection, if required by law, and upon enactment by town meeting of a by-law defining or establishing a new or expanded

sewer district; provided, however, if the board of sewer commissioners votes not to amend the territory of any sewer district, the amendment may nevertheless be enacted in the form of a by-law upon a 2/3 majority vote of the town meeting.

Any by-law adopted pursuant to the authority granted to the town by this act may include authorization of the board of sewer commissioners to add, without a vote of the town meeting, to the sewer districts create pursuant to this act, properties located within sewer needs areas as defined by any comprehensive wastewater management plan as may be approved by the secretary of energy and environmental affairs with any conditions and limitations with respect to the authorization as the by-was may provide.

SECTION 14: The board of sewer commissioners may, in its discretion, prescribe for the users of the sewer systems and disposal works annual charges, connection fees, assessments, privilege fees and the like, based on the benefits derived therefrom as the board of sewer commissioners may deem proper, subject to any by-laws adopted by a vote of the town or provided for in the General Laws. Notwithstanding any general or special law to the contrary, the board of sewer commissioners may impose and collect the charges, fees or assessments prior to connection or operation of the system of sewers and disposal works and may enter into agreements for the payment thereof over such at time as the board of sewer commissioners shall determine. IN fixing the charges to be imposed for said system, the board of sewer commissioners may: (i) make use of any fee, charge, assessment or betterment provided for by the General Laws; (ii) take into consideration all costs for ongoing removal of infiltration and inflow of non-wastewater into the system as part of the normal operating costs of the system; (iii) include capital costs and interest charges applicable to setting privilege fees; (iv) impose late fees for unpaid billings; (v) assess a capacity utilization fee to new estates and properties added to a sewer district authorized by this act from outside a designated needs area in addition to any privilege fee; and (vi) charge betterments, special assessments or any other charge to the estates and properties being served by collection system improvements and extensions and disposal works to pay for all costs for such sewer line extensions.

SECTION 15. This act shall take effect upon its passage.

Attachment 7

Attachment 7
Legal Entities Considered and Not Recommended

A. Model Water and Sewer Commission – M.G.L. c. 40N.

Any city or town accepting the provisions of M.G.L c. 40N through a town meeting vote can create a water and sewer commission.[1] The sewer commission is governed by a board of three members who are residents of the town and are appointed by the municipal governing body. C. 40N §4. The municipal governing body in this case would be the Board of Selectmen. Upon creation, the existing sewer works and staff are transferred to the commission. C. 40N §6-7.

A Model Sewer Commission created under this authority would have broad powers including the ability to; promulgate bylaws, rules and regulations, c. 40N §8(a); apply for and accept loans, grants and gifts, c. 40N §8(d); acquire by purchase, lease, gift, or obtain options for the acquisition of any property, c. 40N §8(e); sell, lease, mortgage, exchange, transfer or otherwise dispose of property, c.40N §8(f); construct sewer works system, c. 40N §8(i); borrow and incur indebtedness and issue bonds, c. 40N §8(k); fix, revise, charge, collect and abate fees, rates, rents, assessments, and other charges for sewer. 40N §9(a).

However, the sewer commission does not have the power of eminent domain without the prior approval of the legislative and executive bodies of the municipality. C. 40N §8(g).

Furthermore, the sewer commission appointed by the board of selectmen can be made up of any resident of the town. There is no requirement that the commission members have to include residents of the sewered area.

The Greater Lawrence Sanitary District is an example of this mechanism.

Application to Red Brook Harbor

It appears that a commission established pursuant to c. 40N §25 includes the necessary legal authority to apply to the Red Brook Harbor project. Some of the benefits of this approach may include:

- A town-managed model sewer commission, either by the Board of Selectmen or an elected Board of Sewer Commissioners has the benefit of administrative efficiency and expertise.
- Sewer district could include Cedar Point Neighborhood, Kingman Yacht Center, Red Brook Harbor Development and the Cataumet Harbor WWTF. Otherwise, it might only include the collection system through the Cedar Point Neighborhood with the authority to contract with the Cataumet Harbor WWTF for wastewater treatment and disposal.
- SRF Financing
- Rules and regulations passed at town meeting can require the connection of homes within the sewer district.

Drawbacks of this approach include:

- Eminent Domain Limitation. The inability to take property under Eminent Domain may pose problems in the laying out and construction of the collection system and siting of pump

[1] C.40N §1.

stations. However, it does appear that this instrument may be too onerous to implement for the commercial development and fifty existing residences.

- Sewer commission is appointed by the town-wide board of selectmen and there is no requirement that a resident of the district be on the sewer commission.

B. Water Pollution Abatement District

A Water Pollution Abatement District, comprised of the Cedar Point neighborhood, could be formed pursuant to M.G.l.c.21, §28. The town may voluntarily form the district upon approval of town meeting or the state can make it mandatory.

In the case of mandatory formation, the state may propose a district or the district may be included in an area wide waste treatment management plan under Section 208 of the federal Clean Water Act. Within 90 days of receipt of notice of such action, the municipality must consider and approve or disapprove the action. Approval must be vote at an annual or special town meeting. In this case, because the district would include only a portion of the town, the town must call a duly advertised special town meeting, in which only registered voters in the proposed district would vote. In the event the district is not approved, the state (acting through MassDEP) must conduct a public hearing. Upon completion of the hearing the state may find that the formation of the district is necessary for the prompt and efficient abatement of water pollution and may declare the mandatory formation of the district. M.G.L.c.21, §28(b).

The provisions for mandatory formation of the district could be helpful in the event that is no consensus on how to proceed among the residents of the proposed district.

The district would be a separate entity managed by a commission. The district commission must have 2 members appointed by the Board of Selectmen. One of the members must live in the district. In the event of a mandatory formation of the district, one additional member, appointed by the state will be added to the commission. The district must employ a professional engineer and person with financial and accounting experience to serve as the Executive director and Treasurer respectively. Other persons may be employed as well. M.G.L.c.21, §29.

The commission would have the power to adopt by laws and regulations, incur expenses, issue bonds and notes, acquire and dispose of real property, exercise eminent domain powers, apply for and accept financial assistance from state and federal government, apply for and hold permits required for its facilities and operations, construct, operate and maintain, manage and operate pollution abatement facilities. It would have the power to sue and be sued. It would have the power to lay out sewers in both private and public roads. It would also have the power to acquire, install, operate, maintain, remove or repair any septic system located within its district. M.G.L.c.21, §30.

Although a water pollution abatement district would work in this case, and would have broad powers, in many ways it seems to be geared more towards a larger geographic area, spanning multiple towns. It would require significant operating costs and management. However, cost obstacles could be minimized in that it would be eligible for state and federal funding. The Commission would have the necessary powers to take land by eminent domain if required and in conjunction with the Town assess user charges.

C. Creation of an Independent Limited Sewer District

There are at least four examples of communities in Massachusetts which have created an independent sewer district through special legislation. The special legislation specifically describes the boundaries of the district and requires the creation of an elected board of three sewer commissioners made up of residents from within the sewer district who are elected by the residents of the sewer district. The board must appoint a clerk and a treasurer. The board may fix charges, set taxes (with district voter approval) and/or benefit assessments, and issue bonds. Further powers of the board of sewer commissioners include the ability to make contracts with other districts, sewer departments, municipalities or individuals for the purpose of making connections for the collection, purification and disposal of sewage. Independent districts have eminent domain powers and establish rules and regulations through district meetings. It appears that the district has the power to require homeowners within the district to connect to the sewer.

For example, the town of Leicester has four independent sewer districts created through special legislation. The Cherry Valley sewer district, created pursuant to Chapter 33 of the Acts of 1998, and serves approximately 1,050 people.[2] The average household size is 2.73 people per home.[3] So the sewer district includes approximately 385 homes and each home pays $820 per year for sewer service.[4]

Similarly, the town of Leicester also includes the Hillcrest Sewer District which provides approximately 366 homes with sewer service with annual sewer charge of $460/year.[5]

Finally, the town of Charlemont, pursuant to Chapter 266 of the Acts of 1981 created an independent sewer district to service approximately 179 homes.[6] The Charlemont sewer district operates a budget of approximately $150,000 per year to operate and manage the collection system and wastewater treatment facility.[7]

Research yielded no examples of a district created for 50 or fewer homes.

Application to Red Brook Harbor

It is possible to create an independent limited sewer district through special legislation for Cedar Point neighborhood. The creation of a Cedar Point Sewer District would give that district the power to construct a collection system and contract with the Cataumet WWTF LLC for the treatment of and disposal of wastewater.

The benefits of this approach include:

- The independent board of sewer commissioners created under this model must all be residents of the district elected by residents of the district.

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[2] Tighe and Bond report
[3] Wikipedia http://en.wikipedia.org/wiki/Leicester,_Massachusetts last visited March 27, 2015.
[4] Tighe and Bond report
[5] Tighe and Bond
[6] Average household size is 2.52 pursuant to http://en.wikipedia.org/wiki/Charlemont,_Massachusetts last visited March 27, 2015
[7] Article.

- Sewer district could include Cedar Point Neighborhood, Kingman Yacht Center, Red Brook Harbor Development and the Cataumet Harbor WWTF. Otherwise, it might only include the collection system through the Cedar Point Neighborhood with the authority to contract with the Cataumet Harbor WWTF for wastewater treatment and disposal.
- Each home within the defined district can be required to connect.
- SRF financing.

Drawbacks of this model may include:

- The absence of town administration and management in this instance requires the independent sewer district to take on the administration and management duties. This may not be the most financially efficient model for a district that includes only 50 homes.

Dependent on state legislature passing a special act. This becomes a challenge if consensus is not reached within the district.

Attachment 8

LandVest®

Distinctive Properties - Real Estate Consulting & Appraisal - Forestry Consulting
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REGIONAL OFFICES

148 Middle Street
Portland, ME 04101
Telephone 207 774-8518
Fax 207 774-5845

22 Bayview Street
P.O. Box 1262
Camden, ME 04843
Telephone 207 236-3543
Fax 207 236-2172

4A Tracy Road
P.O. Box 1068
Northeast Harbor, ME 04662
Telephone 207 276-3840
Fax 207 276-3837

126 College Street
Burlington, VT 05401
Telephone 802 660-2900
Fax 802 660-2543

One The Green
Woodstock, VT 05091
Telephone 802 457-4977
Fax 802 457-9021

19 Summer Street
P.O. Box 459
Martha's Vineyard
Edgartown, MA 02539
Telephone 508 627-4400
Fax 508 627-7044

16 Centre Street
Concord, NH 03301
Telephone 603 228-2020
Fax 603 226-4391

April 13, 2015

Korrin Petersen
Buzzards Bay Coalition
114 Front Street
New Bedford, MA 02740

RE: Advisory Letter
Market Value Implications of a Sewer Service Area
Cedar Point Neighborhood, Pocasset (Bourne), Massachusetts

Dear Ms. Petersen,

Per your request, we are providing you with an *Advisory Letter* that considers valuation questions in relation to the Chancey-Nairn-Elgin neighborhood in the Village of Pocasset, Town of Bourne, Massachusetts. This letter complies with the *Uniform Standards of Professional Appraisal Practice* (USPAP 2014-2015) and the *Code of Professional Ethics* (CPE) and the *Standards of Professional Practice* (SPP) of the Appraisal Institute. The boundaries of the proposed service area are shown on the plans in the Appendix. This letter is intended to provide The Buzzards Bay Coalition and its partners with conclusions on the market value effect of sewer service availability, a hypothetical condition per USPAP.

We have considered this hypothetical condition by reviewing the characteristics of the properties within the proposed sewer service area and by reviewing the market dynamics in four other coastal neighborhoods where sewer was extended in the past decade.

Proposed Subject Sewer Service Area

The proposed subject sewer service area consists of 66 existing homes and 6 vacant, and assumed to be buildable lots, in three private homeowners associations. The following table summarizes some of the other relevant characteristics of the proposed sewer service area.

Subject Neighborhood Summary Table			
Existing Homes:	66	Total Bedrooms:	245
Vacant Buildable Lots*:	6	1-Bedroom Homes:	1
Conforming Lots:	12	2-Bedroom Homes:	7
Pre-Title V, No Sale:	29	3-Bedroom Homes:	28
Waterfront	12	4-Bedroom Homes:	17
Homes in Flood Zone:	9	5 Bedroom Homes:	5
Estimated Owner-Occupied:	36	6-8 Bedroom Homes:	8

** Excluded from this total are vacant lots in common ownership with adjoining improved parcels and identified as unbuildable by the Assessor.*

Proposed Sewer Service

The 66 existing residences have a combined 245 bedrooms based on our review of Assessor records. The proposed sewer expansion will be paid for through a betterment fee similar to those levied in other coastal neighborhoods around Buzzards Bay in the past decade. The estimated betterment fee to property owners is between $20,000 and $25,000 which is consistent with fees in other coastal sewer service areas. The betterment can be paid over a 20-year period. Connections will be mandatory, likely within two years of completion of the sewer project. The proposed treatment facility is designed to handle 34,000 gallons per day (gpd) of wastewater with 12,500 gpd allocated to the Kingman Marine Yacht Center and proposed townhomes. Based on our preliminary analysis, the sewer extension to the Chauncey-Nairn-Elgin neighborhood does not have adequate capacity to serve all existing residences as configured as detailed in the following table.

Entire Subject Neighorhood (66 Homes & 6 Lots)	
Total Neighborhood Existing Bedrooms	245
Vacant Lots - Potential Bedrooms	24
Gallons Per Day (GPD) per Bedroom	110
Neighborhood Total (GPD)	29,590
Treatment Capacity	34,000
Yacht Center & Townhomes	12,500
Neighborhood	29,590
Remaining - GPD	**(8,090)**
Remaining - Bedrooms	**(74)**

As can be seen in the above table, there is approximately 8,000 gpd of excess wastewater if all existing residence and vacant buildable lots were connected to the new treatment facility. Therefore, we have also summarized the totals for the 29 homes that are still on pre-Title V septic systems and the six vacant lots as yet unbuilt upon. The 37 homes excluded from this group were built or sold since 1995. We assume that the 37 homes have Title V-compliant septic systems. The following table summarizes the “old septic” neighborhood subset.

Old Septics in Neighorhood (29 Homes & 6 Lots)	
Total Bedrooms on Old Septic	108
Vacant Lots - Potential Bedrooms	24
Gallons Per Day (GPD) per Bedroom	110
Neighborhood Total (GPD)	14,520
Treatment Capacity	34,000
Yacht Center & Townhomes	12,500
Neighborhood	14,520
Remaining - GPD	**6,980**
Remaining - Bedrooms	**63**

As can be seen from the table, there remains approximately 7,000 gpd (or 63 bedrooms) of excess capacity to be allocated or reserved for home expansions or connections to waterfront homes on newer septic systems with a higher risk of releasing nitrogen into the bay.

Comparable Neighborhoods with Sewer Service

As part of our analysis to determine what effect sewer availability has on the market value of homes in coastal markets, we have reviewed the market dynamics of several neighborhoods around Buzzards Bay where sewer services has been provided in the past 10 years. We considered communities from Westport to Falmouth. In the end, we focused on four neighborhoods: Bay View – Smith Neck Rd. in Dartmouth, Brant Beach and Mattapoisett Neck in Mattapoisett, and New Silver Beach in Falmouth. These neighborhoods bracket the subject neighborhood geographically and by measures of density and values and all include waterfront properties. These neighborhoods are summarized in the following table.

Regional Sewer Service Areas in Coastal Buzzards Bay Locations

Neighborhood	Town	Zoning	Year into Service	Estimated No. of Homes	Estimated % Owner Occupants	Mandatory Betterment	Betterment Fee	Town Median Sale Price 2014	FY 2015 Tax Rate	Average SF Tax Bill in Town	HOA Annual Fees
Subject Neighborhood, Red Brook Harbor	Bourne	40,000 SF, 125' road frontage	2016	66	55%	Yes	$20,000 to $25,000	$294,500	$10.07	$3,915	$300 to $400
New Silver Beach Sewer Service Area	Falmouth	40,000 SF, 100' road frontage	2014	231	23%	Yes	$20,000 to $25,000	$375,000	$8.19	$4,001	$150 to $225
Brant Beach Neighborhood	Mattapoisett	30,000 SF, 125' road frontage	2006	137	56%	Yes	$20,000 to $25,000	$365,000	$13.00	$5,718	$40 to $50
Mattapoisett Neck Neighborhood	Mattapoisett	30,000 SF, 125' road frontage	2014	250	NA	Yes	$20,000 to $25,000	$365,000	$13.00	$5,718	$200 to $300
Bay View Neighborhood	Dartmouth	80,000 SF, 200' road frontage	2008	135	71%	Yes	$20,000 to $25,000	$280,000	$9.81	$3,469	$0 to $600

In researching the sales histories in these sub-markets and interviewing brokers who sold or listed properties around the time of the sewer service implementation, some general themes emerge. Several factors that affect market value were noted by market participants. However, isolating the sewer availability as a factor solely affecting value is difficult particularly in a coastal market where several other factors affect market value including water frontage, water views, flood zones, non-conformity of the lot or home, and the size of the lot or home.

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Factors that Affect Value of Coastal Properties

In our analysis of coastal neighborhoods recently served by sewer service, the following factors have an effect on property values within the sewer service area:

1. **Zoning Compliance** – is the property conforming or non-confirming?
2. **Flood Zone** – is the property in or out of the flood zone? What are the insurance implications?
3. **Betterment & Connection Fees** – What is the betterment? Is it mandatory? What are the additional connection fees incurred by the property owner?
4. **Expansion & Capacity Limitations** - Are there capacity limitations on the sewer connections? Are additional bedrooms permitted?
5. **Added Carrying Costs** - There is an important interrelationship between the costs of sewer connections and the value of properties at the time of the sewer availability.
6. **Neighborhood Character** - Does additional density resulting from sewer access positively or negatively affect the character and/or market values in the neighborhood?
7. **Water Service Availability** - Is town water also available?
8. **Status of Existing Septic Systems** - Are existing septic systems failing and a long-term liability for homeowners?
9. **Recreational Water Quality** - What is the environmental quality of the adjacent recreation water resources? Has eutrophication been an increasing problem in the area?
10. **Environmental Regulations** - Septic regulations will likely only get more restrictive and the cost of compliance will likely increase as development in coastal markets expands.
11. **Displacement of Residents** - Displacement of long-term, low income or fixed income residents can result from added costs of sewer connection, betterment, and flood insurance.

We have considered these factors as they relate specifically to the subject neighborhood.

1. **Zoning Compliance** – The subject neighborhood has a minimum lot size requirement of 40,000 square feet. 12 of the 72 properties in the subject sewer service area are conforming. However, the lots average approximately 27,000 sq. ft. with a median size of 21,400 sq. ft., rounded. Relative to other sewer service areas studied, the subject parcels are relatively large meaning that they can likely accommodate house and septic expansions in most cases especially since town water is available. *Therefore, zoning compliance has a limited effect on values of most homes in the neighborhood.*

2. **Flood Zone** – Only nine of the 72 properties in the subject sewer service area are within a regulated flood zone (two of the nine are vacant). In these cases, the implications of flood zone compliance and long-term insurance premiums (to increase 25% annually) are likely more significant from a market value perspective than septic versus sewer unless the property is configured in such a way that septic expansion is not feasible. That does not appear to be the case here with the nine flood zoned properties and only one of the nine residences has three bedrooms. The rest have four or more. Only one of the seven

existing houses in the flood zone has more than 2,900± sq. ft. of living area which is important because building regulations in a flood zone require that any changes to an existing structure that exceed 50% of the value of the structure triggers compliance with "base flood elevation" requirements. Base flood elevation in the subject neighborhood is between 15 to 17 feet while existing grades are as low as 10 feet on some parcels in the flood zone. The average building assessment for the seven homes in the flood zone is $233,000 which indicates that any renovations or expansions would have to be for less than $116,000 to not trigger flood code compliance. *In the end, flood regulations have a limited effect on value for the overall subject neighborhood but have a potentially significant effect on the market value of the nine homes within the flood zone, beyond what the sewer service may bring in added value.*

3. **Betterment & Connection Fees** – The subject betterment fee is estimated at $20,000 to $25,000 per property with connection fees to tie houses to the sewer costing $3,000 to $5,000 depending on the distance of the sewer connection from the home. The betterment can be paid back over 20 years and connections must be completed within two years of completion of the system.

   In discussions with brokers from the four sewer service markets we researched, the consensus was that the effect of the betterment fee and connection costs have an inverse relation to the value of the property. The lower the value of the property, the higher the effect of the betterment and connection costs. The higher the value of the property, the lower the perceived effect the costs had on the ownership or sale of the property. The important caveat to this conclusion is when the sewer connection unlocks otherwise unavailable expansion capacity (i.e. more bedrooms) then the value enhancement from the availability of sewer outweighs the burden on the costs.

   In the case of the subject neighborhood, the size of the lots and the higher values of the homes make the betterment cost less of a value factor for property owners in the subject neighborhood (median assessed value in FY 2012 of $562,000 for 66 homes vs. town-wide median sale price of $294,500 in 2014). In the case of other neighborhoods such as New Silver Beach in North Falmouth, the median assessed value was $361,000 (as of FY 2012). The betterment and connections costs in New Silver Beach can be 10% or more of a property's value in some cases. *In the case of waterfront or water-view homes in the subject neighborhood, the market values are higher and thus the betterment as a percentage of the property value is lower and the effect on market value is limited.*

4. **Expansion & Capacity Limitations** – The ability to expand the size of a home, more importantly the number of legal bedrooms, has a measurable effect on the market value of a property. This effect was noticeably evident in the case of the Brant Point sewer service area in Mattapoisett completed in 2006. No limitation on home expansion was put into place and vacant lots (some that were unbuildable previously due to septic limitations) became buildable. The sewer service availability to this area was that much more significant as the area was served by private wells meaning that septic systems previously had to comply with well setbacks in addition to Title V design requirements.

In the case of the new sewer service being extended to the 231 homes in the New Silver Beach neighborhood of North Falmouth, there is a cap on expansion to a maximum of three bedrooms with existing homes of greater than three bedrooms grandfathered. Some brokers indicated that this limitation was a negative factor for homes with the potential to expand beyond three bedrooms but it also enhanced the value of two-bedroom homes that could now be expanded to three bedrooms assuming zoning allowed for further expansion.

Our analysis of home sales from the subject and four study neighborhoods yielded a range of values on a "per bedroom" basis of $76,000 to $581,000 per bedroom. The following table summarizes, the sales prices "per bedroom" for different sized homes (i.e. # of bedrooms). Of course, there are other variables like water frontage, water views, and lot and home size that affect the unit value of a specific home. For purposes of this analysis, we conclude that the ability to add an additional bedroom to a home as a result of sewer availability, likely adds an average of **$138,000** to the value of a home.

Subject Neighborhood - Sale Prices Per Bedroom Since 2000			
	2-3 Bedroom	4-6 Bedroom	All Homes
Sales since 2000:	17	12	29
Minimum Value:	$127,000	$76,000	$76,000
Median Value:	$203,000	$148,000	$185,000
Average Value:	$237,000	$237,000	$237,000
Maximum Value:	$483,000	$581,000	$581,000
Added Value Adjusted for Cost of Construction @ $200/SF			
Cost of Add 400 SF:	$100,000	$100,000	$100,000
Minimum Value:	$27,000	-$24,000	-$24,000
Median Value:	$103,000	$48,000	$85,000
Average Value:	$137,000	$137,000	$137,000
Maximum Value:	$383,000	$481,000	$481,000

In addition to the above analysis of the subject neighborhood, we have looked at resales of homes in the four study neighborhoods to an indication of value effect resulting from the extension of the sewer. To try and normalize the value change over the last 15 years, we compared the change in sale price to the change in the town-wide median home price over the same period. These 13 resales do not reveal a clear pattern as eight sales trailed the town-wide median value change rate and six sales exceed the town-wide median value change rate. Most of this variation is due to the range of other variables that we have not controlled for in this limited study such as water orientation, flood zone locations, house size, lot size, or renovation/expansion since last sale. Therefore, we cannot make a correlation between sewer availability and change in market value from the comparable resale data. However, we note that five of the eight sales that lagged the town-wide rate are located in flood zones. Also, consistent with our discussion of sale price "per bedroom," these 13 resales indicated a median sale price of $133,000 "per bedroom" and an average price of $138,000 "per bedroom."

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Comparable Resales								Town-wide		Sale vs.	
Address	Sale Date	Sale Price	Beds	$/Beds	Septic / Sewer	Years	Total Change	Median SF Value	Total Change	Town Rate Variance	Comment
Brant Beach, Mattapoisett											
10 Island View Ave.	4/26/2001	$585,000	4	$146,250	septic			$290,000			Marshfront home, located **in**
Mattapoisett	7/23/2012	$548,700	4	$137,175	sewer	11.25	-6.2%	$335,000	15.5%	-21.7%	**flood zone VE**.
21 Brant Beach Ave.	10/29/2010	$333,000	3	$111,000	sewer			$335,000			Bedroom count change. Upgrades.
Mattapoisett	2/4/2015	$470,000	4	$117,500	sewer	4.27	41.1%	$365,000	9.0%	32.2%	No flood zone. UST removed.
25 Brant Beach Ave.	8/17/2006	$479,000	3	$159,667	septic			$411,500			Interior location, no water view,
Mattapoisett	5/23/2013	$415,000	3	$138,333	sewer	6.77	-13.4%	$358,000	-13.0%	-0.4%	no flood zone.
4 Howard Beach	5/23/2002	$350,000	2	$175,000	septic			$321,250			Waterfront **in flood zone VE**.
Mattapoisett	5/27/2003	$444,000	2	$222,000	septic			$342,500			
	5/27/2005	$569,000	2	$284,500	septic			$390,000			
	8/5/2013	$418,000	2	$209,000	sewer	8.20	-26.5%	$358,000	-8.2%	-18.3%	
Mattapoisett Neck											
11 King Philip Rd.	8/18/2003	$275,000	3	$91,667	septic			$342,500			Rustic cottage, electric heat.
Mattapoisett	10/18/2013	$263,250	3	$87,750	sewer	10.18	-4.3%	$358,000	4.5%	-8.8%	Located **in flood zone A**.
14 Highland View Ave.	9/28/2005	$500,000	3	$166,667	septic			$390,000			Water-view, very small
Mattapoisett	6/15/2007	$650,000	3	$216,667	septic	1.71	30.0%	$446,000			constrained lot. Just outside of
	12/12/2013	$502,425	3	$167,475	sewer	6.50	-22.7%	$358,000	-19.7%	-3.0%	flood zone A.
9 Grandview Ave.	1/31/2005	$579,500	3	$193,167	septic			$390,000			Renovated, no flood zone.
Mattapoisett	2/27/2015	$660,000	3	$220,000	sewer	10.08	13.9%	$365,000	-6.4%	20.3%	
2 Port Way	11/5/2010	$295,000	1	$295,000	septic			$335,000			Renovated, **in Flood Zone VE**.
Mattapoisett	11/21/2014	$255,000	2	$127,500	sewer	4.05	-13.6%	$365,000	9.0%	-22.5%	
New Silver Beach											
28 Moses Rd.	11/15/2011	$300,000	3	$100,000	septic			$348,000			Water-view, totally renovated, **in**
Falmouth	2/12/2014	$450,000	4	$112,500	sewer	2.25	50.0%	$375,000	7.8%	42.2%	**flood zone A.**
52 Ocean View Ave.	9/21/2007	$590,000	4	$147,500	septic			$412,250			Water-view, just outrside flood
Falmouth	10/20/2014	$542,500	4	$135,625	sewer	7.08	-8.1%	$375,000	-9.0%	1.0%	zone.
7 Grove St.	1/8/2002	$193,000	2	$96,500	septic			$280,000			No water-view, **in Flood zone A**.
Falmouth	3/2/2015	$217,500	2	$108,750	sewer	13.15	12.7%	$375,000	33.9%	-21.2%	
17 Grove St.	6/1/2000	$135,500	2	$67,750	septic			$197,750			Sewer betterment paid in full, **in**
Falmouth	10/31/2014	$265,000	2	$132,500	sewer	14.42	95.6%	$375,000	89.6%	5.9%	**flood zone A.**
Bay View											
822 Smith Neck Rd.	11/27/2000	$390,000	4	$97,500	septic			$165,000			No water view, no flood zone.
Dartmouth	7/15/2010	$475,000	5	$95,000	sewer	9.64	21.8%	$260,000	57.6%	-35.8%	
Low (most recent sales):		**$217,500**	**2.0**	**$87,750**		**1.71**	**-26.5%**		**-19.7%**	**-35.8%**	
Median (most recent sales):		**$450,000**	**3.0**	**$132,500**		**7.64**	**4.2%**		**7.8%**	**-3.0%**	
Average (most recent sales):		**$421,721**	**3.2**	**$137,624**		**7.82**	**12.2%**		**13.1%**	**-2.3%**	
High (most recent sale):		**$660,000**	**5.0**	**$220,000**		**14.4**	**95.6%**		**89.6%**	**42.2%**	

*For the subject neighborhood, we conclude that the ability to add a bedroom as a result of the sewer service availability will add **an average of $138,000** to a home depending on its size and location and whether a bedroom could have been added anyway with a larger Title V septic system.*

5. **Added Carrying Costs** – All properties have basic annual carrying costs that include property taxes, insurance, and some level of maintenance. With coastal properties, these costs are often higher due to higher property values, greater insurance risk (especially if in a flood zone), and the "wear and tear" that comes with exposure to coastal winds and salt air. In some cases, there can be additional homeowner association (HOA) fees as well. When a betterment fee and mandatory connection cost are added to these existing costs, the ownership of a coastal home can become unsustainable for some. As noted above, the long-term owners of older, smaller, lower-valued homes tend to be affected disproportionately by the increase in carrying costs. The following table illustrates how the betterment can affect a lower-valued property disproportionately.

Carrying Cost Analysis				
Home Value:	**$2,000,000**	**$1,000,000**	**$560,000**	**$400,000**
Existing Cost Estimate - Debt Free - Outside Flood Zone				
Property Taxes:	$26,000	$10,070	$5,639	$4,028
Insurance:	$2,500	$1,500	$1,200	$1,000
Maintenance:	$7,500	$5,000	$3,000	$2,000
HOA Fees:	$200	$200	$200	$200
Annual Costs:	**$36,200**	**$16,770**	**$10,039**	**$7,228**
Sewer Connection Effect on Annual Carry Costs				
Betterment (Annual over 20 years):	**$2,000**	**$2,000**	**$2,000**	**$2,000**
Connection Cost (First Year):	**$4,000**	**$4,000**	**$4,000**	**$4,000**
Total Cost - Sewer - One-Time Payment:	**$26,500**	**$26,500**	**$26,500**	**$26,500**
% Change in Carrying Costs - First Year:	**17%**	**36%**	**60%**	**83%**
% Change in Carrying Costs - Years 2-20:	**6%**	**12%**	**20%**	**28%**
% Change in Carrying Costs - One-Time Payment:	**73%**	**158%**	**264%**	**367%**

In the case of the subject neighborhood, the added fixed carrying costs of the sewer betterment fee and sewer connection are considered negative cost factors relative to the overall carrying cost of a typical property in the neighborhood ($560,000 median value in table above). It is important to note that this table does not include flood insurance costs which are anticipated to increase by 25% annually until they reach their true actuarial cost in several years. However, only nine of the 72 properties in the subject neighborhood are located in a flood zone so the flood insurance cost factor will only affect 13% of the properties.

6. **Neighborhood Character** – Neighborhood character can change as a result of sewer service being extended to an area. Depending on the zoning regulations, there can be a noticeable increase in density resulting from access to sewer service. This density

increase, whether the expansion of existing homes, demolition and replacement of small homes, or the construction of new homes on formerly unbuildable lots, may be perceived as a negative change by existing homeowners but it most often results in higher market values in the area as owners invest in their properties. The sales of new homes will often raise the value of existing homes as well. Brant Beach and New Silver Beach have each seen increased building permit activity and sales or listings around the time of the sewer extension. *For the subject neighborhood, the existing low density and large existing home sizes likely means that changes to neighborhood character will be minimal and likely only result in higher home values as current and future new owners make further investments in their properties.*

7. **Water Service Availability** – In areas with well water, septic systems are further limited as to their size and location due to required setbacks. This was the case in Brant Beach where homes were served by wells. *For the subject neighborhood, town water is available and the lots are large so water service is not a value factor with the extension of the sewer.*

8. **Status of Existing Septic Systems** – Based on our review of the subject neighborhood data from the Assessor and data from Horsley Witten Group, there are 22 homes that were built before 1995 when Title V went into effect, have not sold since, and have not had their septic replaced since 1995. By our calculations, these 22 homes include 86 bedrooms producing approximately 9,500 gpd of wastewater for treatment.

9. **Recreational Water Quality** – Water quality of Red Brook Harbor is a critically important amenity for homeowners in the subject neighborhood. The homeowners use the harbor for swimming, boating, and shellfishing in some areas. A significant decline in water quality in the harbor can have a measurable effect on market values.
The Cape Cod Commission (CCC) recently released a study entitled *"Water Quality and Cape Cod's Economic Future: Nitrogen Pollution's Economic Impact on Homes and Communities."* This report used "hedonic modeling" to analyze home values in the "Three Bays" area in the town of Barnstable (North Bay, Cotuit Bay, and West Bay) from 2005 to 2013 when water quality in the Three Bays decreased by 15.8%. The basic conclusion of the study was that "high levels of nitrogen decreased a home's value, where a 1% decline in water quality led to an average loss in home value of 0.61%, after controlling for other factors." Per the report, this effect is primarily on waterfront properties or properties in close proximity to the bays and the implications of the findings were that the property tax burden in a community may shift from the waterfront neighborhoods to inland properties. Thus, negatively affecting residents in lower value, year-round homes with higher property tax burdens. The following table shows the relative health of the waters adjacent to the subject neighborhood and four sewer service areas studied.

Water Quality in Vicinity of Recent Sewer Service Areas

Neighborhood	Town	BBC Health Index (5-Year Average)
Subject Neighborhood, Red Brook Harbor	Bourne	Inner Harbor = 42 Outer Harbor = 52
New Silver Beach Sewer Service Area	Falmouth	Wild Harbor River = 34 Fiddlers Cove = 57
Brant Beach Neighborhood	Mattapoisett	Brant Island Cove = 67
Mattapoisett Neck Neighborhood	Mattapoisett	Inner Harbor = 63 Outer Harbor = 71
Bay View Neighborhood	Dartmouth	Mid Harbor = 46 Outer Harbor = 56

As can be seen from the above table, Red Brook Harbor has lower water quality relative to other areas studied and falls within the Buzzards Bat Coalition's "Fair" Health Index range of 35 to 65. *Further decline in the health of the Red Brook Harbor will likely put downward pressure on home values in the subject neighborhood similar to the effect documented in the CCC Three Bays Study at 0.61% for each 1% decline in water quality.*

10. **Environmental Regulations -** Septic regulations will likely only get more restrictive over time and the cost of compliance will only increase as development in coastal markets expands. *For the subject neighborhood, a sewer connection is a long-term investment against the cost of septic compliance in the future.*

11. **Displacement of Residents** – Some displacement may occur as a result of increased annual costs. However, given the size of the lots, the high median assessed values, the low number of owner-occupants, the desirable location, and the majority of the homes being outside of the flood zone, the subject neighborhood will not likely see the a high level of displacement of residents.

Final Conclusions

Based on the preceding discussion and analysis, we make the following conclusions:

1. Flood insurance cost uncertainty for the nine homes in the subject neighborhood will likely exceed or compound the burden of the sewer betterment and connection costs. However, the potential to add bedrooms to the home may mitigate or exceed the flood insurance cost concerns in some cases.

2. Betterment and connection costs affect all properties with lower valued properties affected disproportionately.

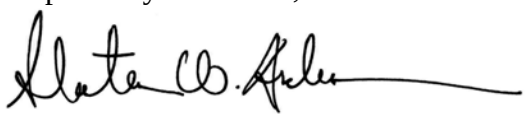
3. An additional bedroom, where one may not otherwise be possible, can add **an average of $138,000** in value to a home after factoring in construction costs.

4. Improved water quality from reduced eutrophication in the harbor can increase properties values over time. Conversely, a **1%** decline in water quality can result in a **0.61%** decline in property value as documented in the recent CCC Three Bays Study.

5. A sewer connection is a long-term investment against the cost of septic maintenance and compliance in the future.

Thank you for considering LandVest for this analysis. Please call or e-mail with any questions or comments.

Respectfully submitted,



Slater W. Anderson
Senior Advisor
Real Estate Consulting Group
LandVest, Inc.

I hereby certify that:

1. Slater Anderson made an inspection of the property that is the subject of this appraisal in March 2015.

2. To the best of my knowledge and belief, the statements of fact and the opinions contained in this report are correct;

3. The reported analysis, opinions, and conclusions are limited only by the reported assumptions and limiting conditions, and are my personal, unbiased professional analysis, opinions, and conclusions.

4. I have no present or prospective interest in the property that is the subject of this report, and have no personal interest or bias with respect to the parties involved.

5. LandVest's compensation is not contingent upon the reporting of a predetermined value or direction in value that favors the cause of the client, the amount of the value estimate, the attainment of a stipulated result, or the occurrence of a subsequent event.

6. My analysis, opinions and conclusions were developed, and this report has been prepared in conformity with the requirements of the Code of Professional Ethics and the Standards of Professional Practice of The Appraisal Institute, as well as the Uniform Standards of Professional Appraisal Practice of the Appraisal Foundation.

7. As of the date of this report, I (Slater W. Anderson) have completed the Standards and Ethics Education Requirement of the Appraisal Institute for Associate Members.

8. The use of this report is subject to the requirements of The Appraisal Institute relating to review by its duly authorized representatives.

9. No one provided significant professional assistance to the person signing this report.

10. I have not appraised the subject property in the prior three years.

Date: 4/13/15

LANDVEST INC., Real Estate Consulting Group

Appraiser:

Slater Anderson, Senior Appraiser
MA Certified General Lic. No. 70909

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Plans

Legend

- Cedar Point Neighborhood - 55.44±Ac
- Sewage Treatment Facility Location - 4.54±Ac
- Marina - 11.2±Ac
- Cedar Point Neighborhood Parcels
- Contours (ft)

Base Plan Orthophotograph

Red Brook Harbor
Bourne, Massachusetts

Project Number: 9804

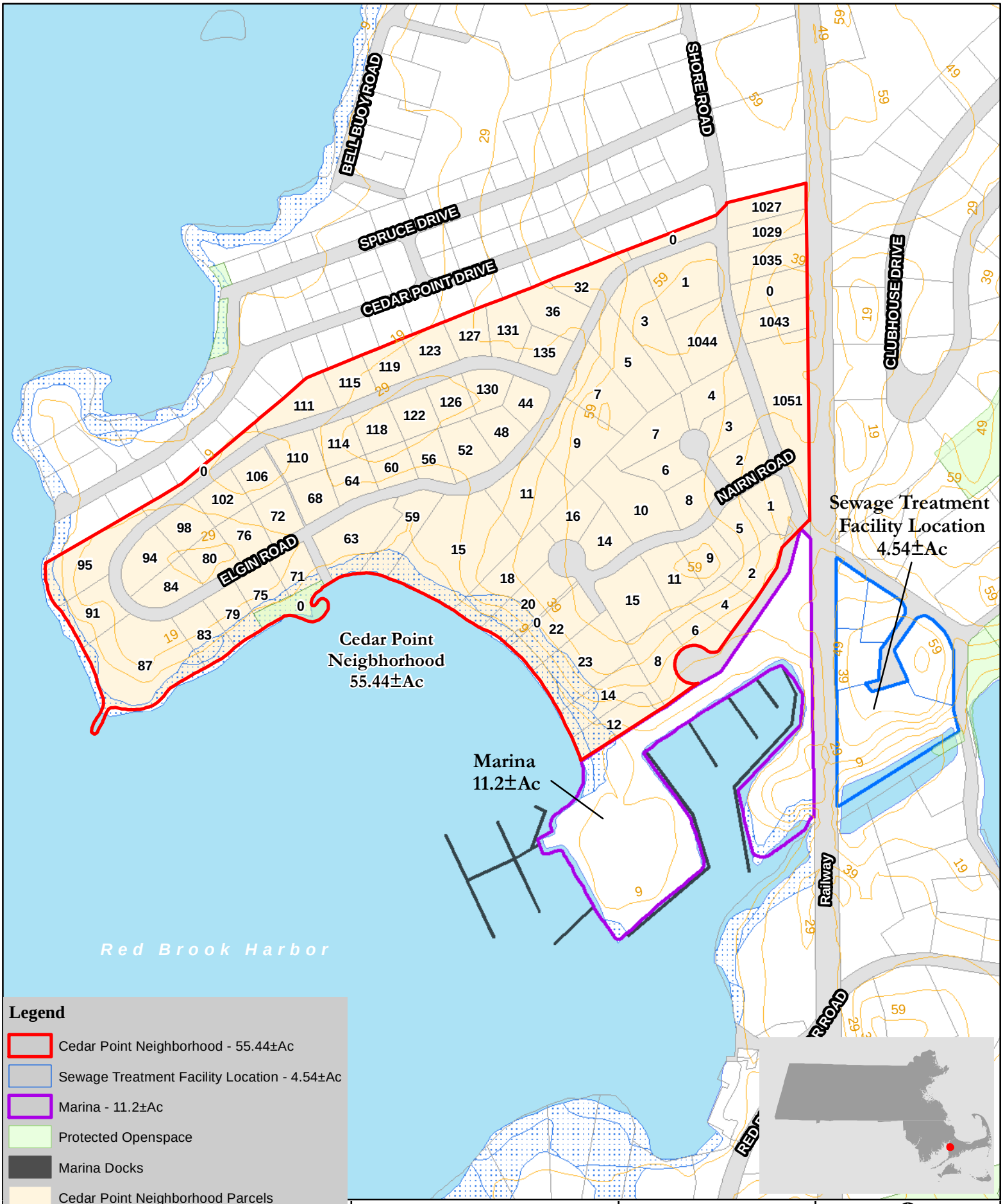
March 26, 2015

This plan is conceptual only and is not represented as an engineered plan.

Scale: 1" = 400'

0 100 200 400 Feet

LandVest
Ten Post Office Square, Boston, MA 02109



Base Plan

Red Brook Harbor
Bourne, Massachusetts

Project Number: 9804

March 26, 2015

This plan is conceptual only and is not represented as an engineered plan.

Scale: 1" = 400'

0 100 200 400 Feet

LandVest
Ten Post Office Square, Boston, MA 02109

Chauncey-Nairn-Elgin Property Data

NUM	FULL_STR	Waterfront	MAP_PAR_ID	LOT_SIZE	RES_AREA	Area/Bed	LS_DATE3	LS_PRICE3	LS_DATE2	LS_PRICE2	LS_DATE1	LS_PRICE1	$/BED	USE_CODE	YEAR_BUILT	RMS	Beds	BLDG_VAL	LAND_VAL	OTHER_VAL	TOTAL_VAL	Flood Zone	OWNER1	OWN_ADDR	OWN_CITY	OWN_STATE	LS_BOOK	LS_PAGE
2	CHAUNCY WAY		47.2_053.00	23,261	1,462	487					20050819	$690,000	$230,000	1010	1984	8	3	$171,900	$341,300	$10,100	$523,300		GALLIGAN NATALIE B	PO BOX 247	CATAUMET	MA	20175	17
4	CHAUNCY WAY		47.2_066.00	20,517	2,228	557					20010910			1010	1981	8	4	$150,700	$333,600	$0	$484,300		CONWAY MARTIN J TR OF	46 NANCY ROAD	MILTON	MA	14220	27
6	CHAUNCY WAY		47.2_065.00	20,517	2,426	809					20061204	$680,000	$226,667	1010	1996	6	3	$225,000	$333,500	$0	$558,500		CARPENO LINDA & THOMAS L LIGOR	PO BOX 820	CATAUMET	MA	25839	251
12	CHAUNCY WAY	Y	47.2_051.01	25,003	2,388	796								1010	1983	6	3	$274,600	$984,900	$303,800	$1,563,300		PREVETT ANTHONY J	PO BOX 775	CATAUMET	MA	03648	0185
14	CHAUNCY WAY	Y	47.2_051.03	29,191	3,877	775	20050112	$350,000	20080306	$2,188,000	20100611	$1,700,000	$340,000	1010	2005	9	5	$561,900	$1,018,500	$224,400	$1,804,800		MCDONALD KATHLEEN	65 BECKFORD FARM RD	HANOVER	MA	24612	69
1	ELGIN RD		47.2_037.00	40,075	1,967	656			20010301	$419,500	20050715	$740,000	$246,667	1010	2000	8	3	$272,900	$288,100	$900	$561,900		PRIESTLEY ROBERT R. &	1 ELGIN ROAD	POCASSET	MA	20050	97
3	ELGIN RD		47.2_075.00	42,776	3,672	918					20020208	$636,185	$159,046	1010	2000	7	4	$393,200	$289,400	$14,200	$696,800		POLETTO DEBRA &	3 ELGIN ROAD	POCASSET	MA	14799	294
5	ELGIN RD		47.2_076.00	40,177	2,225	742			20010710	$419,550	20100119	$639,900	$213,300	1010	2000	6	3	$300,300	$288,100	$0	$588,400		CAMELIO JOAL D ETUX	5 ELGIN RD	POCASSET	MA	24311	202
7	ELGIN RD		47.2_077.00	40,234	4,650	930					20050831	$460,000	$92,000	1010	2006	8	5	$1,001,500	$288,100	$41,700	$1,331,300		BLAKE PATRICIA A	30 CULLODEN DRIVE	CANTON	MA	20213	165
11	ELGIN RD		47.2_079.00	44,213	3,534	884					20040823	$1,590,000	$397,500	1010	2003	11	4	$602,300	$546,400	$0	$1,148,700		ROBERTS ALAN H &	180 BEACON STREET APT	BOSTON	MA	18960	311
15	ELGIN RD	Y	47.2_036.00	85,987	6,170	1,543			20001109	$796,170	20140808	$2,325,000	$581,250	1010	2001	7	4	$704,800	$1,589,600	$23,700	$2,318,100		STEELE KEVIN M TR	15 ELGIN RD	POCASSET	MA	25587	247
32	ELGIN RD		47.2_030.00	18,382	1,757	586					19920501	$80,000		1010	1993	7	3	$195,100	$242,900	$0	$438,000		KINNEAR DONALD E & PRISCILLA B	PO BOX 3945	POCASSET	MA	9513	039
36	ELGIN RD		47.2_029.00	26,180	3,141	1,571					20060915			1010	1980	7	2	$346,300	$259,200	$0	$605,500		SIGEL BONNIE TAYMORE TR OF	333 LAS OLAS WAY #3707	FORT LAUDERDALE	FL	21351	305
44	ELGIN RD		47.2_033.00	17,990	1,433	478			20010504	$315,000	20100226	$425,000	$141,667	1010	1975	8	3	$166,300	$242,000	$0	$408,300		BRAESE STEPHEN R	4 DIANA DRIVE	WOBURN	MA	24387	209
48	ELGIN RD		47.2_034.00	18,600	1,896	632					19970512	$182,000		1010	1966	6	3	$180,500	$243,300	$0	$423,800		GREALISH PETER M JR &	48 ELGIN RD	POCASSET	MA	10745	55
52	ELGIN RD		47.2_035.00	25,091	3,148	630					19980331	$315,000		1010	1970	9	5	$224,100	$483,900	$10,600	$718,600		SHOR VIVIAN Z TR	P O BOX 3497	POCASSET	MA	11324	203
56	ELGIN RD		47.1_105.00	18,992	3,034	1,011					19990730			1010	1969	9	3	$162,800	$459,900	$0	$622,700		SPARKS TRUDE K & FRANK J	P O BOX 621	POCASSET	MA	12444	252
59	ELGIN RD	Y	47.1_121.00	24,002	1,632	326					20070726			1010	1930	8	5	$82,800	$1,302,500	$11,000	$1,396,300	Y	ALLEN T LANGDON	1188 BROADWAY UNIT 40	SOMERVILLE	MA	22215	323
60	ELGIN RD		47.1_106.00	17,293	2,145	536					20101112			1010	1980	8	4	$178,800	$453,200	$0	$632,000		DISTEFANO ANNE	19 DRIFTWOOD LANE	LYNNFIELD	MA	24993	282
63	ELGIN RD	Y	47.1_120.00	50,181	6,511	814					20000927			1010	1964	10	8	$533,600	$1,499,200	$23,100	$2,055,900	Y	GOLDBERG JUDITH N & C RUSSELL	128 ALLERTON RD	NEWTON	MA	13263	276
71	ELGIN RD	Y	47.1_117.00	16,596	2,594	649					20090410			1010	1968	7	4	$189,300	$973,200	$0	$1,162,500	Y	BLACK JANET TR OF BLACK FAMILY	PO BOX 3236	POCASSET	MA	23600	205
75	ELGIN RD	Y	47.1_116.00	16,596	2,173	543					19930204	$475,000		1010	1970	9	4	$275,300	$973,200	$0	$1,248,500	Y	CULGIN CHARLOTTE F	20 WEST WALNUT ST	MILFORD	MA	24051	256
76	ELGIN RD		47.1_110.00	18,295	2,760	690					20000331	$550,000	$137,500	1010	1981	10	4	$299,800	$457,100	$9,400	$766,300		KENNY PATRICIA A	76 ELGIN ROAD	POCASSET	MA	12921	59
79	ELGIN RD	Y	47.1_115.00	19,820	2,112	1,056					20020628	$1,020,000	$510,000	1010	1966	4	2	$228,300	$1,006,100	$7,000	$1,241,400		LOWNEY CHARLES W ETUX	1234 HYDE PARK AVE	HYDE PARK	MA	15314	85
80	ELGIN RD		47.1_111.00	19,428	2,418	605								1010	1968	7	4	$163,400	$461,500	$0	$624,900		KLIMAN MORTON &	215 WAVERLY AVE	NEWTON	MA	01483	0645
83	ELGIN RD	Y	47.1_114.00	28,096	2,842	947					20130426	$1,450,000	$483,333	1010	1981	6	3	$254,200	$1,346,300	$0	$1,600,500		DISICK DONALD TR ELGIN ROAD	PO BOX 962	POCASSET	MA	25634	330
84	ELGIN RD		47.1_112.00	20,996	3,104	1,035			20020402	$816,000	20060413	$1,225,000	$408,333	1010	1989	7	3	$329,400	$467,700	$0	$797,100		SMITH CURTIS R &	9 WINGATE RD	WELLESLEY HILLS	MA	20910	301
87	ELGIN RD	Y	47.1_113.00	85,813	4,158	520					20050531			1010	1966	16	8	$651,500	$1,697,500	$15,900	$2,364,900		SHENKER MATTHEW R &	87 ELGIN RD	POCASSET	MA	19883	153
91	ELGIN RD	Y	47.1_095.00	27,007	3,397	566					20100922	$1,750,000	$291,667	1010	1970	11	6	$331,400	$1,334,500	$0	$1,665,900		DEBEVOISE CHARLES H TR	C/O DAVIS, MALM & D'AG	BOSTON	MA	24848	24
94	ELGIN RD		47.1_096.00	21,606	2,168	723			20060216	$850,000	20130822	$510,000	$170,000	1010	1986	7	3	$252,300	$470,100	$0	$722,400		DEXTER JEFFREY R	94 ELGIN RD	POCASSET	MA	25011	189
95	ELGIN RD	Y	47.1_089.00	38,986	3,918	980					19940622			1010	1982	9	4	$334,700	$1,316,500	$0	$1,651,200		HORGAN HAZEL A	PO BOX 15	POCASSET	MA	9248	228
102	ELGIN RD		47.1_098.00	18,600	2,277	569			20030627	$460,000	20110607	$490,000	$122,500	1010	1977	7	4	$189,100	$243,300	$0	$432,400	Y	HENROZ MARC-ANTOINE ETUX	102 ELGIN RD	POCASSET	MA	25494	207
110	ELGIN RD		47.1_100.00	20,822	2,071	690					20090811			1010	1974	7	3	$159,000	$247,900	$0	$406,900	Y	SULLIVAN JOSEPH R JR	PO BOX 574	POCASSET	MA	23956	243
111	ELGIN RD		47.1_091.00	23,000	2,853	476					19980615	$262,000		1010	1978	9	6	$203,400	$252,500	$0	$455,900	Y	LYONS THOMAS J AND	P O BOX 216	POCASSET	MA	11499	223
114	ELGIN RD		47.1_101.00	18,687	1,434	478					20010914			1010	1983	5	3	$145,500	$243,500	$0	$389,000		REGGIANNINI ROBERT	9 NEWPORT AVENUE	N QUINCY	MA	14234	298
115	ELGIN RD		47.1_092.00	18,208	2,024	675					20120810	$380,000	$126,667	1010	1974	5	3	$153,700	$242,500	$0	$396,200		STRATFORD EVELYN C ETAL	c/o JOSEPH KELLEY 8 ALDE	WELLESLEY	MA	22283	62
118	ELGIN RD		47.1_102.00	18,382	2,870	957					20110225	$555,000	$185,000	1010	1986	8	3	$295,200	$242,900	$0	$538,100		PROULX STEPHEN P ETUX	59 LIBERTY SQUARE ROAD	BOXBORO	MA	25281	150
119	ELGIN RD		47.1_093.00	17,598	2,556	852					19810120			1010	1981	6	3	$218,400	$241,200	$2,700	$462,300		VALLANCE ANTHONY G &	119 ELGIN ROAD	POCASSET	MA	3228	3
122	ELGIN RD		47.1_103.00	18,382	1,813	604					20010803			1010	2001	5	3	$247,500	$242,900	$10,300	$500,700		SYLVA BRIAN W &	122 ELGIN ROAD	POCASSET	MA	14107	196
123	ELGIN RD		47.1_094.00	18,382	1,404	351	20030327	$560,000	20080425	$520,000	20130701	$540,000	$135,000	1010	1970	7	4	$164,100	$242,900	$8,400	$415,400		BALSER LEWIS C III & PATRICIA	209 MARSH PLACE SOUTH	ST AUGUSTINE	FL	22858	146
126	ELGIN RD		47.1_104.00	18,513	1,729	576					20010620			1010	1984	6	3	$157,600	$243,100	$0	$400,700		CHIN BILLY Y &	36 EUSTON ST	BROOKLINE	MA	13954	64
130	ELGIN RD		47.2_032.00	16,988	2,058	686					19890421			1010	1968	6	3	$174,600	$240,000	$32,200	$446,800		HICKEY WILLIAM E	130 ELGIN RD	POCASSET	MA	6707	21+
131	ELGIN RD		47.2_027.00	24,611	1,248	416					20141208			1010	1974	7	3	$143,600	$255,800	$900	$400,300		LAWVER JAMES L	PO BOX 1386	POCASSET	MA	02011	0041
135	ELGIN RD		47.2_028.00	18,992	1,834	611					20040816	$345,000	$115,000	1010	2004	7	3	$210,300	$244,100	$0	$454,400		STEDMAN FLORENCE K	135 ELGIN RD	POCASSET	MA	18937	206
1	NAIRN RD		47.2_053.04	21,170	2,325	775								1010	1980	6	3	$188,800	$248,700	$0	$437,500		OREILLY JAMES &	PO BOX 663	CATAUMET	MA	02401	0169
2	NAIRN RD		47.2_040.00	20,038	2,332	583					20070320			1010	1973	9	4	$219,100	$246,300	$12,300	$477,700		FERRIS HAMILTON Y	3 ANGELO RD	BUZZARDS BAY	MA	21865	39
3	NAIRN RD		47.2_039.00	20,168	2,600	867					20040430	$610,000	$203,333	1010	1977	8	3	$213,100	$246,600	$0	$459,700		PUGH MARILYN M TR OF THE 38 EJ	16 OVERLOOK DR	E FRAMINGHAM	MA	18528	109
4	NAIRN RD		47.2_038.00	25,134	1,636	818			20010111	$350,000	20100114	$281,000	$140,500	1010	1980	4	2	$167,300	$256,900	$2,300	$426,500		SEDER JONATHAN H	PO BOX 128	E SANDWICH	MA	24303	229
5	NAIRN RD		47.2_053.03	20,081	1,872	624								1010	1981	7	3	$172,700	$246,400	$0	$419,100		PEECHA ROBERT J &	P O BOX 435	CATAUMET	MA	04505	00031
6	NAIRN RD		47.2_042.00	19,558	1,950	390					20081106	$380,000	$76,000	1010	1973	6	5	$169,300	$245,300	$0	$414,600		RILEY EDWARD ETUX	PO BOX 86	BOOTHBAY HARBOR	ME	25640	194
7	NAIRN RD		47.2_043.00	32,104	3,243	811					20020513			1010	1995	9	4	$290,600	$271,500	$0	$562,100		LANGLEY JEAN E JANE P STANTON	LANGLEY CATAUMET RLTY	CATAUMET	MA	15147	283
8	NAIRN RD		47.2_041.00	20,125	2,156	719					19961210			1010	1975	7	3	$208,000	$246,500	$0	$454,500		IACOVELLI ARTHUR R	BOX 465	CATAUMET	MA	10518	226
9	NAIRN RD		47.2_053.02	20,517	3,431	572					20030331	$557,000	$92,833	1010	1976	12	6	$298,000	$247,300	$0	$545,300		REZENDES MICHAEL ETUX	PO BOX 230239	BOSTON	MA	16661	252
10	NAIRN RD		47.2_044.00	43,560	5,490	784					19990527	$775,000		1010	1893	8	7	$566,500	$545,800	$43,200	$1,155,500		LANGSTON JOHN R &	P O BOX 459	CATAUMET	MA	12490	18
11	NAIRN RD		47.2_053.01	20,647	2,760	690					20070927			1010	1975	8	4	$292,400	$247,600	$0	$540,000		MORGAN ANNA V TR OF ANNA V	PO BOX 514	CATAUMET	MA	22365	123
14	NAIRN RD		47.2_045.00	22,085	1,761	1,761					19880121	$300,000		1010	1982	3	1	$222,700	$472,000	$1,800	$696,500		MAIONE SEBASTIANO &	25 PORTER ST	WESTWOOD	MA	6108	153
15	NAIRN RD		47.2_052.00	43,560	3,568	595					19951027			1010	1952	10	6	$267,300	$545,800	$34,400	$847,500		CROSS PRISCILLA	PO BOX 206	POCASSET	MA	9901	91
16	NAIRN RD		47.2_046.00	21,998	2,334	584					19950228	$175,000		1010	1974	7	4	$140,000	$471,700	$19,500	$631,200		COLLARD EUGENE B &	P O BOX 114	CATAUMET	MA	9571	246
18	NAIRN RD	Y	47.2_047.00	34,195	1,721	430					19940513			1010	1971	8	4	$210,700	$1,411,200	$1,000	$1,622,900		CRONIN BARBARA A TR	19 WIGHT ST	MEDFIELD	MA	9189	327
20	NAIRN RD	Y	47.2_048.00	30,448	1,743	581					20010702	$1,000,000	$333,333	1010	1973	7	3	$227,200	$1,371,400	$0	$1,598,600		HAYES DANIEL &	PO BOX 516	CATAUMET	MA	14004	329
22	NAIRN RD	Y	47.2_050.00	32,452	1,675	558					19960603	$600,000		1010	1974	7	3	$214,300	$1,392,800	$10,500	$1,617,600		ALEXAKOS KAROLOS & MARK G SHUB	ONE WASHINGTON MALL	BOSTON	MA	23482	165
23	NAIRN RD	Y	47.2_051.00	68,825	4,514	752			20040309	$2,350,000	20100909	$2,500,000	$416,667	1010	1935	9	6	$518,900	$1,546,300	$224,900	$2,290,100		FRIAS JOSEPH ETUX	17 ROBERT ROAD	HUDSON	MA	24815	82
1018	SHORE RD		43.4_109.00	23,130	1,150	575					19921020			1010	1952	5	2	$112,700	$194,000	$0	$306,700		PETTIT DONALD R TR OF 1018	3 RAVEN LANE	GLOUCESTER	MA	08260	00116
1027	SHORE RD		47.0_002.00	19,994	884	442			20030401	$205,000	20110701	$285,000	$142,500	1010	1955	4	2	$87,300	$131,700	$0	$219,000		DAS JUDITH C ET VIR	140 WHIPPANY ROAD	WHIPPANY	NJ	25542	287
1035	SHORE RD		47.0_004.00	27,486	1,202	601					20070919	$280,000	$140,000	1010	1957	5	2	$107,300	$140,100	$1,500	$248,900		MANNING JOHN J III ETUX	1035 SHORE RD	POCASSET	MA	22346	116
1043	SHORE RD		47.0_006.00	22,259	1,076	538					19930817	$85,714		1010	1962	5	2	$90,900	$134,200	$0	$225,100		LOWELL HELEN L	PO BOX 201	POCASSET	MA	08733	00069
			minimum:	**16,596**	**884**	**326**						**$80,000**	**$76,000**		**1893**	**3.0**	**1.0**	**$82,800**	**$131,700**		**$219,000**							
			median:	**21,388**	**2,253**	**640**						**$550,000**	**$185,000**		**1977**	**7.0**	**3.0**	**$216,350**	**$288,100**		**$562,000**							
			average:	**27,312**	**2,554**	**712**						**$713,944**	**$236,492**		**1976**	**7.4**	**3.7**	**$264,941**	**$545,970**		**$827,603**							
			maximum:	**85,987**	**6,511**	**1,761**						**$2,500,000**	**$581,250**		**2006**	**16.0**	**8.0**	**$1,001,500**	**$1,697,500**		**$2,364,900**							
8	CHAUNCY WAY		47.2_064.00	26,484							20140109	$320,000		1300				$0	$350,400	$0	$350,400		TAMBURINO VINCENT	59 CAMBRIDGE RD	WOBURN	MA	03952	0053
9	ELGIN RD		47.2_078.00	40,016	0						20100816	$415,000		1300		0		$0	$388,500	$0	$388,500		BLAKE KEVIN	30 CULLODEN DRIVE	CANTON	MA	24753	189
64	ELGIN RD		47.1_107.00	17,293							20000927	$0		1300				$0	$453,200	$0	$453,200		GOLDBERG JUDITH N & C RUSSEL	128 ALLERTON RD	NEWTON	MA	13263	276
68	ELGIN RD		47.1_108.00	17,990								$0		1300				$0	$455,900	$0	$455,900	Y	BLACK JOEL D	C/O JOHN BLACK P O BOX	POCASSET	MA	02282	0274
72	ELGIN RD		47.1_109.00	19,689							20000412	$0		1300				$0	$462,600	$0	$462,600	Y	BLACK JANET TR	P O BOX 3236	POCASSET	MA	12941	195
127	ELGIN RD		47.2_026.00	19,515								$0		1300				$0	$245,200	$0	$245,200		RICCI STEPHEN J &	10 DEVEREAUX ST	ARLINGTON	MA	05498	00302

Attachment 9

Join Us!

Join us to learn about the possible expansion of sewer service to your neighborhood.

Date: **Thursday, June 18, 2015**
Time: **5pm**
Place: **Kingman Yacht Club**
Shipyard Lane

The new wastewater treatment facility at Kingman Yacht Center has the capacity to connect some of its neighbors. Connecting to a wastewater treatment facility will reduce pollution to Red Brook Harbor and adds value to your property.

We hope to see you there!

Light refreshments served.

Kingman Yacht Center
1 Shipyard Lane
Cataumet, MA 02534

Attachment 10

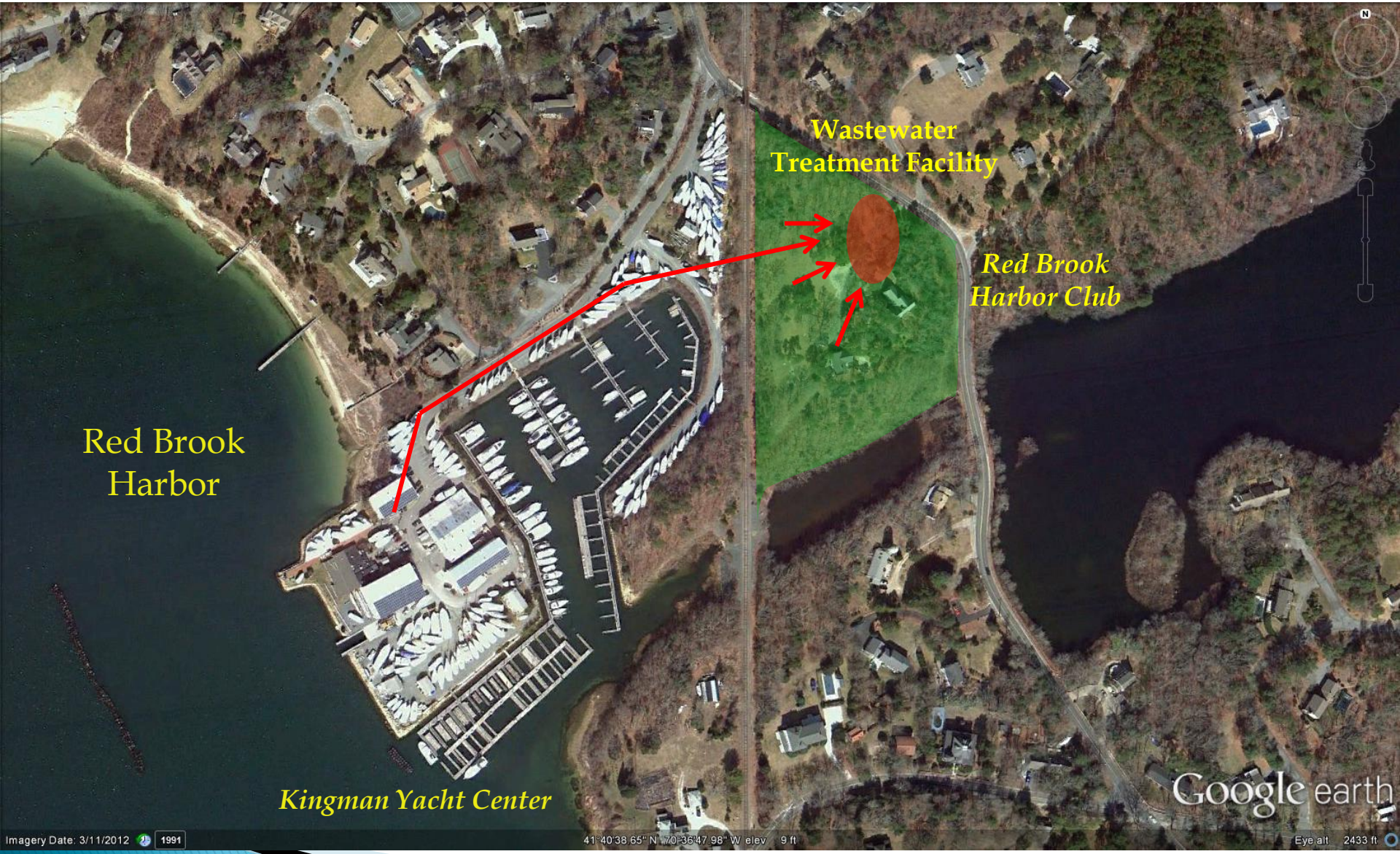
A Neighborhood Partnership:

Options for Expanding Kingman Yacht Center's Wastewater Treatment System to Restore Red Brook Harbor


Red Brook Harbor
during spring –
nitrogen pollution
causes algae blooms

On Long Island, NY – June 2015

Advanced Wastewater Treatment: For new development *and* existing marina



Treatment at KYC: Will remove 890 lbs/year of nitrogen

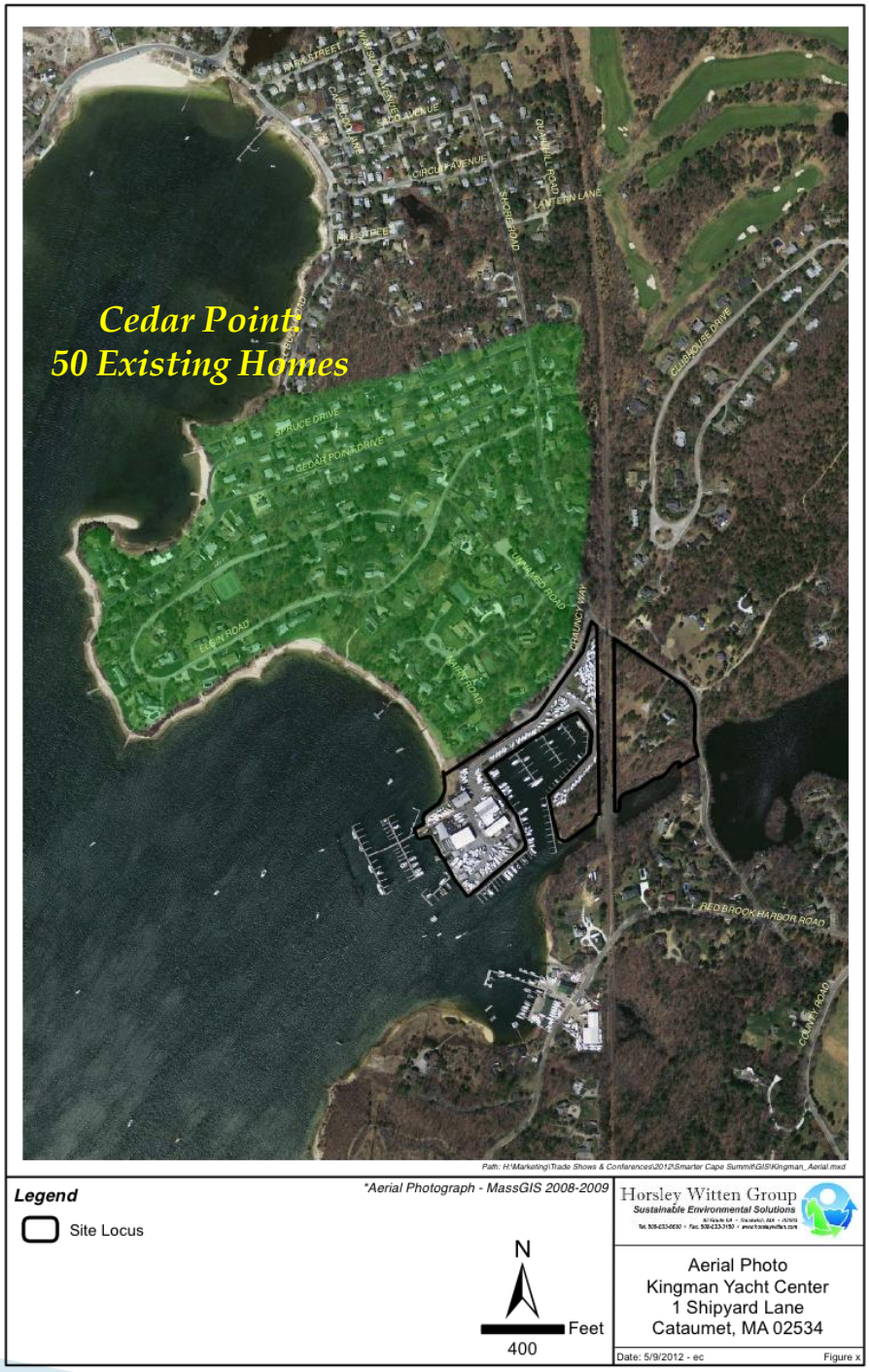
(equivalent of 178 50-pound bags of 10-10-10 fertilizer)

Remaining Capacity: +1,500 lbs/year of nitrogen reduction

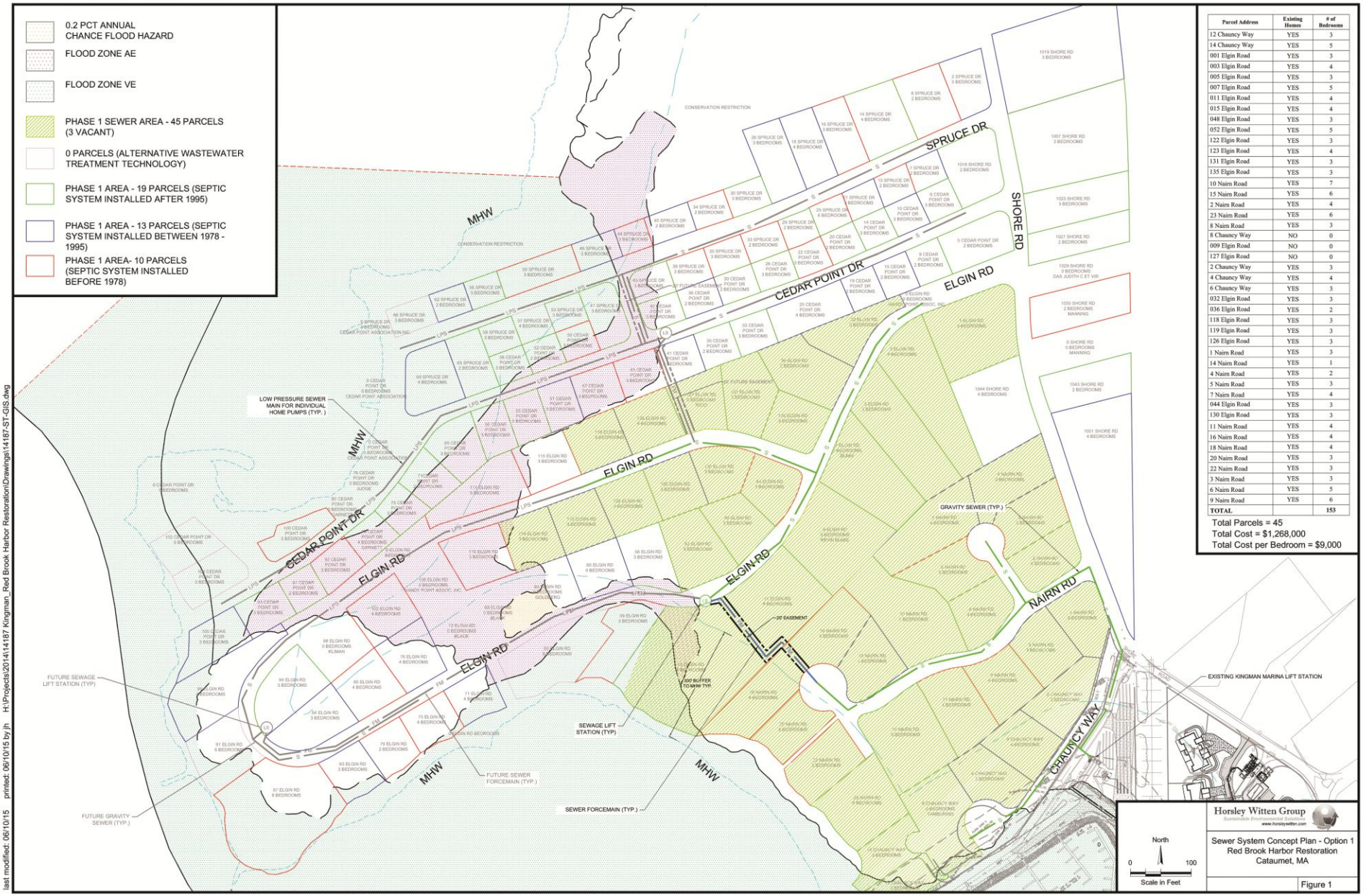
Total Nitrogen Removal Possible? +2,400 lbs/year

The Opportunity: Connecting Neighbors

- Potential to treat additional ~20,000 gallons
  - ~150 Bedrooms in Cedar Point
- Requires participation and cost-sharing by neighborhood
- Less expensive than separate municipal system
- The questions:
  - Where to sewer?
  - Who pays?



Option 1



Parcel Address	Existing Homes	# of Bedrooms
12 Chauncy Way	YES	3
14 Chauncy Way	YES	5
001 Elgin Road	YES	3
003 Elgin Road	YES	4
005 Elgin Road	YES	3
007 Elgin Road	YES	5
011 Elgin Road	YES	4
015 Elgin Road	YES	4
048 Elgin Road	YES	3
052 Elgin Road	YES	5
122 Elgin Road	YES	3
123 Elgin Road	YES	4
131 Elgin Road	YES	3
135 Elgin Road	YES	3
10 Nairn Road	YES	7
15 Nairn Road	YES	6
2 Nairn Road	YES	4
23 Nairn Road	YES	6
8 Nairn Road	YES	3
8 Chauncy Way	NO	0
009 Elgin Road	NO	0
127 Elgin Road	NO	0
2 Chauncy Way	YES	3
4 Chauncy Way	YES	4
6 Chauncy Way	YES	3
032 Elgin Road	YES	3
036 Elgin Road	YES	2
118 Elgin Road	YES	3
119 Elgin Road	YES	3
126 Elgin Road	YES	3
1 Nairn Road	YES	3
14 Nairn Road	YES	1
4 Nairn Road	YES	2
5 Nairn Road	YES	3
7 Nairn Road	YES	4
044 Elgin Road	YES	3
130 Elgin Road	YES	3
11 Nairn Road	YES	4
16 Nairn Road	YES	4
18 Nairn Road	YES	4
20 Nairn Road	YES	3
22 Nairn Road	YES	3
3 Nairn Road	YES	3
6 Nairn Road	YES	5
9 Nairn Road	YES	6
TOTAL		153

Total Parcels = 45
Total Cost = $1,268,000
Total Cost per Bedroom = $9,000

Horsley Witten Group
Sustainable Environmental Solutions
www.horsleywitten.com

Sewer System Concept Plan - Option 1
Red Brook Harbor Restoration
Cataumet, MA

Figure 1

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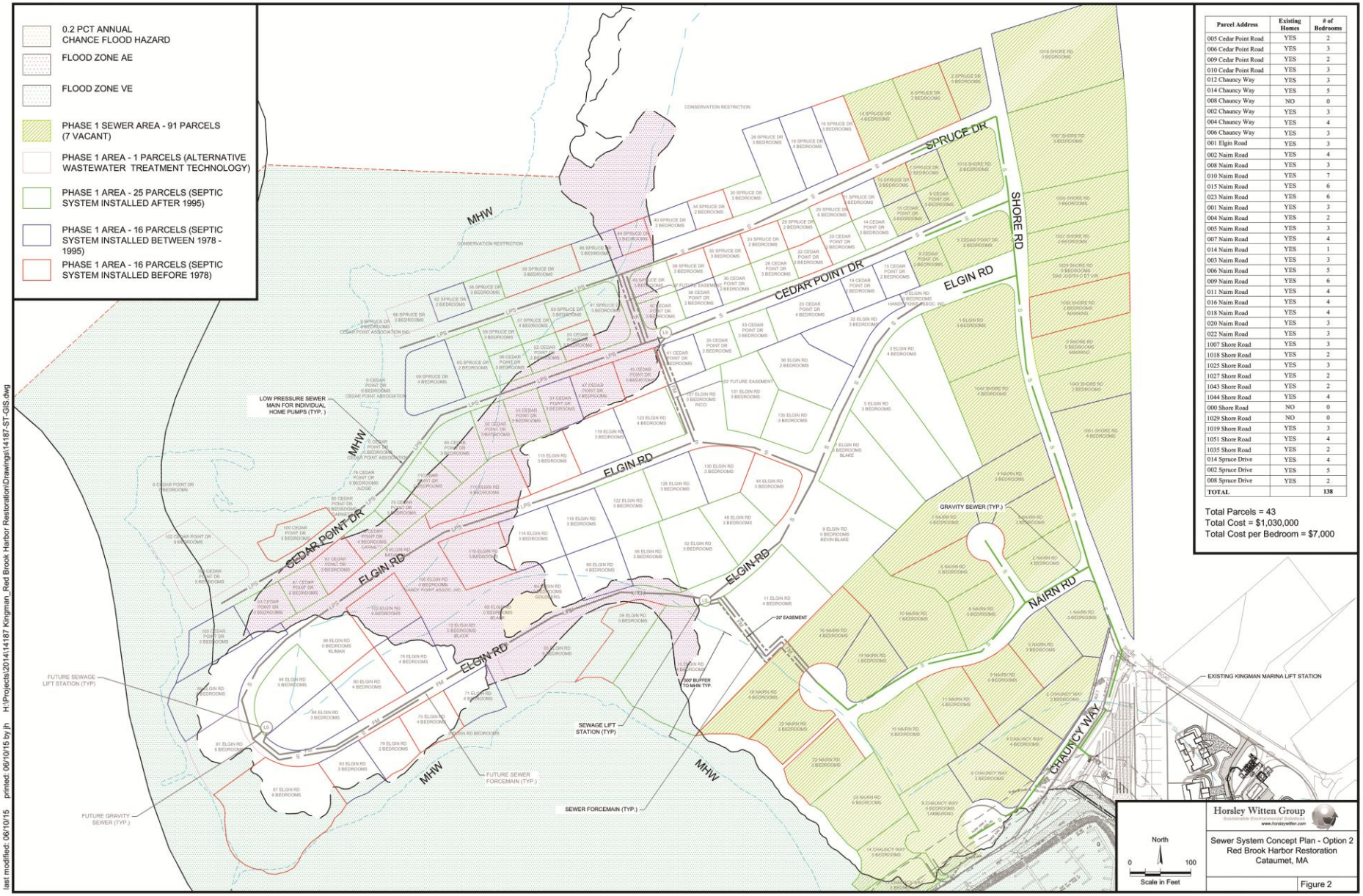
Option 2



Parcel Address	Existing Hemes	# of Bedrooms
005 Cedar Point Road	YES	2
006 Cedar Point Road	YES	3
009 Cedar Point Road	YES	2
010 Cedar Point Road	YES	3
012 Chauncy Way	YES	3
014 Chauncy Way	YES	5
008 Chauncy Way	NO	0
002 Chauncy Way	YES	3
004 Chauncy Way	YES	4
006 Chauncy Way	YES	3
001 Elgin Road	YES	3
002 Naim Road	YES	4
008 Naim Road	YES	3
010 Naim Road	YES	7
015 Naim Road	YES	6
023 Naim Road	YES	6
001 Naim Road	YES	3
004 Naim Road	YES	2
005 Naim Road	YES	3
007 Naim Road	YES	4
014 Naim Road	YES	1
003 Naim Road	YES	3
006 Naim Road	YES	5
009 Naim Road	YES	6
011 Naim Road	YES	4
016 Naim Road	YES	4
018 Naim Road	YES	4
020 Naim Road	YES	3
022 Naim Road	YES	3
1007 Shore Road	YES	3
1018 Shore Road	YES	2
1025 Shore Road	YES	3
1027 Shore Road	YES	2
1043 Shore Road	YES	2
1044 Shore Road	YES	4
000 Shore Road	NO	0
1029 Shore Road	NO	0
1019 Shore Road	YES	3
1051 Shore Road	YES	4
1035 Shore Road	YES	2
014 Spruce Drive	YES	4
002 Spruce Drive	YES	5
008 Spruce Drive	YES	2
TOTAL		**138**

Total Parcels = 43
Total Cost = $1,030,000
Total Cost per Bedroom = $7,000

Horsley Witten Group
Sustainable Environmental Solutions
www.horsleywitten.com

Sewer System Concept Plan - Option 2
Red Brook Harbor Restoration
Cataumet, MA

Figure 2

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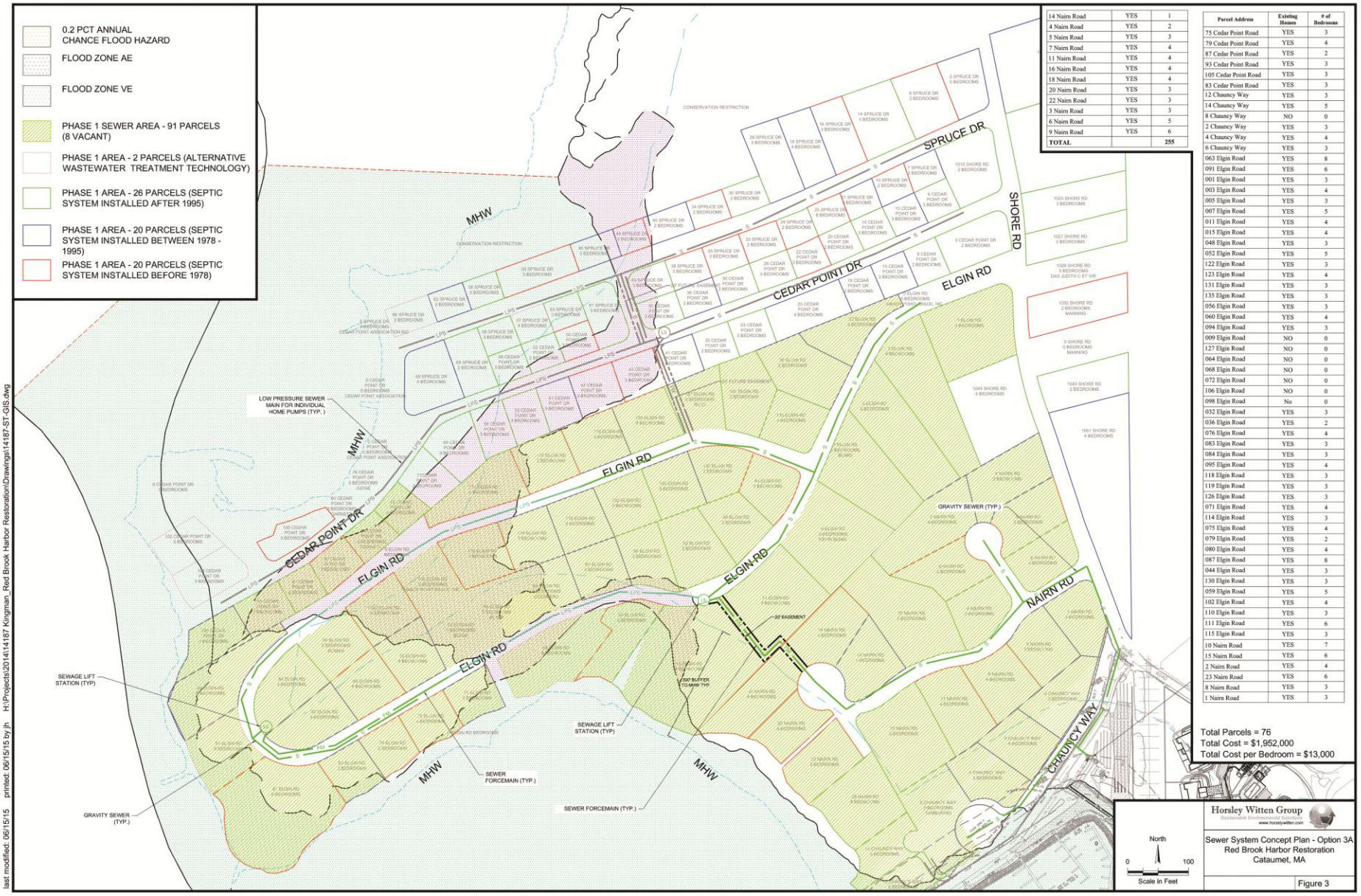
Option 3



14 Nairn Road	YES	1
4 Nairn Road	YES	2
5 Nairn Road	YES	3
7 Nairn Road	YES	4
11 Nairn Road	YES	4
16 Nairn Road	YES	4
18 Nairn Road	YES	4
20 Nairn Road	YES	3
22 Nairn Road	YES	3
3 Nairn Road	YES	3
6 Nairn Road	YES	5
9 Nairn Road	YES	6
TOTAL		**255**

Parcel Address	Existing Homes	# of Bedrooms
75 Cedar Point Road	YES	3
79 Cedar Point Road	YES	4
87 Cedar Point Road	YES	2
93 Cedar Point Road	YES	3
105 Cedar Point Road	YES	3
83 Cedar Point Road	YES	3
12 Chauncy Way	YES	3
14 Chauncy Way	YES	5
8 Chauncy Way	NO	0
2 Chauncy Way	YES	3
4 Chauncy Way	YES	4
6 Chauncy Way	YES	3
063 Elgin Road	YES	8
091 Elgin Road	YES	6
001 Elgin Road	YES	3
003 Elgin Road	YES	4
005 Elgin Road	YES	3
007 Elgin Road	YES	5
011 Elgin Road	YES	4
015 Elgin Road	YES	4
048 Elgin Road	YES	3
052 Elgin Road	YES	5
122 Elgin Road	YES	3
123 Elgin Road	YES	4
131 Elgin Road	YES	3
135 Elgin Road	YES	3
056 Elgin Road	YES	3
060 Elgin Road	YES	4
094 Elgin Road	YES	3
009 Elgin Road	NO	0
127 Elgin Road	NO	0
064 Elgin Road	NO	0
068 Elgin Road	NO	0
072 Elgin Road	NO	0
106 Elgin Road	NO	0
098 Elgin Road	No	0
032 Elgin Road	YES	3
036 Elgin Road	YES	2
076 Elgin Road	YES	4
083 Elgin Road	YES	3
084 Elgin Road	YES	3
095 Elgin Road	YES	4
118 Elgin Road	YES	3
119 Elgin Road	YES	3
126 Elgin Road	YES	3
071 Elgin Road	YES	4
114 Elgin Road	YES	3
075 Elgin Road	YES	4
079 Elgin Road	YES	2
080 Elgin Road	YES	4
087 Elgin Road	YES	8
044 Elgin Road	YES	3
130 Elgin Road	YES	3
059 Elgin Road	YES	5
102 Elgin Road	YES	4
110 Elgin Road	YES	3
111 Elgin Road	YES	6
115 Elgin Road	YES	3
10 Nairn Road	YES	7
15 Nairn Road	YES	6
2 Nairn Road	YES	4
23 Nairn Road	YES	6
8 Nairn Road	YES	3
1 Nairn Road	YES	3

Total Parcels = 76
Total Cost = $1,952,000
Total Cost per Bedroom = $13,000

Horsley Witten Group
Sustainable Environmental Solutions
www.horsleywitten.com

Sewer System Concept Plan - Option 3A
Red Brook Harbor Restoration
Cataumet, MA

Figure 3

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Reasons to Participate

- Why tie in to this sewer system?
  - State will eventually mandate wastewater treatment
  - Kingman Yacht Center is paying for large amount of capital cost
  - Increase value of your home

- What is the cost and who will pay?
  - Property owner hook-up cost will be priced by the number of bedrooms
  - The wastewater treatment plant can only hook up 150 bedrooms
  - $7,000 - $13,000 per bedroom
  - Potential for a second phase that the town can manage and expand the collection system

We need your input

Let us know which option you prefer by June 29!

Contact:

Korrin Petersen
Buzzards Bay Coalition
petersen@savebuzzardsbay.org
508-999-6363

Attachment 11

buzzards BAY COALITION

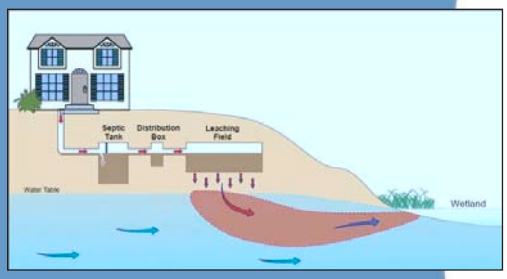
FACT SHEET

Connect your home to a new sewer system and reduce nitrogen pollution to Red Brook Harbor

Nitrogen pollution from septic systems is contaminating Red Brook Harbor. Kingman Yacht Center is building a new wastewater treatment facility that has the ability to dramatically reduce nitrogen pollution. The wastewater facility will remove more nitrogen than septic systems do.

A limited number of properties in the Cedar Point neighborhood will have the opportunity to connect their homes to this new facility. **Do you want to be one of them?**

The Problem: Septic Systems and Nitrogen Pollution



Septic systems are the largest source of nitrogen pollution to Red Brook Harbor. Even properly functioning Title 5 septic systems cause pollution problems.

When you add up all the homes on septic systems around the harbor, this amounts to a major source of pollution.

If nitrogen pollution is not treated, it travels into the groundwater and reaches Red Brook Harbor.

When too much nitrogen pollution gets in the water, it fuels the growth of algae that makes the harbor cloudy and murky. Eelgrass dies, fish and shellfish disappear, and beaches and boats can become covered with green algae.

The Nitrogen Pollution Problem

Nitrogen pollution is harming the health of Red Brook Harbor. When too much nitrogen gets into the water, it fuels the growth of algae blooms that lead to murky water, less oxygen, fewer eelgrass beds, and lower fish and shellfish populations. These conditions harm underwater life, but they also make the water pretty unappealing for people, too.

The biggest source of nitrogen pollution to Red Brook Harbor is home septic systems. Traditional septic systems remove bacteria, but not nitrogen. So nitrogen seeps into the groundwater and ends up in our waterways. When there are lots of homes on septic systems located near the water — like on Red Brook Harbor — they become a big problem for the health of our waterways.

The goal of the Red Brook Harbor Wastewater Treatment Project is to remove more than 2,000 pounds of nitrogen each year that now seeps into the harbor from septic systems. This will result in a significant improvement to the harbor's clarity and overall health.

Turn over to learn how you can connect your home to the new sewer system. →

Why should I connect my home to sewer?

Beautiful Red Brook Harbor is in distress. The Buzzards Bay Coalition's long-term water quality monitoring shows that nitrogen is increasing, which is causing pollution in the harbor.

Connecting your Cedar Point home to the new wastewater facility will provide a number of benefits for both you and the harbor.

- Connecting to the sewer reduces the amount of nitrogen from your home that is polluting the harbor. Restoring water quality in the harbor protects the value of your home.
- A "sewered" home has more market value than one with an onsite septic system.
- The state will likely mandate some level of wastewater treatment all over Cape Cod in the coming years. This project provides an opportunity for voluntary, private action.
- Kingman Yacht Center is paying for a large portion of the capital costs for building the wastewater treatment plant, which will reduce the expense for neighbors who wish to participate.
- This solution may allow you to add an additional bedroom.
- If you decide to sell your home in the future, the septic system must pass a Title 5 inspection. Many homes close to coastal waters fail and are required to upgrade or install a more expensive waste treatment system. A home connected to sewer avoids this hassle.

How much will it cost to connect?

- The cost will depend on how many homeowners participate and the location of those homes. It is estimated that **the one-time cost per bedroom will be between $7,000 and $13,000**.
- **Participation will be priced per bedroom.** The wastewater facility will be able to provide treatment for approximately 150 bedrooms.
- There will be an **annual user fee of about $400/bedroom**. This will be used to pay for operating the facility and equipment maintenance.

Interested? Let us know!

Once we know how many property owners are interested in connecting to the sewer, we can estimate the project's final cost.

Please let us know if you would be interested in connecting to the sewer. Calling and expressing your interest is not a final commitment to participate, but it allows us to move to the next phase of planning and estimating costs.

If you are interested, please contact Korrin Petersen at the Buzzards Bay Coalition at **(508) 999-6363 ext. 206** or **petersen@savebuzzardsbay.org**.

Project Partners:

- **Buzzards Bay Coalition:** A nonprofit working to improve the health of Buzzards Bay.
- **Kingman Yacht Center:** Cape Cod's largest commercial marina.
- **Cataumet Harbor Wastewater Treatment Facility, LLC:** The wastewater facility that Kingman Yacht Center is constructing.
- **Horsley Witten Group:** An environmental science and engineering firm that will design the neighborhood connections to the wastewater facility.
- **Red Brook Harbor Club:** The small townhome community to be built near the marina and wastewater treatment facility.

Attachment 12

Attachment 12
Neighborhood Comments from June 18, 2015 Neighborhood Meeting

Among the comments from the audience were the following:

- Concern was expressed about the annual cost of sewer service at $400 per bedroom per year. Presenters pointed out that although the annualized cost of sewer is higher is than the cost of septic maintenance, it is roughly the same cost over a longer time period because the septic systems on Cedar Point, including antiquated cesspools, will eventually have to be replaced at a significant expense. Many of the systems on Cedar Point are within 150 feet of a coastal bank, requiring replacement with more expensive I/A systems.

- Pricing should be based on actual wastewater usage rather than number of bedrooms; some individuals occupy their houses only part of the year or are empty-nesters. There are challenges in how this could be measured/metered so that water use for other purposes (e.g., landscaping) is not tallied as part of the wastewater volume.

- Overall, there was a tendency to prefer Option 1 (at the lease expensive estimated connection cost of $7,000). It is less expensive and some participants in the targeted areas seemed willing to participate. At least one individual affirmed his interest in being connected under Option 1.

- There was a suggestion that sewering the area closest to the marina could be done very inexpensively (requires no construction of lines along Shore Road) as a "first phase" of the project.

- When a question was asked as to how much of a positive impact this would have on the Red Brook Harbor system, presenters explained that the worst pollution impacts are concentrated on the inner harbor near the marina. Providing wastewater in this area would have the biggest "bang for the buck."

- Concern was expressed about nitrogen coming from lawn fertilizer, though presenters explained that this was a very small part of the nitrogen pollution problem in the Harbor.

- Generally, the audience was supportive of the proposed sewer project for Cedar Point. Attendees suggested that the project principals attend upcoming association meetings on July 11 and August 8 to discuss matter with more residents, and in more detail.